




The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.



Jump to:   Go



Personalize



Accessibility



App Help



About



Welcome, Lu Anne Cottrill

Procurement

Budgeting

Accounts Receivable

Accounts Payable

Solicitation Response(SR)

Dept: 0805

ID: ESR08021800000000485

Ver.: 1

Function: New

Phase: Final

Modified by batch , 08/02/2018

Header 5

General Information

Contact

Default Values

Discount

Document Information

Procurement Folder: 457733

SO Doc Code: CRFQ

Procurement Type: Central Master Agreement

SO Dept: 0805

Vendor ID: 000000197591

SO Doc ID: PTR1900000001

Legal Name: SONNY MERRYMAN INC

Published Date: 7/24/18

Alias/DBA:

Close Date: 8/2/18

Total Bid: \$2,535,285.00

Close Time: 13:30

Response Date: 08/02/2018

Status: Closed

Response Time: 11:07

Solicitation Description: Addendum 2 - 176" - 190" Wheelbase Cutaway Vehicle

Apply Default Values to Commodity Lines

View Procurement Folder





Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Solicitation Response

Proc Folder : 457733

Solicitation Description : Addendum 2 - 176" - 190" Wheelbase Cutaway Vehicle

Proc Type : Central Master Agreement

Date issued	Solicitation Closes	Solicitation Response	Version
	2018-08-02 13:30:00	SR      0805   ESR08021800000000485	1

VENDOR

000000197591

SONNY MERRYMAN INC

Solicitation Number:    CRFQ   0805      PTR1900000001

Total Bid :      \$2,535,285.00                      Response Date:    2018-08-02                      Response Time:    11:07:29

Comments:

FOR INFORMATION CONTACT THE BUYER

Michelle L Childers  
(304) 558-2063  
michelle.l.childers@wv.gov

Signature on File

FEIN #

DATE

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	176" - 190" Wheelbase Cutaway Vehicle	1.00000	EA	\$2,535,285.000000	\$2,535,285.00

Comm Code	Manufacturer	Specification	Model #
25101502			

Extended Description :	176" - 190" Wheelbase Cutaway Vehicle ***** Vendor should type or clearly print the information into the Exhibit A-Pricing Page to prevent errors in the evaluation. If Vendor is submitting bid online Vendor must submit Exhibit A -Pricing Page as attachment. TOTAL BID FOR EVALUATION is the amount Vendor is to enter into wvOASIS commodity line when submitting. Notwithstanding the
------------------------	--

August 2, 2018

State of West Virginia  
Department of Administration  
Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305-0130

Dear Mrs. Childers:

Thank you for the opportunity to submit this bid in response to your Request for Quotation # PTR1900000001. We are offering the Startrans Senator.

Should we receive an award for this solicitation, we will provide the material as outlined. The Startrans Senator will be constructed in Goshen, Indiana.

Also addressed and included in the proposal are curb weights and warranty locations to be used to maintain vehicles.

We meet the warranty requirements specified within PTR1900000001.

We are in full understanding of training and will provide personnel to conduct training if we are the successful bidder. We have included "as-built" wiring schematics in our bid price. Also, as requested, we are offering schemes to match your existing fleets. The prices for the paint and graphics are included in our pricing.

Thank you again for this opportunity. Please call if you have questions.

Sincerely,

Chad Seals  
Account Manager  
West Virginia Public Transit Providers  
800-533-1006 x352  
434-821-4456  
[chad@sonnymerryman.com](mailto:chad@sonnymerryman.com)

**STURAA TEST**

**7 YEAR**

**200,000 MILE BUS**

**from**

**STARCRAFT BUS,  
A DIVISION of FOREST RIVER INC.**

**MODEL ALLSTAR -25**

**FEBRUARY 2006**

**PTI-BT-R0518**

PENNSTATE



---

**The Pennsylvania Transportation Institute**

201 Research Office Building (814) 865-1891  
The Pennsylvania State University  
University Park, PA 16802

**Bus Testing and Research Center**

2237 Old Route 220 N. (814) 695-3404  
Duncansville, PA 16635

# TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY .....	3
ABBREVIATIONS .....	5
BUS CHECK-IN .....	6
1. MAINTAINABILITY	
1.1 ACCESSIBILITY OF COMPONENTS AND SUBSYSTEMS .....	16
1.2 SERVICING, PREVENTATIVE MAINTENANCE, AND REPAIR AND MAINTENANCE DURING TESTING .....	19
1.3 REPLACEMENT AND/OR REPAIR OF SELECTED SUBSYSTEMS .....	23
2. RELIABILITY - DOCUMENTATION OF BREAKDOWN AND REPAIR TIMES DURING TESTING .....	26
3. SAFETY - A DOUBLE-LANE CHANGE (OBSTACLE AVOIDANCE TEST) .....	28
4. PERFORMANCE - AN ACCELERATION, GRADEABILITY, AND TOP SPEED TEST .....	31
5. STRUCTURAL INTEGRITY	
5.1 STRUCTURAL STRENGTH AND DISTORTION TESTS - STRUCTURAL SHAKEDOWN TEST .....	35
5.2 STRUCTURAL STRENGTH AND DISTORTION TESTS - STRUCTURAL DISTORTION .....	39
5.3 STRUCTURAL STRENGTH AND DISTORTION TESTS - STATIC TOWING TEST .....	51
5.4 STRUCTURAL STRENGTH AND DISTORTION TESTS - DYNAMIC TOWING TEST .....	52
5.5 STRUCTURAL STRENGTH AND DISTORTION TESTS - JACKING TEST .....	55
5.6 STRUCTURAL STRENGTH AND DISTORTION TESTS - HOISTING TEST .....	57
5.7 STRUCTURAL DURABILITY TEST .....	59
6. FUEL ECONOMY TEST - A FUEL CONSUMPTION TEST USING AN APPROPRIATE OPERATING CYCLE .....	65
7. NOISE	
7.1 INTERIOR NOISE AND VIBRATION TESTS .....	80
7.2 EXTERIOR NOISE TESTS .....	86

## EXECUTIVE SUMMARY

Starcraft Bus, a Division of Forest River Inc. submitted a model Allstar-25, gasoline-powered 17 seat (including the driver) 25-foot bus, for a 7 yr/200,000 mile STURAA test. The odometer reading at the time of delivery was 529.0 miles. Testing started on December 6, 2005 and was completed on February 14, 2006. The Check-In section of the report provides a description of the bus and specifies its major components.

The primary part of the test program is the Structural Durability Test, which also provides the information for the Maintainability and Reliability results. The Structural Durability Test was started on December 14, 2005 and was completed on February 1, 2006.

The interior of the bus is configured with seating for 17 passengers including the driver + 1 wheelchair position. Free floor space will accommodate 10 standing passengers resulting in a potential capacity of 27 persons + 1 wheelchair position. At 150 lbs per person 600 lbs per wheelchair position, this load results in a measured gross vehicle weight of 13,950 lbs. The first segment of the Structural Durability Test was performed with the bus loaded to a GVW of 13,950 lbs. The middle segment was performed at a seated load weight of 12,500 lbs and the final segment was performed at a curb weight of 9,510 lbs. Durability driving resulted in no unscheduled maintenance and failures.

Accessibility, in general, was adequate, components covered in Section 1.3 (Repair and/or Replacement of Selected Subsystems) along with all other components encountered during testing, were found to be readily accessible and no restrictions were noted.

The Reliability section compiles failures that occurred during Structural Durability Testing. Breakdowns are classified according to subsystems. The data in this section are arranged so that those subsystems with more frequent problems are apparent. The problems are also listed by class as defined in Section 2. The test bus encountered no failures during the Structural Durability Test.

The Safety Test, (a double-lane change, obstacle avoidance test) was safely performed in both right-hand and left-hand directions up to a maximum test speed of 45 mph. The performance of the bus is illustrated by a speed vs. time plot. Acceleration and gradeability test data are provided in Section 4, Performance. The average time to obtain 50 mph was 13.75 seconds.

The Shakedown Test produced a maximum final loaded deflection of 0.224 inches with a permanent set ranging between -0.003 to 0.005 inches under a distributed static load of 10,725 lbs. The Distortion Test was completed with all subsystems, doors and escape mechanisms operating properly. Water leakage observed during the test at the top of the rear door between the door and the door frame.

The test bus was not equipped with any type of tow eyes or tow hooks, therefore, the Static Towing Test was not performed. The Dynamic Towing Test was performed by means of a front-lift tow. The towing interface was accomplished using a hydraulic under-lift wrecker. The bus was towed without incident and no damage resulted from the test. The manufacturer does not recommend towing the bus from the rear; therefore, a rear test was not performed. The Jacking and Hoisting Tests were also performed without incident. The bus was found to be stable on the jack stands, and the minimum jacking clearance observed with a tire deflated was 8.8 inches.

A Fuel Economy Test was run on simulated central business district, arterial, and commuter courses. The results were 6.39 mpg, 6.90 mpg, and 10.17 mpg respectively; with an overall average of 7.32 mpg.

A series of Interior and Exterior Noise Tests was performed. These data are listed in Section 7.1 and 7.2 respectively.



## ABBREVIATIONS

ABTC	- Altoona Bus Test Center
A/C	- air conditioner
ADB	- advance design bus
ATA-MC	- The Maintenance Council of the American Trucking Association
CBD	- central business district
CW	- curb weight (bus weight including maximum fuel, oil, and coolant; but without passengers or driver)
dB(A)	- decibels with reference to 0.0002 microbar as measured on the "A" scale
DIR	- test director
DR	- bus driver
EPA	- Environmental Protection Agency
FFS	- free floor space (floor area available to standees, excluding ingress/egress areas, area under seats, area occupied by feet of seated passengers, and the vestibule area)
GVL	- gross vehicle load (150 lb for every designed passenger seating position, for the driver, and for each 1.5 sq ft of free floor space)
GVW	- gross vehicle weight (curb weight plus gross vehicle load)
GVWR	- gross vehicle weight rating
MECH	- bus mechanic
mpg	- miles per gallon
mph	- miles per hour
PM	- Preventive maintenance
PSBRTF	- Penn State Bus Research and Testing Facility
PTI	- Pennsylvania Transportation Institute
rpm	- revolutions per minute
SAE	- Society of Automotive Engineers
SCH	- test scheduler
SEC	- secretary
SLW	- seated load weight (curb weight plus 150 lb for every designed passenger seating position and for the driver)
STURAA	- Surface Transportation and Uniform Relocation Assistance Act
TD	- test driver
TECH	- test technician
TM	- track manager
TP	- test personnel

# TEST BUS CHECK-IN

## I. OBJECTIVE

The objective of this task is to log in the test bus, assign a bus number, complete the vehicle data form, and perform a safety check.

## II. TEST DESCRIPTION

The test consists of assigning a bus test number to the bus, cleaning the bus, completing the vehicle data form, obtaining any special information and tools from the manufacturer, determining a testing schedule, performing an initial safety check, and performing the manufacturer's recommended preventive maintenance. The bus manufacturer must certify that the bus meets all Federal regulations.

## III. DISCUSSION

The check-in procedure is used to identify in detail the major components and configuration of the bus.

The test bus consists of a Starcraft Bus, model Allstar-25. The bus has a front door, rear of the front axle, and a dedicated handicap entrance rear of the rear axle. Note: the test bus was not equipped with a handicap device. Power is provided by a gasoline-fueled, Ford Motor Co. model 6.8 L EFI V10 engine coupled to a Ford Motor Co. model Elec 5-spd AOD transmission.

The measured curb weight is 3,810 lbs for the front axle and 5,700 lbs for the rear axle. These combined weights provide a total measured curb weight of 9,510 lbs. There are 17 seats including the driver, 1 wheelchair position and room for 10 standing passengers bringing the total passenger capacity to 27 + 1 wheelchair position. Gross load is  $150 \text{ lb} \times 27 = 4,050 \text{ lbs} + 600 \text{ lbs (wheelchair position)} = 4,650 \text{ lbs}$ . At full capacity, the measured gross vehicle weight is 13,950 lbs.

## VEHICLE DATA FORM

Bus Number: 0518	Arrival Date: 12-6-05
Bus Manufacturer: Starcraft Bus	Vehicle Identification Number (VIN): 1FDXE45516HA98012
Model Number: Allstar-25	Date: 12-6-05
Personnel: S.C.	

WEIGHT:

Individual Wheel Reactions:

Weights (lb)	Front Axle		Middle Axle		Rear Axle	
	Right	Left	Right	Left	Right	Left
CW	1,970	1,840	N/A	N/A	2,930	2,770
SLW	2,180	2,080	N/A	N/A	4,170	4,070
GVW	2,370	2,250	N/A	N/A	4,750	4,580

Total Weight Details:

Weight (lb)	CW	SLW	GVW	GAWR
Front Axle	3,810	4,260	4,620	4,600
Middle Axle	N/A	N/A	N/A	N/A
Rear Axle	5,700	8,240	9,330	9,450
Total	9,510	12,500	13,950	GVWR: 14,050

Dimensions:

Length (ft/in)	25 / 11
Width (in)	98
Height (in)	112
Front Overhang (in)	33
Rear Overhang (in)	88
Wheel Base (in)	190
Wheel Track (in)	Front: 68.3
	Rear: 78.0

Bus Number: 0518	Date: 12-6-05
------------------	---------------

**CLEARANCES:**

Lowest Point Outside Front Axle	Location: Steering linkage	Clearance(in): 11.4
Lowest Point Outside Rear Axle	Location: Exhaust	Clearance(in): 11.2
Lowest Point between Axles	Location: Step	Clearance(in): 8.3
Ground Clearance at the center (in)	9.6	
Front Approach Angle (deg)	22.1	
Rear Approach Angle (deg)	9.5	
Ramp Clearance Angle (deg)	8.2	
Aisle Width (in)	17.1	
Inside Standing Height at Center Aisle (in)	92.2	

**BODY DETAILS:**

Body Structural Type	Integral		
Frame Material	Steel		
Body Material	Aluminum, fiberglass & steel		
Floor Material	Plywood		
Roof Material	Fiberglass		
Windows Type	<input type="checkbox"/> Fixed	<input checked="" type="checkbox"/> Movable	
Window Mfg./Model No.	Safety DOT 269 / ASE M180		
Number of Doors	<u>1</u> Front	<u>1</u> Rear	
Mfr. / Model No.	A & M Systems / 2133.1/213380		
Dimension of Each Door (in)	Front - 32.6 x 81.5	Rear – 45.6 x 70.0	
Passenger Seat Type	<input type="checkbox"/> Cantilever	<input checked="" type="checkbox"/> Pedestal	<input type="checkbox"/> Other (explain)
Mfr. / Model No.	Freedman Seating Co. / Mid-Back Double		
Driver Seat Type	<input type="checkbox"/> Air	<input type="checkbox"/> Spring	<input checked="" type="checkbox"/> Other (Cushion)
Mfr. / Model No.	Freedman Seating Co. / Hi-Back		
Number of Seats (including Driver)	17		

Bus Number: 0518	Date: 12-6-05
------------------	---------------

#### BODY DETAILS (Contd..)

Free Floor Space ( ft <sup>2</sup> )	16.4
Height of Each Step at Normal Position (in)	Front 1. <u>10.0</u> 2. <u>9.6</u> 3. <u>10.1</u> 4. <u>N/A</u>
	Middle 1. <u>N/A</u> 2. <u>N/A</u> 3. <u>N/A</u> 4. <u>N/A</u>
	Rear 1. <u>N/A</u> 2. <u>N/A</u> 3. <u>N/A</u> 4. <u>N/A</u>
Step Elevation Change - Kneeling (in)	N/A

#### ENGINE

Type	<input type="checkbox"/> C.I.	<input type="checkbox"/> Alternate Fuel	
	<input checked="" type="checkbox"/> S.I.	<input type="checkbox"/> Other (explain)	
Mfr. / Model No.	Ford Motor Co. / 6.8 L EFI V10		
Location	<input checked="" type="checkbox"/> Front	<input type="checkbox"/> Rear	<input type="checkbox"/> Other (explain)
Fuel Type	<input checked="" type="checkbox"/> Gasoline	<input type="checkbox"/> CNG	<input type="checkbox"/> Methanol
	<input type="checkbox"/> Diesel	<input type="checkbox"/> LNG	<input type="checkbox"/> Other (explain)
Fuel Tank Capacity (indicate units)	55 gals		
Fuel Induction Type	<input checked="" type="checkbox"/> Injected	<input type="checkbox"/> Carburetion	
Fuel Injector Mfr. / Model No.	Ford Motor Co. / 6.8 L EFI V10		
Carburetor Mfr. / Model No.	N/A		
Fuel Pump Mfr. / Model No.	Ford Motor Co. / 6.8 L EFI V10		
Alternator (Generator) Mfr. / Model No.	Motorcraft / 3GF		
Maximum Rated Output (Volts / Amps)	14.4 / 110		
Air Compressor Mfr. / Model No.	N/A		
Maximum Capacity (ft <sup>3</sup> / min)	N/A		
Starter Type	<input checked="" type="checkbox"/> Electrical	<input type="checkbox"/> Pneumatic	<input type="checkbox"/> Other (explain)
Starter Mfr. / Model No.	Visteon / AY05J2		

Bus Number: 0518	Date: 12-6-05
------------------	---------------

#### TRANSMISSION

Transmission Type	<input type="checkbox"/> Manual	<input checked="" type="checkbox"/> Automatic	
Mfr. / Model No.	Ford Motor Co. / Elec 5-spd AOD		
Control Type	<input checked="" type="checkbox"/> Mechanical	<input type="checkbox"/> Electrical	<input type="checkbox"/> Other
Torque Converter Mfr. / Model No.	Ford Motor Co. / Elec 5-spd AOD		
Integral Retarder Mfr. / Model No.	N/A		

#### SUSPENSION

Number of Axles	2		
Front Axle Type	<input checked="" type="checkbox"/> Independent	<input type="checkbox"/> Beam Axle	
Mfr. / Model No.	Ford Motor Co. / Twin I-Beam		
Axle Ratio (if driven)	N/A		
Suspension Type	<input checked="" type="checkbox"/> Air	<input type="checkbox"/> Spring	<input type="checkbox"/> Other (explain)
No. of Shock Absorbers	2		
Mfr. / Model No.	Motorcraft / C259Y2		
Middle Axle Type	<input type="checkbox"/> Independent	<input type="checkbox"/> Beam Axle	
Mfr. / Model No.	N/A		
Axle Ratio (if driven)	N/A		
Suspension Type	<input type="checkbox"/> Air	<input type="checkbox"/> Spring	<input type="checkbox"/> Other (explain)
No. of Shock Absorbers	N/A		
Mfr. / Model No.	N/A		
Rear Axle Type	<input type="checkbox"/> Independent	<input checked="" type="checkbox"/> Beam Axle	
Mfr. / Model No.	Dana / Full Floating Dana 10.5H-D		
Axle Ratio (if driven)	4.56		
Suspension Type	<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Spring	<input type="checkbox"/> Other (explain)

No. of Shock Absorbers	2
Mfr. / Model No.	Motorcraft / C260Y1

Bus Number: 0518	Date: 12-6-05
------------------	---------------

#### WHEELS & TIRES

Front	Wheel Mfr./ Model No.	Ford / 8-Hole Disc, 16 x 6.0 Steel
	Tire Mfr./ Model No.	Michelin LTX / LT225/75R 16
Rear	Wheel Mfr./ Model No.	Ford / 8-Hole Disc, 16 x 6.0 Steel
	Tire Mfr./ Model No.	Michelin LTX / LT225/75R 16

#### BRAKES

Front Axle Brakes Type	<input type="checkbox"/> Cam	<input checked="" type="checkbox"/> Disc	<input type="checkbox"/> Other (explain)
Mfr. / Model No.	TRW / na		
Middle Axle Brakes Type	<input type="checkbox"/> Cam	<input type="checkbox"/> Disc	<input type="checkbox"/> Other (explain)
Mfr. / Model No.	N/A		
Rear Axle Brakes Type	<input type="checkbox"/> Cam	<input checked="" type="checkbox"/> Disc	<input type="checkbox"/> Other (explain)
Mfr. / Model No.	Kelsey Hayes / na		
Retarder Type	N/A		
Mfr. / Model No.	N/A		

#### HVAC

Heating System Type	<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Water	<input type="checkbox"/> Other
Capacity (Btu/hr)	35,000		
Mfr. / Model No.	Ford Motor Co. / na		
Air Conditioner	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Location	Dash & Interior ceiling		
Capacity (Btu/hr)	55,000		
A/C Compressor Mfr. / Model No.	Ford / O.E.M.		

#### STEERING

Steering Gear Box Type	Hydraulic gear
------------------------	----------------



Mfr. / Model No.	Ford / 6C22 3504 AA
Steering Wheel Diameter	15.0
Number of turns (lock to lock)	4.0

Bus Number: 0518	Date: 12-6-05
------------------	---------------

#### OTHERS

Wheel Chair Ramps	Location: N/A	Type: N/A
Wheel Chair Lifts	Location: N/A	Type: N/A
Mfr. / Model No.	N/A	
Emergency Exit	Location: Windows Doors	Number: 3 1

#### CAPACITIES

Fuel Tank Capacity (units)	55 gals
Engine Crankcase Capacity (gallons)	1.5
Transmission Capacity (gallons)	4.4
Differential Capacity (gallons)	2.1
Cooling System Capacity (quarts)	8.2
Power Steering Fluid Capacity (gallons)	Not available.

**VEHICLE DATA FORM**

Bus Number: 0518	Date: 12-6-05
------------------	---------------

**List all spare parts, tools and manuals delivered with the bus.**

Part Number	Description	Qty.
Michelin LTX M/S LT225/75R 16	Tires/wheels	6
XC2Z-2C026-BB	Brake rotors	2
FBUZ-1102-DA	Brake rotors	2
FA-1769	Air filter	1
FD-4606	Fuel water separator	1
FL-2016	Oil filter	1
AT-164-G F5UZ-18125-A	Shock absorber	2
AT-163-G F5UZ-18124-B	Shock absorber	2
FT-145	Transmission filter	1
FT-144	Screen assembly	1
BR1276 YU2Z-2V200-BA	Brake pads	1
1C3Z-2001-BA	Brake pads	1
2006 E-Series 6C2J19G219GA	Owner's guide	1
NA	Allstar Owner Manual	1
NA	Trans/Air owner manual	1

## COMPONENT/SUBSYSTEM INSPECTION FORM

Bus Number: 0518	Date: 12-6-05
------------------	---------------

Subsystem	Checked	Comments
Air Conditioning Heating and Ventilation		
Body and Sheet Metal		
Frame		
Steering		
Suspension		
Interior/Seating		
Axles		
Brakes		
Tires/Wheels		
Exhaust		
Fuel System		Gasoline.
Power Plant		
Accessories		
Lift System		Not equipped with a handicap device.
Interior Fasteners		
Batteries		

## **CHECK - IN**



## **STARCRAFT BUS MODEL ALLSTAR-25**



# **1. MAINTAINABILITY**

## **1.1 ACCESSIBILITY OF COMPONENTS AND SUBSYSTEMS**

### **1.1-I. TEST OBJECTIVE**

The objective of this test is to check the accessibility of components and subsystems.

### **1.1-II. TEST DESCRIPTION**

Accessibility of components and subsystems is checked, and where accessibility is restricted the subsystem is noted along with the reason for the restriction.

### **1.1-III. DISCUSSION**

Accessibility, in general, was adequate. Components covered in Section 1.3 (repair and/or replacement of selected subsystems), along with all other components encountered during testing, were found to be readily accessible and no restrictions were noted.

## ACCESSIBILITY DATA FORM

Bus Number: 0518	Date: 2-9-06
------------------	--------------

Component	Checked	Comments
<b>ENGINE :</b>		
Oil Dipstick		
Oil Filler Hole		
Oil Drain Plug		
Oil Filter		
Fuel Filter		
Air Filter		
Belts		
Coolant Level		
Coolant Filler Hole		
Coolant Drain		
Spark / Glow Plugs		
Alternator		
Diagnostic Interface Connector		
<b>TRANSMISSION :</b>		
Fluid Dip-Stick		
Filler Hole		Fill through dip tube.
Drain Plug		
<b>SUSPENSION :</b>		
Bushings		
Shock Absorbers		
Air Springs	N/A	
Leveling Valves	N/A	
Grease Fittings		



## ACCESSIBILITY DATA FORM

Bus Number: 0518	Date: 2-9-06
------------------	--------------

Component	Checked	Comments
<b>HVAC :</b>		
A/C Compressor		
Filters		
Fans		
<b>ELECTRICAL SYSTEM :</b>		
Fuses		
Batteries		
Voltage regulator		Internal.
Voltage Converters	N/A	
Lighting		
<b>MISCELLANEOUS :</b>		
Brakes		
Handicap Lifts/Ramps	N/A	
Instruments		
Axles		
Exhaust		
Fuel System		
<b>OTHERS :</b>		

## **1.2 SERVICING, PREVENTIVE MAINTENANCE, AND REPAIR AND MAINTENANCE DURING TESTING**

### **1.2-I. TEST OBJECTIVE**

The objective of this test is to collect maintenance data about the servicing, preventive maintenance, and repair.

### **1.2.-II. TEST DESCRIPTION**

The test will be conducted by operating the NBM and collecting the following data on work order forms and a driver log.

1. Unscheduled Maintenance
  - a. Bus number
  - b. Date
  - c. Mileage
  - d. Description of malfunction
  - e. Location of malfunction (e.g., in service or undergoing inspection)
  - f. Repair action and parts used
  - g. Man-hours required
2. Scheduled Maintenance
  - a. Bus number
  - b. Date
  - c. Mileage
  - d. Engine running time (if available)
  - e. Results of scheduled inspections
  - f. Description of malfunction (if any)
  - g. Repair action and parts used (if any)
  - h. Man-hours required

The buses will be operated in accelerated durability service. While typical items are given below, the specific service schedule will be that specified by the manufacturer.

- A. Service
  1. Fueling
  2. Consumable checks
  3. Interior cleaning
- B. Preventive Maintenance
  4. Brake adjustments
  5. Lubrication
  6. 3,000 mi (or equivalent) inspection

7. Oil and filter change inspection
8. Major inspection
9. Tune-up

C. Periodic Repairs

1. Brake reline
2. Transmission change
3. Engine change
4. Windshield wiper motor change
5. Stoplight bulb change
6. Towing operations
7. Hoisting operations

### 1.2-III. DISCUSSION

Servicing and preventive maintenance were performed at manufacturer-specified intervals. The following Scheduled Maintenance Form lists the mileage, items serviced, the service interval, and amount of time required to perform the maintenance. Table 1 is a list of the lubricating products used in servicing. Finally, the Unscheduled Maintenance List along with Unscheduled Maintenance-related photographs is included in Section 5.7, Structural Durability. This list supplies information related to failures that occurred during the durability portion of testing. The Unscheduled Maintenance List includes the date and mileage at which the malfunction occurred, a description of the malfunction and repair, and the time required to perform the repair.

(Page 1 of 1)  
SCHEDULED MAINTENANCE  
**Starcraft Bus 0518**

DATE	TEST MILES	SERVICE	ACTIVITY	DOWN TIME	HOURS
12-21-05	1,185	P.M. / Inspection	Linkage, tie rods, universals/u-joints all lubed; all fluids checked.	4.00	4.00
01-06-06	2,375	P.M. / Inspection	Linkage, tie rods, universals/u-joints all lubed; all fluids checked.	4.00	4.00
01-13-06	4,131	P.M. / Inspection	Linkage, tie rods, universals/u-joints all lubed; all fluids checked.	4.00	4.00
01-18-06	5,137	P.M. / Inspection	Linkage, tie rods, universals/u-joints all lubed; all fluids checked.	4.00	4.00
01-24-06	6,407	P.M. / Inspection	Linkage, tie rods, universals/u-joints all lubed; all fluids checked.	4.00	4.00
01-31-06	7,404	P.M. / Inspection Fuel Economy Prep	Linkage, tie rods, universals/u-joints all lubed; all fluids checked.	4.00	4.00
02-01-06	7,500	P.M. / Inspection	Linkage, tie rods, universals/u-joints all lubed. Oil changed. Oil, fuel, and air filters changed. Transmission oil and filter changed.	8.00	8.00

**Table 1. STANDARD LUBRICANTS**

The following is a list of Texaco lubricant products used in bus testing conducted by the Penn State University Altoona Bus Testing Center:

<u>ITEM</u>	<u>PRODUCT CODE</u>	<u>TEXACO DESCRIPTION</u>
Engine oil	#2112	URSA Super Plus SAE 30
Transmission oil	#1866	Automatic Trans Fluid Mercon/Dexron II Multipurpose
Gear oil	#2316	Multigear Lubricant EP SAE 80W90
Wheel bearing & Chassis grease	#1935	Starplex II

## 1.3 REPLACEMENT AND/OR REPAIR OF SELECTED SUBSYSTEMS

### 1.3-I. TEST OBJECTIVE

The objective of this test is to establish the time required to replace and/or repair selected subsystems.

### 1.3-II. TEST DESCRIPTION

The test will involve components that may be expected to fail or require replacement during the service life of the bus. In addition, any component that fails during the NBM testing is added to this list. Components to be included are:

1. Transmission
2. Alternator
3. Starter
4. Batteries
5. Windshield wiper motor

### 1.3-III. DISCUSSION

During the test, no additional components were removed for repair or replacement.

At the end of the test, the remaining items on the list were removed and replaced. The transmission assembly took 4.0 man-hours (two men 2.0 hrs) to remove and replace. The time required for repair/replacement of the four remaining components is given on the following Repair and/or Replacement Form.

### REPLACEMENT AND/OR REPAIR FORM

Subsystem	Replacement Time
Transmission	4.00 man hours
Wiper Motor	0.50 man hours
Starter	0.50 man hours
Alternator	0.50 man hours
Batteries	1.00 man hours

### **1.3 REPLACEMENT AND/OR REPAIR OF SELECTED SUBSYSTEMS**



#### **TRANSMISSION REMOVAL AND REPLACEMENT (4.00 MAN HOURS)**



#### **WIPER MOTOR REMOVAL AND REPLACEMENT (0.50 MAN HOURS)**



### **1.3 REPLACEMENT AND/OR REPAIR OF SELECTED SUBSYSTEMS CONT.**



**STARTER REMOVAL AND REPLACEMENT  
(0.50 MAN HOURS)**



**BATTERY REMOVAL AND REPLACEMENT  
(1.00 MAN HOURS)**

## 2. RELIABILITY - DOCUMENTATION OF BREAKDOWN AND REPAIR TIMES DURING TESTING

### 2-I. TEST OBJECTIVE

The objective of this test is to document unscheduled breakdowns, repairs, down time, and repair time that occur during testing.

### 2-II. TEST DESCRIPTION

Using the driver log and unscheduled work order forms, all significant breakdowns, repairs, man-hours to repair, and hours out of service are recorded on the Reliability Data Form.

### CLASS OF FAILURES

Classes of failures are described below:

- (a) Class 1: Physical Safety. A failure that could lead directly to passenger or driver injury and represents a severe crash situation.
- (b) Class 2: Road Call. A failure resulting in an en route interruption of revenue service. Service is discontinued until the bus is replaced or repaired at the point of failure.
- (c) Class 3: Bus Change. A failure that requires removal of the bus from service during its assignments. The bus is operable to a rendezvous point with a replacement bus.
- (d) Class 4: Bad Order. A failure that does not require removal of the bus from service during its assignments but does degrade coach operation. The failure shall be reported by driver, inspector, or hostler.

### 2-III. DISCUSSION

A listing of breakdowns and unscheduled repairs is accumulated during the Structural Durability Test. The following Reliability Data Form lists all unscheduled repairs under classes as defined above. These classifications are somewhat subjective as the test is performed on a test track with careful inspections every two hours. However, even on the road, there is considerable latitude on deciding how to handle many failures.

The classification of repairs according to subsystem is intended to emphasize those systems which had persistent minor or more serious problems. The bus submitted for testing encountered no failures during the Structural Durability Test.

### **3. SAFETY - A DOUBLE-LANE CHANGE (OBSTACLE AVOIDANCE)**

#### **3-I. TEST OBJECTIVE**

The objective of this test is to determine handling and stability of the bus by measuring speed through a double lane change test.

#### **3-II. TEST DESCRIPTION**

The Safety Test is a vehicle handling and stability test. The bus will be operated at SLW on a smooth and level test track. The bus will be driven through a double lane change course at increasing speed until the test is considered unsafe or a speed of 45 mph is reached. The lane change course will be set up using pylons to mark off two 12 foot center to center lanes with two 100 foot lane change areas 100 feet apart. The bus will begin in one lane, change to the other lane in a 100 foot span, travel 100 feet, and return to the original lane in another 100 foot span. This procedure will be repeated, starting first in the right-hand and then in the left-hand lane.

#### **3-III. DISCUSSION**

The double-lane change was performed in both right-hand and left-hand directions. The bus was able to safely negotiate the test course in both the right-hand and left-hand directions up to the maximum test speed of 45 mph.

## SAFETY DATA FORM

Bus Number: 0518	Date: 2-2-06
Personnel: B.S., S.C. & T.S.	

Temperature (°F): 35	Humidity (%): 93
Wind Direction: Calm	Wind Speed (mph): Calm
Barometric Pressure (in.Hg): 29.91	

<b>SAFETY TEST: DOUBLE LANE CHANGE</b>	
Maximum safe speed tested for double-lane change to left	45 mph
Maximum safe speed tested for double-lane change to right	45 mph
<b>Comments of the position of the bus during the lane change:</b> A safe profile was maintained through all portions of testing.	
<b>Comments of the tire/ground contact patch:</b> Tire/ground contact was maintained through all portions of testing.	

### **3. SAFETY**



**RIGHT - HAND APPROACH**



**LEFT - HAND APPROACH**

## **4. PERFORMANCE - AN ACCELERATION, GRADEABILITY, AND TOP SPEED TEST**

### **4-I. TEST OBJECTIVE**

The objective of this test is to determine the acceleration, gradeability, and top speed capabilities of the bus.

### **4-II. TEST DESCRIPTION**

In this test, the bus will be operated at SLW on the skid pad at the PSBRTF. The bus will be accelerated at full throttle from a standstill to a maximum "geared" or "safe" speed as determined by the test driver. The vehicle speed is measured using a Correvit non-contacting speed sensor. The times to reach speed between ten mile per hour increments are measured and recorded using a stopwatch with a lap timer. The time to speed data will be recorded on the Performance Data Form and later used to generate a speed vs. time plot and gradeability calculations.

### **4-III. DISCUSSION**

This test consists of three runs in both the clockwise and counterclockwise directions on the Test Track. Velocity versus time data is obtained for each run and results are averaged together to minimize any test variability which might be introduced by wind or other external factors. The test was performed up to a maximum speed of 50 mph. The fitted curve of velocity vs. time is attached, followed by the calculated gradeability results. The average time to obtain 50 mph was 13.75 seconds.

## PERFORMANCE DATA FORM

Bus Number: 0518		Date: 2-2-06	
Personnel: B.S., S.C. & T.S.			
Temperature (°F): 37		Humidity (%): 93	
Wind Direction: Calm		Wind Speed (mph): Calm	
Barometric Pressure (in.Hg): 29.91			
Air Conditioning compressor-OFF		___ Checked	
Ventilation fans-ON HIGH		___ Checked	
Heater pump motor-Off		___ Checked	
Defroster-OFF		___ Checked	
Exterior and interior lights-ON		___ Checked	
Windows and doors-CLOSED		___ Checked	
<b>ACCELERATION, GRADEABILITY, TOP SPEED</b>			
Counter Clockwise Recorded Interval Times			
Speed	Run 1	Run 2	Run 3
10 mph	2.02	2.15	1.90
20 mph	3.77	4.24	3.84
30 mph	5.99	6.24	5.87
40 mph	9.68	9.84	9.43
Top Test Speed(mph) 50	14.09	14.40	14.20
Clockwise Recorded Interval Times			
Speed	Run 1	Run 2	Run 3
10 mph	2.11	2.17	2.08
20 mph	3.88	4.14	3.86
30 mph	6.08	6.07	6.08
40 mph	9.36	9.28	9.30
Top Test Speed(mph) 50	13.42	13.08	13.33



0518.ACC

PERFORMANCE SUMMARY SHEET

BUS MANUFACTURER :Starcraft  
BUS MODEL :Allstar-25

BUS NUMBER :0518  
TEST DATE :2/2/06

TEST CONDITIONS :

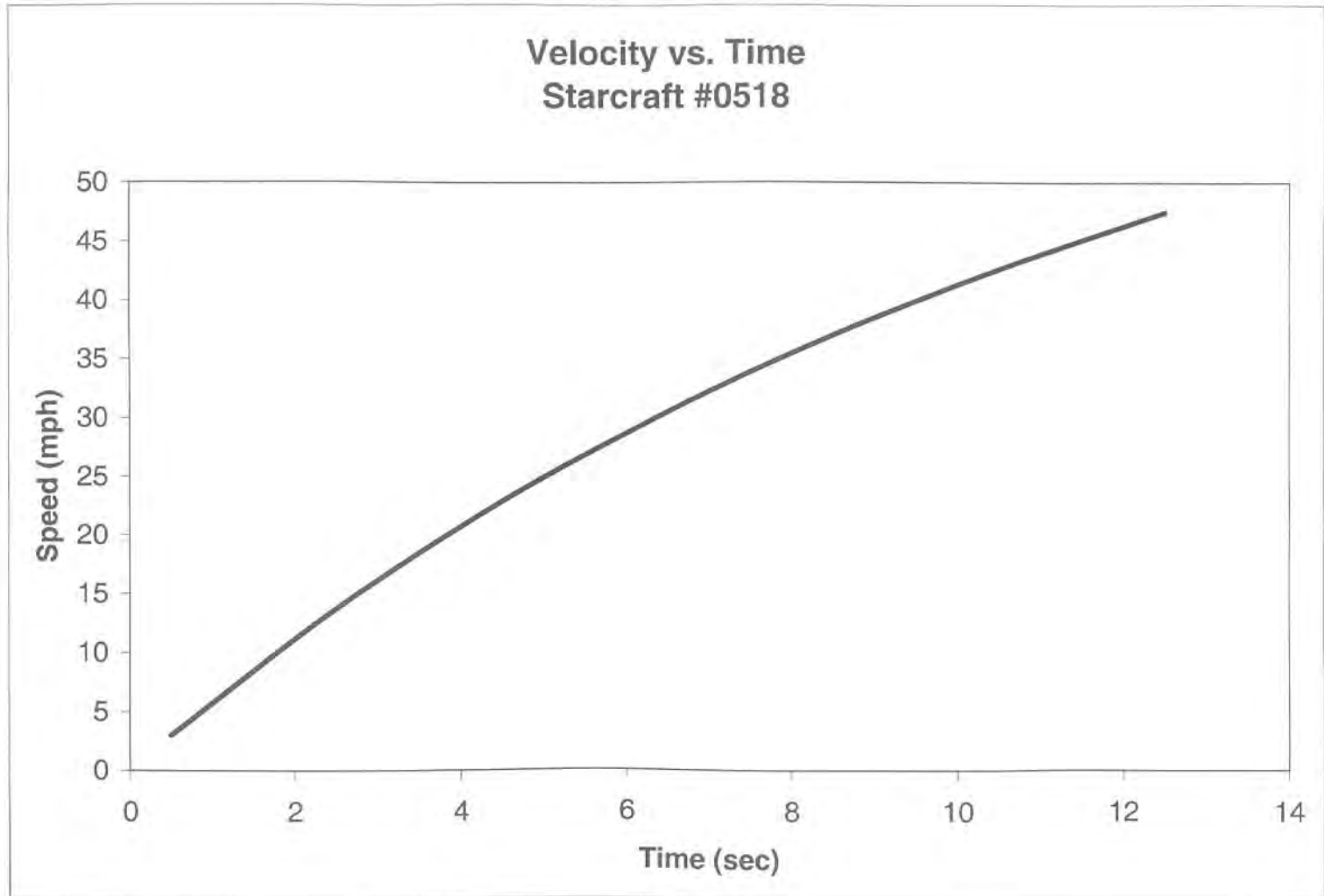
-----  
TEMPERATURE (DEG F ) : 37.0  
WIND DIRECTION : calm  
WIND SPEED (MPH) : .0  
HUMIDITY (%) : 93  
BAROMETRIC PRESSURE (IN. HG) : 29.9

(MPH)	AVERAGE TIME (SEC)		
	CCW DIRECTION	CW DIRECTION	TOTAL
10.0	2.02	2.12	2.07
20.0	3.95	3.96	3.96
30.0	6.03	6.08	6.06
40.0	9.65	9.31	9.48
50.0	14.23	13.28	13.75

TEST SUMMARY :

VEHICLE SPEED (MPH)	TIME (SEC)	ACCELERATION (FT/SEC^2)	MAX. GRADE (%)
1.0	.16	8.9	28.6
5.0	.85	8.3	26.8
10.0	1.76	7.7	24.6
15.0	2.76	7.1	22.4
20.0	3.85	6.4	20.3
25.0	5.05	5.8	18.3
30.0	6.38	5.2	16.4
35.0	7.87	4.7	14.6
40.0	9.54	4.1	12.9
45.0	11.45	3.6	11.2
50.0	13.64	3.1	9.7

NOTE : Gradeability results were calculated from performance  
----- test data. Actual sustained gradeability performance  
for vehicles equipped with auto transmission may be  
lower than the values indicated here.



## 5. STRUCTURAL INTEGRITY

### 5.1 STRUCTURAL STRENGTH AND DISTORTION TESTS - STRUCTURAL SHAKEDOWN TEST

#### 5.1-I. DISCUSSION

The objective of this test is to determine certain static characteristics (e.g., bus floor deflection, permanent structural deformation, etc.) under static loading conditions.

#### 5.1-II. TEST DESCRIPTION

In this test, the bus will be isolated from the suspension by blocking the vehicle under the suspension points. The bus will then be loaded and unloaded up to a maximum of three times with a distributed load equal to 2.5 times gross load. Gross load is 150 lb for every designed passenger seating position, for the driver, and for each 1.5 sq ft of free floor space. For a distributed load equal to 2.5 times gross load, place a 375-lb load on each seat and on every 1.5 sq ft of free floor space. The first loading and unloading sequence will "settle" the structure. Bus deflection will be measured at several locations during the loading sequences.

#### 5.1-III. DISCUSSION

This test was performed based on a maximum passenger capacity of 27 people including the driver and one wheelchair position. The resulting test load is  $(27 \times 375 \text{ lb}) = 10,125 \text{ lb} + 600 \text{ lbs (wheelchair position)} = 10,725 \text{ lbs}$ . The load is distributed evenly over the passenger space. Deflection data before and after each loading and unloading sequence is provided on the Structural Shakedown Data Form.

The unloaded height after each test becomes the original height for the next test. Some initial settling is expected due to undercoat compression, etc. After each loading cycle, the deflection of each reference point is determined. The bus is then unloaded and the residual (permanent) deflection is recorded. On the final test, the maximum loaded deflection was 0.224 inches at reference point 9. The maximum permanent deflection after the final loading sequence ranged from -0.003 inches at reference point 6 to 0.005 inches at reference points 1, 4 and 12.

## STRUCTURAL SHAKEDOWN DATA FORM

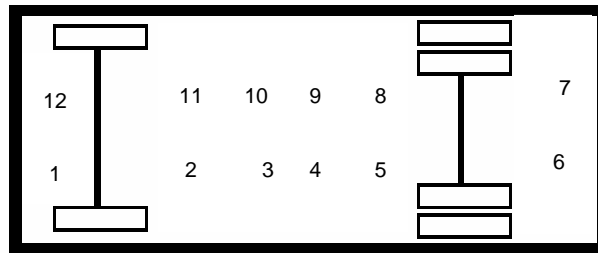
Bus Number: 0518	Date: 12-13-06
Personnel: D.L., E.L., K.D. & S.C.	Temperature (°F): 65
Loading Sequence: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3   (check one)	
Test Load (lbs): 10,725	

Indicate Approximate Location of Each Reference Point

Right

Front  
of  
Bus

Left



Top View

Reference Point No.	A (in) Original Height	B (in) Loaded Height	B-A (in) Loaded Deflection	C (in) Unloaded Height	C-A (in) Permanent Deflection
1	0	-.085	-.085	-.015	-.015
2	0	.119	.119	.012	.012
3	0	.221	.221	.052	.052
4	0	.232	.232	.039	.039
5	0	.205	.205	.024	.024
6	0	-.066	-.066	-.011	-.011
7	0	-.015	-.015	-.021	-.021
8	0	.277	.277	.068	.068
9	0	.269	.269	.045	.045
10	0	.244	.244	.045	.045
11	0	.123	.123	.028	.028
12	0	-.009	-.009	-.011	-.011

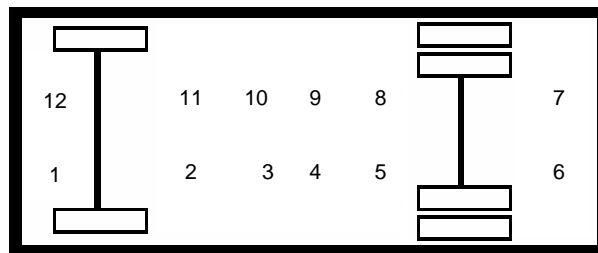
## STRUCTURAL SHAKEDOWN DATA FORM

Bus Number: 0518	Date: 12-13-05
Personnel: D.L., E.L., T.S. & S.C.	Temperature (°F):
Loading Sequence: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3   (check one)	
Test Load (lbs): 10,725	

Indicate Approximate Location of Each Reference Point

Right

Front  
of  
Bus



Left

Top View

Reference Point No.	A (in) Original Height	B (in) Loaded Height	B-A (in) Loaded Deflection	C (in) Unloaded Height	C-A (in) Permanent Deflection
1	-.015	-.086	-.071	-.020	.005
2	.012	.120	.108	.015	.003
3	.052	.228	.176	.056	.004
4	.039	.233	.194	.044	.005
5	.024	.205	.181	.027	.003
6	-.011	-.061	-.050	-.008	-.003
7	-.021	-.010	.011	-.023	.002
8	.068	.285	.217	.070	.002
9	.045	.269	.224	.047	.002
10	.045	.245	.200	.046	.001
11	.028	.124	.096	.032	.004
12	-.011	-.010	.001	-.016	.005

## **5.1 STRUCTURAL SHAKEDOWN TEST**



**DIAL INDICATORS IN POSITION  
BUS LOADED TO 2.5 TIMES GVL  
(10,725 LBS)**

## **5.2 STRUCTURAL STRENGTH AND DISTORTION TESTS - STRUCTURAL DISTORTION**

### **5.2-I. TEST OBJECTIVE**

The objective of this test is to observe the operation of the bus subsystems when the bus is placed in a longitudinal twist simulating operation over a curb or through a pothole.

### **5.2-II. TEST DESCRIPTION**

With the bus loaded to GVWR, each wheel of the bus will be raised (one at a time) to simulate operation over a curb and the following will be inspected:

1. Body
2. Windows
3. Doors
4. Roof vents
5. Special seating
6. Undercarriage
7. Engine
8. Service doors
9. Escape hatches
10. Steering mechanism

Each wheel will then be lowered (one at a time) to simulate operation through a pothole and the same items inspected.

### **5.2-III. DISCUSSION**

The test sequence was repeated ten times. The first and last test is with all wheels level. The other eight tests are with each wheel 6 inches higher and 6 inches lower than the other three wheels.

All doors, windows, escape mechanisms, engine, steering and handicapped devices operated normally throughout the test. The undercarriage and body indicated no deficiencies. Water leakage was observed during the test at the top of the rear door between the door and the door frame. The results of this test are indicated on the following data forms.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input checked="" type="checkbox"/> before	<input type="checkbox"/> after
Left front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
<input checked="" type="checkbox"/> Windows	No deficiencies.
<input checked="" type="checkbox"/> Front Doors	No deficiencies.
<input checked="" type="checkbox"/> Rear Doors	Leak at top between door and door frame.
<input checked="" type="checkbox"/> Escape Mechanisms/ Roof Vents	No deficiencies.
<input checked="" type="checkbox"/> Engine	No deficiencies.
<input checked="" type="checkbox"/> Handicapped Device/ Special Seating	Not equipped with a handicap device.
<input checked="" type="checkbox"/> Undercarriage	No deficiencies.
<input checked="" type="checkbox"/> Service Doors	No deficiencies.
<input checked="" type="checkbox"/> Body	No deficiencies.



■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input type="checkbox"/> before	<input type="checkbox"/> after
Left front	<input checked="" type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
<input checked="" type="checkbox"/> Windows	No deficiencies.
<input checked="" type="checkbox"/> Front Doors	No deficiencies.
<input checked="" type="checkbox"/> Rear Doors	Leak at top between door and door frame.
<input checked="" type="checkbox"/> Escape Mechanisms/ Roof Vents	No deficiencies.
<input checked="" type="checkbox"/> Engine	No deficiencies.
<input checked="" type="checkbox"/> Handicapped Device/ Special Seating	Not equipped with a handicap device.
<input checked="" type="checkbox"/> Undercarriage	No deficiencies.
<input checked="" type="checkbox"/> Service Doors	No deficiencies.
<input checked="" type="checkbox"/> Body	No deficiencies.

■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input type="checkbox"/> before	<input type="checkbox"/> after
Left front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right front	<input checked="" type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
<input checked="" type="checkbox"/> Windows	No deficiencies.
<input checked="" type="checkbox"/> Front Doors	No deficiencies.
<input checked="" type="checkbox"/> Rear Doors	Leak at top between door and door frame.
<input checked="" type="checkbox"/> Escape Mechanisms/ Roof Vents	No deficiencies.
<input checked="" type="checkbox"/> Engine	No deficiencies.
<input checked="" type="checkbox"/> Handicapped Device/ Special Seating	Not equipped with a handicap device.
<input checked="" type="checkbox"/> Undercarriage	No deficiencies.
<input checked="" type="checkbox"/> Service Doors	No deficiencies.
<input checked="" type="checkbox"/> Body	No deficiencies.

■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input type="checkbox"/> before	<input type="checkbox"/> after
Left front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right rear	<input checked="" type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
<input checked="" type="checkbox"/> Windows	No deficiencies.
<input checked="" type="checkbox"/> Front Doors	No deficiencies.
<input checked="" type="checkbox"/> Rear Doors	Leak at top between door and door frame.
<input checked="" type="checkbox"/> Escape Mechanisms/ Roof Vents	No deficiencies.
<input checked="" type="checkbox"/> Engine	No deficiencies.
<input checked="" type="checkbox"/> Handicapped Device/ Special Seating	Not equipped with a handicap device.
<input checked="" type="checkbox"/> Undercarriage	No deficiencies.
<input checked="" type="checkbox"/> Service Doors	No deficiencies.
<input checked="" type="checkbox"/> Body	No deficiencies.

■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input type="checkbox"/> before	<input type="checkbox"/> after
Left front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left rear	<input checked="" type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
<input checked="" type="checkbox"/> Windows	No deficiencies.
<input checked="" type="checkbox"/> Front Doors	No deficiencies.
<input checked="" type="checkbox"/> Rear Doors	Leak at top between door and door frame.
<input checked="" type="checkbox"/> Escape Mechanisms/ Roof Vents	No deficiencies.
<input checked="" type="checkbox"/> Engine	No deficiencies.
<input checked="" type="checkbox"/> Handicapped Device/ Special Seating	Not equipped with a handicap device.
<input checked="" type="checkbox"/> Undercarriage	No deficiencies.
<input checked="" type="checkbox"/> Service Doors	No deficiencies.
<input checked="" type="checkbox"/> Body	No deficiencies.



■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input type="checkbox"/> before	<input type="checkbox"/> after
Left front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left rear	<input type="checkbox"/> 6 in higher	<input checked="" type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
■ Windows	No deficiencies.
■ Front Doors	No deficiencies.
■ Rear Doors	Leak at top between door and door frame.
■ Escape Mechanisms/ Roof Vents	No deficiencies.
■ Engine	No deficiencies.
■ Handicapped Device/ Special Seating	Not equipped with a handicap device.
■ Undercarriage	No deficiencies.
■ Service Doors	No deficiencies.
■ Body	No deficiencies.

■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input type="checkbox"/> before	<input type="checkbox"/> after
Left front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right rear	<input type="checkbox"/> 6 in higher	<input checked="" type="checkbox"/> 6 in lower
Left rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
<input checked="" type="checkbox"/> Windows	No deficiencies.
<input checked="" type="checkbox"/> Front Doors	No deficiencies.
<input checked="" type="checkbox"/> Rear Doors	Leak at top between door and door frame.
<input checked="" type="checkbox"/> Escape Mechanisms/ Roof Vents	No deficiencies.
<input checked="" type="checkbox"/> Engine	No deficiencies.
<input checked="" type="checkbox"/> Handicapped Device/ Special Seating	Not equipped with a handicap device.
<input checked="" type="checkbox"/> Undercarriage	No deficiencies.
<input checked="" type="checkbox"/> Service Doors	No deficiencies.
<input checked="" type="checkbox"/> Body	No deficiencies.

■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input type="checkbox"/> before	<input type="checkbox"/> after
Left front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right front	<input type="checkbox"/> 6 in higher	<input checked="" type="checkbox"/> 6 in lower
Right rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
<input checked="" type="checkbox"/> Windows	No deficiencies.
<input checked="" type="checkbox"/> Front Doors	No deficiencies.
<input checked="" type="checkbox"/> Rear Doors	Leak at top between door and door frame.
<input checked="" type="checkbox"/> Escape Mechanisms/ Roof Vents	No deficiencies.
<input checked="" type="checkbox"/> Engine	No deficiencies.
<input checked="" type="checkbox"/> Handicapped Device/ Special Seating	Not equipped with a handicap device.
<input checked="" type="checkbox"/> Undercarriage	No deficiencies.
<input checked="" type="checkbox"/> Service Doors	No deficiencies.
<input checked="" type="checkbox"/> Body	No deficiencies.

■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input type="checkbox"/> before	<input type="checkbox"/> after
Left front	<input type="checkbox"/> 6 in higher	<input checked="" type="checkbox"/> 6 in lower
Right front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
<input checked="" type="checkbox"/> Windows	No deficiencies.
<input checked="" type="checkbox"/> Front Doors	No deficiencies.
<input checked="" type="checkbox"/> Rear Doors	Leak at top between door and door frame.
<input checked="" type="checkbox"/> Escape Mechanisms/ Roof Vents	No deficiencies.
<input checked="" type="checkbox"/> Engine	No deficiencies.
<input checked="" type="checkbox"/> Handicapped Device/ Special Seating	Not equipped with a handicap device.
<input checked="" type="checkbox"/> Undercarriage	No deficiencies.
<input checked="" type="checkbox"/> Service Doors	No deficiencies.
<input checked="" type="checkbox"/> Body	No deficiencies.



■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

**DISTORTION TEST INSPECTION FORM**  
(Note: Ten copies of this data sheet are required)

Bus Number: 0518	Date: 12-14-05
Personnel: T.S., E.L., D.L. & S.C.	Temperature(°F): 65

Wheel Position : (check one)		
All wheels level	<input type="checkbox"/> before	<input checked="" type="checkbox"/> after
Left front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right front	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left rear	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Right center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower
Left center	<input type="checkbox"/> 6 in higher	<input type="checkbox"/> 6 in lower

	Comments
<input checked="" type="checkbox"/> Windows	No deficiencies.
<input checked="" type="checkbox"/> Front Doors	No deficiencies.
<input checked="" type="checkbox"/> Rear Doors	Leak at top between door and door frame.
<input checked="" type="checkbox"/> Escape Mechanisms/ Roof Vents	No deficiencies.
<input checked="" type="checkbox"/> Engine	No deficiencies.
<input checked="" type="checkbox"/> Handicapped Device/ Special Seating	Not equipped with a handicap device.
<input checked="" type="checkbox"/> Undercarriage	No deficiencies.
<input checked="" type="checkbox"/> Service Doors	No deficiencies.
<input checked="" type="checkbox"/> Body	No deficiencies.

■ Windows/ Body Leakage	No deficiencies.
■ Steering Mechanism	No deficiencies.

## 5.2 STRUCTURAL DISTORTION TEST



**LEFT REAR WHEEL SIX INCHES LOWER**



**LEFT FRONT WHEEL SIX INCHES HIGHER**

## **5.3 STRUCTURAL STRENGTH AND DISTORTION TESTS - STATIC TOWING TEST**

### **5.3-I. TEST OBJECTIVE**

The objective of this test is to determine the characteristics of the bus towing mechanisms under static loading conditions.

### **5.3-II. TEST DESCRIPTION**

Utilizing a load-distributing yoke, a hydraulic cylinder is used to apply a static tension load equal to 1.2 times the bus curb weight. The load will be applied to both the front and rear, if applicable, towing fixtures at an angle of 20 degrees with the longitudinal axis of the bus, first to one side then the other in the horizontal plane, and then upward and downward in the vertical plane. Any permanent deformation or damage to the tow eyes or adjoining structure will be recorded.

### **5.3-III. DISCUSSION**

The test bus submitted for testing was not equipped with any type of tow eyes or tow hooks, therefore, the Static Towing Test was not performed.

## **5.4 STRUCTURAL STRENGTH AND DISTORTION TESTS - DYNAMIC TOWING TEST**

### **5.4-I. TEST OBJECTIVE**

The objective of this test is to verify the integrity of the towing fixtures and determine the feasibility of towing the bus under manufacturer specified procedures.

### **5.4-II. TEST DESCRIPTION**

This test requires the bus be towed at curb weight using the specified equipment and instructions provided by the manufacturer and a heavy-duty wrecker. The bus will be towed for 5 miles at a speed of 20 mph for each recommended towing configuration. After releasing the bus from the wrecker, the bus will be visually inspected for any structural damage or permanent deformation. All doors, windows and passenger escape mechanisms will be inspected for proper operation.

### **5.4-III. DISCUSSION**

The bus was towed using a heavy-duty wrecker. The towing interface was accomplished by incorporating a hydraulic under lift. A front lift tow was performed. Rear towing is not recommended. No problems, deformation, or damage was noted during testing.

## DYNAMIC TOWING TEST DATA FORM

Bus Number: 0518	Date: 2-13-06
Personnel: T.S. & S.C.	

Temperature (°F): 32	Humidity (%): 59
Wind Direction: NW	Wind Speed (mph): 8
Barometric Pressure (in.Hg): 30.05	

<b>Inspect tow equipment-bus interface.</b>
<b>Comments:</b> A safe and adequate connection was made between the tow equipment and the bus.
<b>Inspect tow equipment-wrecker interface.</b>
<b>Comments:</b> A safe and adequate connection was made between the tow equipment and the wrecker.
<b>Towing Comments:</b> A front lift tow was performed incorporating a hydraulic under lift wrecker.
<b>Description and location of any structural damage:</b> None noted.
<b>General Comments:</b> No problems were encountered with the tow or towing interface.

## 5.4 DYNAMIC TOWING TEST



### TOWING INTERFACE



## 5.5 STRUCTURAL STRENGTH AND DISTORTION TESTS – JACKING TEST

### 5.5-I. TEST OBJECTIVE

The objective of this test is to inspect for damage due to the deflated tire, and determine the feasibility of jacking the bus with a portable hydraulic jack to a height sufficient to replace a deflated tire.

### 5.5-II. TEST DESCRIPTION

With the bus at curb weight, the tire(s) at one corner of the bus are replaced with deflated tire(s) of the appropriate type. A portable hydraulic floor jack is then positioned in a manner and location specified by the manufacturer and used to raise the bus to a height sufficient to provide 3-in clearance between the floor and an inflated tire. The deflated tire(s) are replaced with the original tire(s) and the hack is lowered. Any structural damage or permanent deformation is recorded on the test data sheet. This procedure is repeated for each corner of the bus.

### 5.5-III. DISCUSSION

The jack used for this test has a minimum height of 8.75 inches. During the deflated portion of the test, the jacking point clearances ranged from 8.8 inches to 20.1 inches. No deformation or damage was observed during testing. A complete listing of jacking point clearances is provided in the Jacking Test Data Form.

### JACKING CLEARANCE SUMMARY

Condition	Frame Point Clearance
Front axle – one tire flat	15.3"
Rear axle – one tire flat	20.1"
Rear axle – two tires flat	17.7"

## JACKING TEST DATA FORM

Bus Number: 0518	Date: 12-7-05
Personnel: E.L. & D.L.	Temperature (°F): 68

Record any permanent deformation or damage to bus as well as any difficulty encountered during jacking procedure.

Deflated Tire	Jacking Pad Clearance Body/Frame (in)	Jacking Pad Clearance Axle/Suspension (in)	Comments
Right front	17.3 " I 15.3 " D	11.2 " I 9.3 " D	None noted.
Left front	17.3 " I 15.3 " D	11.3 " I 9.3 " D	"
Right rear—outside	20.2 " I 20.1 " D	11.4 " I 11.2 " D	"
Right rear—both	20.2 " I 17.7 " D	11.4 " I 8.9 " D	"
Left rear—outside	20.3 " I 20.1 " D	11.4 " I 11.1 " D	"
Left rear—both	20.3 " I 17.7 " D	11.4 " I 8.8 " D	"
Right middle or tag—outside	NA	NA	
Right middle or tag—both	NA	NA	
Left middle or tag—outside	NA	NA	
Left middle or tag—both	NA	NA	
<b>Additional comments of any deformation or difficulty during jacking:</b>			
None noted.			

## **5.6 STRUCTURAL STRENGTH AND DISTORTION TESTS - HOISTING TEST**

### **5.6-I. TEST OBJECTIVE**

The objective of this test is to determine possible damage or deformation caused by the jack/stands.

### **5.6-II. TEST DESCRIPTION**

With the bus at curb weight, the front end of the bus is raised to a height sufficient to allow manufacturer-specified placement of jack stands under the axles or jacking pads independent of the hoist system. The bus will be checked for stability on the jack stands and for any damage to the jacking pads or bulkheads. The procedure is repeated for the rear end of the bus. The procedure is then repeated for the front and rear simultaneously.

### **5.6-III. DISCUSSION**

The test was conducted using four posts of a six-post electric lift and standard 19 inch jack stands. The bus was hoisted from the front wheel, rear wheel, and then the front and rear wheels simultaneously and placed on jack stands.

The bus easily accommodated the placement of the vehicle lifts and jack stands and the procedure was performed without any instability noted.

## HOISTING TEST DATA FORM

Bus Number: 0518	Date: 12-12-05
Personnel: T.S. & S.C.	Temperature (°F): 66

<b>Comments of any structural damage to the jacking pads or axles while both the front wheels are supported by the jack stands:</b>
None noted.
<b>Comments of any structural damage to the jacking pads or axles while both the rear wheels are supported by the jack stands:</b>
None noted.
<b>Comments of any structural damage to the jacking pads or axles while both the front and rear wheels are supported by the jack stands:</b>
None noted.

## **5.7 STRUCTURAL DURABILITY TEST**

### **5.7-I. TEST OBJECTIVE**

The objective of this test is to perform an accelerated durability test that approximates up to 25 percent of the service life of the vehicle.

### **5.7-II. TEST DESCRIPTION**

The test vehicle is driven a total of 7,500 miles; approximately 5,000 miles on the PSBRTF Durability Test Track and approximately 2,500 miscellaneous other miles. The test will be conducted with the bus operated under three different loading conditions. The first segment will consist of approximately 3,000 miles with the bus operated at GVW. The second segment will consist of approximately 1,500 miles with the bus operated at SLW. The remainder of the test, approximately 3,000 miles, will be conducted with the bus loaded to CW. If GVW exceeds the axle design weights, then the load will be adjusted to the axle design weights and the change will be recorded. All subsystems are run during these tests in their normal operating modes. All recommended manufacturers servicing is to be followed and noted on the vehicle maintainability log. Servicing items accelerated by the durability tests will be compressed by 10:1; all others will be done on a 1:1 mi/mi basis. Unscheduled breakdowns and repairs are recorded on the same log as are any unusual occurrences as noted by the driver. Once a week the test vehicle shall be washed down and thoroughly inspected for any signs of failure.

### **5.7-III. DISCUSSION**

The Structural Durability Test was started on December 14, 2005 and was conducted until February 1, 2006. The first 3,000 miles were performed at a GVW of 13,950 lbs. and completed on January 6, 2006. The next 1,500 mile SLW segment was performed at 12,500 lbs and completed on January 16, 2006, and the final 3,000 mile segment was performed at a CW of 9,510 lbs and completed on February 1, 2006.

The following mileage summary presents the accumulation of miles during the Structural Durability Test. The driving schedule is included, showing the operating duty cycle. A detailed plan view of the Test Track Facility and Durability Test Track are attached for reference. Also, a durability element profile detail shows all the measurements of the different conditions. The test bus encountered no failures during the Structural Durability Test.

**STARCRAFT - TEST BUS #0518**  
**MILEAGE DRIVEN/RECORDED FROM DRIVERS= LOGS**

DATE	TOTAL DURABILITY TRACK	TOTAL OTHER MILES	TOTAL
12/12/05 TO 12/18/05	496.00	74.00	570.00
12/19/05 TO 12/25/05	801.00	138.00	939.00
12/26/05 TO 01/01/06	0.00	0.00	0.00
01/02/06 TO 01/08/06	703.00	309.00	1012.00
01/09/06 TO 01/15/06	889.00	875.00	1764.00
01/16/06 TO 01/22/06	972.00	728.00	1700.00
01/23/06 TO 01/29/06	1139.00	180.00	1319.00
01/30/06 TO 02/05/06	0.00	196.00	196.00
TOTAL	5000.00	2500.00	7500.00

Table 4. Driving Schedule for Bus Operation on the Durability Test Track.

STANDARD OPERATING SCHEDULE		
Monday through Friday		
	HOUR	ACTION
Shift 1	midnight	D
	1:40 am	C
	1:50 am	B
	2:00 am	D
	3:35 am	C
	3:45 am	B
	4:05 am	D
	5:40 am	C
	5:50 am	B
	6:00 am	D
	7:40 am	C
Shift 2	7:50 am	F
	8:00 am	D
	9:40 am	C
	9:50 am	B
	10:00 am	D
	11:35 am	C
	11:45 am	B
	12:05 pm	D
	1:40 pm	C
	1:50 pm	B
	2:00 pm	D
Shift 3	3:40 pm	C
	3:50 pm	F
	4:00 pm	D
	5:40 pm	C
	5:50 pm	B
	6:00 pm	D
	7:40 pm	C
	7:50 pm	B
	8:05 pm	D
	9:40 pm	C
	9:50 pm	B
	10:00 pm	D
	11:40 pm	C
	11:50 pm	F

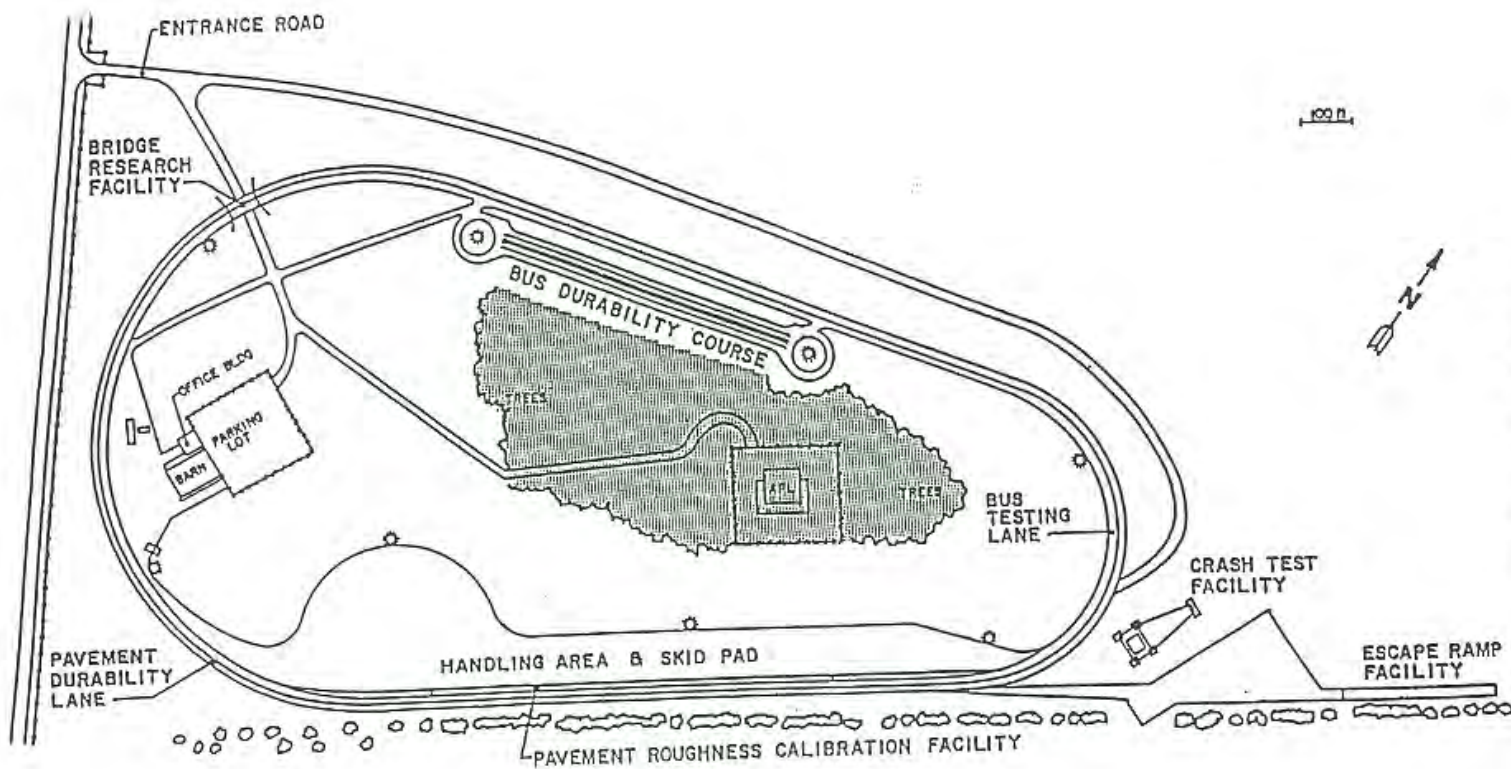
B—Break

C—Cycle all systems five times, visual inspection, driver's log entries

D—Drive bus as specified by procedure

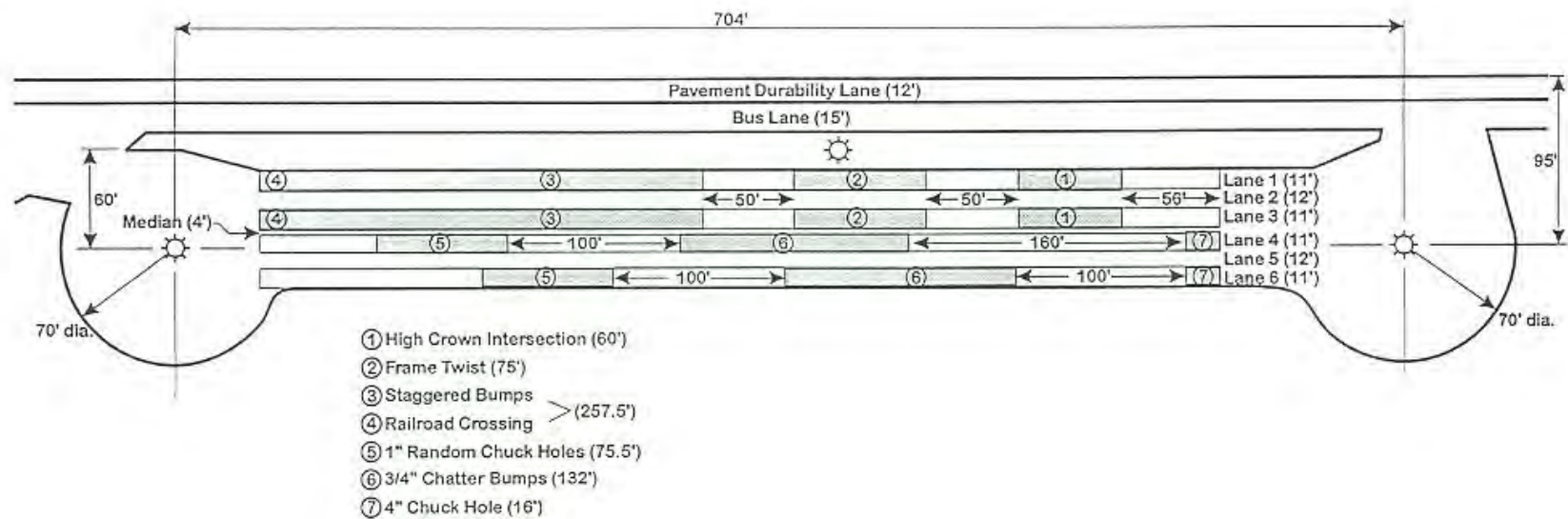
F—Fuel bus, complete driver's log shift entries

**“PLAN VIEW OF PENN STATE BUS TESTING AND  
RESEARCH FACILITY”**



**BUS TESTING AND RESEARCH TEST TRACK  
UNIVERSITY PARK, PA**



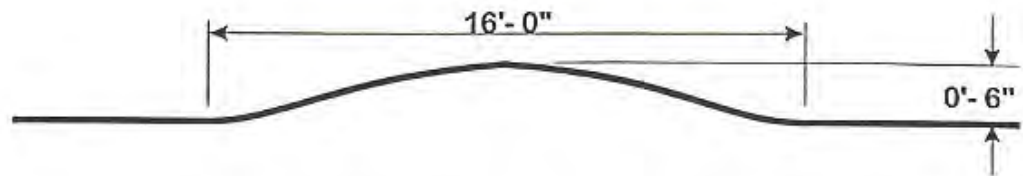


Plan View

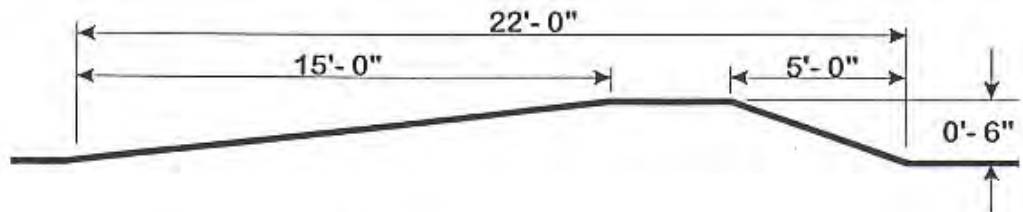
## Vehicle Durability Test Track

The Pennsylvania Transportation Institute  
Penn State

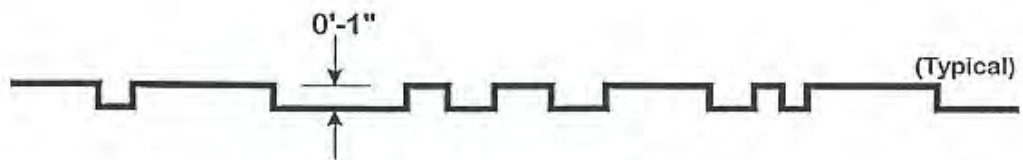
Staggered  
Bumps  
(10 mph)



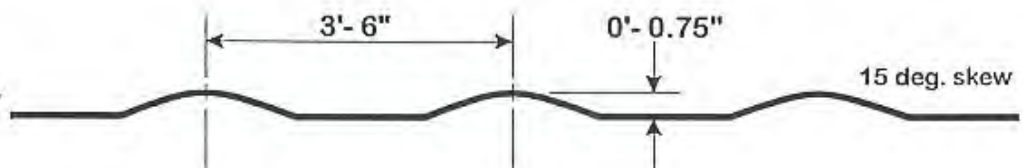
Railroad  
Crossing  
(8 mph)



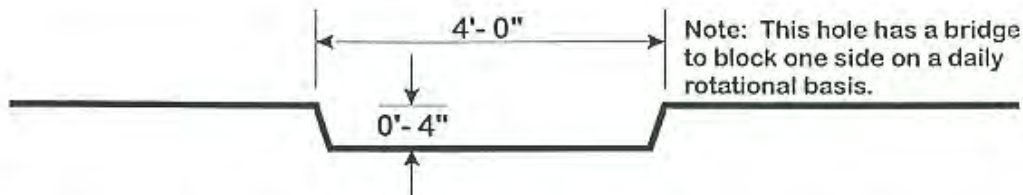
1" Random  
Chuck Holes  
(20 mph)



Chatter Bumps  
(20 mph)

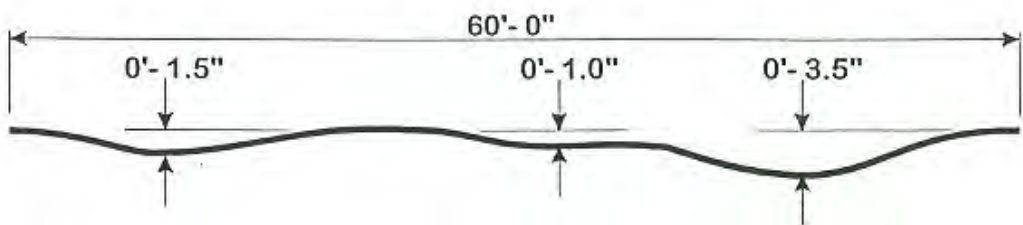


4" Chuck Hole  
(5 mph)

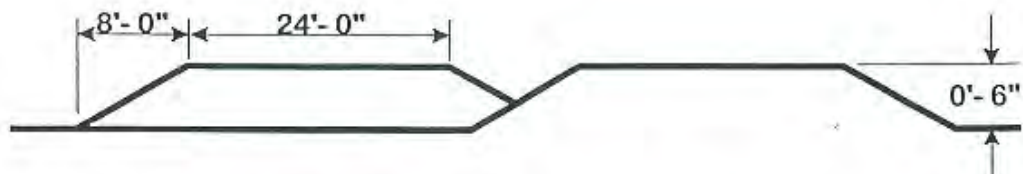


Note: This hole has a bridge to block one side on a daily rotational basis.

High Crown  
Intersection  
(20 mph)



Frame Twist  
(10 mph)



## Durability Element Profiles

The Pennsylvania Transportation Institute  
Penn State

## **6. FUEL ECONOMY TEST - A FUEL CONSUMPTION TEST USING AN APPROPRIATE OPERATING CYCLE**

### **6-I. TEST OBJECTIVE**

The objective of this test is to provide accurate comparable fuel consumption data on transit buses produced by different manufacturers. This fuel economy test bears no relation to the calculations done by the Environmental Protection Agency (EPA) to determine levels for the Corporate Average Fuel Economy Program. EPA's calculations are based on tests conducted under laboratory conditions intended to simulate city and highway driving. This fuel economy test, as designated here, is a measurement of the fuel expended by a vehicle traveling a specified test loop under specified operating conditions. The results of this test will not represent actual mileage but will provide data that can be used by recipients to compare buses tested by this procedure.

### **6-II. TEST DESCRIPTION**

This test requires operation of the bus over a course based on the Transit Coach Operating Duty Cycle (ADB Cycle) at seated load weight using a procedure based on the Fuel Economy Measurement Test (Engineering Type) For Trucks and Buses: SAE 1376 July 82. The procedure has been modified by elimination of the control vehicle and by modifications as described below. The inherent uncertainty and expense of utilizing a control vehicle over the operating life of the facility is impractical.

The fuel economy test will be performed as soon as possible (weather permitting) after the completion of the GVW portion of the structural durability test. It will be conducted on the bus test lane at the Penn State Test Facility. Signs are erected at carefully measured points which delineate the test course. A test run will comprise 3 CBD phases, 2 Arterial phases, and 1 Commuter phase. An electronic fuel measuring system will indicate the amount of fuel consumed during each phase of the test. The test runs will be repeated until there are at least two runs in both the clockwise and counterclockwise directions in which the fuel consumed for each run is within  $\nabla$  4 percent of the average total fuel used over the 4 runs. A 20-minute idle consumption test is performed just prior to and immediately after the driven portion of the fuel economy test. The amount of fuel consumed while operating at normal/low idle is recorded on the Fuel Economy Data Form. This set of four valid runs along with idle consumption data comprise a valid test.

The test procedure is the ADB cycle with the following four modifications:

1. The ADB cycle is structured as a set number of miles in a fixed time in the following order: CBD, Arterial, CBD, Arterial, CBD, and Commuter. A separate idle fuel consumption measurement is performed at the beginning and end of the fuel economy test. This phase sequence permits the reporting of fuel consumption for each of these phases separately, making the data more useful to bus manufacturers and transit properties.
2. The operating profile for testing purposes shall consist of simulated transit type service at seated load weight. The three test phases (figure 6-1) are: a central business district (CBD) phase of 2 miles with 7 stops per mile and a top speed of 20 mph; an arterial phase of 2 miles with 2 stops per mile and a top speed of 40 mph; and a commuter phase of 4 miles with 1 stop and a maximum speed of 40 mph. At each designated stop the bus will remain stationary for seven seconds. During this time, the passenger doors shall be opened and closed.
3. The individual ADB phases remain unaltered with the exception that 1 mile has been changed to 1 lap on the Penn State Test Track. One lap is equal to 5,042 feet. This change is accommodated by adjusting the cruise distance and time.
4. The acceleration profile, for practical purposes and to achieve better repeatability, has been changed to "full throttle acceleration to cruise speed".

Several changes were made to the Fuel Economy Measurement Test (Engineering Type) For Trucks and Buses: SAE 1376 July 82:

1. Sections 1.1, and 1.2 only apply to diesel, gasoline, methanol, and any other fuel in the liquid state (excluding cryogenic fuels).

1.1 SAE 1376 July 82 requires the use of at least a 16-gal fuel tank. Such a fuel tank when full would weigh approximately 160 lb. It is judged that a 12-gal tank weighing approximately 120 lb will be sufficient for this test and much easier for the technician and test personnel to handle.

1.2 SAE 1376 July 82 mentions the use of a mechanical scale or a flowmeter system. This test procedure uses a load cell readout combination that provides an accuracy of 0.5 percent in weight and permits on-board weighing of the gravimetric tanks at the end of each phase. This modification permits the determination of a fuel economy value for each phase as well as the overall cycle.

2. Section 2.1 applies to compressed natural gas (CNG), liquefied natural gas (LNG), cryogenic fuels, and other fuels in the vapor state.

2.1 A laminar type flowmeter will be used to determine the fuel consumption. The pressure and temperature across the flow element will be monitored by the flow computer. The flow computer will use this data to calculate the gas flow rate. The flow computer will also display the flow rate (scfm) as well as the total fuel used (scf). The total fuel used (scf) for each phase will be recorded on the Fuel Economy Data Form.

3. Use both Sections 1 and 2 for dual fuel systems.

## FUEL ECONOMY CALCULATION PROCEDURE

### **A. For diesel, gasoline, methanol and fuels in the liquid state.**

The reported fuel economy is based on the following: measured test quantities-- distance traveled (miles) and fuel consumed (pounds); standard reference values-- density of water at 60EF (8.3373 lbs/gal) and volumetric heating value of standard fuel; and test fuel specific gravity (unitless) and volumetric heating value (BTU/gal). These combine to give a fuel economy in miles per gallon (mpg) which is corrected to a standard gallon of fuel referenced to water at 60EF. This eliminates fluctuations in fuel economy due to fluctuations in fuel quality. This calculation has been programmed into a computer and the data processing is performed automatically.

The fuel economy correction consists of three steps:

- 1.) Divide the number of miles of the phase by the number of pounds of fuel consumed

phase	miles per phase	total miles per run
CBD	1.9097	5.7291
ART	1.9097	3.8193
COM	3.8193	3.8193

$$FE_{o_{mi/lb}} = \text{Observed fuel economy} = \frac{\text{miles}}{\text{lb of fuel}}$$

- 2.) Convert the observed fuel economy to miles per gallon [mpg] by multiplying by the specific gravity of the test fuel  $G_s$  (referred to water) at 60EF and multiply by the density of water at 60EF

$$FE_{\text{mpg}} = FE_{\text{mi/lb}} \times G_s \times G_w$$

where  $G_s$  = Specific gravity of test fuel at 60EF (referred to water)  
 $G_w$  = 8.3373 lb/gal

- 3.) Correct to a standard gallon of fuel by dividing by the volumetric heating value of the test fuel ( $H$ ) and multiplying by the volumetric heating value of standard reference fuel ( $Q$ ). Both heating values must have the same units.

$$FE_c = FE_{\text{mpg}} \times \frac{Q}{H}$$

where

$H$  = Volumetric heating value of test fuel [BTU/gal]  
 $Q$  = Volumetric heating value of standard reference fuel

Combining steps 1-3 yields

$$\Rightarrow FE_c = \frac{\text{miles}}{\text{lbs}} \times (G_s \times G_w) \times \frac{Q}{H}$$

- 4.) Covert the fuel economy from mpg to an energy equivalent of miles per BTU. Since the number would be extremely small in magnitude, the energy equivalent will be represented as miles/BTU $\times 10^6$ .

$Eq$  = Energy equivalent of converting mpg to mile/BTU $\times 10^6$ .

$$Eq = ((\text{mpg})/(H)) \times 10^6$$

## B. CNG, LNG, cryogenic and other fuels in the vapor state.

The reported fuel economy is based on the following: measured test quantities-- distance traveled (miles) and fuel consumed (scf); density of test fuel, and volumetric heating value (BTU/lb) of test fuel at standard conditions ( $P=14.73$  psia and  $T=60$  EF).

These combine to give a fuel economy in miles per lb. The energy equivalent (mile/BTUx10<sup>6</sup>) will also be provided so that the results can be compared to buses that use other fuels.

- 1.) Divide the number of miles of the phase by the number of standard cubic feet (scf) of fuel consumed.

phase	miles per phase	total miles per run
CBD	1.9097	5.7291
ART	1.9097	3.8193
COM	3.8193	3.8193

$$\text{FEO}_{\text{mi/scf}} = \text{Observed fuel economy} = \frac{\text{miles}}{\text{scf of fuel}}$$

- 2.) Convert the observed fuel economy to miles per lb by dividing FEO by the density of the test fuel at standard conditions (Lb/ft<sup>3</sup>).

**Note: The density of test fuel must be determined at standard conditions as described above. If the density is not defined at the above standard conditions, then a correction will be needed before the fuel economy can be calculated.**

$$\text{FEO}_{\text{mi/lb}} = \text{FEO} / \text{Gm}$$

where Gm = Density of test fuel at standard conditions

- 3.) Convert the observed fuel economy (FEOmi/lb) to an energy equivalent of (miles/BTUx10<sup>6</sup>) by dividing the observed fuel economy (FEOmi/lb) by the heating value of the test fuel at standard conditions.

$$\text{Eq} = ((\text{FEOmi/lb})/\text{H}) \times 10^6$$

where

Eq = Energy equivalent of miles/lb to mile/BTUx10<sup>6</sup>

H = Volumetric heating value of test fuel at standard conditions

### 6-III. DISCUSSION

This is a comparative test of fuel economy using unleaded gasoline fuel with a heating value of 20,025.0 btu/lb. The driving cycle consists of Central Business District (CBD), Arterial (ART), and Commuter (COM) phases as described in 6-II. The fuel consumption for each driving cycle and for idle is measured separately. The results are corrected to a reference fuel with a volumetric heating value of 127,700.0 btu/gal.

An extensive pretest maintenance check is made including the replacement of all lubrication fluids. The details of the pretest maintenance are given in the first three Pretest Maintenance Forms. The fourth sheet shows the Pretest Inspection. The next sheet shows the correction calculation for the test fuel. The next four Fuel Economy Forms provide the data from the four test runs. Finally, the summary sheet provides the average fuel consumption. The overall average is based on total fuel and total mileage for each phase. The overall average fuel consumption values were; CBD – 6.39 mpg, ART – 6.90 mpg, and COM – 10.17 mpg. Average fuel consumption at idle was 4.10 lb/hr (0.65 gph).



## FUEL ECONOMY PRE-TEST MAINTENANCE FORM

Bus Number: 0518	Date: 1-30-06	SLW (lbs): 12,500
Personnel: T.S., E.L. & D.L.		

FUEL SYSTEM	OK	Date	Initials
Install fuel measurement system		1/30/06	T.S.
Replace fuel filter		1/30/06	T.S.
Check for fuel leaks		1/30/06	T.S.
Specify fuel type (refer to fuel analysis)	Gasoline		
Remarks: None noted.			
BRAKES/TIRES	OK	Date	Initials
Inspect hoses		1/30/06	T.S.
Inspect brakes		1/30/06	T.S.
Relube wheel bearings		1/30/06	T.S.
Check tire inflation pressures (mfg. specs.)		1/30/06	T.S.
Remarks: None noted.			
COOLING SYSTEM	OK	Date	Initials
Check hoses and connections		1/30/06	D.L.
Check system for coolant leaks		1/30/06	D.L.
Remarks: None noted.			

## FUEL ECONOMY PRE-TEST MAINTENANCE FORM (page 2)

Bus Number: 0518	Date: 1-30-06		
Personnel: T.S., E.L. & D.L.			
ELECTRICAL SYSTEMS	OK	Date	Initials
Check battery		1/30/06	T.S.
Inspect wiring		1/30/06	T.S.
Inspect terminals		1/30/06	T.S.
Check lighting		1/30/06	T.S.
Remarks: None noted.			
DRIVE SYSTEM	OK	Date	Initials
Drain transmission fluid		1/30/06	D.L.
Replace filter/gasket		1/30/06	E.L.
Check hoses and connections		1/30/06	D.L.
Replace transmission fluid		1/30/06	E.L.
Check for fluid leaks		1/30/06	E.L.
Remarks: None noted.			
LUBRICATION	OK	Date	Initials
Drain crankcase oil		1/30/06	E.L.
Replace filters		1/30/06	D.L.
Replace crankcase oil		1/30/06	T.S.
Check for oil leaks		1/30/06	E.L.
Check oil level		1/30/06	T.S.
Lube all chassis grease fittings		1/30/06	E.L.
Lube universal joints		1/30/06	E.L.
Replace differential lube including axles		1/30/06	D.L.
Remarks: None noted.			

## FUEL ECONOMY PRE-TEST MAINTENANCE FORM (page 3)

Bus Number: 0518	Date: 1-30-06		
Personnel: T.S., E.L. & D.L.			
EXHAUST/EMISSION SYSTEM	OK	Date	Initials
Check for exhaust leaks		1/30/06	T.S.
Remarks: None noted.			
ENGINE	OK	Date	Initials
Replace air filter		1/30/06	E.L.
Inspect air compressor and air system	N/A	1/30/06	E.L.
Inspect vacuum system, if applicable		1/30/06	D.L.
Check and adjust all drive belts		1/30/06	E.L.
Check cold start assist, if applicable	N/A	1/30/06	E.L.
Remarks: None noted.			
STEERING SYSTEM	OK	Date	Initials
Check power steering hoses and connectors		1/30/06	E.L.
Service fluid level		1/30/06	E.L.
Check power steering operation		1/30/06	E.L.
Remarks: None noted.			
	OK	Date	Initials
Ballast bus to seated load weight		1/30/06	T.S.
TEST DRIVE	OK	Date	Initials
Check brake operation		1/30/06	T.S.
Check transmission operation		1/30/06	T.S.
Remarks: None noted.			

## FUEL ECONOMY PRE-TEST INSPECTION FORM

Bus Number: 0518	Date: 1-31-06
Personnel: T.S. & S.C.	
PRE WARM-UP	If OK, Initial
Fuel Economy Pre-Test Maintenance Form is complete	T.S.
Cold tire pressure (psi): Front <u>80</u> Middle <u>N/A</u> Rear <u>80</u>	T.S.
Tire wear:	T.S.
Engine oil level	T.S.
Engine coolant level	T.S.
Interior and exterior lights on, evaporator fan on	T.S.
Fuel economy instrumentation installed and working properly.	T.S.
Fuel line -- no leaks or kinks	T.S.
Speed measuring system installed on bus. Speed indicator installed in front of bus and accessible to TECH and Driver.	S.C. & T.S.
Bus is loaded to SLW	T.S.
WARM-UP	If OK, Initial
Bus driven for at least one hour warm-up	S.C.
No extensive or black smoke from exhaust	S.C.
POST WARM-UP	If OK, Initial
Warm tire pressure (psi): Front <u>80</u> Middle <u>N/A</u> Rear <u>80</u>	T.S.
Environmental conditions Average wind speed <12 mph and maximum gusts <15 mph Ambient temperature between 30°F(-1C°) and 90°F(32°C) Track surface is dry Track is free of extraneous material and clear of interfering traffic	T.S.

## FUEL ECONOMY DATA FORM (Liquid Fuels)

Bus Number: 0518		Manufacturer: Starcraft		Date: 1-31-06			
Run Number: 1		Personnel: B.S., T.S. & S.C.					
Test Direction: <input type="checkbox"/> CW or <input checked="" type="checkbox"/> CCW		Temperature (°F): 38			Humidity (%): 61		
SLW (lbs): 12,500		Wind Speed (mph) & Direction: 12/WNW			Barometric Pressure (in.Hg): 29.80		

Cycle Type	Time (min:sec)		Cycle Time (min:sec)	Fuel Temperature (°C)	Load Cell Reading (lb)		Fuel Used (lbs)
	Start	Finish		Start	Start	Finish	
CBD #1	0	8:20	8:20	5.5	0	1.95	1.95
ART #1	0	3:54	3:54	4.5	0	1.74	1.74
CBD #2	0	8:25	8:25	4.5	0	1.82	1.82
ART #2	0	3:59	3:59	4.5	0	1.70	1.70
CBD #3	0	8:21	8:21	4.5	0	1.88	1.88
COMMUTER	0	5:51	5:51	4.0	0	2.37	2.37
Total Fuel = 11.46 lbs							

20 minute idle : Total Fuel Used = 1.36 lbs
Heating Value = 20,025.0 BTU/LB
Comments: None noted.

## FUEL ECONOMY DATA FORM (Liquid Fuels)

Bus Number: 0518		Manufacturer: Starcraft		Date: 1-31-06			
Run Number: 2		Personnel: B.S., T.S. & S.C.					
Test Direction: <input checked="" type="checkbox"/> CW or <input type="checkbox"/> CCW		Temperature (°F): 38			Humidity (%): 61		
SLW (lbs): 12,500		Wind Speed (mph) & Direction: 12/WNW			Barometric Pressure (in.Hg): 29.80		

Cycle Type	Time (min:sec)		Cycle Time (min:sec)	Fuel Temperature (°C)	Load Cell Reading (lb)		Fuel Used (lbs)
	Start	Finish		Start	Start	Finish	
CBD #1	0	8:45	8:45	4.0	0	1.82	1.82
ART #1	0	3:57	3:57	4.0	0	1.68	1.68
CBD #2	0	8:25	8:25	3.5	0	1.88	1.88
ART #2	0	3:56	3:56	3.5	0	1.80	1.80
CBD #3	0	8:24	8:24	3.5	0	1.87	1.87
COMMUTER	0	6:06	6:06	3.5	0	2.40	2.40
Total Fuel = 11.45 lbs							

20 minute idle : Total Fuel Used = N/A lbs
Heating Value = 20,025.0 BTU/LB
Comments: None noted.

## FUEL ECONOMY DATA FORM (Liquid Fuels)

Bus Number: 0518		Manufacturer: Starcraft		Date: 2/1/06			
Run Number: 3		Personnel: B.S., T.S. & S.C.					
Test Direction: <input type="checkbox"/> CW or <input checked="" type="checkbox"/> CCW		Temperature (°F): 36			Humidity (%): 65		
SLW (lbs): 12,500		Wind Speed (mph) & Direction: 5/SSW			Barometric Pressure (in.Hg): 29.96		

Cycle Type	Time (min:sec)		Cycle Time (min:sec)	Fuel Temperature (°C)	Load Cell Reading (lb)		Fuel Used (lbs)
	Start	Finish		Start	Start	Finish	
CBD #1	0	8:51	8:51	4.0	0	1.87	1.87
ART #1	0	3:53	3:53	4.0	0	1.77	1.77
CBD #2	0	8:33	8:33	4.0	0	1.89	1.89
ART #2	0	3:55	3:55	4.0	0	1.76	1.76
CBD #3	0	8:36	8:36	4.5	0	1.93	1.93
COMMUTER	0	6:05	6:05	4.5	0	2.39	2.39
Total Fuel = 11.61 lbs							

20 minute idle : Total Fuel Used = N/A lbs
Heating Value = 20,025.0 BTU/LB
Comments: None noted.

## FUEL ECONOMY DATA FORM (Liquid Fuels)

Bus Number: 0518		Manufacturer: Starcraft		Date: 2-1-06			
Run Number: 4		Personnel: B.S., T.S. & S.C.					
Test Direction: <input checked="" type="checkbox"/> CW or <input type="checkbox"/> CCW		Temperature (°F): 36			Humidity (%): 65		
SLW (lbs): 12,500		Wind Speed (mph) & Direction: 5/SSW			Barometric Pressure (in.Hg): 29.96		

Cycle Type	Time (min:sec)		Cycle Time (min:sec)	Fuel Temperature (°C)	Load Cell Reading (lb)		Fuel Used (lbs)
	Start	Finish		Start	Start	Finish	
CBD #1	0	8:38	8:38	3.5	0	1.94	1.94
ART #1	0	3:59	3:59	4.5	0	1.81	1.81
CBD #2	0	8:37	8:37	5.5	0	1.92	1.92
ART #2	0	3:55	3:55	5.5	0	1.76	1.76
CBD #3	0	8:36	8:36	4.5	0	1.93	1.93
COMMUTER	0	5:58	5:58	5.0	0	2.35	2.35
Total Fuel = 11.71 lbs							

20 minute idle : Total Fuel Used = 1.37 lbs
Heating Value = 20,025.0 BTU/LB
Comments: None noted.



0518.FUL  
FUEL ECONOMY SUMMARY SHEET

BUS MANUFACTURER :Starcraft  
BUS MODEL :Allstar-25

BUS NUMBER :0518  
TEST DATE :1/31/06

FUEL TYPE : GASOLINE  
SP. GRAVITY : .7512  
HEATING VALUE : 20025.00 BTU/Lb  
Standard Conditions : 60 deg F and 14.7 psi  
Density of water : 8.3373 lb/gallon at 60 deg F

CYCLE	TOTAL FUEL USED (Lb)	TOTAL MILES	FUEL ECONOMY M/Lb(Measured)	FUEL ECONOMY MPG(Corrected)
Run # :1, CCW				
CBD	5.65	5.73	1.01	6.42
ART	3.44	3.82	1.11	7.03
COM	2.37	3.82	1.61	10.20
TOTAL	11.46	13.37	1.17	7.38
Run # :2, CW				
CBD	5.57	5.73	1.03	6.51
ART	3.48	3.82	1.10	6.95
COM	2.40	3.82	1.59	10.07
TOTAL	11.45	13.37	1.17	7.39
Run # :3, CCW				
CBD	5.69	5.73	1.01	6.37
ART	3.53	3.82	1.08	6.85
COM	2.39	3.82	1.60	10.11
TOTAL	11.61	13.37	1.15	7.29
Run # :4, CW				
CBD	5.79	5.73	.99	6.26
ART	3.57	3.82	1.07	6.77
COM	2.35	3.82	1.63	10.28
TOTAL	11.71	13.37	1.14	7.22

-----  
IDLE CONSUMPTION

First 20 Minutes Data : 1.36 Lb Last 20 Minutes Data : 1.37 Lb  
Average Idle Consumption : 4.10 Lb/Hr

RUN CONSISTENCY: % Difference from overall average of total fuel used

-----  
Run 1 : .8 Run 2 : .9 Run 3 : -.5 Run 4 : -1.3

SUMMARY

-----  
Average Idle Consumption : .65 G/Hr  
Average CBD Phase Consumption : 6.39 MPG  
Average Arterial Phase Consumption : 6.90 MPG  
Average Commuter Phase Consumption : 10.17 MPG  
Overall Average Fuel Consumption : 7.32 MPG  
Overall Average Fuel Consumption : 58.37 Miles/ Million BTU

## 7. NOISE

### 7.1 INTERIOR NOISE AND VIBRATION TESTS

#### 7.1-I. TEST OBJECTIVE

The objective of these tests is to measure and record interior noise levels and check for audible vibration under various operating conditions.

#### 7.1-II. TEST DESCRIPTION

During this series of tests, the interior noise level will be measured at several locations with the bus operating under the following three conditions:

1. With the bus stationary, a white noise generating system shall provide a uniform sound pressure level equal to 80 dB(A) on the left, exterior side of the bus. The engine and all accessories will be switched off and all openings including doors and windows will be closed. This test will be performed at the ABTC.
2. The bus accelerating at full throttle from a standing start to 35 mph on a level pavement. All openings will be closed and all accessories will be operating during the test. This test will be performed on the track at the Test Track Facility.
3. The bus will be operated at various speeds from 0 to 55 mph with and without the air conditioning and accessories on. Any audible vibration or rattles will be noted. This test will be performed on the test segment between the Test Track and the Bus Testing Center.

All tests will be performed in an area free from extraneous sound-making sources or reflecting surfaces. The ambient sound level as well as the surrounding weather conditions will be recorded in the test data.

#### 7.1-III. DISCUSSION

This test is performed in three parts. The first part exposes the exterior of the vehicle to 80.0 dB(A) on the left side of the bus and the noise transmitted to the interior is measured. The overall average of the six measurements was 48.0 dB(A); ranging from 47.1 dB(A) at the rear passenger seats to 50.9 dB(A) at the driver's seat. The interior ambient noise level for this test was < 34.0 dB(A).

The second test measures interior noise during acceleration from 0 to 35 mph. This noise level ranged from 69.4 dB(A) at the front passenger seats to 71.7 dB(A) at the rear passenger seats. The overall average was 71.0 dB(A). The interior ambient noise level for this test was 38.6 dB(A).

The third part of the test is to listen for resonant vibrations, rattles, and other noise sources while operating over the road. No vibrations or rattles were noted.

**INTERIOR NOISE TEST DATA FORM**  
**Test Condition 1: 80 dB(A) Stationary White Noise**

Bus Number: 0518	Date: 2/8/06
Personnel: T.S. & S.C.	
Temperature (°F): 33	Humidity (%): 67
Wind Speed (mph): Calm	Wind Direction: Calm
Barometric Pressure (in.Hg): 30.10	
Initial Sound Level Meter Calibration: ■ checked by: S.C.	
Interior Ambient Noise Level dB(A): < 34.0	Exterior Ambient Noise Level dB(A): 45.1
Microphone Height During Testing (in): 48.0	

Measurement Location	Measured Sound Level dB(A)
Driver's Seat	50.9
Front Passenger Seats	47.6
In Line with Front Speaker	47.8
In Line with Middle Speaker	47.6
In Line with Rear Speaker	47.2
Rear Passenger Seats	47.1

Final Sound Level Meter Calibration: ■ checked by: S.C.
---

Comments: All readings taken in the center aisle.

**INTERIOR NOISE TEST DATA FORM**  
**Test Condition 2: 0 to 35 mph Acceleration Test**

Bus Number: 0518	Date: 2-2-06
Personnel: B.S., S.C. & T.S.	
Temperature (°F): 37	Humidity (%): 93
Wind Speed (mph): Calm	Wind Direction: Calm
Barometric Pressure (in.Hg): 29.91	
Initial Sound Level Meter Calibration: ■ checked by: S.C.	
Interior Ambient Noise Level dB(A): 38.6	Exterior Ambient Noise Level dB(A): 53.2
Microphone Height During Testing (in): 48.0	

Measurement Location	Measured Sound Level dB(A)
Driver's Seat	71.5
Front Passenger Seats	69.4
Middle Passenger Seats	71.5
Rear Passenger Seats	71.7

Final Sound Level Meter Calibration: ■ checked by: S.C.
---

Comments: All readings taken in the center aisle.

# **INTERIOR NOISE TEST DATA FORM** **Test Condition 3: Audible Vibration Test**

Bus Number: 0518	Date: 2-2-06
Personnel: B.S., S.C. & T.S.	
Temperature (°F): 37	Humidity (%): 93
Wind Speed (mph): Calm	Wind Direction: Calm
Barometric Pressure (in.Hg): 29.91	

Describe the following possible sources of noise and give the relative location on the bus.

Source of Noise	Location
Engine and Accessories	None noted.
Windows and Doors	None noted.
Seats and Wheel Chair lifts	None noted.

Comment on any other vibration or noise source which may have occurred that is not described above: None noted.

## 7.1 INTERIOR NOISE TEST



**TEST BUS SET-UP FOR 80 dB(A)  
INTERIOR NOISE TEST**

## **7.2 EXTERIOR NOISE TESTS**

### **7.2-I. TEST OBJECTIVE**

The objective of this test is to record exterior noise levels when a bus is operated under various conditions.

### **7.2-II. TEST DESCRIPTION**

In the exterior noise tests, the bus will be operated at a SLW in three different conditions using a smooth, straight and level roadway:

1. Accelerating at full throttle from a constant speed at or below 35 mph and just prior to transmission up shift.
2. Accelerating at full throttle from standstill.
3. Stationary, with the engine at low idle, high idle, and wide open throttle.

In addition, the buses will be tested with and without the air conditioning and all accessories operating. The exterior noise levels will be recorded.

The test site is at the PSBRTF and the test procedures will be in accordance with SAE Standards SAE J366b, Exterior Sound Level for Heavy Trucks and Buses. The test site is an open space free of large reflecting surfaces. A noise meter placed at a specified location outside the bus will measure the noise level.

During the test, special attention should be paid to:

1. The test site characteristics regarding parked vehicles, signboards, buildings, or other sound-reflecting surfaces
2. Proper usage of all test equipment including set-up and calibration
3. The ambient sound level

### **7.2-III. DISCUSSION**

The Exterior Noise Test determines the noise level generated by the vehicle under different driving conditions and at stationary low and high idle, with and without air conditioning and accessories operating. The test site is a large, level, bituminous paved area with no reflecting surfaces nearby.

With an exterior ambient noise level of 51.6 dB(A), the average test result obtained while accelerating from a constant speed was 73.2 dB(A) on the right side and 73.0 dB(A) on the left side.



When accelerating from a standstill with an exterior ambient noise level of 53.7 dB(A), the average of the results obtained were 72.7 dB(A) on the right side and 71.4 dB(A) on the left side.

With the vehicle stationary and the engine, accessories, and air conditioning on, the measurements averaged 48.0 dB(A) at low idle, 56.2 dB(A) at high idle, and 67.1 dB(A) at wide open throttle. With the accessories and air conditioning off, the readings averaged 0.5 dB(A) higher at low idle, 0.8 dB(A) higher at high idle, and 0.3 dB(A) higher at wide open throttle. The exterior ambient noise level measured during this test was 50.9 dB(A).

## EXTERIOR NOISE TEST DATA FORM

### Accelerating from Constant Speed

Bus Number: 0518	Date: 2-2-06
Personnel: B.S., S.C. & T.S.	
Temperature (°F): 41	Humidity (%): 85
Wind Speed (mph): 5	Wind Direction: SW
Barometric Pressure (in.Hg): 29.91	
Verify that microphone height is 4 feet, wind speed is less than 12 mph and ambient temperature is between 30°F and 90°F: ■ checked by: S.C.	
Initial Sound Level Meter Calibration: ■ checked by: S.C.	
Exterior Ambient Noise Level dB(A): 51.6	

Accelerating from Constant Speed Curb (Right) Side		Accelerating from Constant Speed Street (Left) Side	
Run #	Measured Noise Level dB(A)	Run #	Measured Noise Level dB(A)
1	72.6	1	73.2
2	72.4	2	72.7
3	73.0	3	72.5
4	73.2	4	72.6
5	73.1	5	72.7
Average of two highest actual noise levels = 73.2 dB(A)		Average of two highest actual noise levels = 73.0 dB(A)	

Final Sound Level Meter Calibration Check: ■ checked by: S.C.
Comments: None noted.

## EXTERIOR NOISE TEST DATA FORM

### Accelerating from Standstill

Bus Number: 0518	Date: 2-2-06
Personnel: B.S., S.C. & T.S.	
Temperature (°F): 41	Humidity (%): 85
Wind Speed (mph): 5	Wind Direction: SW
Barometric Pressure (in.Hg): 29.91	
Verify that microphone height is 4 feet, wind speed is less than 12 mph and ambient temperature is between 30°F and 90°F: ■ checked by: S.C.	
Initial Sound Level Meter Calibration: ■ checked by: S.C.	
Exterior Ambient Noise Level dB(A): 53.7	

Accelerating from Standstill Curb (Right) Side		Accelerating from Standstill Street (Left) Side	
Run #	Measured Noise Level dB(A)	Run #	Measured Noise Level dB(A)
1	72.4	1	71.3
2	72.9	2	71.4
3	72.1	3	71.0
4	72.5	4	71.3
5	72.4	5	71.2
Average of two highest actual noise levels = 72.7 dB(A)		Average of two highest actual noise levels = 71.4 dB(A)	

Final Sound Level Meter Calibration Check: ■ checked by: S.C.
Comments: None noted.

## EXTERIOR NOISE TEST DATA FORM

### Stationary

Bus Number: 0518		Date: 2-2-06	
Personnel: B.S., S.C. & T.S.			
Temperature (°F): 41		Humidity (%): 85	
Wind Speed (mph): 5		Wind Direction: SW	
Barometric Pressure (in.Hg): 29.91			
Verify that microphone height is 4 feet, wind speed is less than 12 mph and ambient temperature is between 30°F and 90°F: ■ checked by: S.C.			
Initial Sound Level Meter Calibration: ■ checked by: S.C.			
Exterior Ambient Noise Level dB(A): 50.9			
Accessories and Air Conditioning ON			
Throttle Position	Engine RPM	Curb (Right) Side dB(A)	Street (Left) Side db(A)
		Measured	Measured
Low Idle	703	47.8	48.2
High Idle	2,050	54.3	58.1
Wide Open Throttle	3,602	67.0	67.2
Accessories and Air Conditioning OFF			
Throttle Position	Engine RPM	Curb (Right) Side dB(A)	Street (Left) Side db(A)
		Measured	Measured
Low Idle	750	48.0	49.0
High Idle	2,153	54.7	59.3
Wide Open Throttle	3,651	66.9	67.8
Final Sound Level Meter Calibration Check: ■ checked by: S.C.			
Comments: None noted.			

## 7.2 EXTERIOR NOISE TESTS



**TEST BUS UNDERGOING EXTERIOR NOISE TESTING**



Filename: Report.0518.doc  
Directory: E:  
Template: C:\Documents and Settings\vnocek\Application  
Data\Microsoft\Templates\Normal.dot  
Title: 5  
Subject:  
Author: Sondra Hoover  
Keywords:  
Comments:  
Creation Date: 2/20/2006 10:52:00 AM  
Change Number: 2  
Last Saved On: 2/20/2006 10:52:00 AM  
Last Saved By: PTI  
Total Editing Time: 1 Minute  
Last Printed On: 3/6/2007 10:41:00 AM  
As of Last Complete Printing  
Number of Pages: 102  
Number of Words: 14,310 (approx.)  
Number of Characters: 70,410 (approx.)

## 2018 Model Year **Ford Warranty Guide**

(Except F-650/750, Hybrid and Electric Vehicles)



owner.ford.com



ford.ca

September 2017  
Fourth Printing  
Warranty Guide  
Litho in U.S.A.



JW7J19T201 CA





Your satisfaction is our #1 goal. If you have any questions or concerns, or are unsatisfied with the service you are receiving, follow these steps:

1. Contact your Sales Representative or Service Advisor at your selling/servicing dealership.
2. If your inquiry or concern remains unresolved, contact the Sales Manager, Service Manager or Customer Relations Manager.
3. If you require assistance or clarification on Ford Motor Company policies or procedures, please contact the Ford Customer Relationship Center.

<b>In the United States:</b>	<b>In Canada:</b>
Ford Motor Company Customer Relationship Center P.O. Box 6248 Dearborn, MI 48121 1-800-392-3673 (FORD) (TDD for the hearing impaired: 1-800-232-5952) <a href="http://www.owner.ford.com">www.owner.ford.com</a>	Customer Relationship Centre Ford Motor Company of Canada, Limited P.O. Box 2000 Oakville, Ontario L6J 5E4 1-800-565-3673 (FORD) <a href="http://www.ford.ca">www.ford.ca</a>
<b>In Asia-Pacific Region, Sub-Saharan Africa, U.S. Virgin Islands, Central America, the Caribbean, and Israel:</b>	<b>In Puerto Rico:</b>
Ford Motor Company Ford Export Operations Attention: Customer Relations 1555 Fairlane Drive Fairlane Business Park #3 Allen Park, MI 48101 Telephone: (313) 594-4857 For customers in Guam, the Commonwealth of the Northern Mariana Islands (CNMI), America Samoa, and the U.S. Virgin Islands, please feel free to call our Toll-Free Number: (800) 841-FORD (3673) Fax: (313) 390-0804 E-mail: <a href="mailto:expcac@ford.com">expcac@ford.com</a>	Ford International Business Development, Inc. P.O. Box 11957 Caparra Heights Station San Juan, PR 00922-1957 Telephone: (800) 841-FORD (3673) Fax: (313) 390-0804 E-mail: <a href="mailto:prcac@ford.com">prcac@ford.com</a> <a href="http://www.ford.com.pr">www.ford.com.pr</a>
<b>In Middle East:</b>	
Ford Middle East Customer Relationship Center P.O. Box 21470 Dubai, United Arab Emirates Telephone: 971-4-3326084 Toll-free Number for the Kingdom of Saudi Arabia: 800 8971409 Local Telephone Number for Kuwait: 24810575 Fax: 971-4-3327299 E-mail: <a href="mailto:menacac@ford.com">menacac@ford.com</a> <a href="http://www.me.ford.com">www.me.ford.com</a>	



## **Table of Contents**

<b>1. INTRODUCTION</b>	<b>1</b>
<b>2. IMPORTANT INFORMATION YOU SHOULD KNOW</b>	<b>2</b>
If You Need Customer Assistance	2
Know When Your Warranty Begins	2
Check Your Vehicle	2
Maintain Your Vehicle Properly	2
Who Pays For Warranty Repairs?	3
Do Warranties Apply In Other Countries?	4
<b>3. THE NEW VEHICLE LIMITED WARRANTY FOR YOUR 2018-MODEL VEHICLE</b>	<b>5</b>
Limitations And Disclaimers	5
What Is Covered?	8
What Is Not Covered?	12
<b>4. IN ADDITION ...</b>	<b>16</b>
Roadside Service Assistance (United States, Puerto Rico, And U.S. Virgin Islands)	16
<b>5. FEDERAL REQUIREMENTS FOR EMISSIONS WARRANTIES</b>	<b>17</b>
What Is Covered?	20
What Is Not Covered?	21
<b>6. CALIFORNIA REQUIREMENTS FOR EMISSIONS WARRANTIES</b>	<b>22</b>
What Is Covered?	26
What Is Not Covered?	29

7. ADDITIONAL INFORMATION ABOUT YOUR EMISSIONS WARRANTY COVERAGE, UNDER FEDERAL AND CALIFORNIA REQUIREMENTS	30
8. NOISE EMISSIONS WARRANTY	32
9. FORD PROTECT EXTENDED SERVICE PLAN	33
10. BETTER BUSINESS BUREAU (BBB) AUTO LINE PROGRAM	34
11. STATE WARRANTY ENFORCEMENT LAWS	35
12. IMPORTANT INFORMATION ABOUT AMBULANCE CONVERSIONS	36

## 1. Introduction

**Ford Motor Company** and your selling dealer thank you for selecting one of our quality products. Our commitment to you and your vehicle begins with quality protection and service.

When you need warranty repairs, your selling dealer would like you to return to it for that service, but you may also take your vehicle to another Ford Motor Company dealership authorized for warranty repairs. Certain warranty repairs require special training though, so not all dealers are authorized to perform all warranty repairs. That means that, depending on the warranty repair needed, the vehicle may need to be taken to another dealer. If a particular dealership cannot assist you, then contact the Customer Relationship Center at 1-800-392-3673.

This booklet explains in detail the warranty coverages that apply to your 2018-model car or light truck. If you bought a previously owned 2018-model vehicle, you are eligible for any remaining warranty coverages.

Ford Motor Company provides the **Emissions Defect Warranties** and **Emissions Performance Warranties** which cover your emissions control systems, and **Noise Emissions Warranty** which applies only to medium/heavy duty trucks over 10,000 pounds Gross Vehicle Weight Rating (pages 17-32).

## 2. Important information you should know

### IF YOU NEED CUSTOMER ASSISTANCE

Your Ford Motor Company dealer is available to assist you with all your automotive needs. Please follow the procedures outlined on the front page of this booklet.

In addition, if you are an eligible U.S. owner, you may use - at no cost - the services of the BBB AUTO LINE program. For details, see Better Business Bureau (BBB) AUTO LINE program, page 34 or call 1-800-955-5100.

### KNOW WHEN YOUR WARRANTY BEGINS

Your **Warranty Start Date** is the day you take delivery of your new vehicle or the day it is first put into service (for example, as a dealer demonstrator), whichever occurs first.

### CHECK YOUR VEHICLE

We try to check vehicles carefully at the assembly plant and the dealership, and we usually correct any damage to paint, sheet metal, upholstery, or other appearance items. But occasionally something may slip past us, and a customer may find that a vehicle was damaged before he or she took delivery. If you see any damage when you receive your vehicle, notify your dealership within one week.

### MAINTAIN YOUR VEHICLE PROPERLY

Your glove compartment contains an **Owner's Manual** which indicates the scheduled maintenance required for your vehicle. Proper maintenance guards against major repair expenses resulting from neglect or inadequate maintenance, may help increase the value you receive when you sell or trade your vehicle, and is important in allowing your vehicle to comply with applicable emissions standards.

It is your responsibility to make sure that all of the scheduled maintenance is performed and that the materials used meet Ford engineering specifications. Failure to perform scheduled maintenance as specified in the Owner's Manual will invalidate warranty coverage on

parts affected by the lack of maintenance. Make sure that receipts for completed maintenance work are retained with the vehicle and confirmation of maintenance work is always entered in your **Owner's Manual**.

Your Ford or Lincoln dealership, or Ford or Lincoln Auto Care Service Center, has factory-trained technicians who can perform the required maintenance using genuine Ford parts. The dealership looks forward to meeting your every service need to maximize your satisfaction with your vehicle.

### **WHO PAYS FOR WARRANTY REPAIRS?**

You will not be charged for repairs covered by any applicable warranty during the stated coverage periods, unless specifically stated elsewhere in this guide.

Some states have mandated alternate time coverage periods for parts of your vehicle (e.g. seatbelts).

Some states and/or local governments may require a tax on a portion of warranty repairs. Where applicable law allows, the tax must be paid by you, the owner of the vehicle.

During the Bumper to Bumper Warranty period, dealers may receive instructions to provide no-cost, service-type improvements - not originally included in your Owner's Manual - intended to increase your overall satisfaction with your vehicle.

Sometimes Ford may offer a special adjustment program to pay all or part of the cost of certain repairs beyond the terms of the applicable warranty. Check with your dealer or call 1-800-392-3673 to learn whether any adjustment program is applicable to your vehicle. Please have your vehicle identification number available.

## **DO WARRANTIES APPLY IN OTHER COUNTRIES?**

The **New Vehicle Limited Warranty** and the **Emissions Warranties** described in this booklet apply to your vehicle if:

- it was originally purchased through the Ford Export Operations Military Sales Program; or
- it was originally sold or leased by Ford Motor Company or one of its dealers in the United States or U.S. Federalized Territories, and it was originally registered/licensed and operated in the United States, U.S. Federalized Territories, or Canada.

If you meet either of these two requirements, you do have warranty coverage when you travel with this vehicle outside the United States, U.S. Federalized Territories, or Canada. In some cases, however, you may have to pay the servicing Ford dealer in a foreign country or U.S. Federalized Territory for a repair that is covered under the U.S. warranty. If this happens, be sure to save the paid repair order or invoice. You should present this document to a U.S. Ford Motor Company dealer for warranty refund consideration. Refer to [www.Ford.com](http://www.Ford.com) for additional customer assistance reference information.

### **3. The New Vehicle Limited Warranty for your 2018-model vehicle**

#### **LIMITATIONS AND DISCLAIMERS**

All of the warranties in this booklet are subject to the following limitations and disclaimers:

The warranties in this booklet are the only express warranties applicable to your vehicle. Ford does not assume or authorize anyone to assume for it any other obligation or liability in connection with your vehicle or these warranties. No person, including Ford employees or dealers, may modify or waive any part of these warranties.

Ford and its dealers reserve the right to make changes in or additions to vehicles built or sold by them at any time without incurring any obligation to make the same or similar changes or additions to vehicles previously built or sold.

Ford and its dealers also reserve the right to provide post-warranty repairs, conduct recalls, or extend the warranty coverage period for certain vehicles or vehicle populations, at the sole discretion of Ford. The fact that Ford has provided such measures to a particular vehicle or vehicle population in no way obligates Ford to provide similar accommodations to other owners of similar vehicles.

As a condition of these warranties, you are responsible for properly using, maintaining, and caring for your vehicle as outlined in your Owner's Manual. Ford recommends that you maintain copies of all maintenance records and receipts for review by Ford.

Ford and your dealer are not responsible for any time or income that you lose, any inconvenience you might be caused, the loss of your transportation or use of your vehicle, the cost of rental vehicles, fuel, telephone, travel, meals, or lodging, the loss of personal or commercial property, the loss of revenue, or for any other incidental or consequential damages you may have.

Punitive, exemplary, or multiple damages may not be recovered unless applicable law prohibits their disclaimer.

You may not bring any warranty-related claim as a class representative, a private attorney general, a member of a class of claimants or in any other representative capacity.

Ford shall not be liable for any damages caused by delay in delivery or furnishing of any products and/or services.

You may have some implied warranties. For example, you may have an implied warranty of merchantability (that the car or light truck is reasonably fit for the general purpose for which it was sold) or an implied warranty of fitness for a particular purpose (that the car or light truck is suitable for your special purposes), if a special purpose was specifically disclosed to Ford itself not merely to the dealer before your purchase, and Ford itself not just the dealer told you the vehicle would be suitable for that purpose.

These implied warranties are limited, to the extent allowed by law, to the time period covered by the written warranties, or to the applicable time period provided by state law, whichever period is shorter.

These implied warranties do not apply at all if you use your vehicle for business or commercial purposes. In addition, the implied warranty of fitness for a particular purpose does not apply if your vehicle is used for racing, even if the vehicle is equipped for racing.



The warranties contained in this booklet and all questions regarding their enforceability and interpretation are governed by the law of the state in which you purchased your Ford vehicle. Some states do not allow Ford to limit how long an implied warranty lasts or to exclude or limit incidental or consequential damages, so the limitation and exclusions described above may not apply to you.

**NOTE: This information about the limitation of implied warranties and the exclusion of incidental and consequential damages under the NEW VEHICLE LIMITED WARRANTY also applies to the EMISSIONS WARRANTIES described on pages 17-31.**

Ford participates in the BBB AUTO LINE warranty dispute resolution program. You may contact BBB AUTO LINE by calling 800-955-5100.

You are required to submit your warranty dispute to the BBB AUTO LINE before exercising rights or seeking remedies under the Federal Magnuson-Moss Warranty Act, 15 U.S.C. § 2301 et seq. To the extent permitted by the applicable state "Lemon Law", you are also required to submit your warranty dispute to the BBB AUTO LINE before exercising any rights or seeking remedies under the "Lemon Law". If you choose to seek remedies that are not created by the Magnuson-Moss Warranty Act or the applicable state "Lemon Law," you are not required to first use BBB AUTO LINE to resolve your dispute – although the program is still available to you.

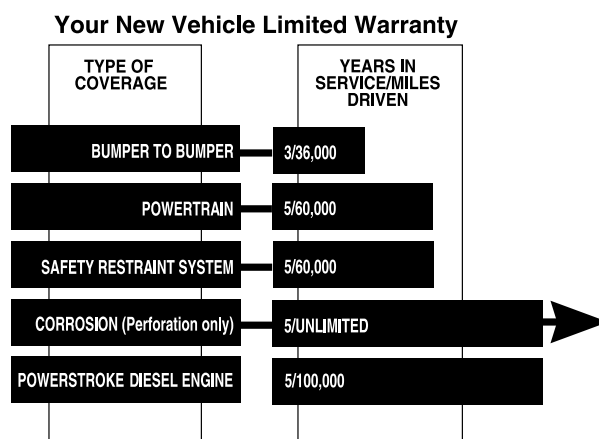
For more information regarding the BBB AUTO LINE program, see page 34 of this booklet.

## QUICK REFERENCE: WARRANTY COVERAGE

This chart gives a general summary of your warranty coverage provided by Ford Motor Company under the **New Vehicle Limited Warranty**. Please refer to the description of warranty coverage for more specific information.

For each type of coverage, the chart shows two measures:

- years in service
- miles driven



The measure that occurs first determines how long your coverage lasts. For example: Your Bumper to Bumper Coverage lasts for three years - unless you drive more than 36,000 miles before three years elapse. In that case, your coverage ends at 36,000 miles.

For more details on coverage, see:

- ➔ **What is Covered?** (pages 8-12)
- ➔ **What is Not Covered?** (pages 12-15)

## WHAT IS COVERED?

Your NEW VEHICLE LIMITED WARRANTY gives you specific legal rights. You may have other rights that vary from state to state. Under your New Vehicle Limited Warranty if:

- your Ford vehicle is properly operated and maintained, and

- was taken to a Ford dealership for a warranted repair during the warranty period,

then authorized Ford Motor Company dealers will, without charge, repair, replace, or adjust all parts on your vehicle that malfunction or fail during normal use during the applicable coverage period due to a manufacturing defect in factory-supplied materials or factory workmanship.

This warranty does not mean that each Ford vehicle is defect free. Defects may be unintentionally introduced into vehicles during the design and manufacturing processes and such defects could result in the need for repairs. Ford provides the New Vehicle Limited Warranty only to remedy manufacturing defects that result in vehicle part malfunction or failure during the warranty period.

The remedy under this written warranty, and any implied warranty, is limited to repair, replacement, or adjustment of defective parts. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Ford, through its authorized dealers, is willing and able to repair, replace, or adjust defective parts in the prescribed manner. Ford's liability, if any, shall in no event exceed the cost of correcting manufacturing defects as herein provided and upon expiration of this warranty, any such liability shall terminate.

Conditions that are not covered by the New Vehicle Limited Warranty are described on pages 12-15. When making warranty repairs on your vehicle, the dealer will use Ford or Motorcraft parts or remanufactured or other parts that are authorized by Ford, at the discretion of Ford or the Ford dealership.

Nothing in this warranty should be construed as requiring defective parts to be replaced with parts of a different type or design than the original part, so long as the vehicle functions properly with the replacement part. Moreover, Ford and its authorized dealers are entitled to a reasonable time and a reasonable number of attempts within which to diagnose and repair any defect covered by this warranty.

In certain instances, Ford may authorize repairs at other than Ford dealer facilities.

Two separate warranties apply to tires on your new vehicle. The New Vehicle Limited Warranty covers tire defects in factory supplied material or workmanship for 100% of labor costs and on a pro rata adjustment basis for parts. (See the reimbursement schedule below).

For vehicles within the New Vehicle Limited Warranty time in service and mileage coverage period, defective tires will be replaced on a pro rata adjustment basis according to the following mileage-based Reimbursement Schedule:

MILES DRIVEN	PERCENT OF PARTS COVERED BY FORD
1-12,000	100%
12,001-24,000	60%
24,001-36,000	30%

The tire manufacturer also provides you with a separate tire warranty that may extend beyond the New Vehicle Limited Warranty coverage. You will find the manufacturer's tire warranty with the owner literature supplied with your vehicle. You have the option of having a tire warranty repair performed by the tire manufacturer's authorized service center. If you go to a tire service center for a repair covered by the New Vehicle Limited Warranty, you may be charged a prorated amount for wear or other charges. If so, you should present your paid invoice detailing the nature of the charges to any Ford Motor Company dealership for refund consideration. When making warranty repairs on your vehicle, the dealer will use Ford or Motorcraft parts or remanufactured or other parts that are authorized by Ford. In certain instances, Ford may authorize repairs at other than Ford dealer facilities. Tire replacements under warranty will be made with the same brand and model as originally equipped with the vehicle unless the same brand and model is no longer available, in which case a tire of the same brand, size, load, speed and tread type will be used. In some circumstances, Ford may authorize another brand and/or model to substitute for the original brand and model, even if still available.

Normal tire wear or damage is not reimbursable. See page 15 for details of what is not covered.

**Extended warranty coverage periods are available for certain vehicle parts and conditions. Specifically,**

(1) Your vehicle's Powertrain components are covered for five years or 60,000 miles, whichever occurs first. The extended coverage applies to the **Engine:** all internal lubricated parts, cylinder block, cylinder heads, electrical fuel pump, powertrain control module, engine mounts, flywheel, injection pump, manifold (exhaust and intake), manifold bolts, oil pan, oil pump, seals and gaskets, engine thermostat, engine thermostat housing, timing chain cover, timing chain (gears or belt), turbocharger/supercharger unit, valve covers, water pump;

**Transmission:** all internal parts, clutch cover, seals and gaskets, torque converter, transfer case (including all internal parts), transmission case, transmission mounts; **Front-Wheel Drive:** axle shafts, front bearings, seals and gaskets, universal and constant velocity joints; **Rear-Wheel Drive:** axle shafts, rear bearings, center support bearing, drive axle housing (including all internal parts), drive shaft, retainers, supports, seals and gaskets, universal and constant velocity joints.

**Four-Wheel/All-Wheel Drive:** axle shafts, bearings (front and rear), center support bearing, drive shafts, final drive housing (including all internal parts), hubs-automatic front locking (four-wheel drive), locking rings (four-wheel drive), seals and gaskets, universal and constant velocity joints.

(2) Your vehicle's safety belts and air bag Supplemental Restraint System (SRS) are covered for an extended Safety Restraint Coverage Period, which lasts for five years or 60,000 miles, whichever occurs first.

(3) Your vehicle's body sheet metal panels are covered for an extended Corrosion Coverage Period, which lasts for five years, regardless of miles driven. The extended warranty coverage only applies if a body sheet metal panel becomes perforated due to corrosion during normal use due to a manufacturing defect in factory-supplied materials or factory workmanship. If aluminum body panels have corrosion or rust damage, and the damage is not the result of abnormal usage, vehicle accident, customer actions and/or extreme environmental conditions, the corrosion or rust damage repairs are covered for 5 years, unlimited miles. For damage caused by airborne material (environmental fallout) where there is no factory-related defect involved and therefore no warranty – our policy is to provide free repair of paint damage due to the airborne material for 12 months or 12,000 miles, whichever occurs first.

(4) Your vehicle's direct injection diesel engine and certain engine components are covered during the PowerStroke Diesel Engine Coverage Period, which lasts for five years or 100,000 miles, whichever occurs first. The following parts are covered during this extended coverage period: the engine, cylinder block, heads and all internal parts, intake and exhaust manifolds, timing gear, harmonic balancer, valve covers, oil pan and pump, water pump, fuel system (excluding fuel lines, fuel tank and frame mounted fuel conditioning module sometimes referred to as the frame mounted pump/filter/water separator or frame mounted fuel filter/water separator), high pressure lines, gaskets and seals, glow plugs, turbocharger, two-stage turbocharger assembly, turbocharger actuator,

powertrain control module, high pressure fuel injection pump assembly, injectors, injection pressure sensor, fuel rail pressure sensor, exhaust back pressure regulator and sensor, exhaust pressure sensor, manifold pressure sensor, intake air temperature sensor, crankshaft position sensor, camshaft position sensor, accelerator switch.

**NOTE:** Some components may also be covered by the Emissions Warranties. For more information, see pages 17-31.

If you own or lease a 2018-model Next Generation Police Interceptor Vehicle (NGPI), refer to the Warranty Addendum Card that was given to you when you took delivery of your vehicle for further explanation of Amendments to the New Vehicle Limited Warranty. The Warranty Addendum applies only the NGPI vehicles delivered in the State of Florida and New York.

## **WHAT IS NOT COVERED UNDER THE NEW VEHICLE LIMITED WARRANTY?**

### **Damage Caused By:**

- accidents, collision or objects striking the vehicle (including driving through a car wash)
- theft, vandalism, or riot
- fire or explosion
- using contaminated or improper fuel/fluids
- customer-applied chemicals or accidental spills
- driving through water deep enough to cause water to be ingested into the engine
- misuse of the vehicle, such as driving over curbs, overloading, racing or using the vehicle as a permanent stationary power source

### **Damage Caused by Alteration or Modification**

The New Vehicle Limited Warranty does not cover any damage caused by:

- alterations or modifications of the vehicle, including the body, chassis, electronics or their components, after the vehicle leaves the control of Ford Motor Company
- tampering with the vehicle, tampering with the emissions systems or with the other parts that affect these systems (for example, but not limited to exhaust and intake systems)

- the installation or use of a non-Ford Motor Company part or software (other than a certified emissions part or software) or any part or software (Ford or non-Ford) designed for off-road use only installed after the vehicle leaves the control of Ford Motor Company, if the installed part fails or causes a Ford part to fail. Examples include, but are not limited to lift kits, oversized tires, roll bars, cellular phones, alarm systems, automatic starting systems and performance-enhancing powertrain components or software and performance “chips”.

Your vehicle may allow, enable or facilitate the use of certain non-Ford Motor Company software. Ford is not responsible for the functionality of such software. Ford may disallow, discontinue or modify your ability to use such software at any time without prior notification or incurring any warranty or other obligation. Non-Ford Motor Company software may be governed by End User License Agreement or warranty provided by the software provider. For Ford Motor Company software see End User License Agreement found in the Owner Manual.

#### **Damage Caused by Use and/or the Environment**

The New Vehicle Limited Warranty does not cover surface rust, deterioration and damage of paint, trim, upholstery, and other appearance items that result from use and/or exposure to the elements. You, as the owner, are responsible for these items. Some examples are:

- dings, dents
- cuts, burns, punctures or tears
- road salt
- tree sap, bird and bee droppings
- windstorm, lightening, hail
- earthquake
- freezing, water or flood
- stone chips, scratches (some examples are on paint and glass)
- windshield stress cracks. However, limited coverage on windshield stress cracks will be provided for the first 12 months or 12,000 miles (which ever occurs first), even though caused by use and/or exposure to the elements.

## **Maintenance/Wear**

The New Vehicle Limited Warranty does not cover: (1) parts and labor needed to maintain the vehicle; and (2) the replacement of parts due to normal wear and tear. You, as the owner, are responsible for these items. See your Owner's Manual. Some examples of maintenance and normal wear are:

- oil changes
- oils, lubricants, other fluids
- oil/air filters
- tire rotation/inflation
- cleaning/polishing
- clutch linings
- wiper blades\*
- wheel alignments and tire balancing\*
- brake pad/lining\*

\* Ford will replace or adjust certain maintenance items when necessary, free of charge during a limited period:

- Wiper blade replacements will be provided during the first six months in service, regardless of miles driven.
- Wheel alignments and tire balancing will be provided during the first 12 months or 12,000 miles in service, whichever occurs first.
- Brake pad/lining replacements will be provided during the first 12 months or 18,000 miles in service, whichever occurs first.

## **SYNC Hands-Free Communications and Entertainment System**

If your vehicle is equipped with SYNC, the New Vehicle Limited Warranty does not cover repairs under certain conditions, such as failure to provide proper installation environment. The New Vehicle Limited Warranty does not cover repairs of certain damage or loss, such as:

- Loss of personal recording media, software or data
- Loss, change, or discontinuation of functionality because of:
  - system updates to Ford Motor Company software or lack of compatibility with non-Ford Motor Company electronic devices
  - non-Ford Motor Company software, or
  - obsolescence of vehicle software or hardware
  - lack of network coverage or availability
- Damage caused by:
  - abnormal use such as insertion of foreign objects, fluid spillage
  - unauthorized modification to alter functionality or capability
  - computer or internet viruses, bugs, or malware, such as worms, Trojan Horses, cancelbots



- installation of unauthorized software, peripherals and attachments
- unauthorized, unapproved and/or incompatible repairs, upgrades and modification
- the defective function or obsolescence of your cellular phone or digital media device (for example, inadequate signal reception by the external antenna, viruses or other software problems)

### **Tire Wear or Damage**

The New Vehicle Limited Warranty does not cover normal wear or worn out tires. Tires will not be replaced (unless required by a warranty repair) for wear or damage including:

- tire damage from road hazard such as cuts, snags, bruises, bulges, puncture, and impact breaks
- tire damage due to under or over inflation, tire chain use, racing, spinning (as when stuck in snow or mud), improper mounting or dismounting, or tire repair

### **Other Items or Conditions Not Covered**

The New Vehicle Limited Warranty does not cover:

- vehicles that have had the odometer disconnected, altered, or inoperative for an extended period of time with the result that the actual mileage cannot be determined
- vehicles that have ever been labeled or branded as dismantled, fire, flood, junk, rebuilt, reconstructed, or salvaged; this will void the New Vehicle Limited Warranty
- vehicles that have been determined to be a total loss by an insurance company; this will void the New Vehicle Limited Warranty
- converted ambulances that are not equipped with the Ford Ambulance Prep Package, see important information about ambulance conversions (page 36)
- Aftermarket parts or components, sometimes installed by Ford Motor Company or an authorized Ford dealership, may not be covered by the New Vehicle Limited Warranty. Any damage caused to Ford components due to the failure of aftermarket parts (other than a certified emissions part) is not covered.

## 4. In addition ...

### **ROADSIDE SERVICE ASSISTANCE (UNITED STATES, PUERTO RICO, AND U.S. VIRGIN ISLANDS)**

Your vehicle is covered by the complimentary Ford Roadside Assistance Program (unless you are driving a daily rental unit). Under this program, Ford will cover:

- Towing to the nearest Ford Motor Company dealership, or towing to your selling dealership if within 35 miles of the disablement
- Flat tire change (vehicle must have useable spare)
- Fuel delivery (limited to two occurrences in a 12-month period up to 2 gal. gas, 5 gal. diesel)
- Jump starts
- Lock-out assistance (replacement key cost is customer responsibility)
- Winch out services: includes pulling a vehicle within 100 feet of a paved or county maintained road. No recoveries.

The Roadside Assistance Program is separate from the New Vehicle Limited Warranty. It begins at the warranty start date and lasts for five years or 60,000 miles (whichever occurs first). If you need towing beyond the five years or 60,000 miles (whichever occurs first) period, Ford can arrange roadside assistance and charge your credit card. If the reason for the vehicle disablement is later found to be covered by another Ford warranty, Ford will provide a refund for the tow charge under the other warranty, through the dealership.

**For emergency roadside assistance, call 1-800-241-3673, 24 hours a day, 365 days a year.**

Ford Rent-A-Car (FRAC) and Dealer Daily Rental (DDR) vehicles that must be towed because a covered repair failed during the warranty coverage period, Ford will cover towing to the nearest Ford Motor Company dealership.

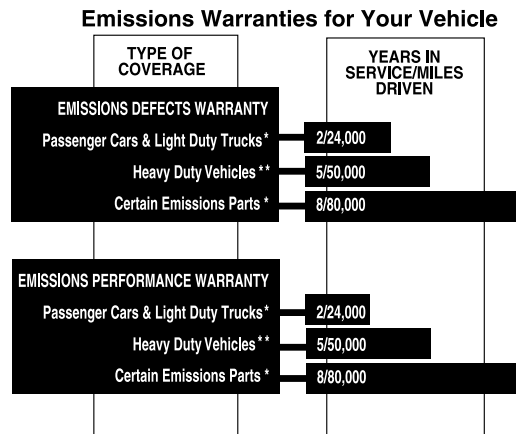
Ford Motor Company reserves the right to modify or discontinue Roadside Assistance at any time. Certain restrictions apply to Roadside Assistance benefits. Call 1-800-241-3673 for further details.

## 5. Federal requirements for emissions warranties

### QUICK REFERENCE: EMISSIONS WARRANTY COVERAGE

This chart shows your warranty coverage under two emissions warranties that Ford Motor Company provides, in compliance with Federal requirements. The warranties are:

- Emissions Defects Warranty
- Emissions Performance Warranty



\* Applies to vehicles up to 8,500 pounds gross vehicle weight rating (GVWR)

\*\* Applies to trucks over 8,500 pounds gross vehicle weight rating (GVWR) up to 19,500 pounds gross vehicle weight rating (GVWR). Vocational vehicle tires covered for 2/24,000 for defects that affect compliance with greenhouse gas requirements.

For full details on emissions control coverage, see:

- ➔ **Emissions Defect Warranty** (page 18)
- ➔ **Emissions Performance Warranty** (page 19)
- ➔ **What is Covered?** (pages 20-21)
- ➔ **What is Not Covered?** (page 21)

## EMISSIONS DEFECT WARRANTY COVERAGE

During the warranty coverage period, Ford Motor Company warrants that:

- your vehicle or engine is designed, built, and equipped to meet - at the time it is sold - the emissions regulations of the U.S. Environmental Protection Agency (EPA).
- your vehicle or engine is free from emission-related defects in factory-supplied materials or workmanship, which are defects that could prevent the vehicle or engine from conforming with applicable EPA regulations.
- you will not be charged for diagnosis, repair, replacement, or adjustment of parts containing an emissions-related defect. A list of emission-related parts can be found in **What is Covered?** on pages 20-21.

The warranty coverage period for:

- The emissions defects warranty coverage period for passenger cars and light duty trucks (applies to vehicles up to 8,500 pound GVWR) is as follows:
  - 8 years or 80,000 miles (whichever occurs first) for catalytic converters, electronic emissions control unit, and onboard emissions diagnostic devices, including the Battery Energy Control Module (BECM).
  - 2 years or 24,000 miles (whichever occurs first) for all other covered parts. (Note: Ford's 3-year, 36,000-mile bumper-to-bumper coverage, as described above, surpasses this mandatory federal coverage.)
- Heavy duty vehicles (applies to trucks over 8,500 pounds GVWR up to 19,500 pounds GVWR)
  - The emissions warranty coverage period for heavy duty vehicles (HDVs) is 5 years or 50,000 miles (whichever comes first) for all parts covered by your emissions warranty.
    - **Only for HDVs not designated as "vocational vehicles" on the underhood "VEHICLE EMISSION CONTROL INFORMATION" label:** The 5 year/50,000 mile warranty includes coverage of components whose failure would increase the vehicle's emissions of air conditioning refrigerants.
    - **Only for HDVs designated as "vocational vehicles" on the underhood "VEHICLE EMISSION CONTROL INFORMATION" label:** Tire defects that affect compliance with emission standards are covered for 2 years or 24,000 miles, whichever comes first.

## EMISSIONS PERFORMANCE WARRANTY COVERAGE

Under Emissions Performance Warranty Coverage, Ford Motor Company will repair, replace, or adjust - with no charge for labor, diagnosis, or parts - any emissions control device or system, if you meet all of the following conditions:

- You have maintained and operated your vehicle according to the instructions on proper care in the **Owner's Manual** and this booklet.
- Your vehicle fails to conform, during the warranty coverage period, to the applicable national EPA standards, as determined by an EPA approved inspection and maintenance program.
- You are subject to a penalty or sanction under local, state, or federal law because your vehicle has failed to conform to the emissions standards. (A penalty or sanction can include being denied the right to use your vehicle.)
- Your vehicle has not been tampered with, misused, or abused.

The warranty coverage period for:

- Passenger cars and light duty trucks (applies to vehicles up to 8,500 pounds GVWR) is as follows:
  - 8 years or 80,000 miles (whichever occurs first) for catalytic converter, electronic emissions control unit, and onboard emissions diagnostic devices.
  - 2 years or 24,000 miles (whichever occurs first) for all other covered parts .
- Heavy duty vehicles (applies to trucks over 8,500 pounds GVWR up to 19,500 pounds GVWR)
  - 5 years or 50,000 miles (whichever occurs first) for all covered parts.

See **WHAT IS COVERED?** below for list of covered parts.

Note that the warranty period begins on the **Warranty Start Date** as specified on page 2 of this booklet.

## WHAT IS COVERED?

For your vehicle if these parts contain an emissions-related defect, they are covered by both the Emissions Defect Warranty and the Emissions Performance Warranty.

- Air Flow Sensor
- Air/Fuel Feedback Control System and Sensors
- Air Induction System
- Catalytic Converters (including Selective Catalytic Reduction and Diesel Oxidation Catalysts)
- Cold Start Enrichment System (diesel only)
- Controls for Deceleration (diesel only)
- Diesel Exhaust Fluid System
- Diesel Particulate Filter
- Electronic Ignition System (diesel only)
- Electronic Engine Control Sensors and Switches
- Powertrain Control Module (PCM)/Engine Control Module (ECM)\*
- Evaporative Emission Control System
- Exhaust Gas Recirculation (EGR) System
- Exhaust Manifold
- Exhaust Pipe (Manifold to Catalyst)
- Fuel Filler Tube and Seal (non-diesel only)
- Fuel Injection System
- Fuel Injector Supply Manifold
- Fuel Tank (non-diesel only)
- Fuel Tank Pressure Control Valve
- Ignition Coil and/or Control Module
- Intake Manifold
- Intercooler Assembly - Engine Charger
- Malfunction Indicator Lamp (MIL)/On-Board Diagnostic (OBD) System
- PCV system and Oil Filler Cap
- Secondary Air Injection System
- Spark Control Components
- Spark Plugs and Ignition Wires
- Thermostat
- Throttle Body Assembly (MFI)
- Transmission Control Module (TCM) and Solenoids
- Turbocharger Assembly
- Vacuum Distribution System

\* Includes hardware and emissions related software changes only

### **Important Information About List of Parts**

Also covered by the two emissions warranties are all emissions-related bulbs, hoses, clamps, brackets, tubes, gaskets, seals, belts, connectors, non-diesel fuel lines, sensors, and wiring harnesses that are used with components on the list of parts, above.

Concerning parts that should be replaced on a certain maintenance schedule: these parts remain under warranty until : (a) the first replacement time that is specified in your **Owner's Manual**; or (b) the time or mileage limits of the Federal Defect and Performance Warranties (whichever occurs first). Your Ford Motor Company dealer maintains a complete list of parts covered by the emissions performance warranty. For questions about emission-related parts, contact your dealer.

### **WHAT IS NOT COVERED?**

Ford Motor Company may deny you emissions warranty coverage if your vehicle or a part does not contain an emissions-related defect or has failed because of abuse, neglect, improper maintenance, unapproved modifications, or any items included in **What Is Not Covered?**, pages 12-15.

If you need more information about getting service under the **Federal Emissions Performance Warranty**, or if you want to report what you believe to be violations of the terms of this warranty, you may contact:

**U.S. Environmental Protection Agency  
Office of Transportation and Air Quality  
Compliance Division, Light-Duty Vehicle Group  
Attn: Warranty Complaints  
2000 Traverwood Drive  
Ann Arbor, MI 48105  
Email: [complianceinfo@epa.gov](mailto:complianceinfo@epa.gov)**

## 6. California requirements for emissions warranties

### QUICK REFERENCE: EMISSIONS WARRANTY COVERAGE

This chart shows the emission warranty that Ford Motor Company provides for your vehicle under the emissions control warranty in accordance with the regulations of the California Air Resources Board. This coverage is in addition to Federal Emission warranties (Page 17).

Emissions Warranties for California Certified Vehicles

TYPE OF COVERAGE	YEARS IN SERVICE/MILES DRIVEN
EMISSIONS DEFECTS WARRANTY FOR VEHICLES WITH GVWR* OF 14,000 LBS. & UNDER	
Short-Term Warranty	3/50,000
Long-Term Warranty**	7/70,000
EMISSIONS DEFECTS WARRANTY FOR VEHICLE WITH GVWR OVER 14,000 LBS.***	5/50,000
EMISSIONS PERFORMANCE WARRANTY (Vehicles of 14,000 LBS.* and under)	3/50,000

\* Gross Vehicle Weight Rating

\*\* These specific parts were selected on the basis of their estimated replacement cost at the time the California Air Resources Board certified your vehicle for sale in California (up to 14,000 GVWR).

\*\*\* Diesel engine vehicles over 14,000 pounds GVWR are covered for 5 years or 100,000 miles.



## Vehicles Eligible for California Emission Warranty Coverage

California emission warranty coverage applies if your vehicle meets the following two requirements:

- Your vehicle is registered in a state<sup>1</sup> that has adopted and is enforcing California emission warranty regulations applicable for your vehicle at the time of repair, and
- Your vehicle is certified for sale in California as indicated on the vehicle emission control information label.

<sup>1</sup> Subject to change, the following states have adopted and are enforcing California emission warranty regulations:

- **Passenger Car & Light-duty Trucks** (up to 8,500 pounds GVWR) - California, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont and Washington
- **Medium-Duty Passenger Vehicles** (up to 10,000 pounds GVWR designed primarily for the transportation of persons. Excludes incomplete trucks, trucks with a seating capacity either over twelve persons total or over nine persons rearward of the driver's seat, or trucks with an open cargo area of at least six feet of interior length): California, Connecticut, Delaware, Maine, Maryland, Massachusetts, New York, Oregon, Rhode Island, Vermont and Washington
- **Medium-Duty Vehicles** (over 8,500 pounds GVWR up to 14,000 pounds GVWR) - California, Connecticut, Delaware, Maine, Maryland, Massachusetts, New York, Oregon, Rhode Island, and Vermont.
- **Light Heavy-Duty Diesel Engine Vehicles** (over 14,000 pounds GVWR up to 19,500 pounds GVWR) - California, Maine and Pennsylvania.

For full details about coverage under California requirements for emissions control, see:

- ➔ **Defects Warranties** (pages 24-30)
- ➔ **Performance Warranty** (pages 24-25)
- ➔ **What Is Covered?** (pages 26-29)
- ➔ **What Is Not Covered?** (page 29)

## **EXPLANATION OF CALIFORNIA EMISSIONS WARRANTIES**

### **Your Warranty Rights and Obligations**

The California Air Resources Board and Ford Motor Company are pleased to explain the emission control system warranty on your 2018-model vehicle. In California, new motor vehicles must be designed, built, and equipped to meet the State's stringent anti-smog standards. Ford must warrant the emission control system on your vehicle for the periods of time listed on pages 24-25, provided there has been no abuse, neglect, or improper maintenance of your vehicle.

Your emission control system may include parts such as the fuel injection system, the ignition system, catalytic converter, and the engine computer. Also included may be hoses, belts, connectors, and other emissions-related assemblies.

Where a warrantable condition exists, Ford Motor Company will repair your vehicle at no cost to you including diagnosis, parts, and labor.

### **Manufacturer's Warranty Coverage**

#### For Vehicles Eligible for California Emission Warranty Coverage

If Gross Vehicle Weight Rating is 14,000 lbs. or less:

For 3 years or 50,000 miles (whichever first occurs):

1. If your vehicle fails a Smog Check inspection, all necessary repairs and adjustments will be made by Ford to ensure that your vehicle passes the inspection. This is your emission control system PERFORMANCE WARRANTY.
2. If any emissions-related part on your vehicle is defective, the part will be repaired or replaced by Ford. This is your short-term emission control system DEFECTS WARRANTY.

For 7 years or 70,000 miles (whichever first occurs):

If an emissions-related part listed on pages 27 and 29 with coverage for 7 years or 70,000 miles is defective or if its failure causes your vehicle to fail a Smog Check inspection, the part will be repaired or replaced by Ford. This is your long-term emission control system DEFECTS WARRANTY.

If Gross Vehicle Weight rating is over 14,000 lbs.:

For 5 years or 50,000 miles (gasoline powered engines and vehicles) or 5 years or 100,000 miles (diesel powered engines and vehicles) (whichever first occurs):

If an emissions-related part on your vehicle is defective, the part will be repaired or replaced by Ford. This is your emission control system DEFECTS WARRANTY.

### **Owner's Warranty Responsibilities**

As the vehicle owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Ford Motor Company recommends that you retain all receipts covering maintenance on your vehicle, but Ford cannot deny warranty coverage solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

You are responsible for presenting your vehicle to a Ford Motor Company dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As the vehicle owner, you should also be aware that Ford Motor Company may deny you warranty coverage if your vehicle or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, or if you want to report what you believe to be violations of the terms of this warranty, you may contact the Ford Customer Relationship Center at 1-800-392-3673 (FORD) or the California Air Resources Board at:

**State of California Air Resources Board  
Mobile Source Operations Division  
P.O. Box 8001  
El Monte, California 91731-2990**

## WHAT IS COVERED?

If the parts on the following list contains a defect that affects emissions, they are covered by the Defects Warranties.

- Air Flow Sensor
- Air/Fuel Feedback Control System and Sensors
- Air Induction System
- Catalytic Converters (including Selective Catalytic Reduction and Diesel Oxidation Catalysts)
- Cold Start Enrichment System (diesel only)
- Controls for Deceleration (diesel only)
- Diesel Exhaust Fluid System
- Diesel Particulate Filter
- Electronic Ignition System (diesel only)
- Electronic Engine Control Sensors and Switches
- Powertrain Control Module (PCM)/Engine Control Module (ECM)\*
- Evaporative Emission Control System
- Exhaust Gas Recirculation (EGR) System
- Exhaust Manifold
- Exhaust Pipe (Manifold to Catalyst)
- Fuel Filler Tube and Seal (non-diesel only)
- Fuel Injection System
- Fuel Injector Supply Manifold
- Fuel Tank (non-diesel only)
- Fuel Tank Pressure Control Valve
- Ignition Coil and/or Control Module
- Intake Manifold
- Intercooler Assembly - Engine Charger
- Malfunction Indicator Lamp (MIL)/On-Board Diagnostic (OBD) System
- PCV System and Oil Filler Cap
- Secondary Air Injection System
- Spark Control Components
- Spark Plugs and Ignition Wires
- Thermostat
- Throttle Body Assembly (MFI)
- Transmission Control Module (TCM) and Solenoids
- Turbocharger Assembly
- Vacuum Distribution System

\* Includes hardware and emissions related software changes only

**COVERAGE FOR 2018 MODEL VEHICLES (GVWR OF 14,000 LBS. OR LESS) UNDER LONG TERM DEFECTS WARRANTY**  
**(Coverage for up to 7 years/70,000 miles, whichever first occurs)**

Part Name	1.0L Fiesta	1.0L Focus	1.0L EcoSport	1.5L Fusion	1.5L Escape	1.6L Fiesta	2.0L Fusion	2.0L Focus	2.0L EcoSport	2.0L Taurus	2.0L Escape	2.0L Edge	2.3L Focus	2.3L Mustang	2.3L Explorer	2.5L Fusion	2.5L Escape	2.5L Transit Connect	2.7L Fusion	2.7L Edge	2.7L F-150	3.0L F-150 Diesel	3.2L Transit Diesel	3.3L F-150	3.5L Taurus	3.5L Edge	3.5L Flex	3.5L Explorer	3.5L Expedition	3.5L F-150	3.5L Transit	3.7L Taurus	3.7L Explorer	3.7L Transit	5.0L Mustang	5.0L F-150	5.2L Mustang	6.2L Econoline	6.2L F-Superduty	6.7L F-Superduty Diesel	6.8L Econoline	6.8L F-Superduty	6.8L Strip Chassis			
Catalytic Converter	X																																													
DEF Tank																						X	X																							
Reductant Pump Assembly																																														
Catalyst and Particulate Filter Assembly																																														
Cylinder Head Temperature Sensor																																														
Tube Air Cooler Inlet/Outlet																																														
Turbocharger Control Valve (Supercharger Bypass Actuator)																																														
Cam Timing Assembly		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Engine Variable Timing Assembly																										X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Engine Variable Camshaft Timing Solenoid																										X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Crankshaft Position Sensor (CKP)																																														
Variable Camshaft Timing Assembly		X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
PCV Valve (Part of Rocker Cover Assembly)																																														
Turbo to Manifold Gasket																																														
Charge Air Cooler Duct																																														
Turbocharger		X	X	X	X	X	X	X(3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X(3)	X	X	X	X(3)	X	X	X													
Charge Air Cooler				X																					X(3)		X	X	X(3)																	
Valve Body																										X		X	X(3)																	
Transmission Control Module Assembly						X																																								
Transmission Solenoid Assembly																																														
Fuel Tank		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Fuel Tank Filler Kit																																														
EVAP Fuel Vapor Return Tube																																														
Fuel Tube Supply																										X(3)		X	X(3)																	
Fuel Supply Manifold Assembly							X				X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Sensor to Rail Fuel Line																																														
Fuel Delivery Module			X						X				X															X																		
Fuel Pump to Fuel Rail Tube																										X(3)		X	X(3)																	
Fuel Tube																																														
Fuel Pump Assembly							X						X													X		X	X	X																
Turbocharger Control Solenoid					X	X					X															X(3)		X	X(3)	X	X															
Intake Manifold														X												X	X	X	X	X																
Exhaust Manifold		X				X							X					X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Exhaust Manifold Outlet Pipe																																														
Resonator Assembly						X																																								

**COVERAGE FOR 2018 MODEL VEHICLES (GVWR OF 14,000 LBS. OR LESS) UNDER LONG TERM DEFECTS WARRANTY**  
**(Coverage for up to 7 years/70,000 miles, whichever first occurs)**

Part Name	1.0L Fiesta	1.0L Focus	1.0L EcoSport	1.5L Fusion	1.5L Escape	1.6L Fiesta	2.0L Fusion	2.0L Focus	2.0L EcoSport	2.0L Taurus	2.0L Escape	2.0L Edge	2.3L Focus	2.3L Mustang	2.3L Explorer	2.5L Fusion	2.5L Escape	2.5L Transit Connect	2.7L Fusion	2.7L Edge	2.7L F-150	3.0L F-150 Diesel	3.2L Transit Diesel	3.3L F-150	3.5L Taurus	3.5L Edge	3.5L Flex	3.5L Explorer	3.5L Expedition	3.5L F-150	3.5L Transit	3.7L Taurus	3.7L Explorer	3.7L Transit	5.0L Mustang	5.0L F-150	5.2L Mustang	6.2L Econoline	6.2L F-Superduty	6.7L F-Superduty Diesel	6.8L Econoline	6.8L F-Superduty	6.8L Strip Chassis		
EGR out pipe gasket																																													
EGR Cooler Bypass Control Solenoid	X				X	X	X				X	X	X						X	X	X		X																						
"EGR Valve, EGR System Module"																						X	X																						
"EGR Valve Gasket, EGR inlet tube to joint"																						X	X																						
Turbo Charger Actuator																									X						X	X													
Exhaust Adapter																									X							X	X												
Fuel Injector Kit																																													
High Pressure Fuel Injector Pump																						X	X																						
Engine Air Shutoff Control Assembly																																													
Fuel Injector Manifold Return Line																						X	X																						
Fuel Injector																																													
Injection Pressure Sensor													X											X	X			X	X																
Air Intake Throttle Body	X					X													X					X	X			X	X																
Fuel Injector Wiring Harness																											X	X	X																
Instrument Cluster (1)	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Glow Plug																																													
Powertrain Control Wiring Harness (2)		X	X	X			X	X	X				X								X	X	X								X														
Engine Control Sensor & Fuel Charge Wrng Assy (2)																							X																						
Engine Electronic Control Coolant Sensor																				X	X	X																							
Powertrain Control Module (PCM)/ Engine Control Module (ECM)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Engine Control Sensor Ext. Wire Assembly (2)					X						X																																		
Knock Sensor																			X	X	X																								
Main Body Wiring Harness (2)	X		X	X		X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Dash Panel & Headlamp Junction Wiring Assembly (2)	X	X		X			X	X	X	X	X	X	X	X	X											X																			
Battery Cable (2)				X			X																																						
Wiring Assembly - Interior (2)									X											X	X		X	X				X																	
Roof Wiring Harness (2)																			X																										
Main Wiring Assembly (2)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Rear Lamp Wiring Assembly (2)																						X	X																						
Fuel Sender Wiring Assembly (2)				X			X					X				X			X	X	X	X	X				X				X	X			X	X	X	X	X	X	X	X	X	X	X
Jumper Harness (2)																						X									X														

(1) for Service Engine Soon/Malfunction Indicator Lamp (MIL) functionality concerns only

(2) for MIL illumination only

(3) for EcoBoost Engine only

### **Important Information about List of Parts**

There may be additional coverage for these parts through the Bumper to Bumper, Powertrain, or Diesel Engine limited warranties. In any case, the warranty with the broadest coverage applies.

Also covered by this warranty are all emissions-related bulbs, hoses, clamps, brackets, tubes, gaskets, seals, belts, connectors, non diesel fuel lines, and wiring harnesses that are used with components on the list of parts above.

Concerning parts that should be replaced on a certain maintenance schedule: these parts remain under warranty until the first required replacement time that is specified in your **Owner's Manual**.

**NOTE:** If the diagnosis does not reveal a defect, the Defects Warranty does not apply.

Your Ford Motor Company dealer maintains a complete list of covered parts. For more details about the specific parts that are covered by the Defects Warranty, contact your dealer.

### **WHAT IS NOT COVERED?**

Ford Motor Company may deny you emissions warranty coverage if your vehicle or a part does not contain a defect that affects emissions or has failed because of abuse, neglect, improper maintenance, unapproved modifications, or any items included in **What Is Not Covered?**, pages 12-15.

## **7. Additional information about your emissions warranty coverage, under Federal and California requirements**

### **HOW DO I GET WARRANTY SERVICE?**

To get service under your emissions warranties, take your vehicle to any Ford Motor Company dealer as soon as possible after illumination of the Malfunction Indicator Light or it has failed an EPA-approved test or a California Smog Check inspection. Be sure to show the dealer the document that says your vehicle has failed the test.

Your dealer will determine whether the repair is covered by the warranty. If the dealer has a question about Emissions Performance Warranty coverage, it will forward the question to Ford Motor Company, which must make a final decision within 30 days after you bring your vehicle in for repair. (The decision will be made within a shorter time if state, local, or federal law requires you to have the vehicle repaired more quickly in order to avoid additional penalties.) The deadline for a determination about Emissions Performance Warranty Coverage does not need to be met if you request a delay, agree to a delay in writing, or if the delay is caused by an event for which neither Ford nor your dealer is responsible. If a question about Emissions Performance Warranty coverage is referred to Ford Motor Company, you will be notified by Ford Motor Company in writing if your claim for warranty coverage is denied. The notice will explain the basis for denying your claim. If you fail to receive this notice within a timely manner, as determined above, Ford will perform the warranty repair for you free of charge.

### **HOW DO I HANDLE EMERGENCY REPAIRS?**

If your vehicle needs an emergency warrantable repair and a Ford Motor Company dealer is not available, or if a Ford Motor Company dealer cannot perform warrantable repair(s) within 30 days of you bringing your vehicle to the dealer, repairs may be performed at any service establishment or by you using Ford equivalent replacement parts.

Ford will reimburse you for the cost of these warranty repairs including diagnosis, if you take the part(s) that are replaced and the repair receipt(s) to a Ford Motor Company dealer. The reimbursement shall not exceed Ford's suggested retail price for the warranted parts that are replaced and labor charges based on Ford's recommended time allowance for the warranty repair and the geographically appropriate hourly rate.



## **WHAT REPLACEMENT PARTS SHOULD I USE?**

Ford Motor Company recommends that you use genuine Ford replacement parts. However, when you are having non-warranty work done on your vehicle, you may choose to use non-Ford parts. If you decide to use non-Ford parts, be sure they are equivalent to Ford parts in performance, quality, and durability. If you use replacement parts that are not equivalent to Ford parts, your vehicle's emissions control systems may not work as effectively, and you may jeopardize your emissions warranty coverage.

Under the Federal and California emissions warranties, Ford will repair or replace covered parts if they are properly installed Ford parts or the equivalent, or non-Ford parts that have been certified by the U.S. EPA or the California Air Resources Board (CARB). Ford is not responsible for the cost or repairing or replacing non-Ford parts that are not equivalent to Ford parts or that have not been certified by EPA or CARB.

**The maintenance, replacement, or repair of emissions control devices or systems can be performed by any automotive repair establishment or individual using Ford replacement parts or the equivalent, or EPA- or CARB-certified parts, without voiding your emissions warranty coverage for future repairs during the applicable warranty period.**

## **PROPER MAINTENANCE PRESERVES YOUR WARRANTY**

If you do not maintain your vehicle properly, Ford may have the right to deny you warranty coverage.

To have repairs made under this warranty, you may have to show that you have followed Ford's instructions on properly maintaining and using your vehicle. You will find these instructions in your **Owner's Manual**. Be sure to save your service receipts and to keep accurate records of all maintenance work.

## **CUSTOMER ASSISTANCE**

If you are not satisfied with the handling of a warranty matter, see **Customer Assistance**, on the inside front cover, and **Better Business Bureau (BBB) AUTO LINE program**, page 34.

## **8. Noise emissions warranty**

### **NOISE EMISSIONS WARRANTY FOR CERTAIN LIGHT TRUCKS**

Ford Motor Company warrants to the first person who purchases this vehicle for purposes other than resale and to each subsequent purchaser that this vehicle as manufactured by Ford, was designed, built and equipped to conform at the time it left Ford's control with all applicable U.S. EPA Noise Control Regulations.

This warranty covers this vehicle as designed, built and equipped by Ford Motor Company, and is not limited to any particular part, component or system of the vehicle as manufactured by Ford. Defects in design, assembly or in any part, component or system of the vehicle as manufactured by Ford, which, at the time it left Ford's control, caused noise emissions to exceed Federal standards, are covered by this warranty for the life of the vehicle.

### **THE NOISE EMISSIONS WARRANTY OBLIGATIONS DO NOT APPLY TO:**

- loss of time, inconvenience, loss of use of the vehicle, commercial loss or, other consequential damages.
- any vehicle which is not covered by the U.S. EPA Medium and Heavy Trucks Noise Emission Standards (40 C.F.R. Part 205, Subpart B). Among the non-covered vehicles are those lacking a partially or fully enclosed operator's compartment, such as a basic stripped chassis, those having a Gross Vehicle Weight Rating of 10,000 pounds or less, and those sold outside the United States and its territories. To the extent permitted by law, THIS WARRANTY IS EXPRESSLY INSTEAD of any express or implied warranty, condition, or guarantee, agreement, or representation, by any person with respect to conformity of this vehicle with the U.S. EPA Noise Control Regulations, including ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS.

## 9. Ford Protect Extended Service Plan

### MORE PROTECTION FOR YOUR VEHICLE

You can get more protection for your new car or light truck by purchasing a Ford Protect Extended Service Plan (Ford Protect ESP). Ford Protect ESP service contracts are backed by Ford Motor Company or subsidiaries of Ford Motor Company (examples are but not limited to: Ford Motor Service Company or the American Road Insurance Company). Ford Protect plans provide up to 8 years and 150,000 miles of coverage.

They provide:

- benefits during the warranty period, depending on the plan you purchase can be: reimbursement for a rental vehicle, protecting against tire and wheel road hazard damage, coverage for certain maintenance and wear items, lost key replacement, other plans are available;
- protection against covered repair costs and continuing Roadside Service Assistance benefits after your Bumper to Bumper Warranty expires.

You may purchase Ford Protect ESP from any Ford Motor Company dealer or see our website at [Ford-ESP.com](http://Ford-ESP.com). There are several Ford Protect ESP plans available in various time, distance and deductible combinations. Each plan is tailored to fit your own driving and vehicle ownership needs, including reimbursement for towing and rental.

When you purchase Ford Protect ESP, you receive peace-of-mind protection throughout the United States, Canada and Mexico, provided by a network of more than 4,600 Ford Motor Company dealers.

**NOTE:** Repairs performed outside the United States, Canada, Mexico, Guam or Puerto Rico, Virgin Islands, American Samoa, and District of Columbia are not eligible for Ford Protect ESP coverage.

This information is subject to change. Ask your dealer for complete details about Ford Protect ESP coverage.

## **10. The Better Business Bureau (BBB) AUTO LINE Program (U.S. Only)**

Your satisfaction is important to Ford Motor Company and to your dealer. If a warranty concern has not been resolved using the three-step procedure outlined on the first page of the Customer Assistance section, you may be eligible to participate in the BBB AUTO LINE program.

The BBB AUTO LINE program consists of two parts — mediation and arbitration. During mediation, a representative of the BBB will contact both you and Ford Motor Company to explore options for settlement of the claim. If an agreement is not reached during mediation and your claim is eligible, you may participate in the arbitration process. An arbitration hearing will be scheduled so that you can present your case in an informal setting before an impartial person. The arbitrator will consider the testimony provided and make a decision after the hearing.

You are not bound by the decision, but should you choose to accept the BBB AUTO LINE decision, Ford must abide by the accepted decision as well. Disputes submitted to the BBB AUTO LINE program are usually decided within forty days after you file your claim with the BBB.

BBB AUTO LINE Application: Using the information provided below, please call or write to request a program application. You will be asked for your name and address, general information about your new vehicle, information about your warranty concerns, and any steps you have already taken to try to resolve them. A Customer Claim Form will be mailed that will need to be completed, signed, and returned to the BBB along with proof of ownership. Upon request, the BBB will review the claim for eligibility under Program Summary Guidelines.

**You can get more information by calling BBB AUTO LINE at 1-800-955-5100, or writing to:**

**BBB AUTO LINE  
3033 Wilson Boulevard, Suite 600  
Arlington, Virginia 22201**

BBB AUTO LINE applications can also be requested by calling the Ford Motor Company Customer Relationship Center at 1-800-392-3673.

**Note:** Ford Motor Company reserves the right to change eligibility limitations, modify procedures, or to discontinue this process at any time without notice and without obligation.

## **11. State warranty enforcement laws**

These state laws - sometimes called lemon laws - allow owners to receive a replacement vehicle or a refund of the purchase price, under certain circumstances. The laws vary from state to state.

To the extent your state law allows, Ford Motor Company requires that you first send us a written notification of any defects or non-conformities that you have experienced with your vehicle. (This will give us the opportunity to make any needed repairs before you pursue the remedies provided by your state's law.)

In all other states where not specifically required by state law, Ford Motor Company requests that you give us the written notice. Send your written notification to:

**Ford Motor Company  
Customer Relationship Center  
P.O. Box 6248  
Dearborn, MI 48126**

## 12. Important information about ambulance conversions

Ford vehicles are suitable for producing ambulances only if equipped with the **Ford Ambulance Prep Package**. In addition, Ford urges ambulance manufacturers to follow the recommendations of the **Ford Incomplete Vehicle Manual** and the **Ford Truck Body Builders Layout Book** (and pertinent supplements).

**Using a Ford vehicle without the Ford Ambulance Prep Package to produce an ambulance could result in elevated underbody temperatures, fuel overpressurization, and the risk of fuel expulsion and fires. Such use also voids the Ford Bumper to Bumper Warranty and may void the Emissions Warranties.**

You may determine whether the vehicle is equipped with the **Ford Ambulance Prep Package** by inspecting the information plate on the driver's rear door pillar.

You may determine whether the ambulance manufacturer has followed Ford's recommendations by contacting the ambulance manufacturer of your vehicle.



ACC Climate Control

## 2 Year Unlimited/3 Year 75,000 Mile Warranty

ACC Climate Control, hereinafter referred to as "ACC", warrants its products to the original purchaser, subject to normal use and service, for a period of 24 months w/unlimited mileage or 36 months 75000 miles and while in possession of the original owner.

ACC agrees to repair or replace with a new or repaired part, any part of an ACC unit which, after inspection has proven to fail because of a manufacturing defect, within the warranty period. Replacement of a defective part within the warranty period will include labor for replacement at factory established rates if performed at any authorized Service Center. Compensation at factory established rates for loss of refrigerant will be paid only when caused by a defective part and if the defective part itself was under warranty at the time of failure.

### CONDITIONS OF WARRANTY

1. **Handling of Warranty Claims.**

- A. Should a failure occur to an ACC component under warranty, call ACC at (574) 264-2190 for authorization (**pre-authorization is required before work is performed**) and return the vehicle to the installer or dealer from whom the air conditioning was purchased. Present your copy of the warranty registration card. He will make the necessary repairs to the system or replacement parts as covered by the warranty.
- B. If it is not possible to return to the original dealer, take the vehicle to any convenient ACC dealer and present your Warranty Card. He will contact the factory for authorization for the necessary repairs. Should you be unable to locate an authorized ACC dealer, contact the factory and you will be assisted.

2. **EXCLUSIONS FROM WARRANTY**

THIS WARRANTY SHALL NOT APPLY TO:

- A. Any part or parts of products becoming defective as a result of negligence, accident, or other casualty.
- B. Owner's failure to provide normal maintenance such as lubrication of engine, tightening belts, cleaning coils, loss of refrigerant, drier replacement or improper voltage or electrical connections.
- C. Improper installation, repair, or alterations.
- D. Operation in a manner contrary to ACC's printed instructions.
- E. Any parts or products which have been repaired or altered outside of ACC's factory unless specific written authorization for such repair or alteration has been issued by ACC.

2. **Conditions.**

- A. ACC neither assumes nor authorizes any person to assume for it, any obligations or warranty other than stated herein.
- B. ACC reserved the right to make changes in design or improvements of its products or parts thereof without obligations to make or install such changes or improvements in or upon products covered in this warranty.
- C. Remedies available to the owner for breach of the A/C Factory Warranty are expressly limited to an action to recover the cost of repairs or replacement due hereunder.
- D. Repair or replacement of any part or parts of the products under this Warranty shall not extend this Warranty with respect to such repaired or replaced part or parts beyond the warranty period.
- E. ACC does not warrant the workmanship of the installer and will not bear any cost due to faulty or incorrect installation or shipping damage.
- F. ACC will not be liable for loss of time, labor, equipment, rental, or other expenses while products are out of service.
- G. ACC shall credit authorized dealers for labor for replacement or repair of defective parts discovered during the warranty period according to the published schedule of labor allowance in the Warranty Policy and Procedures Manual.
- H. This Warranty shall remain in effect during the warranty period when the equipment is properly installed, serviced and operated under normal conditions according to ACC's instructions.
- I. Items such as filters, belts, driers, lubricants, motor brushes, etc. are considered expendable and not covered under warranty.

**ACC DISCLAIMS ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF USE OF THE VEHICLE, LOSS OF TIME, INCONVENIENCE; EXPENSE FOR TRAVEL, LODGING, LOST INCOME OR REVENUE, TRANSPORTATION CHARGES OR LOSS OR DAMAGE OF PERSONAL PROPERTY.**

**SOME STATES DO NOT ALLOW EXCLUSIONS OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSIONS MAY NOT APPLY TO YOU.**

**THIS WARRANTY IS THE ONLY EXPRESSED WARRANTY BY ACC AND NO DEALER OR SERVICE FACILITY IS AUTHORIZED BY ACC TO MODIFY OR EXTEND IT. ANY IMPLIED WARRANTIES, INCLUDING WARRANTY OF FITNESS FOR PARTICULAR PURPOSE, OR WARRANTY OF MERCHANTABILITY, ARE EXPRESSLY LIMITED IN DURATION TO THE SAME PERIOD AS THE EXPRESSED WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON IMPLIED WARRANTIES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.**

**THIS WARRANTY IS NULL AND VOID UNLESS THE WARRANTY REGISTRATION CARD IS COMPLETED AND MAILED TO ACC WITHIN THIRTY DAYS OF THE DATE OF ORIGINAL RETAIL PURCHASE.**

**IN ADDITION TO THE ABOVE RIGHTS, THE PURCHASER HAS CERTAIN LEGAL REMEDIES PROVIDED BY THE MAGNUSON MOSS WARRANTY ACT, PUBLIC LAW 93-637. YOU MAY ALSO HAVE CERTAIN RIGHTS UNDER STATE LAW.**



ACC Climate Control · 22428 Elkhart E. Blvd · Elkhart, IN 46514 · PH 800-462-6322

Updated 03/10/08

▶ **R476021**

Up to 89,000 BTU/hr in a Single Circuit Evaporator



**23047 Evaporator**

- Up to 75,000 BTU/hr
- (2) dual blower assemblies @ 1600 cfm
- 30 amps @ 12 vdc
- 65 lbs



**25060 Condenser**

- 100,000 BTU/hr
- (2) 14 inch fans
- 22 amps @ 12 vdc
- 56 lbs



**ATCO Hose System**

- ATCO 3800 Barrier Hose
- ATCO a/c Series Hybrid Elastomer Fittings
- Use with PAG oil
- Meets SAE-J2064 Specifications



**TM-21 Compressor**

- 13.1 cubic inch displacement capacity
- 3 amps @ 12 vdc

## R476021 – Up to 90,000 BTU/hr in a Single Circuit Evaporator

The R476021 consists of (1) 23047 Rear Mount Evaporator, (1) 25060 skirt mount condensers with (1) TM-21 compressors, and is rated up to 75,000 BTU/hr. (plus the OE Dash a/c capacity). The system is equipped with an orifice tube/accumulator designed for prolonged service life.

The simplified relay board provides system operation with ground leg switching. LEDs for each circuit provide for easy diagnostics of electrical continuity. Parallel flow condensers provide for lighter weight and higher efficiencies over copper tube condensers.

Combined with the OE package, the total system capacity rating up to 90,000 BTU/hr.



# ► R476021 – Up to 90,000 BTU/hr

## AIR CONDITIONING SPECIFICATION

### Model R476021

This air conditioning system shall be a Model **R476021**.

**Compressor:** (1) TM-21 Compressors in addition to the OE Chassis supplied compressor driven off the vehicle engine.

**Evaporator:** One (1) Model 23047 free blow evaporator rated up to 75,000 BTU/hr. The evaporator shall have two (2) dual shaft blower assemblies. The motor is minimum three (3) speed continuous duty permanent magnet and utilizes a resistor to limit amperage requirements. Drain pan shall not be part evaporator cover, but shall be part of the evaporator module with drain valleys to insure proper drains of the condensation. The return air filter is located at the coil and is easily accessible for maintenance without removal of the evaporator cover. The evaporator coil is copper tube design with aluminum fins. Evaporator assembly shall be a galvanized design. The evaporator shall utilize an orifice tube in lieu of a thermal expansion valve for a more trouble free operation. The evaporator cover have no sharp edges and must meet FMVSS 302 specification standards. High Pressure and Low Pressure (switch) protection are part of the evaporator assembly to maximize compressor and entire system protection. Evaporator air outlet louvers shall be adjustable to provide maximum directional airflow throughout the vehicle.

**Driver's area in-dash evaporator:** The OE Chassis supplied drivers in-dash evaporator shall be utilized and is tied into to passenger area air conditioning system.

**Condensers:** One (1) Model 25060 skirt mounted condenser rated @ 100,000 BTU/hr. The condensers shall have two (2) 14" high performance fan/motor assemblies with extended brush life motors. The coil shall be a parallel flow design for lighter weight and maximum heat rejection efficiency. Each condenser assembly shall be designed to distribute air away from the vehicle floor. The condenser is installed in such a manner to assure the entire coil face area is exposed to fresh air from the outside of the vehicle skirt (the skirt of the vehicle will not in any way interfere with direct airflow through the coil). The system design shall use an accumulator with filter desiccant in lieu of a filter drier. The accumulator shall be mounted at the lowest point of the system (on the chassis frame rail) for maximum system protection. In addition, the accumulator shall include an oil pickup tube to insure proper compressor lubrication upon startup of the a/c system. The electrical connections shall be corrosion resistant

This air conditioning system utilizes environmentally friendly R-134A. Refrigerant hoses are ATCO, Air-O-Crimp 3800 Barrier hose with one-piece stainless steel clamps, all designed to meet SAE-J2064.

The thermostat controls shall be located in an area easily accessible to the driver. All wiring is color coded. The entire electrical system shall utilize a simplified relay board with ground leg switching. The relay board shall consist of LED's to aid in the diagnosis of electrical continuity. Each circuit shall be protected by individual fuses for greater protection of the relay board components. The system shall be protected with manual reset circuit breakers.

#### \*Details of System Capacities:

<u>Model</u>	<u>Compressor</u>	<u>System Capacity</u>	<u>OE Dash Capacity</u>	<u>Total Bus a/c Capacity</u>
R476021	TM-21	75,000 BTU/hr	15,000 BTU/hr *	90,000 BTU/hr*
			20,000 BTU/hr**	94,000 BTU/hr**

\* Ford E Series/Chevy G Series OE Chassis Rating

\*\* Ford F Series/Freightliner/IC OE Chassis Rating



ACC Climate Control; A Spheros Company  
22150 Challenger Dr.  
Elkhart, Indiana 46514  
Phone: 574.264.2190 Toll Free: 800.462.6322  
Fax: 574.266.6744  
www.accclimatecontrol.com



## ADA STOP REQUEST INFORMATION



The ADA Occupant Stop Request Lights the Blue Side of the Sign and Signals Driver of an ADA Stop Request via Touch Tape Switches.

Ambulatory Stop Requests Light the Red Side of the Sign and Signals the Driver via Pull Cords.



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: Addendum 1 - 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-16	2018-08-02 13:30:00	CRFQ 0805 PTR1900000001	2

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV 25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman Inc.  
5120 Wards Road  
Evington, VA. 24550  
(P)1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers  
(304) 558-2063  
michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation

**ADDITIONAL INFORMATION:****Addendum**

Addendum No. 1 issued to modify the schedule of events as follows:

Questions deadline changed FROM: 7/16/2018 at 10:00 AM TO: 7/23/2018 at 10:00 AM.

Bid Opening changed FROM: 7/24/18 at 1:30 PM TO: 8/02/2018 at 1:30 PM

**End of Addendum**

\*\*\*\*\*

**Request for Quotation**

The West Virginia Purchasing Division is soliciting bids on behalf of the Division of Public Transit and any other state agency that desires to utilize this contract to establish an open-end contract for 176" - 190' Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles with air conditioning, fixed seats, wheelchair securements and lift to provide specialized transportation services in an urban and suburban-rural environment, including hilly terrain and a severe operating climate suited to stop-start duty cycles.

INVOICE TO		SHIP TO	
ACCOUNTS PAYABLE PUBLIC TRANSIT DIVISION OF BLDG 5 RM 650 1900 KANAWHA BLVD E CHARLESTON WV25305-0432 US		GENERAL MANAGER PUBLIC TRANSIT DIVISION OF KANAWHA VALLEY REGIONAL TRANSPORTATION AUTHORITY 1550 FOURTH AVE CHARLESTON WV 25324 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	176" - 190" Wheelbase Cutaway Vehicle	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
25101502	Startrans		Senator II

**Extended Description :**

176" - 190" Wheelbase Cutaway Vehicle

\*\*\*\*\*

Vendor should type or clearly print the information into the Exhibit A-Pricing Page to prevent errors in the evaluation. If Vendor is submitting bid online Vendor must submit Exhibit A -Pricing Page as attachment. TOTAL BID FOR EVALUATION is the amount Vendor is to enter into wvOASIS commodity line when submitting. Notwithstanding the foregoing, the Purchasing Division may correct errors at its discretion.

# SOLICITATION NUMBER: CRFQ PTR1800000001

## Addendum Number: 01

---

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

### Applicable Addendum Category:

- ☒ | Modify bid opening date and time
- ☐ | Modify specifications of product or service being sought
- ☐ | Attachment of vendor questions and responses
- ☐ | Attachment of pre-bid sign-in sheet
- ☐ | Correction of error
- ☐ | Other

### Description of Modification to Solicitation:

This addendum is issued to modify the solicitation per the attached documentation and the following:

1. To modify the schedule of events as follows:

Questions deadline changed FROM: 7/16/2018 at 10:00 AM TO: 7/23/2018 at 10:00 AM.

Bid Opening changed FROM: 7/24/18 at 1:30 PM TO: 8/02/2018 at 1:30 PM

No other changes.

**Additional Documentation:** Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

### Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: PTR1900000001**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

**Addendum Numbers Received:**

(Check the box next to each addendum received)

<input checked="" type="checkbox"/> Addendum No. 1	<input type="checkbox"/> Addendum No. 6
<input type="checkbox"/> Addendum No. 2	<input type="checkbox"/> Addendum No. 7
<input type="checkbox"/> Addendum No. 3	<input type="checkbox"/> Addendum No. 8
<input type="checkbox"/> Addendum No. 4	<input type="checkbox"/> Addendum No. 9
<input type="checkbox"/> Addendum No. 5	<input type="checkbox"/> Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

\_\_\_\_\_  
Sonny Merryman Inc.

Company

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
8/2/18

Date

**NOTE:** This addendum acknowledgement should be submitted with the bid to expedite document processing.  
Revised 6/8/2012



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 – Vehicles

Proc Folder: 457733

Doc Description: Addendum 2 - 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-24	2018-08-02 13:30:00	CRFQ 0805 PTR1900000001	3

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV 25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman Inc.

5120 Wards Road

Evington, VA. 24550

(P)1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers

(304) 558-2063

michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation

**ADDITIONAL INFORMATION:**

Addendum

Addendum No. 2 issued to publish the agency answers to vendor questions.

End of Addendum

\*\*\*\*\*

Request for Quotation

The West Virginia Purchasing Division is soliciting bids on behalf of the Division of Public Transit and any other state agency that desires to utilize this contract to establish an open-end contract for 176" - 190' Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles with air conditioning, fixed seats, wheelchair securements and lift to provide specialized transportation services in an urban and suburban-rural environment, including hilly terrain and a severe operating climate suited to stop-start duty cycles.

INVOICE TO		SHIP TO	
ACCOUNTS PAYABLE PUBLIC TRANSIT DIVISION OF BLDG 5 RM 650 1900 KANAWHA BLVD E CHARLESTON WV25305-0432 US		GENERAL MANAGER PUBLIC TRANSIT DIVISION OF KANAWHA VALLEY REGIONAL TRANSPORTATION AUTHORITY 1550 FOURTH AVE CHARLESTON WV 25324 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	176" - 190" Wheelbase Cutaway Vehicle	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
25101502	Startrans		Senator II

**Extended Description :**

176" - 190" Wheelbase Cutaway Vehicle

\*\*\*\*\*

Vendor should type or clearly print the information into the Exhibit A-Pricing Page to prevent errors in the evaluation. If Vendor is submitting bid online Vendor must submit Exhibit A -Pricing Page as attachment. TOTAL BID FOR EVALUATION is the amount Vendor is to enter into wvOASIS commodity line when submitting. Notwithstanding the foregoing, the Purchasing Division may correct errors at its discretion.



**SOLICITATION NUMBER:** CRFQ PTR1900000001

**Addendum Number:** 02

---

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

**Applicable Addendum Category:**

- ☐ Modify bid opening date and time
- ☐ Modify specifications of product or service being sought
- ☒ Attachment of vendor questions and responses
- ☐ Attachment of pre-bid sign-in sheet
- ☐ Correction of error
- ☐ Other

**Description of Modification to Solicitation:**

This addendum is issued to modify the solicitation per the attached documentation and the following:

1. To publish agency answers to vendor questions.

No other changes.

**Additional Documentation:** Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

**Terms and Conditions:**

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

# ATTACHMENT A

**CRFQ PTR1900000001**

**176" – 190" Wheelbase Cutaway Vehicle**

**Vendor Questions and Agency Answers**

**Question 1)** Page 30 3.16.1 Electrical System/Wiring- In place of the Two 11"x17" laminated as built we would like to offer a USB as built diagram in their place. Is this acceptable?

**Answer 1)** The Division requests the two 11" by 17" laminated as build schematics.

**Question 2)** Page 34 3.19.14 An Aluminum or galvanized steel underfloor is requested. Would a Tyvek synthetic vapor barrier in lieu of the aluminum or galvanized steel be acceptable?

**Answer 2)** The Division will accept the Tyvek synthetic vapor barrier in lieu of the aluminum or galvanized.

**Question 3)** Page 53 3.44.1 Security Camera System- Can we please have clarification on the number of cameras to be installed in each unit?

**Answer 3)** The Division request six cameras be installed, location to be determined later.

**Question 4)** 3. Contract Terms, Page 10, Please allow annual bus body price increase after initial one-year period based on actual commodity cost increase.

**Answer 4)** The Division is only allowing a price increase on chassis only once a year during renewal period.

**Question 5)** 3.2.1 Chassis, Page 26, Please allow chassis to be extended by cutting between the axles. This will be required to obtain a long enough wheelbase (186") to build class A through F buses.

**Answer 5)** The Division will allow this request.

**Question 6)** 3.4.1. Fuel System, Page 27, Please accept that gas fuel will be on StreetSide of chassis and cannot be relocated per OEM manufacturer requirements.

**Answer 6)** The Division will allow this request since it's an OEM requirement.

**Question 7)** 3.10.4 Back Up Camera, Page 28, Please accept that the back-up camera will not be from ford. They do not offer one on cutaway chassis.

**Answer 7) The Division will allow an aftermarket back up camera.**

**Question 8) 3.16.1 Electrical System, Page 30, Please accept that wiring will be color and function coded but not numbered.**

**Answer 8) The Division will accept color and function coded wiring.**

**Question 9) 3.21.1 Undercoating and Rustproofing, Page 35, Floor cross members will be painted and primed as well as undercoated. Undercoating will comply with federal flammability standards.**

**Answer 9) This will be acceptable.**

**Question 10) 3.25.3 Windows/Glazing, Page 40, Please accept that the passenger door windows will be AS-2 not AS-3 as specified. This is a federal regulation.**

**Answer 10) The Division accepts the window as AS-2.**

**Question 11) 3.25.6 Windows/Glazing, Page 41, Please accept that the driver OEM standard window is operated with a crank not electricity as specified.**

**Answer 11) The Division will allow the crank operated window if not available.**

**Question 12) 3.26.2 Air Conditioning and 4.1.Vehicle Classes, Page 41 and 58, Please accept passenger compartment air conditioning that meets the spec and is rated 70,000 BTU when combined with the chassis a/c system. This has been used in the past by west Virginia in buses of the same size and passenger capacity.**

**Answer 12) The Division accepts the air conditioning.**

**Question 13) 3.27.5 Interior Lighting, Page 43, Please accept manufacturer's standard interior led lighting. Fixture with an ABS base.**

**Answer 13) The Division will accept the manufacturer's standard interior led lighting.**

**Question 14)** 3.29.2 Floor and Floor Covering, Page 44, Please remove RCA transit flooring from the spec. This is a less expensive rubber floor and the seams cannot be welded. The state has required GERFLOR or ALTRO floor in the past. Also remove "double groove rib design" as this described RCA rubber flooring. GERFLOR and ALTRO floor coverings are smooth not ribbed.

**Answer 14)** RCA flooring is to be removed from the specs.

**Question 15)** 3.30.1 Seating, Page 45, Please accept that Freedman Seating states that ABS plastic seat backs are not available on double seats with ICS position and companion position and so these double seats will not have ABS backs.

**Answer 15)** The Division will accept the seats without the ABS plastic seat backs from Freedman Seating for the ICS positions.

**Question 16)** 3.30.12 Foldaway Seat, Page 46, Please accept that the freedman double 3-step foldaway seat frame allows approximately 12.5" between the floor and the bottom of the seat cushion not 14" as specified.

**Answer 16)** The Division will accept this request.

**Question 17)** 3.31.2.1 Wheelchair Securement, Page 47, Please accept that there is not enough room to have 6" between each wheelchair position on the bus. Nose to tail wheelchair positions will have shared track.

**Answer 17)** The Division understands and accepts this request.

**Question 18)** 3.32.15 Mobility Aids, Page 49, Please accept that the L-track will not run "full length" in the bus. It will run cross ways. See floor plan.

**Answer 18)** The Division will accept the L-track running cross ways.

**Question 19)** 3.37.1 Digital Destination Signs, Page 52, Please accept Twin Vision Mobilite front and side destination signs that have a 100,000-hour operating life, windows based programing and don't require a pc card or software or a dc power converter.

**Answer 19)** The Division will accept Twin Vision Mobilte digital destination signs.

**Question 20)** 4.3 Classes C, D, E, F, Page 60, Please accept that a 190" wheelbase is not necessary for the front lift buses and so the wheelbase will remain the same as the rear lift buses at 186".

**Answer 20)** The Division will accept this request.

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: PTR1900000001**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

**Addendum Numbers Received:**

(Check the box next to each addendum received)

<input checked="" type="checkbox"/> Addendum No. 1	<input type="checkbox"/> Addendum No. 6
<input checked="" type="checkbox"/> Addendum No. 2	<input type="checkbox"/> Addendum No. 7
<input type="checkbox"/> Addendum No. 3	<input type="checkbox"/> Addendum No. 8
<input type="checkbox"/> Addendum No. 4	<input type="checkbox"/> Addendum No. 9
<input type="checkbox"/> Addendum No. 5	<input type="checkbox"/> Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

\_\_\_\_\_  
Sonny Merryman Inc.

Company

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
8/2/18

Date

**NOTE:** This addendum acknowledgement should be submitted with the bid to expedite document processing.

Revised 6/8/2012



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: Addendum 1 - 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-16	2018-08-02 13:30:00	CRFQ 0805 PTR1900000001	2

**BID RECEIVING LOCATION**

BID CLERK  
DEPARTMENT OF ADMINISTRATION  
PURCHASING DIVISION  
2019 WASHINGTON ST E  
CHARLESTON WV 25305  
US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman Inc.  
5120 Wards Road  
Evington, VA. 24550  
(P)1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers  
(304) 558-2063  
michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation



**ADDITIONAL INFORMATION:**

## Addendum

Addendum No. 1 issued to modify the schedule of events as follows:

Questions deadline changed FROM: 7/16/2018 at 10:00 AM TO: 7/23/2018 at 10:00 AM.

Bid Opening changed FROM: 7/24/18 at 1:30 PM TO: 8/02/2018 at 1:30 PM

End of Addendum

## Request for Quotation

The West Virginia Purchasing Division is soliciting bids on behalf of the Division of Public Transit and any other state agency that desires to utilize this contract to establish an open-end contract for 176" - 190' Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles with air conditioning, fixed seats, wheelchair securements and lift to provide specialized transportation services in an urban and suburban-rural environment, including hilly terrain and a severe operating climate suited to stop-start duty cycles.

INVOICE TO		SHIP TO	
ACCOUNTS PAYABLE PUBLIC TRANSIT DIVISION OF BLDG 5 RM 650 1900 KANAWHA BLVD E  CHARLESTON WV25305-0432  US		GENERAL MANAGER PUBLIC TRANSIT DIVISION OF KANAWHA VALLEY REGIONAL TRANSPORTATION AUTHORITY 1550 FOURTH AVE  CHARLESTON WV 25324  US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	176" - 190" Wheelbase Cutaway Vehicle	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
25101502	Startrans		Senator II

## Extended Description :

176" - 190" Wheelbase Cutaway Vehicle

Vendor should type or clearly print the information into the Exhibit A-Pricing Page to prevent errors in the evaluation. If Vendor is submitting bid online Vendor must submit Exhibit A -Pricing Page as attachment. TOTAL BID FOR EVALUATION is the amount Vendor is to enter into wvOASIS commodity line when submitting. Notwithstanding the foregoing, the Purchasing Division may correct errors at its discretion.

## SOLICITATION NUMBER: CRFQ PTR1800000001

### Addendum Number: 01

---

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

#### Applicable Addendum Category:

- ☒ Modify bid opening date and time
- ☐ Modify specifications of product or service being sought
- ☐ Attachment of vendor questions and responses
- ☐ Attachment of pre-bid sign-in sheet
- ☐ Correction of error
- ☐ Other

#### Description of Modification to Solicitation:

This addendum is issued to modify the solicitation per the attached documentation and the following:

1. To modify the schedule of events as follows:

Questions deadline changed FROM: 7/16/2018 at 10:00 AM TO: 7/23/2018 at 10:00 AM.

Bid Opening changed FROM: 7/24/18 at 1:30 PM TO: 8/02/2018 at 1:30 PM

No other changes.

**Additional Documentation:** Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

#### Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: PTR1900000001**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

**Addendum Numbers Received:**

(Check the box next to each addendum received)

<input checked="" type="checkbox"/> Addendum No. 1	<input type="checkbox"/> Addendum No. 6
<input type="checkbox"/> Addendum No. 2	<input type="checkbox"/> Addendum No. 7
<input type="checkbox"/> Addendum No. 3	<input type="checkbox"/> Addendum No. 8
<input type="checkbox"/> Addendum No. 4	<input type="checkbox"/> Addendum No. 9
<input type="checkbox"/> Addendum No. 5	<input type="checkbox"/> Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

\_\_\_\_\_  
Sonny Merryman Inc.

\_\_\_\_\_  
Company

\_\_\_\_\_  


\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
8/2/18

\_\_\_\_\_  
Date

**NOTE:** This addendum acknowledgement should be submitted with the bid to expedite document processing.  
Revised 6/8/2012



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: Addendum 2 - 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-24	2018-08-02 13:30:00	CRFQ 0805 PTR1900000001	3

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV 25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman Inc.

5120 Wards Road

Evington, VA. 24550

(P)1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers

(304) 558-2063

michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation

**ADDITIONAL INFORMATION:**

Addendum

Addendum No. 2 issued to publish the agency answers to vendor questions.

End of Addendum  
\*\*\*\*\*

## Request for Quotation

The West Virginia Purchasing Division is soliciting bids on behalf of the Division of Public Transit and any other state agency that desires to utilize this contract to establish an open-end contract for 176" - 190" Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles with air conditioning, fixed seats, wheelchair securements and lift to provide specialized transportation services in an urban and suburban-rural environment, including hilly terrain and a severe operating climate suited to stop-start duty cycles.

INVOICE TO		SHIP TO	
ACCOUNTS PAYABLE PUBLIC TRANSIT DIVISION OF BLDG 5 RM 650 1900 KANAWHA BLVD E CHARLESTON WV25305-0432 US		GENERAL MANAGER PUBLIC TRANSIT DIVISION OF KANAWHA VALLEY REGIONAL TRANSPORTATION AUTHORITY 1550 FOURTH AVE CHARLESTON WV 25324 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	176" - 190" Wheelbase Cutaway Vehicle	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
25101502	Startrans		Senator II

## Extended Description :

176" - 190" Wheelbase Cutaway Vehicle  
\*\*\*\*\*

Vendor should type or clearly print the information into the Exhibit A-Pricing Page to prevent errors in the evaluation. If Vendor is submitting bid online Vendor must submit Exhibit A -Pricing Page as attachment. TOTAL BID FOR EVALUATION is the amount Vendor is to enter into wvOASIS commodity line when submitting. Notwithstanding the foregoing, the Purchasing Division may correct errors at its discretion.

**SOLICITATION NUMBER: CRFQ PTR1900000001**  
**Addendum Number: 02**

---

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

**Applicable Addendum Category:**

- ☐ Modify bid opening date and time
- ☐ Modify specifications of product or service being sought
- ☒ Attachment of vendor questions and responses
- ☐ Attachment of pre-bid sign-in sheet
- ☐ Correction of error
- ☐ Other

**Description of Modification to Solicitation:**

This addendum is issued to modify the solicitation per the attached documentation and the following:

1. To publish agency answers to vendor questions.

No other changes.

**Additional Documentation:** Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

**Terms and Conditions:**

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

**CRFQ PTR1900000001**

**176" – 190" Wheelbase Cutaway Vehicle**

**Vendor Questions and Agency Answers**

**Question 1)** Page 30 3.16.1 Electrical System/Wiring- In place of the Two 11"x17" laminated as built we would like to offer a USB as built diagram in their place. Is this acceptable?

**Answer 1)** The Division requests the two 11" by 17" laminated as build schematics.

**Question 2)** Page 34 3.19.14 An Aluminum or galvanized steel underfloor is requested. Would a Tyvek synthetic vapor barrier in lieu of the aluminum or galvanized steel be acceptable?

**Answer 2)** The Division will accept the Tyvek synthetic vapor barrier in lieu of the aluminum or galvanized.

**Question 3)** Page 53 3.44.1 Security Camera System- Can we please have clarification on the number of cameras to be installed in each unit?

**Answer 3)** The Division request six cameras be installed, location to be determined later.

**Question 4)** 3. Contract Terms, Page 10, Please allow annual bus body price increase after initial one-year period based on actual commodity cost increase.

**Answer 4)** The Division is only allowing a price increase on chassis only once a year during renewal period.

**Question 5)** 3.2.1 Chassis, Page 26, Please allow chassis to be extended by cutting between the axles. This will be required to obtain a long enough wheelbase (186") to build class A through F buses.

**Answer 5)** The Division will allow this request.

**Question 6)** 3.4.1. Fuel System, Page 27, Please accept that gas fuel will be on StreetSide of chassis and cannot be relocated per OEM manufacturer requirements.

**Answer 6)** The Division will allow this request since it's an OEM requirement.

**Question 7)** 3.10.4 Back Up Camera, Page 28, Please accept that the back-up camera will not be from ford. They do not offer one on cutaway chassis.

**Answer 7) The Division will allow an aftermarket back up camera.**

**Question 8) 3.16.1 Electrical System, Page 30, Please accept that wiring will be color and function coded but not numbered.**

**Answer 8) The Division will accept color and function coded wiring.**

**Question 9) 3.21.1 Undercoating and Rustproofing, Page 35, Floor cross members will be painted and primed as well as undercoated. Undercoating will comply with federal flammability standards.**

**Answer 9) This will be acceptable.**

**Question 10) 3.25.3 Windows/Glazing, Page 40, Please accept that the passenger door windows will be AS-2 not AS-3 as specified. This is a federal regulation.**

**Answer 10) The Division accepts the window as AS-2.**

**Question 11) 3.25.6 Windows/Glazing, Page 41, Please accept that the driver OEM standard window is operated with a crank not electricity as specified.**

**Answer 11) The Division will allow the crank operated window if not available.**

**Question 12) 3.26.2 Air Conditioning and 4.1.Vehicle Classes, Page 41 and 58, Please accept passenger compartment air conditioning that meets the spec and is rated 70,000 BTU when combined with the chassis a/c system. This has been used in the past by west Virginia in buses of the same size and passenger capacity.**

**Answer 12) The Division accepts the air conditioning.**

**Question 13) 3.27.5 Interior Lighting, Page 43, Please accept manufacturer's standard interior led lighting. Fixture with an ABS base.**

**Answer 13) The Division will accept the manufacturer's standard interior led lighting.**



**Question 14)** 3.29.2 Floor and Floor Covering, Page 44, Please remove RCA transit flooring from the spec. This is a less expensive rubber floor and the seams cannot be welded. The state has required GERFLOR or ALTRO floor in the past. Also remove "double groove rib design" as this described RCA rubber flooring. GERFLOR and ALTRO floor coverings are smooth not ribbed.

**Answer 14)** RCA flooring is to be removed from the specs.

**Question 15)** 3.30.1 Seating, Page 45, Please accept that Freedman Seating states that ABS plastic seat backs are not available on double seats with ICS position and companion position and so these double seats will not have ABS backs.

**Answer 15)** The Division will accept the seats without the ABS plastic seat backs from Freedman Seating for the ICS positions.

**Question 16)** 3.30.12 Foldaway Seat, Page 46, Please accept that the freedman double 3-step foldaway seat frame allows approximately 12.5" between the floor and the bottom of the seat cushion not 14" as specified.

**Answer 16)** The Division will accept this request.

**Question 17)** 3.31.2.1 Wheelchair Securement, Page 47, Please accept that there is not enough room to have 6" between each wheelchair position on the bus. Nose to tail wheelchair positions will have shared track.

**Answer 17)** The Division understands and accepts this request.

**Question 18)** 3.32.15 Mobility Aids, Page 49, Please accept that the L-track will not run "full length" in the bus. It will run cross ways. See floor plan.

**Answer 18)** The Division will accept the L-track running cross ways.

**Question 19)** 3.37.1 Digital Destination Signs, Page 52, Please accept Twin Vision Mobilite front and side destination signs that have a 100,000-hour operating life, windows based programing and don't require a pc card or software or a dc power converter.

**Answer 19)** The Division will accept Twin Vision Mobilite digital destination signs.

**Question 20)** 4.3 Classes C, D, E, F, Page 60, Please accept that a 190" wheelbase is not necessary for the front lift buses and so the wheelbase will remain the same as the rear lift buses at 186".

**Answer 20)** The Division will accept this request.

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: PTR1900000001**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

**Addendum Numbers Received:**

(Check the box next to each addendum received)

<input checked="" type="checkbox"/> Addendum No. 1	<input type="checkbox"/> Addendum No. 6
<input checked="" type="checkbox"/> Addendum No. 2	<input type="checkbox"/> Addendum No. 7
<input type="checkbox"/> Addendum No. 3	<input type="checkbox"/> Addendum No. 8
<input type="checkbox"/> Addendum No. 4	<input type="checkbox"/> Addendum No. 9
<input type="checkbox"/> Addendum No. 5	<input type="checkbox"/> Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

\_\_\_\_\_  
Sonny Merryman Inc.

\_\_\_\_\_  
Company

\_\_\_\_\_  


\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
8/2/18

\_\_\_\_\_  
Date

**NOTE:** This addendum acknowledgment should be submitted with the bid to expedite document processing.  
Revised 6/8/2012



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-09	2018-07-24 13:30:00	CRFQ 0805 PTR1900000001	1

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV

25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman , Inc.

5120 Wards Road

Evington, VA 24550

(P) 1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers

(304) 558-2063

michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: Addendum 1 - 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-16	2018-08-02 13:30:00	CRFQ 0805 PTR1900000001	2

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV 25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman, Inc.  
5120 Wards Road  
Evington, VA 24550  
(P) 1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers

(304) 558-2063

michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: Addendum 2 - 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-24	2018-08-02 13:30:00	CRFQ 0805 PTR1900000001	3

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV

25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman Inc.

5120 Wards Road

Evington, VA 24550

(P) 1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers

(304) 558-2063

michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation

# **Braun® Limited Warranty For Dual Parallel Arm Public Use Lifts**

## **WARRANTY COVERAGE AND WARRANTY COVERAGE TIME PERIODS**

The Braun Corporation ("Braun") warranty covers certain parts of this wheelchair lift for three (3) years or 10,000 cycles and the cost of labor to repair or replace those parts for one (1) year or 3,000 cycles. If The Braun Corporation receives the warranty registration card within 20 days after the lift is put into service, the warranty labor coverage will increase from one (1) year or 3,000 cycles to three (3) years or 10,000 cycles. In addition, providing the warranty registration card is returned as noted above, the following lift's power train parts are warrantied for five (5) years or 15,000 cycles: Cable, Cylinder, Flow Control, Gear Box, Motor, Pump, Hydraulic Hose and Fittings. This limited warranty covers substantial defects in materials and workmanship of the lift, provided that the lift is operated and maintained properly and in conformity with the owner's manual. The warranty period begins on the date that the product is delivered to the first retail purchaser by an independent, authorized dealer of Braun, or, if the dealer places the product into any type of service prior to retail sale, on the date the dealer first places the product in such service. This limited warranty applies only to the first purchaser. It may not be transferred.

## **WHAT BRAUN WILL DO TO CORRECT PROBLEMS**

In the event that a substantial defect in material or workmanship, attributable to Braun, is found to exist during the first year of warranty coverage, it will be repaired or replaced, at Braun's option, without charge for parts or labor to the owner, in accordance with the terms, conditions and limitations of this limited warranty. If the substantial defect in material or workmanship, attributable to Braun, is found to exist during the second or third year of warranty coverage, it will be repaired or replaced, at Braun's option, without charge to the owner for parts, only, in accordance with the terms, conditions and limitations of this limited warranty. Providing the warranty card is returned within 20 days as outlined above, the labor warranty period will be extended by two years of coverage in accordance with the terms, conditions, and limitations of this limited warranty. In addition, if a substantial defect in material or workmanship, attributable to Braun, is found to exist during the fourth or fifth year of warranty coverage to the following lift's power train parts: Cable, Cylinder, Flow Control, Gear Box, Motor, Pump, Hydraulic Hose and Fittings, it will be repaired or replaced, at Braun's option, without charge to the owner for parts, only, in accordance with the terms, conditions and limitations of this limited warranty. The cost of labor for repair or replacement at any time after the warranty coverage detailed above is the sole responsibility of the owner.

Braun's obligation to repair or replace defective materials or workmanship is the sole obligation of Braun under this limited warranty. Braun reserves the right to use new or remanufactured parts of similar quality to complete any work, and to make parts and design changes from time to time without notice to anyone. Braun reserves the right to make changes in the design or material of its products without incurring any obligation to incorporate such changes in any previously manufactured product. Braun makes no warranty as to the future performance of this product, and this limited warranty is not intended to extend to the future performance of the product. In addition, the owner's obligation to notify Braun, or one of its authorized, independent dealers, of a claimed defect does not modify any obligation placed on the owner to contact Braun directly when attempting to pursue remedies under state or federal law.

## **LIMITATIONS, EXCLUSIONS AND DISCLAIMER OF IMPLIED WARRANTIES**

**ANY IMPLIED WARRANTY THAT IS FOUND TO ARISE BY WAY OF STATE OR FEDERAL LAW, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR ANY IMPLIED WARRANTY OF FITNESS, IS LIMITED IN DURATION TO THE TERMS OF THIS LIMITED WARRANTY AND IS LIMITED IN SCOPE OF COVERAGE TO THE SCOPE OF COVERAGE OF THIS LIMITED WARRANTY.** Braun disclaims any express or implied warranty, including any implied warranty of fitness or merchantability, on items excluded from coverage as set forth in this limited warranty. Braun makes no warranty of any nature beyond that contained in this limited warranty. No one has authority to enlarge, amend or modify this limited warranty, and Braun does not authorize anyone to create any other obligation for it regarding this product. Braun is not responsible for any representation, promise or warranty made by any independent dealer or other person beyond what is expressly stated in this limited warranty. Any selling or servicing dealer is not Braun's agent, but an independent entity.

## **Braun® Limited Warranty For Dual Parallel Arm Public Use Lifts**

**BRAUN SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES THAT MAY RESULT FROM BREACH OF THIS LIMITED WARRANTY OR ANY IMPLIED WARRANTY. THIS EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES SHALL BE INDEPENDENT OF ANY FAILURE OF THE ESSENTIAL PURPOSE OF ANY WARRANTY, AND THIS EXCLUSION SHALL SURVIVE ANY DETERMINATION THAT THIS LIMITED WARRANTY OR ANY IMPLIED WARRANTY HAS FAILED OF ITS ESSENTIAL PURPOSE.** This warranty does not cover, and in no event shall Braun be liable for towing charges, travel, lodging, or any other expense incurred due to the loss of use of the product or other reason.

Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

### **HOW TO GET SERVICE**

To obtain warranty service the owner must do all of the following:

1. Notify an authorized service center, of the claimed defect attributable to Braun, within the warranty coverage period designated above
2. Provide the notification mentioned in (1), above, within ten (10) days of when the owner discovered, or should have discovered, the claimed defect
3. Promptly schedule an appointment with and take the product to an authorized service center for service.
4. Pay any transportation costs and all expenses associated with obtaining warranty service.

Since Braun does not control the scheduling of service work at the independent dealerships you may encounter some delay in scheduling or completion of work. If you need assistance you may contact Braun, at 631 West 11th Street, Winamac, Indiana 46996; 1-800-THE-LIFT, (843-5438).

If two (2) or more service attempts have been made to correct any covered defect that you believe impairs the value, use or safety of the product, or if it has taken longer than thirty (30) days for repairs to be completed, you must, to the extent permitted by law, notify Braun directly, in writing, at the above address, of the unsuccessful repair(s) of the alleged defect(s) so that Braun can become directly involved in providing service pursuant to the terms of this limited warranty.

### **WHAT IS NOT COVERED**

This Limited Warranty does not cover any of the following: defects in materials, components or parts of the product not attributable to Braun, any material, component or part of the product that is warranted by another entity (Note: the written warranty provided by the manufacturer of the material, component or part is the direct responsibility of that manufacturer); items that are added or changed after the product leaves Braun's possession; additional items installed at any dealership, or other place of business, or by any other party, other than Braun; normal wear, tear, usage, maintenance, service, periodic adjustments, the effects of condensation or moisture from condensation; mold or any damage caused by mold; imperfections that do not affect the product for its intended purpose; items that are working as designed but that you are unhappy with; problems related to mis-operation, misuse, mishandling, neglect or abuse, including failure to maintain the product in accordance with the owner's manual, or other routine maintenance such as inspections, lubricating, adjustments, tightening of screws, sealing, wheel alignments or rotating tires; damage due to accident or collision, including any acts of weather or damage or corrosion due to the environment; theft, vandalism, fire, or other intervening acts not attributable to Braun; damage resulting from tire wear or tire failure; defacing, scratches, dents or chips on any interior or exterior surface of the product, including those caused by rocks or other road hazards, damage caused by off road use, overloading or alteration of the product, or any of its components or parts.

Defects and/or damage to interior and exterior surfaces and other appearance items may occur at the factory or when the product is in transit. These items are usually detected and corrected at the factory or by



## **Braun® Limited Warranty For Dual Parallel Arm Public Use Lifts**

a dealer prior to delivery to the purchaser. You must inspect the product for this type of damage when you take delivery. If you find any such defect or damage you must notify the selling dealer, or Braun, at the time of delivery to have these items covered by this limited warranty and to have work performed on the items at no cost to you as provided by this limited warranty.

### **EVENTS DISCHARGING BRAUN FROM OBLIGATION UNDER WARRANTY**

The following shall completely discharge Braun from any express or implied warranty obligation to repair or replace anything and void this warranty: misuse, neglect, collision, accidents, failure to provide routine maintenance (See Owner's Manual), unauthorized alteration, off road use, Acts of Nature, damage from weather or the environment, theft, vandalism, tampering, fire, explosions, overloading the product and odometer tampering.

### **LEGAL REMEDIES**

Any action to enforce any portion of this limited warranty, or any implied warranty, must be commenced within six (6) months after expiration of the warranty coverage period designated above or the action will be barred because of the passage of time. Any performance of repairs shall not suspend this limitation period from expiring. Any performance of repairs after the warranty coverage period has expired, or performance of repairs regarding any thing excluded from coverage under this limited warranty shall be considered "good will" repairs, and they will not alter the terms of this limited warranty, or extend the warranty coverage period or the filing limitation period in this paragraph. In addition, since it is reasonable to expect that the product will need some service during the warranty period; this warranty does not extend to future performance. It only sets forth what Braun will do and does not guarantee anything about the product for any time period. Nothing in this warranty, or any action of Braun, or any agent of Braun, shall be interpreted as an extension of any warranty period or the filing limitation period in this paragraph. Some states do not allow a reduction in the statute of limitations, so this reduction may not apply to you.

### **WARRANTY REGISTRATION and MISCELLANEOUS**

Your warranty registration records should be completed and delivered to the appropriate companies, including the Braun Delivery Checklist & Warranty form. That form must be returned to Braun within twenty (20) days of purchase. The Braun warranty will not be registered unless this warranty registration is completed and received by Braun. Failure to file this warranty registration with Braun will not affect your rights under this limited warranty as long as you can present proof of purchase, but it can cause delays in obtaining the benefits of this limited warranty, and it changes the start date of the warranty to the date of final assembly of the product by Braun.

Braun agrees to repair or replace any of its factory installed parts found to have substantial defects within the appropriate warranty period designated above, provided that the repair is authorized by Braun and carried out by an authorized service center (a Braun labor schedule determines the cost allowance for repairs). Braun will not honor any warranty claim for repairs or replacement of parts unless the claim is submitted with the appropriate paperwork, and the work is completed by an independent, factory authorized service center. The appropriate paperwork can be obtained by written or phone contact with Braun at the contact information in this warranty.

Braun reserves the right to designate where any warranty work can be performed. Braun also reserves the right to examine any defective workmanship or part prior to giving any authorization for warranty work. Braun's return authorization procedure must be adhered to in order to process any warranty claims.

**THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.**

# FEATHER WEIGHT

## FOLDAWAY BV & AM STYLES

Freedman Seating gives you the largest selection of Foldaways in the industry. Whether you need space for luggage or wheel chairs, we have the right seat. Easy to install and easier to operate, our Foldaways will provide you with miles and miles of happy riders and drivers. Maybe we should say, "smiles and smiles". Freedman Seating, "Not just seats — seating solutions."



Notch-Back, standard Bench-Back and High-Back are shown.

Not Just Seats



THE FEATHER WEIGHT SERIES BY

**FREEDMAN**

SEATING COMPANY

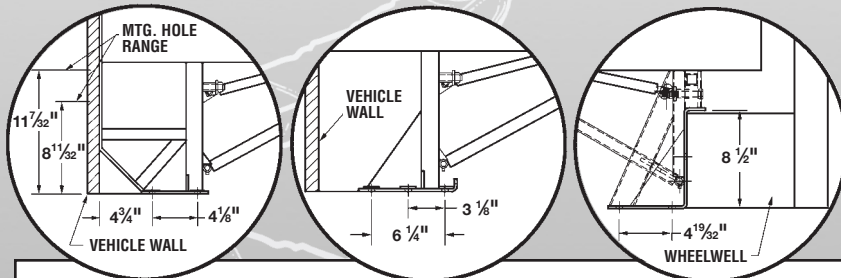
an ISO 9001:2000 certified company

Seating Solutions™



# FEATHER WEIGHT

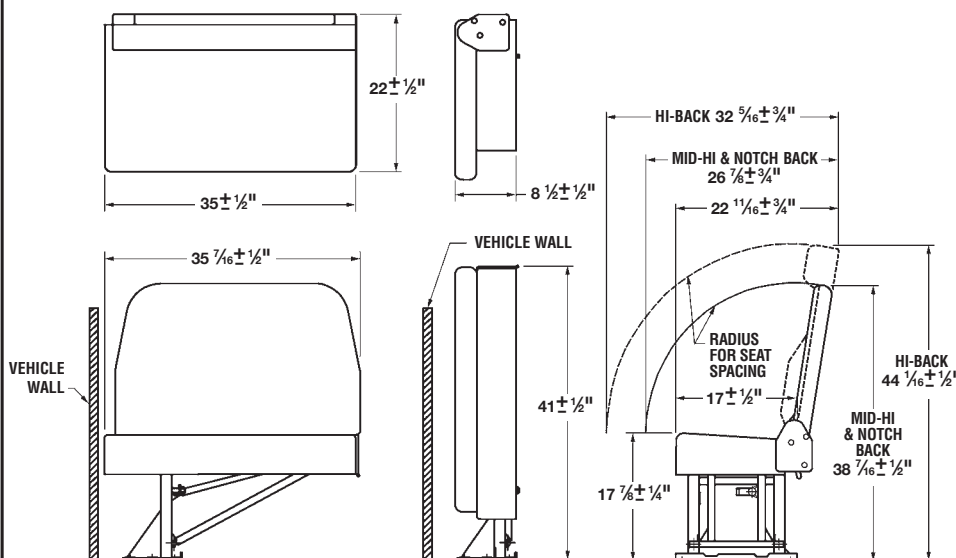
## Foldaway BV & AM STYLES



AM2 Floor/Wall Mount

BV Floor Mount

BVWW3 Floor Mount



Corner Grabs

TDSS with belts

TDSS without belts



Belts not included.

### Standard Features:

- BV Foldaways mount to the vehicle with four bolts to the floor (no wall mount)
- AM Foldaways mount to the vehicle with four bolts to the floor and two to the wall mount
- Seat belt ready (FMVSS 210 compliant with no leg or tether)
- Ultra-thin backrest for added hip-to-knee room and lumbar support
- High quality molded polyurethane seat and back cushions
- Folds up to less than 10" thick when in the stowed position
- Cantilever design provides reduced installation time; no floor cutting for aisle leg and easy vehicle clean up
- Wire mesh grid seat springs for even support
- 2 locking mechanisms to hold seat in stowed position

### Options:

- Single or double seats
- Bench back, notch back or high back
- Wheel well seats
- Wide variety of vinyl's or cloths
- Molded U.S. arms or upholstered arms
- Black or yellow top grabs (not on high backs)
- Black or yellow corner grabs (black only on high back)
- Vertical stitching
- FTA foam
- ABS backs (Notchback only)
- Adjustable headrests (Single and Notchback only)
- Shrouds to cover the Foldaway when stowed
- USR seat belts (Under Seat Retractors)
- CRS-225 hooks and tethers
- TDSS (Tie Down Storage System)

## Not Just Seats



THE FEATHER WEIGHT SERIES BY

**FREEDMAN**  
SEATING COMPANY

an ISO 9001:2000 certified company

4545 W. Augusta Blvd., Chicago, IL 60651  
(773) 524-2440 (800) 443-4540 Fax: (773) 252-7450  
WWW.FREEDMANSEATING.COM  
e-mail: sales@freedmanseat.com

We are constantly updating and improving our seats; therefore we reserve the right to change or modify specifications or materials without notice. All Freedman Seating Company seats meet or exceed FMVS standards.

Seating Solutions™

# FOREST RIVER BUS

## Component Warranty Contact Information

It is the customer's responsibility to register products with the respective vendors. Failure to do so may result in denial and/or significant delays in warranty coverage or consideration. **For full warranty details, refer to your new bus packet which has been provided.**

---

### PRO AIR (HEATERS)

**Victoria Frederick:** vfrederick@proairllc.com

**Charles McMillan:** charlesm@proairllc.com (copy Charles on emails sent to Victoria)

**Phone:** 800-338-8544

**Warranty:** 2 years / unlimited mileage

---

### FREEDMAN SEATING

**Terry Gogins:** terry.gogins@freedmanseating.com • 800-443-4540

**Warranty:**

Metal components – 5 years

Plastic components – 3 years

Moving components – 3 years

Gas shock components – 1 year

**Upholstered components (foam):** 3 years

Cover warranty is for defects in the material or sewing and is limited to replacement covers.

---

### A&M SYSTEMS (ENTRY DOORS)

**Nicole Luken:** nluken@anmsystems.com

**Phone:** 574-522-5000

**Warranty:** 1 year / unlimited mileage

---

### RC TRONICS

**Will Vanett:** wvanett@rctronics.com

**Phone:** 866-457-7790

**Warranty:** All Plug-N-Play Control Systems – 3 years / 100,000 miles with labor coverage  
3 additional years with parts only, all other RCT parts and controls are for 1 year

---

### SMI

**Warranty:** warranty@smiglobal.net

**Corbin West:** corbin.west@smiglobal.net

**Vikki Queen:** vikki.queen@smiglobal.net

**Phone:** 704-247-9300

**Warranty:**

Stop and crossing arms – 2 years

Roof hatches – 1 year

All other product – 1 year

## **ASA ELECTRONICS**

**Support:** techsupport@asaelectronics.com

**Phone:** 800-688-3135

**Warranty:** 2 years / unlimited mileage

---

## **CHILD CHECKMATE**

**Danek Fill:** danek@childcheckmate.com

**Phone:** 613-835-2489

**Warranty:** 5 years

---

## **Q STRAINT**

**Customer Service:** customersatisfaction@qstraint.com

**Phone:** 800-987-9987

**Warranty:** 3 years

---

## **MORRYDE**

**Jessica Arseneau:** Jessica.Arseneau@morryde.com

**Warranty:** 3 year / 36,000 miles

---

## **INTERMOTIVE**

**Debbie Cabrera:** Dcabrera@intermotive.net

**Phone:** 530-823-1048

**Warranty:** 2 years

---

## **TRANSAIR**

**Jeff Kochenour:** jkochenour@transairmfg.com

**Phone:** 800-673-2446

**Warranty:**

2 year / unlimited mileage OR 3 year / 36,000 miles for SCHOOL BUS / MFSAB

30 month / unlimited mileage – COMMERCIAL BUS

---

## **ACC CLIMATE CONTROL**

**Shaun Larson:** Shaun.Larson@spheros.us

**Phone:** 574-264-2190

**Warranty:** 2 year / unlimited mileage OR 3 year 75,000 Miles (1 year driver ventilation fan)

---

## **MCC MOBILE CLIMATE CONTROL**

**Robert Krajcsik:** Robert.Krajcsik@mcc-hvac.com

**Scott Matthews:** Scott.Matthews@mcc-hvac.com

**Phone:** 717-767-3341

**Warranty:** 2 year

---

August 2, 2018

State of West Virginia  
Department of Administration  
Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305-0130

Dear Mrs. Childers:

Thank you for the opportunity to submit this bid in response to your Request for Quotation # PTR1900000001. We are offering the Startrans Senator.

Should we receive an award for this solicitation, we will provide the material as outlined. The Startrans Senator will be constructed in Goshen, Indiana.

Also addressed and included in the proposal are curb weights and warranty locations to be used to maintain vehicles.

We meet the warranty requirements specified within PTR1900000001.

We are in full understanding of training and will provide personnel to conduct training if we are the successful bidder. We have included "as-built" wiring schematics in our bid price. Also, as requested, we are offering schemes to match your existing fleets. The prices for the paint and graphics are included in our pricing.

Thank you again for this opportunity. Please call if you have questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Seals', written in a cursive style.

Chad Seals  
Account Manager  
West Virginia Public Transit Providers  
800-533-1006 x352  
434-821-4456  
[chad@sonnymerryman.com](mailto:chad@sonnymerryman.com)



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-09	2018-07-24 13:30:00	CRFQ 0805 PTR1900000001	1

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV

25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman , Inc.  
5120 Wards Road  
Evington, VA 24550  
(P) 1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers

(304) 558-2063

michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation

**ADDITIONAL INFORMATION:**

## Request for Quotation

The West Virginia Purchasing Division is soliciting bids on behalf of the Division of Public Transit and any other state agency that desires to utilize this contract to establish an open-end contract for 176" - 190" Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles with air conditioning, fixed seats, wheelchair securements and lift to provide specialized transportation services in an urban and suburban-rural environment, including hilly terrain and a severe operating climate suited to stop-start duty cycles.

INVOICE TO		SHIP TO	
ACCOUNTS PAYABLE PUBLIC TRANSIT DIVISION OF BLDG 5 RM 650 1900 KANAWHA BLVD E CHARLESTON WV25305-0432 US		GENERAL MANAGER PUBLIC TRANSIT DIVISION OF KANAWHA VALLEY REGIONAL TRANSPORTATION AUTHORITY 1550 FOURTH AVE CHARLESTON WV 25324 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	176" - 190" Wheelbase Cutaway Vehicle	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
25101502	Startrans		Senator II

**Extended Description :**

176" - 190" Wheelbase Cutaway Vehicle

\*\*\*\*\*

Vendor should type or clearly print the information into the Exhibit A-Pricing Page to prevent errors in the evaluation. If Vendor is submitting bid online Vendor must submit Exhibit A -Pricing Page as attachment. TOTAL BID FOR EVALUATION is the amount Vendor is to enter into wvOASIS commodity line when submitting. Notwithstanding the foregoing, the Purchasing Division may correct errors at its discretion.



<b>PTR1900000001</b>	<b>Document Phase</b> <b>Final</b>	<b>Document Description</b> 176" - 190" Wheelbase Cutaway Vehicle	<b>Page 3</b> <b>of 3</b>
----------------------	---------------------------------------	--	------------------------------

### **ADDITIONAL TERMS AND CONDITIONS**

See attached document(s) for additional Terms and Conditions



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: Addendum 1 - 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-16	2018-08-02 13:30:00	CRFQ 0805 PTR1900000001	2

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV

25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman , Inc.  
5120 Wards Road  
Evington, VA 24550  
(P) 1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers

(304) 558-2063

michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation

**ADDITIONAL INFORMATION:**

Addendum

Addendum No. 1 issued to modify the schedule of events as follows:

Questions deadline changed FROM: 7/16/2018 at 10:00 AM TO: 7/23/2018 at 10:00 AM.

Bid Opening changed FROM: 7/24/18 at 1:30 PM TO: 8/02/2018 at 1:30 PM

End of Addendum

\*\*\*\*\*

## Request for Quotation

The West Virginia Purchasing Division is soliciting bids on behalf of the Division of Public Transit and any other state agency that desires to utilize this contract to establish an open-end contract for 176" - 190' Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles with air conditioning, fixed seats, wheelchair securements and lift to provide specialized transportation services in an urban and suburban-rural environment, including hilly terrain and a severe operating climate suited to stop-start duty cycles.

INVOICE TO		SHIP TO	
ACCOUNTS PAYABLE		GENERAL MANAGER	
PUBLIC TRANSIT DIVISION OF		PUBLIC TRANSIT DIVISION OF	
BLDG 5 RM 650		KANAWHA VALLEY REGIONAL TRANSPORTATION AUTHORITY	
1900 KANAWHA BLVD E		1550 FOURTH AVE	
CHARLESTON	WV 25305-0432	CHARLESTON	WV 25324
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	176" - 190" Wheelbase Cutaway Vehicle	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
25101502	Startrans		Senator II

## Extended Description :

176" - 190" Wheelbase Cutaway Vehicle

\*\*\*\*\*

Vendor should type or clearly print the information into the Exhibit A-Pricing Page to prevent errors in the evaluation. If Vendor is submitting bid online Vendor must submit Exhibit A -Pricing Page as attachment. TOTAL BID FOR EVALUATION is the amount Vendor is to enter into wvOASIS commodity line when submitting. Notwithstanding the foregoing, the Purchasing Division may correct errors at its discretion.

<b>PTR1900000001</b>	<b>Document Phase</b> <b>Final</b>	<b>Document Description</b> Addendum 1 - 176" - 190" Wheelbase Cutaway Vehicle	<b>Page 3</b> <b>of 3</b>
----------------------	---------------------------------------	--	------------------------------

#### **ADDITIONAL TERMS AND CONDITIONS**

See attached document(s) for additional Terms and Conditions



**FlexTech**



**INTERMOTIVE**  
**VEHICLE**  
**CONTROLS**

An ISO 9001:2015 Registered Company

# FlexTech™

## Programmable Electrical System

### Overview

- Foundation of the system is a Programmable Relay Power Center
- Can add optional modules to create an entire custom control system
- Connects electronic modules through the overall vehicle network, reducing the need for wiring
- Uses real-time chassis data to control loads
- Simple plug and play connections to the OEM chassis

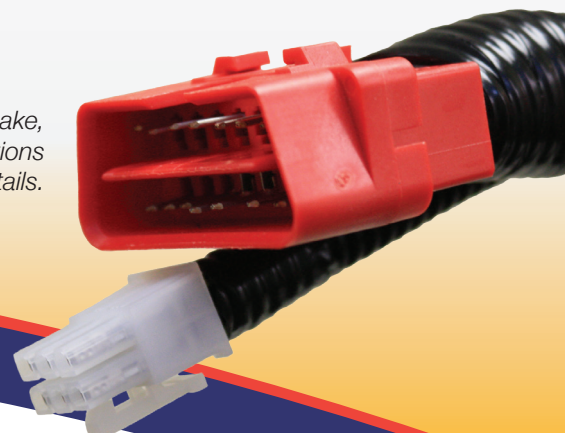
### Features

- Centralizes and improves diagnostic capabilities; eliminates the need for timers, flashers, latching relays and multi-relay logic
- Access to InterMotive's graphical interface allows for customization of the entire system
- Communicates with Ford and Chevy CAN as well as J1939
- Warning LEDs for easy troubleshooting



Watch  
FlexTech  
in action

*Product features may vary by make,  
model or year. See instructions  
for complete details.*

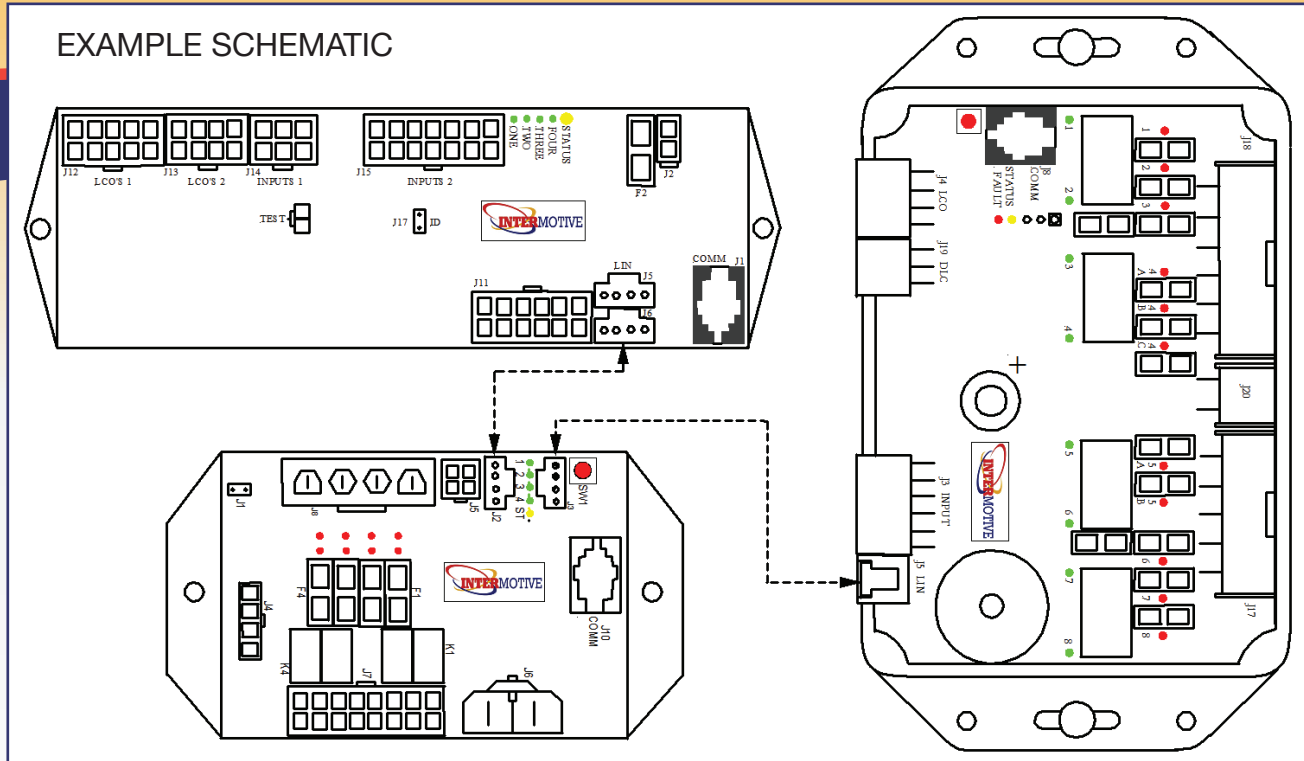


Proudly distributed by  
**LGS GROUP**  
AUTOMOTIVE TECHNOLOGIES

**(775) 831-2002**

# Details

## EXAMPLE SCHEMATIC



## COMPONENTS

### Programmable Relay Power Board (PRPC)

- Eight programmable relay power outputs
- Ten separate digital inputs
- Eight programmable low-current outputs:  
Seven sourcing (0.5 A), one sinking (0.5 A)
- Outputs can be configured as momentary, latching, flashing or timed
- Easy diagnostics with LED indicators
- Programmable audible patterns for multiple uses

### Expansion Board (Optional)

- Four 10 A relay fused outputs
- Four 1 A low-current outputs
- Four active low outputs
- Loads controlled by the PRPC

### Switch Backer Board (Optional)

- Controls system inputs and outputs
- Eight switches and eight light outputs
- Two switch backer boards can be used together
- Six outputs: Two 1 A and four 0.5 A
- Compatible with any brand of switches

### Other Module Options

- Gateway: Compliant FMVVS 403/404 wheelchair interlock and high idle system
- Advanced Fast Idle System (AFIS): Adjustable system with battery charge protection and optional air conditioning auto trigger
- BrakeMax: Tow haul mode for reduced brake wear

**FMVSS/CMVSS Compliance Summary 2017****Commercial and MFSAB**

The following information summarizes the C/FMVSS standards and the Compliance Action taken by Startrans Bus

C/FMVSS No.	Standard Description	Compliance Action
101	Control Location, Identification and Illumination	Startrans does not alter the OEM controls or displays. Any aftermarket seats and/or controls or displays subject to the standard meet this standard.
102	Transmission Shift Lever Sequence, Starter Interlock & Transmission Braking Effect	Compliance is deferred to the chassis manufacturer.
103	Windshield Defrosting & Defogging Systems	Compliance is deferred to the chassis manufacturer.
104	Windshield Wiping & Washing Systems	Compliance is deferred to the chassis manufacturer.
105	Hydraulic Brake Systems	Test data kept on file for vehicles that have had the wheelbase extended, or have had other system modifications. For unmodified vehicles, compliance is deferred to the chassis manufacturer.
106	Brake Hoses	Vehicles with wheelbase modifications have additional lines installed by chassis modifiers using OEM components. Other vehicles that have had system modifications use OEM or OEM-approved components and are tested for compliance. For Non-stretched vehicles compliance is deferred to the chassis manufacturer.
108	Lamps, Reflective Devices & Associated Equipment	Startrans does not alter OEM lighting. Additional lighting to include brake, turn, clearance, auxiliary and reverse lamps meet standard. Data on file.
108.1	Alternative Requirements for Headlamps	Startrans does not alter OEM lighting. Compliance is deferred to the chassis manufacturer.
110	Tire Selection and Rim for Motor Vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
111	Rear View Mirrors	All aftermarket mirrors installed by Startrans meet this standard and DOT regulations.
112	Headlamp Concealment Devices	Startrans does not manufacture vehicles with headlamp concealment devices.
113	Hood latch systems	Compliance is deferred to the chassis manufacturer.
114	Theft Protection	Compliance is deferred to the chassis manufacturer.
115	Vehicle Identification Number	Compliance is deferred to the chassis manufacturer.
116	Hydraulic Brake Fluids	Startrans does not alter brake systems. Vehicles with modified wheelbases have additional fluid added by chassis modifiers using OEM instruction and materials. All other system modifications utilize only OEM-approved fluid. For unmodified vehicles, compliance is deferred to the chassis manufacturer.
118	Power Operated Window, Partition, and Roof Panel Systems	Compliance is deferred to the chassis manufacturer.
120	Tire Selection and Rim for Motor Vehicles with a GVWR of 4,536kg (10,000 lbs.) or More	Compliance is deferred to the chassis manufacturer.
121	Air Brake Systems	Vehicles with wheelbase modifications have additional lines installed by chassis modifiers using OEM components. Other vehicles that have had system modifications use OEM or OEM-approved components and are tested for compliance. For unmodified vehicles, compliance is deferred to the chassis manufacturer.
124	Accelerator Control Systems	Startrans does not alter the OEM accelerator system, with the exception of the addition of aftermarket fast idle systems on some vehicles. These systems meet this standard when installed in accordance with instructions.
125	Warning Devices	All vehicles manufactured by Startrans that are equipped with aftermarket (3) triangle kit meet this standard.
131	School Bus Pedestrian Safety Devices	All vehicles manufactured by Startrans are not completed to be used as school buses.
135	Light Vehicle Brake System with a GVWR of 3,500kg (7,716lbs.) or Less	Startrans does not manufacture vehicles with a GVWR of 3,500kg (7,716 lbs.) or Less.
201	Occupant Protection in Interior Impact	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
202	Head Restraints	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.

**FMVSS/CMVSS Compliance Summary 2017****Commercial and MFSAB**

The following information summarizes the C/FMVSS standards and the Compliance Action taken by Startrans Bus

<b>203</b>	Impact Protection for the Driver from the Steering Control System	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>204</b>	Steering Control Rearward Displacement	Compliance is deferred to the chassis manufacturer.
<b>205</b>	Glazing Materials	No modifications are made to the OEM Glazing materials. Additional glazing materials meet the standard. Data on file.
<b>206</b>	Door Locks and Door Retention Devices	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>207</b>	Seating System	All seating installed by Startrans meets this standard. Test data on file.
<b>208</b>	Occupant Crash Protection	No alterations are made to the OEM seat belts, air bag systems or associated hardware. Any seat belt systems added meet the standard. Test data on file.
<b>209</b>	Seat Belt Assemblies	No alterations are made to the OEM seat belts or associated hardware. Any seat belt systems added meet the standard. Test data on file.
<b>210</b>	Seat Belt Assembly Anchorage	No alterations are made to the OEM seat belts or associated hardware. Seat belt systems and their installation meet the standard. Test data on file.
<b>210.1</b>	User-ready Tether Anchorages for Restraint System	No alterations are made to the OEM seat belts or associated hardware. Seat belt systems and their installation meet the standard. Data on file.
<b>210.2</b>	Lower Universal Anchorage Systems for Restraint Systems and Booster Cushions	No alterations are made to the OEM seat belts or associated hardware. Seat belt systems and their installation meet the standard. Data on file.
<b>212</b>	Windshield Mounting	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>213</b>	Child Restraint Systems	Vehicles manufactured by Startrans, that are subject to this standard, have seating installed that meets this standard. Test data on file.
<b>213.4</b>	Built-in Child Restraint Systems and Built-in Booster Cushions	Vehicles manufactured by Startrans, that are subject to this standard, have seating installed that meets this standard. Test data on file.
<b>214</b>	Side Impact Protection with a GVWR of 4,536kg (10,000 lbs.) or Less	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>216</b>	Roof Crush Resistance	Startrans does not manufacture vehicles with a GVWR of 2,722kg (6,000 lbs.) or Less.
<b>217</b>	Bus Window Retention and Release	No modifications are made to the OEM windows. Additional windows meet the standard. Test data on file.
<b>219</b>	Windshield Zone Intrusion	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>220</b>	School Bus Rollover Testing	All vehicles manufactured by Startrans meet this standard. Test data on file
<b>221</b>	School Bus Body Joint Strength	All vehicles manufactured by StarTrans are not completed to be used as school buses, however, StarTrans does test vehicles to meet standard.
<b>222</b>	School Bus Passenger Seating and Crash Protection	All MFSAB vehicles manufactured by Startrans meet this standard. Test data on file
<b>225</b>	Child Restraint Anchorage Systems	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>301</b>	Fuel System Integrity	Compliance is deferred to the chassis manufacturer.
<b>301.1</b>	LPG Fuel System Integrity	Compliance is deferred to the chassis manufacturer.
<b>301.2</b>	CNG Fuel System Integrity	Compliance is deferred to the chassis manufacturer.



**FMVSS/CMVSS Compliance Summary 2017****Commercial and MFSAB**

The following information summarizes the C/FMVSS standards and the Compliance Action taken by Startrans Bus

<b>302</b>	Flammability of Interior Materials	Materials installed in the interior of Startrans products meet the standard. Test data on file.
<b>303</b>	Fuel System Integrity of Compressed Natural Gas Systems	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>304</b>	Compressed Natural Gas Fuel Container Integrity	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>305</b>	Electrolyte Spillage and Electrical Shock Protection	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>403</b>	Platform Lift System for Motor Vehicles	Startrans does not alter the platform lift system. Startrans install lift system in strict compliance with the manufacturers installation instructions. Startrans meets strength requirements. Test data on file.
<b>404</b>	Platform Lift Installation on Motor Vehicles	Compliance is deferred to the lift manufacturer.
<b>1106</b>	Noise Emissions	Startrans does not alter the OEM Chassis in the area which is stated in the incomplete vehicle documents. Data on file.

Signed: 

Date: 1/10/2017

Title: Compliance Manger

**FMVSS/CMVSS Compliance Summary 2018****Commercial and MFSAB**

The following information summarizes the C/FMVSS standards and the Compliance Action taken by Startrans Bus

C/FMVSS No.	Standard Description	Compliance Action
101	Control Location, Identification and Illumination	Startrans does not alter the OEM controls or displays. Any aftermarket seats and/or controls or displays subject to the standard meet this standard.
102	Transmission Shift Lever Sequence, Starter Interlock & Transmission Braking Effect	Compliance is deferred to the chassis manufacturer.
103	Windshield Defrosting & Defogging Systems	Compliance is deferred to the chassis manufacturer.
104	Windshield Wiping & Washing Systems	Compliance is deferred to the chassis manufacturer.
105	Hydraulic Brake Systems	Test data kept on file for vehicles that have had the wheelbase extended, or have had other system modifications. For unmodified vehicles, compliance is deferred to the chassis manufacturer.
106	Brake Hoses	Vehicles with wheelbase modifications have additional lines installed by chassis modifiers using OEM components. Other vehicles that have had system modifications use OEM or OEM-approved components and are tested for compliance. For Non-stretched vehicles compliance is deferred to the chassis manufacturer.
108	Lamps, Reflective Devices & Associated Equipment	Startrans does not alter OEM lighting. Additional lighting to include brake, turn, clearance, auxiliary and reverse lamps meet standard. Data on file.
108.1	Alternative Requirements for Headlamps	Startrans does not alter OEM lighting. Compliance is deferred to the chassis manufacturer.
110	Tire Selection and Rim for Motor Vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
111	Rear View Mirrors	All aftermarket mirrors installed by Startrans meet this standard and DOT regulations.
112	Headlamp Concealment Devices	Startrans does not manufacture vehicles with headlamp concealment devices.
113	Hood latch systems	Compliance is deferred to the chassis manufacturer.
114	Theft Protection	Compliance is deferred to the chassis manufacturer.
115	Vehicle Identification Number	Compliance is deferred to the chassis manufacturer.
116	Hydraulic Brake Fluids	Startrans does not alter brake systems. Vehicles with modified wheelbases have additional fluid added by chassis modifiers using OEM instruction and materials. All other system modifications utilize only OEM-approved fluid. For unmodified vehicles, compliance is deferred to the chassis manufacturer.
118	Power Operated Window, Partition, and Roof Panel Systems	Compliance is deferred to the chassis manufacturer.
120	Tire Selection and Rim for Motor Vehicles with a GVWR of 4,536kg (10,000 lbs.) or More	Compliance is deferred to the chassis manufacturer.
121	Air Brake Systems	Vehicles with wheelbase modifications have additional lines installed by chassis modifiers using OEM components. Other vehicles that have had system modifications use OEM or OEM-approved components and are tested for compliance. For unmodified vehicles, compliance is deferred to the chassis manufacturer.
124	Accelerator Control Systems	Startrans does not alter the OEM accelerator system, with the exception of the addition of aftermarket fast idle systems on some vehicles. These systems meet this standard when installed in accordance with instructions.
125	Warning Devices	All vehicles manufactured by Startrans that are equipped with aftermarket (3) triangle kit meet this standard.
131	School Bus Pedestrian Safety Devices	All vehicles manufactured by Startrans are not completed to be used as school buses.
135	Light Vehicle Brake System with a GVWR of 3,500kg (7,716lbs.) or Less	Startrans does not manufacture vehicles with a GVWR of 3,500kg (7,716 lbs.) or Less.
201	Occupant Protection in Interior Impact	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
202	Head Restraints	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.

**FMVSS/CMVSS Compliance Summary 2018****Commercial and MFSAB**

The following information summarizes the C/FMVSS standards and the Compliance Action taken by Startrans Bus

<b>203</b>	Impact Protection for the Driver from the Steering Control System	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>204</b>	Steering Control Rearward Displacement	Compliance is deferred to the chassis manufacturer.
<b>205</b>	Glazing Materials	No modifications are made to the OEM Glazing materials. Additional glazing materials meet the standard. Data on file.
<b>206</b>	Door Locks and Door Retention Devices	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>207</b>	Seating System	All seating installed by Startrans meets this standard. Test data on file.
<b>208</b>	Occupant Crash Protection	No alterations are made to the OEM seat belts, air bag systems or associated hardware. Any seat belt systems added meet the standard. Test data on file.
<b>209</b>	Seat Belt Assemblies	No alterations are made to the OEM seat belts or associated hardware. Any seat belt systems added meet the standard. Test data on file.
<b>210</b>	Seat Belt Assembly Anchorage	No alterations are made to the OEM seat belts or associated hardware. Seat belt systems and their installation meet the standard. Test data on file.
<b>210.1</b>	User-ready Tether Anchorages for Restraint System	No alterations are made to the OEM seat belts or associated hardware. Seat belt systems and their installation meet the standard. Data on file.
<b>210.2</b>	Lower Universal Anchorage Systems for Restraint Systems and Booster Cushions	No alterations are made to the OEM seat belts or associated hardware. Seat belt systems and their installation meet the standard. Data on file.
<b>212</b>	Windshield Mounting	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>213</b>	Child Restraint Systems	Vehicles manufactured by Startrans, that are subject to this standard, have seating installed that meets this standard. Test data on file.
<b>213.4</b>	Built-in Child Restraint Systems and Built-in Booster Cushions	Vehicles manufactured by Startrans, that are subject to this standard, have seating installed that meets this standard. Test data on file.
<b>214</b>	Side Impact Protection with a GVWR of 4,536kg (10,000 lbs.) or Less	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>216</b>	Roof Crush Resistance	Startrans does not manufacture vehicles with a GVWR of 2,722kg (6,000 lbs.) or Less.
<b>217</b>	Bus Window Retention and Release	No modifications are made to the OEM windows. Additional windows meet the standard. Test data on file.
<b>219</b>	Windshield Zone Intrusion	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>220</b>	School Bus Rollover Testing	All vehicles manufactured by Startrans meet this standard. Test data on file
<b>221</b>	School Bus Body Joint Strength	All vehicles manufactured by StarTrans are not completed to be used as school buses, however, StarTrans does test vehicles to meet standard.
<b>222</b>	School Bus Passenger Seating and Crash Protection	All MFSAB vehicles manufactured by Startrans meet this standard. Test data on file
<b>225</b>	Child Restraint Anchorage Systems	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>301</b>	Fuel System Integrity	Compliance is deferred to the chassis manufacturer.
<b>301.1</b>	LPG Fuel System Integrity	Compliance is deferred to the chassis manufacturer.
<b>301.2</b>	CNG Fuel System Integrity	Compliance is deferred to the chassis manufacturer.

**FMVSS/CMVSS Compliance Summary 2018****Commercial and MFSAB**

The following information summarizes the C/FMVSS standards and the Compliance Action taken by Startrans Bus

<b>302</b>	Flammability of Interior Materials	Materials installed in the interior of Startrans products meet the standard. Test data on file.
<b>303</b>	Fuel System Integrity of Compressed Natural Gas Systems	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>304</b>	Compressed Natural Gas Fuel Container Integrity	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>305</b>	Electrolyte Spillage and Electrical Shock Protection	Startrans does not manufacture vehicles with a GVWR of 4,536kg (10,000 lbs.) or Less.
<b>403</b>	Platform Lift System for Motor Vehicles	Startrans does not alter the platform lift system. Startrans install lift system in strict compliance with the manufacturers installation instructions. Startrans meets strength requirements. Test data on file.
<b>404</b>	Platform Lift Installation on Motor Vehicles	Compliance is deferred to the lift manufacturer.
<b>1106</b>	Noise Emissions	Startrans does not alter the OEM Chassis in the area which is stated in the incomplete vehicle documents. Data on file.

Signed: 

Date: 1/22/2018

Title: Compliance Manger



This quote is strictly for pricing purposes it is your obligation to validate with the body manufacturer that it is a suitable vehicle for their conversion

E450 158" 6.8L  
14,500 GVWR  
SINGLE DOOR

==>

2018 ECONOLINE

Order No: 0123 Priority: K1 Ord FIN:

Order Type: 5B Price Level: 815

Ord PEP: 782A Cust/Flt Name: STARCRAFT

PO Number:

RETAIL DLR INV

RETAIL DLR INV

E4F	COM CUTAWAY VAN			.FRT LICENSE BKT
	158" WHEELBASE			.ENG BLK HEATER
YZ	OXFORD WHITE			.FRAME PUCKS
X	NO TRIM	18A		EXT UPGRADE PKG
E	MEDIUM FLINT			SHUTTLE BUS DIS
782A	PREF EQUIP PKG	162		FLR VINYL, FRT
	.STANDARD TRIM	20F		14500# GVWR
572	.A/C FRONT ONLY	21D		DR MANUAL PED
646	.16" WHITE WHLS			
99S	6.8L EFI V10ENG			
44P	ELEC 6-SPD AUTO			
T68	.LT225/75RX16E H			
X83	4.56 REG X83			
516	SP TIRE NOT INC			
47B	SHUTTLE BUS PKG			
425	50 STATE EMISS			DAYTIME LIGHTS
47Z	AMB PKG NOT REQ			SP DLR ACCT ADJ
525	CRUISE CONTROL			SP FLT ACCT CR
54F	MIRROR, DELETE			FUEL CHARGE
57J	AUX HTR CONNECT	B4A		NET INV FLT OPT
58W	RADIO PREP 4 SP			PRICED DORA
60X	RT DOOR NOT INC			DEST AND DELIV
	.PASS AIRBAG DEL			
625	RRVIEW MIRROR			
63N	EXT HD 225-AMP			
634	BATTERIES-DUAL			
	.EXT HVY DUTY 78			
656	FUEL TANK 55 GL			
672	FRT MAX GAWR			
874	4 SPEAKERS			



This quote is strictly for pricing purposes it is your obligation to validate with the body manufacturer that it is a suitable vehicle for their conversion

E350 158" 6.8L  
12,500 GVWR  
SINGLE DOOR

==> \_\_\_\_\_

2018 ECONOLINE

Order No: 0123    Priority: K1    Ord FIN:    Order Type: 5B Price Level: 815  
Ord PEP: 780A Cust/Flt Name: STARCRAFT    PO Number:

RETAIL    DLR INV    RETAIL    DLR INV

E3F COM CUTAWAY VAN    .FRT LICENSE BKT  
158" WHEELBASE    .ENG BLK HEATER  
YZ OXFORD WHITE    .FRAME PUCKS  
X NO TRIM    EXT UPGRADE PKG  
E MEDIUM FLINT    SHUTTLE BUS DIS  
780A PREF EQUIP PKG    FLR VINYL, FRT  
.STANDARD TRIM    12500# GVWR  
572 .A/C FRONT ONLY    DR MANUAL PED  
945 .AUX FUEL PORT  
99S 6.8L EFI V10ENG  
44P ELEC 6-SPD AUTO  
T68 LT225/75RX16E H  
X85 4.56 REG X85  
516 SP TIRE NOT INC  
47B SHUTTLE BUS PKG  
425 50 STATE EMISS  
47Z AMB PKG NOT REQ  
525 CRUISE CONTROL  
54F MIRROR, DELETE  
57J AUX HTR CONNECT  
58W RADIO PREP 4 SP  
60X RT DOOR NOT INC  
.PASS AIRBAG DEL  
625 RRVIEW MIRROR  
63N EXT HD 225-AMP  
634 BATTERIES-DUAL  
.EXT HVY DUTY 78  
16" WHITE WHLS  
657 FUEL TANK 40 GL  
672 FRT MAX GAWR

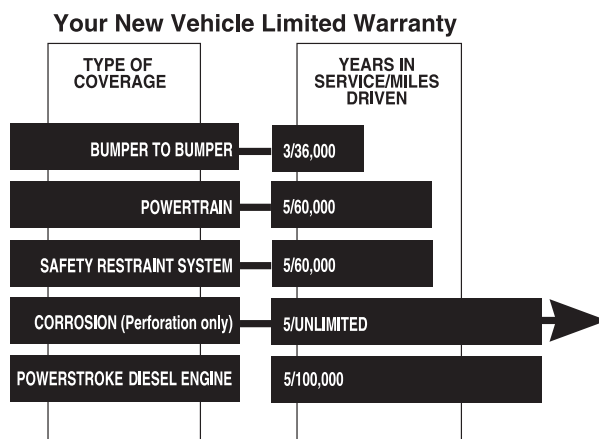
4 SPEAKERS  
DAYTIME LIGHTS  
SP DLR ACCT ADJ  
SP FLT ACCT CR  
FUEL CHARGE  
NET INV FLT OPT  
PRICED DORA  
DEST AND DELIV

## QUICK REFERENCE: WARRANTY COVERAGE

This chart gives a general summary of your warranty coverage provided by Ford Motor Company under the **New Vehicle Limited Warranty**. Please refer to the description of warranty coverage for more specific information.

For each type of coverage, the chart shows two measures:

- years in service
- miles driven



The measure that occurs first determines how long your coverage lasts. For example: Your Bumper to Bumper Coverage lasts for three years - unless you drive more than 36,000 miles before three years elapse. In that case, your coverage ends at 36,000 miles.

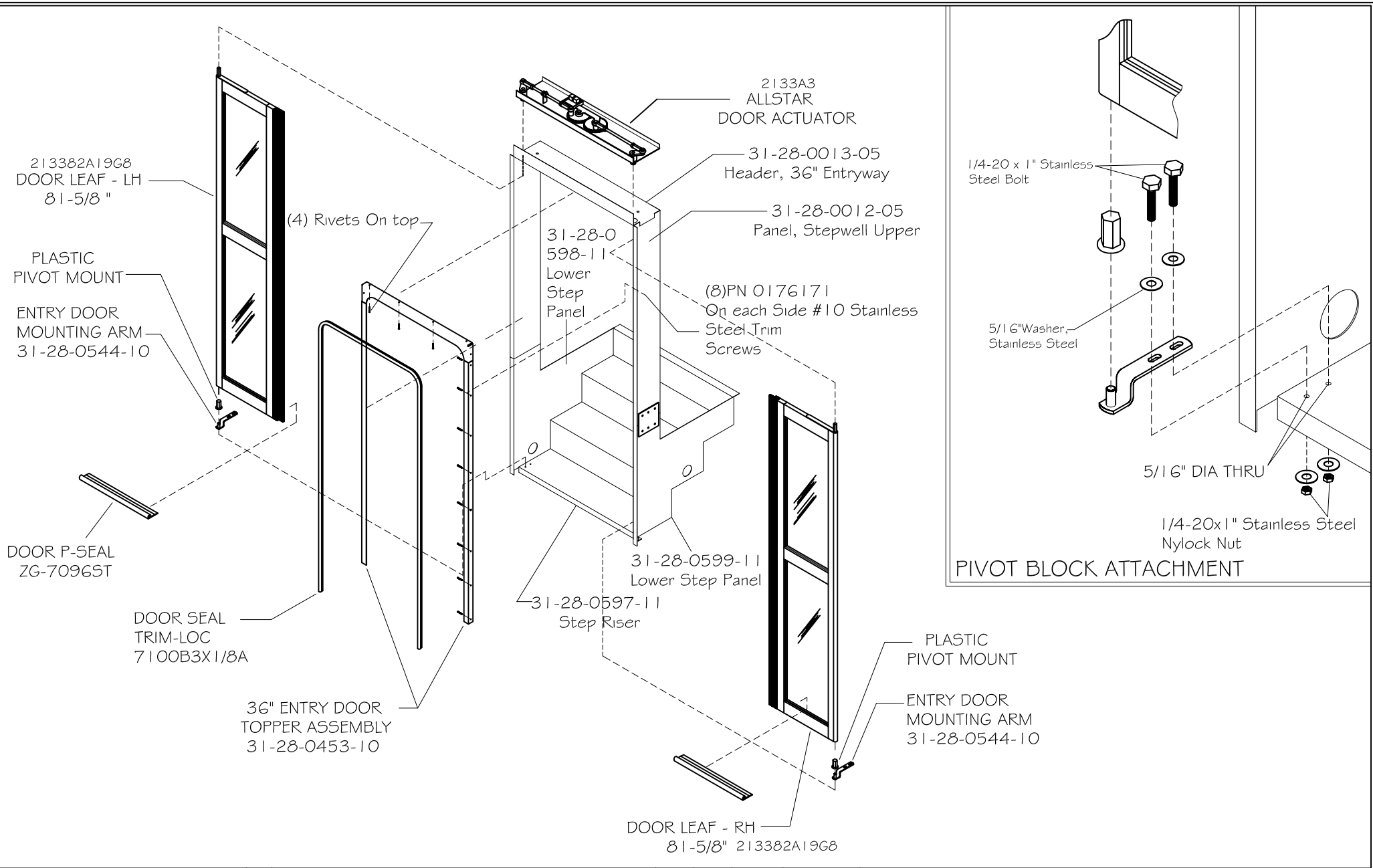
For more details on coverage, see:

- ➔ **What is Covered?** (pages 8-12)
- ➔ **What is Not Covered?** (pages 12-15)

## WHAT IS COVERED?

Your NEW VEHICLE LIMITED WARRANTY gives you specific legal rights. You may have other rights that vary from state to state. Under your New Vehicle Limited Warranty if:

- your Ford vehicle is properly operated and maintained, and



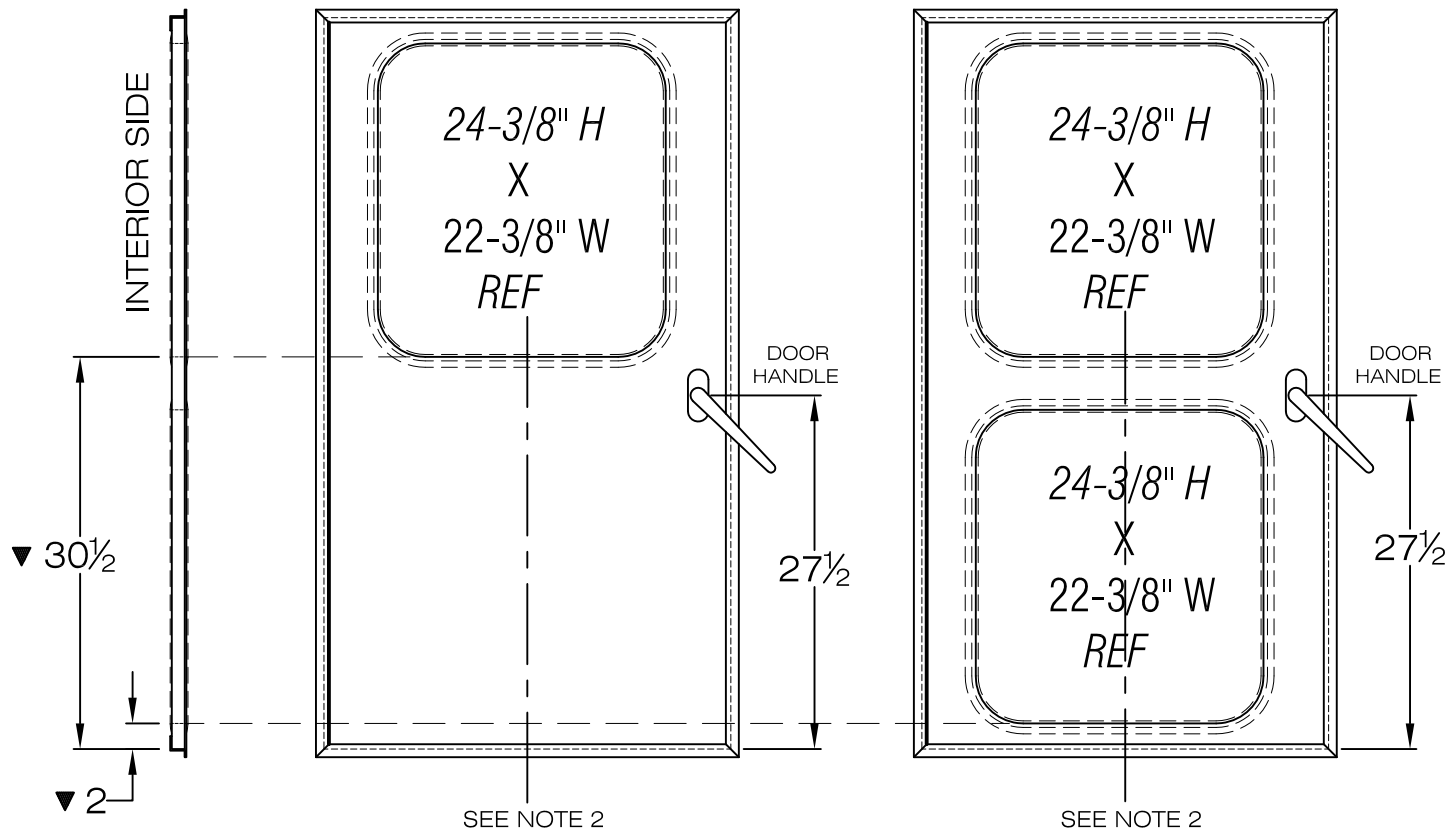
THIS DRAWING AND THE INFORMATION THEREON ARE THE EXCLUSIVE PROPERTY OF THE STARCRAFT CORPORATION. IT SHALL NOT BE COPIED OR DUPLICATED IN ANY MANNER, NOR SHALL IT BE SUBMITTED TO OUTSIDE PARTIES FOR EXAMINATION WITHOUT OUR WRITTEN CONCENT. IT IS LOANED FOR USE WITH REFERENCE TO WORK UNDER CONTRACT WITH, OR PROPOSALS SUBMITTED TO THE Forest River Inc.						Forest River Bus Divisions					
						TOLERANCE UNLESS OTHERWISE SPECIFIED		DATE: 2-25-13		TITLE INST'L 36" ENTRYWAY RAISED FLOOR ALLSTAR	
								DFTSN: MDK			
						± .00 ± .030		CHKR:		DWG. No. 31-28-0880-13	
						± .0000 ± .005		APRVD:			
A	MODIFIED EDT DRAWING OF A STANDARD FLOOR			MDK		2/25/13	SCALE				
REV. LET.	DESCRIPTION OF CHANGE			BY	CHK	DATE	ECN No.	DISK No.	SHEET	OF	



# REAR DOOR

## SINGLE WINDOW

## DOUBLE WINDOW



REAR DOOR ROUGH FRAME OPENING 38-1/2" X 59"

### NOTES:

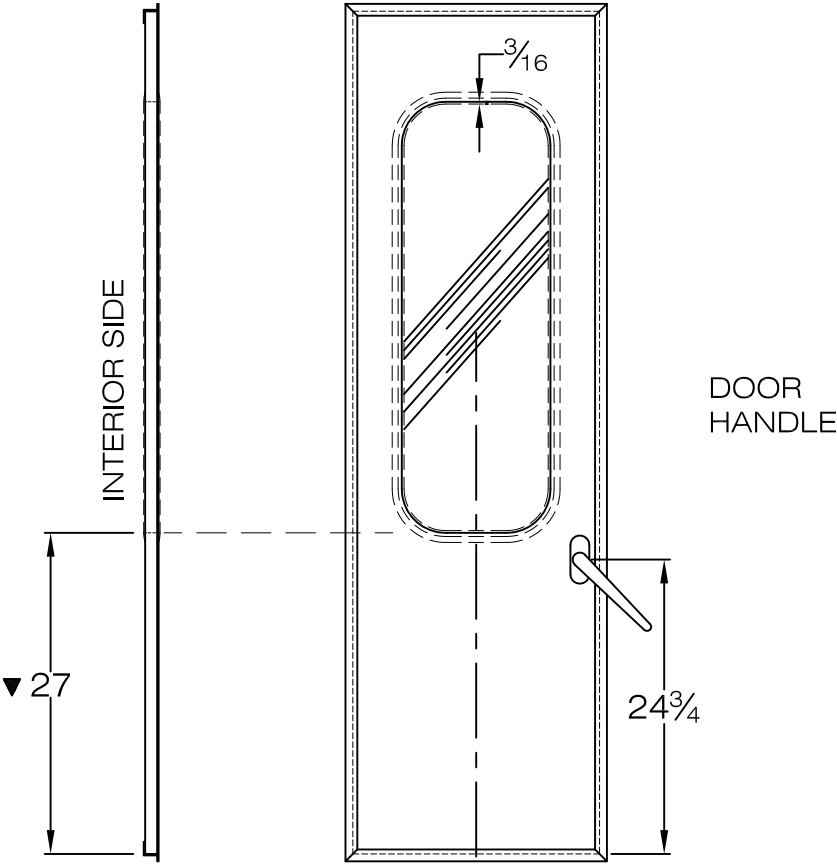
- 1- DIMENSIONS FOR THE WINDOW CUTOUT  
DO NOT INCLUDE DOOR OR WINDOW TRIM.
- 2 - CENTER WINDOW HORIZONTALLY IN DOOR.
- 3 - TWO (2) PANELS ARE REQUIRED FOR W/C DOOR.

▼ CRITICAL CONTROL ITEM

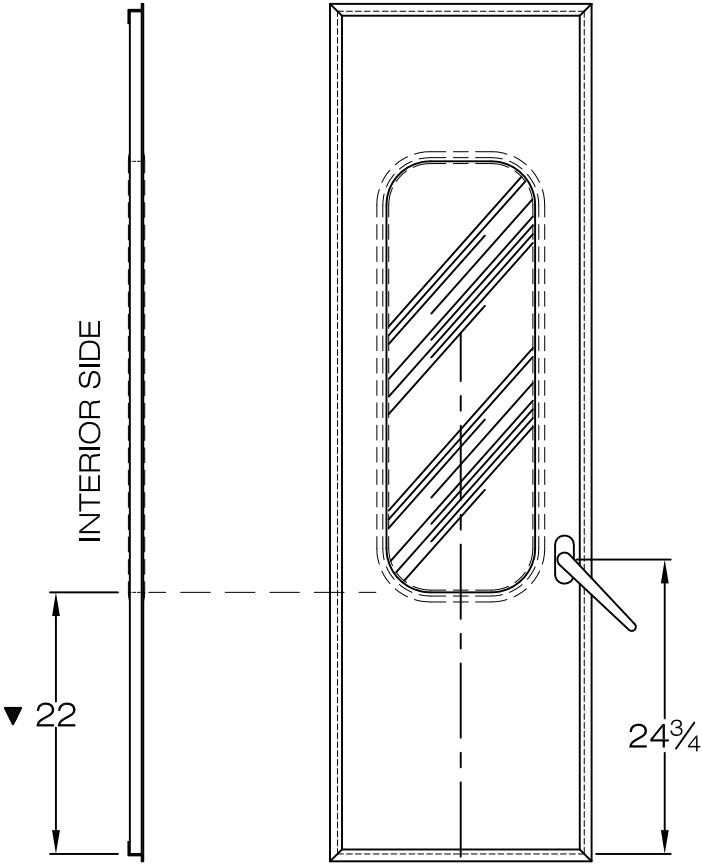
CAD DRAWING: DO NOT SCALE OR MANUALLY REVISE

TOLERANCE UNLESS OTHERWISE SPECIFIED		Forest River Bus	
WOOD	OTHER	DATE: 4-6-2006	TITLE: LOCATION, RR DR WINDOW
± 1/8"	± 1/16"	NAME: ET	
± 1°	± 1/2°	DWG. No. 31-28-0108-06	

STANDARD WIDE BODY BUS



NARROW BODY BUS AND  
RAISED FLOOR WIDE BODY BUS



NOTES:

- 1- DIMENSIONS FOR THE WINDOW CUTOUT  
DO NOT INCLUDE DOOR OR WINDOW TRIM.
- 2 - 36 1/4" X 12 1/2" ROUGH WINDOW OPENING
- 3 - CENTER WINDOW HORIZONTALLY IN DOOR.

SEE NOTE 3

Rough Opening for 33-34" Lifts 47.5" x 71.88"  
Rough Opening for 37" Lifts 49.9" x 71.88"  
Offset hinges are utilized, maximizing clear  
opening available.

SEE NOTE 3

▼ CRITICAL CONTROL ITEM

CAD DRAWING: DO NOT SCALE OR MANUALLY REVISE

TOLERANCE UNLESS OTHERWISE SPECIFIED		Forest River Bus	
WOOD	OTHER	DATE: 3-8-06	TITLE: LOCATION, W/C DOOR WINDOW
± 1/8"	± 1/16"	NAME: EDT	
± 1"	± 1/2"	DWG. No.	31-28-0105-06



U.S. Department  
of Transportation  
**Federal Transit  
Administration**

1200 New Jersey Avenue SE  
Washington, D.C. 20590

December 16, 2014

Larry Hall  
Director of Engineering  
Starcraft Bus, Division of Forest River, Inc.  
2367 Century Drive  
Goshen, IN 46528

Dear Mr. Hall,

This is in response to your letters dated November 7, 2014 and November 13, 2014 and an email dated December 2, 2014 in which you requested assistance from the Federal Transit Administration (FTA) concerning the applicability of the Bus Testing Regulation (49 CFR Part 665) to Starcraft bus models being sold as Startrans bus models. In your letters, email and subsequent phone discussions you indicated that:

- Forest River Inc. has purchased the “Startrans” brand. As a result, Forest River intends to offer comparable Starcraft bus models branded as existing Startrans bus models and leverage the existing Startrans bus dealer network to deliver them to FTA grantees.
- The future Startrans bus models will be produced on the same production line as the comparable Starcraft bus models. The remaining Startrans bus production runs to fulfill open contracts will be completed on the Startrans production lines. Once those are completed, all future Startrans bus models will be Starcraft products.
- Starcraft would like to use the existing Starcraft bus testing reports as evidence of satisfying the Bus Testing regulation for the future Startrans bus models built on the Starcraft production lines. The corresponding Starcraft bus model for each Startrans bus model is provided in the table below. The test report for the Starcraft Allstar is PTI-BT-0518. This report also covers the Starlite bus model which is a narrow body version of the Allstar. The test report for the Allstar XL is PTI-BT-0815.

Existing Startrans Bus Model	Corresponding Starcraft Bus Model
<b>Senator II</b> Chassis: Ford E-350/450 & GM 3500/4500	<b>Allstar</b> Chassis: Ford E-350/450 & GM 3500/4500
<b>Senator II MFSAB</b> Chassis: Ford E-350/450 & GM 3500/4500	<b>Allstar</b> Chassis: Ford E-350/450 & GM 3500/4500
<b>Candidate II</b> Chassis: Ford E-350/450	<b>Starlite</b> Chassis: Ford E-350/450
<b>Senator II HD</b> Chassis: Ford F-450/550	<b>Allstar XL</b> Chassis: Ford F-450/550

You have asked FTA to determine if any testing will be required to offer the existing Starcraft bus models with the "Startrans" name as identified above. FTA has reviewed your request and has determined that the Starcraft Allstar, Starlite, and Allstar XL built on the Starcraft production line can be offered to FTA grantees as the Startrans Senator II, Senator II MFSAB, Candidate II, Senator II HD **without any additional testing**. Starcraft should submit the latest comparable chassis test report that reflects the correct chassis, fuel type and fuel conversion supplier (if an alternative fuel conversion) and powertrain of the Startrans bus being offered to FTA grantees. This report is in addition to submitting the applicable Starcraft test report (PTI-BT-0518 or PTI-BT-0815).

This determination is based on the changes outlined to FTA as stated above. Should you make any other changes to the bus models, additional testing may be required. Feel free to contact me at the address above, or by e-mail ([gregory.rymarz@dot.gov](mailto:gregory.rymarz@dot.gov)), fax (202-366-3765), or telephone (202-366-6410) with any other questions.

Sincerely,



Gregory Rymarz  
Bus Testing Program Manager  
Office of Mobility Innovation, TRI-12



# FEATHER WEIGHT

## HIGH-BACK SEAT

Freedman Seating Company's Feather Weight seats are designed to be like feathers on a bird: light and airy to satisfy weight restrictions and ensure a smooth ride, yet durable for years of service and low maintenance.

Freedman Seating Feather Weight seats are the most severely tested in the company's history, and meet all applicable federal motor vehicle safety standards for strength and safety (including 210 for seat belts). Less weight means one thing to bus builders and operators: they can get more passengers per bus. And when we say more passengers, ***we mean more happy passengers.***



Not Just Seats



THE FEATHER WEIGHT SERIES BY

**FREEDMAN**

SEATING COMPANY

an ISO 9001:2000 certified company

Seating Solutions™

# FEATHER WEIGHT

## HIGH-BACK SEAT

Cross-country or cross-town, the Freedman Feather Weight High-Back gets you there in safety and comfort. The headrest actually cradles your head, and provides unrestricted viewing. The ultra-thin backrest gives out-standing support and creates more hip-to-knee room than any other seat in its class. The steel frame system meets or exceeds all applicable government standards for safety and durability. And, it's light as a feather!

### Feather Weight High-Back features include:

- An ultra-thin *Knee-Saver* type backrest for added hip-to-knee room and lumbar support
- Molded polyurethane seat and back cushions for comfort and long lasting support
- 17½" wide seat cushions
- 27¼" back height off the seat cushion, 42¼" off the floor
- Wire mesh-grid seat springs for even support
- FMVSS 210 compliance—all *Feather Weight* seats are seat belt ready
- Covers that can be removed and replaced easily and without the use of special tools

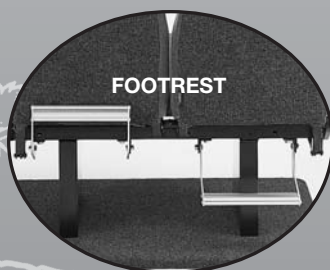
### Feather Weight High-Back options include:

- Black molded U.S. Arms or upholstered flip-up armrests
- Mesh map pockets
- Vertical stitching
- FTA foam
- Snack trays
- Aluminum folding footrests
- Pillow seat cushions
- Pillow headrests
- Side grab rail
- U.S.R.—Under Seat Retractors
- 16" or 19" wide seats available
- Rear row quick disconnect
- CRS-225 hooks and tethers
- Side sliders
- Cup holders
- Seat belt loops

### OPTIONS



PILLOW SEAT



FOOTREST



PILLOW HEADREST

GRAB RAIL



SNACK TRAY

## Not Just Seats



Seating Solutions™

THE FEATHER WEIGHT SERIES BY

**FREEDMAN**  
SEATING COMPANY

an ISO 9001:2000 certified company

4545 W. Augusta Blvd., Chicago, IL 60651  
(773) 524-2440 (800) 443-4540 Fax: (773) 252-7450  
WWW.FREEDMANSEATING.COM  
e-mail: sales@freedmanseat.com

We are constantly updating and improving our seats; therefore we reserve the right to change or modify specifications or materials without notice. All Freedman Seating Company seats meet or exceed FMVSS standards.



# FEATHER WEIGHT

**MID-HI SEAT  
"ROCK SOLID"**



## Sustainable Seating Solutions

Freedman Seating Company's Feather Weight seats are designed to be like feathers on a bird: light and airy to satisfy weight restrictions and ensure a smooth ride, yet durable for years of service and low maintenance.

Freedman Seating Feather Weight seats are the most severely tested in the company's history, and meet all applicable federal motor vehicle safety standards for strength and safety (including 210 for seat belts).

Less weight means one thing to bus builders and operators: they can get more passengers per bus.

And when we say more passengers, ***we mean more happy passengers.***



Not Just Seats



Seating Solutions™

THE FEATHER WEIGHT SERIES BY

**FREEDMAN**  
SEATING COMPANY

an ISO 9001:2000 certified company

# FEATHER WEIGHT

## MID-HI SEAT "ROCK SOLID"



### Sustainable Seating Solutions

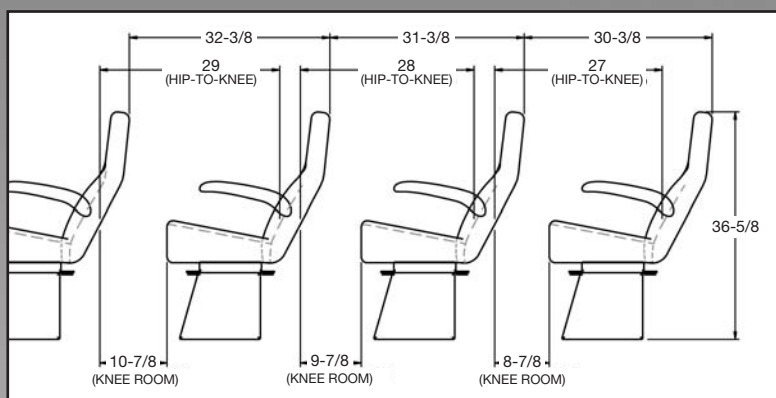
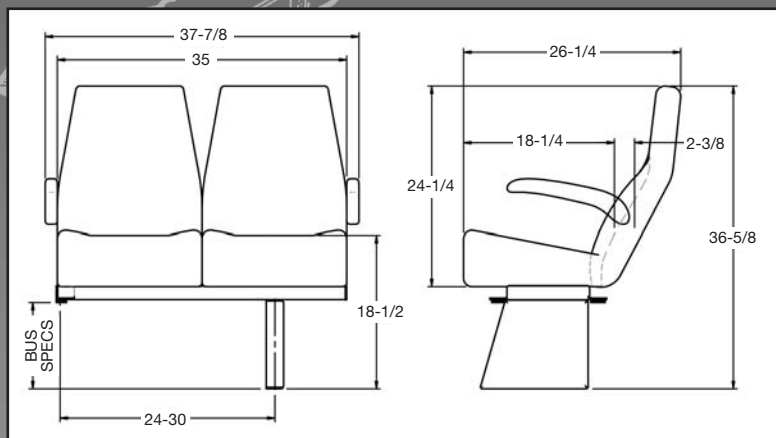
Whether your bus is for tour/charter, para-transit, or shuttle, Feather Weight Mid-Hi works for you. Optional adjustable headrests and reclining back-rests give you luxuries for long journeys, while grab rails and ABS plastic backs provide the function and safety required for shorter trips. The ultra-thin backrest gives outstanding support and creates more hip-to-knee room than any other seat in its class. The steel frame system meets or exceeds all applicable government standards for safety and durability. And, it's light as a feather!

#### Feather Weight Mid-Hi features include:

- An ultra-thin *Knee-Saver* type backrest for added hip-to-knee room and lumbar support
- Molded polyurethane seat and back cushions for comfort and long lasting support
- 17½" wide seat cushions
- 22½" back height off the seat cushion, 37" off the floor
- Wire mesh-grid seat springs for even support
- FMVSS 210 compliance—all *Feather Weight* seats are seat belt ready
- Transit style—rigid backrests (starting weight without options—43 lbs.)
- Touring style—reclining backrests (starting weight without options—47 lbs.)
- Covers that can be removed and replaced easily and without the use of special tools

#### Feather Weight Mid-Hi options include:

- Black molded *U.S. Arms* or upholstered flip-up armrests
- Adjustable headrests
- Black or yellow corner AV grab rails
- Black or yellow top AV grab rails
- ABS plastic backs
- Mesh map pockets
- Vertical stitching
- FTA foam
- Snack trays
- Aluminum folding footrests
- Pillow seat cushions
- Rear row quick disconnect
- Side sliders
- 16", 18" or 19" wide seats available
- Rigid or reclining backrests
- Seat belts
  - Non-retracting seat belts
  - Retracting seat belts
  - USR (Under Seat Retractors)
- S3 Bio-Cushions (Made with vegetable oil)
- A wide variety of cloths and vinyls
- S3 cloths (Made with recycled yarn)



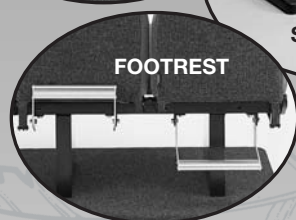
#### OPTIONS



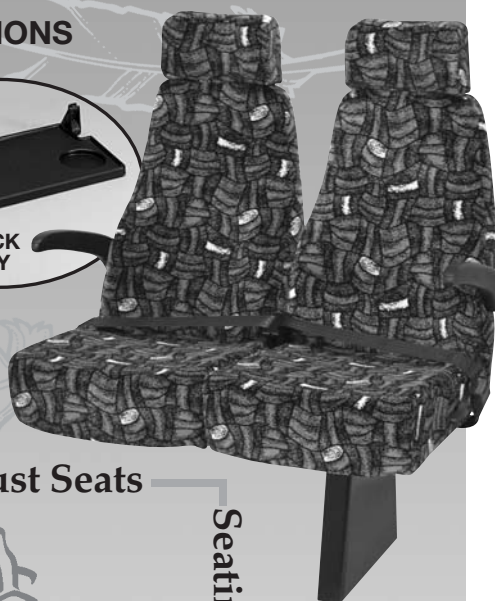
PILLOW SEAT



SNACK TRAY



FOOTREST



Not Just Seats



Seating Solutions™

**FREEDMAN**  
SEATING COMPANY

an ISO 9001:2000 certified company

4545 W. Augusta Blvd., Chicago, IL 60651  
(773) 524-2440 (800) 443-4540 Fax (773) 252-7450  
e-mail: sales@freedmanseat.com  
WWW.FREEDMANSEATING.COM

We are constantly updating and improving our seats; therefore we reserve the right to change or modify specifications or materials without notice. All Freedman Seating Company seats meet or exceed FMVS standards.

ISO 9001:2000 registered



# FEATHER WEIGHT

**MID-HI SEAT  
"ROCK SOLID"**



## Sustainable Seating Solutions

Freedman Seating Company's Feather Weight seats are designed to be like feathers on a bird: light and airy to satisfy weight restrictions and ensure a smooth ride, yet durable for years of service and low maintenance.

Freedman Seating Feather Weight seats are the most severely tested in the company's history, and meet all applicable federal motor vehicle safety standards for strength and safety (including 210 for seat belts).

Less weight means one thing to bus builders and operators: they can get more passengers per bus.

And when we say more passengers, ***we mean more happy passengers.***



Not Just Seats



Seating Solutions™

THE FEATHER WEIGHT SERIES BY

**FREEDMAN**  
SEATING COMPANY

an ISO 9001:2000 certified company

# FEATHER WEIGHT

## MID-HI SEAT "ROCK SOLID"



### Sustainable Seating Solutions

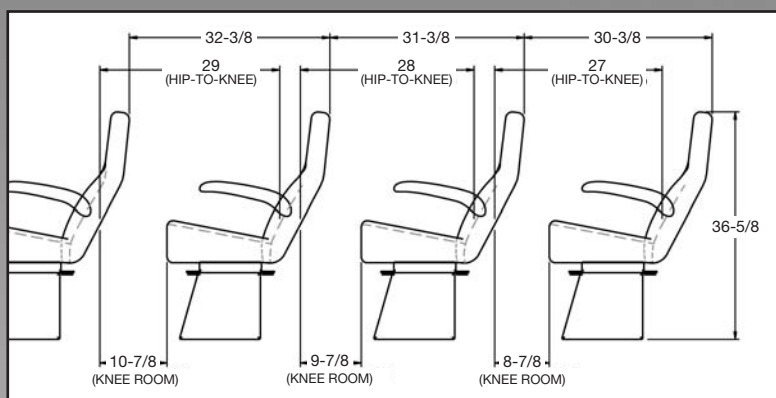
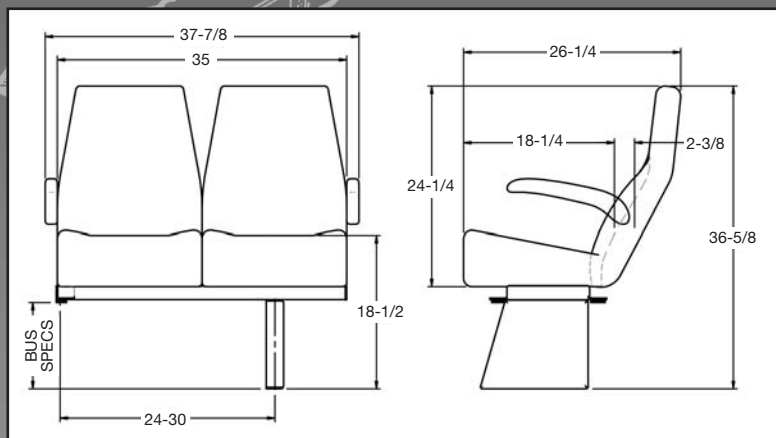
Whether your bus is for tour/charter, para-transit, or shuttle, Feather Weight Mid-Hi works for you. Optional adjustable headrests and reclining back-rests give you luxuries for long journeys, while grab rails and ABS plastic backs provide the function and safety required for shorter trips. The ultra-thin backrest gives outstanding support and creates more hip-to-knee room than any other seat in its class. The steel frame system meets or exceeds all applicable government standards for safety and durability. And, it's light as a feather!

#### Feather Weight Mid-Hi features include:

- An ultra-thin *Knee-Saver* type backrest for added hip-to-knee room and lumbar support
- Molded polyurethane seat and back cushions for comfort and long lasting support
- 17½" wide seat cushions
- 22½" back height off the seat cushion, 37" off the floor
- Wire mesh-grid seat springs for even support
- FMVSS 210 compliance—all *Feather Weight* seats are seat belt ready
- Transit style—rigid backrests (starting weight without options—43 lbs.)
- Touring style—reclining backrests (starting weight without options—47 lbs.)
- Covers that can be removed and replaced easily and without the use of special tools

#### Feather Weight Mid-Hi options include:

- Black molded *U.S. Arms* or upholstered flip-up armrests
- Adjustable headrests
- Black or yellow corner AV grab rails
- Black or yellow top AV grab rails
- ABS plastic backs
- Mesh map pockets
- Vertical stitching
- FTA foam
- Snack trays
- Aluminum folding footrests
- Pillow seat cushions
- Rear row quick disconnect
- Side sliders
- 16", 18" or 19" wide seats available
- Rigid or reclining backrests
- Seat belts
  - Non-retracting seat belts
  - Retracting seat belts
  - USR (Under Seat Retractors)
- S3 Bio-Cushions (Made with vegetable oil)
- A wide variety of cloths and vinyls
- S3 cloths (Made with recycled yarn)



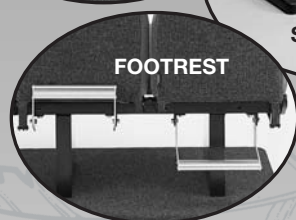
#### OPTIONS



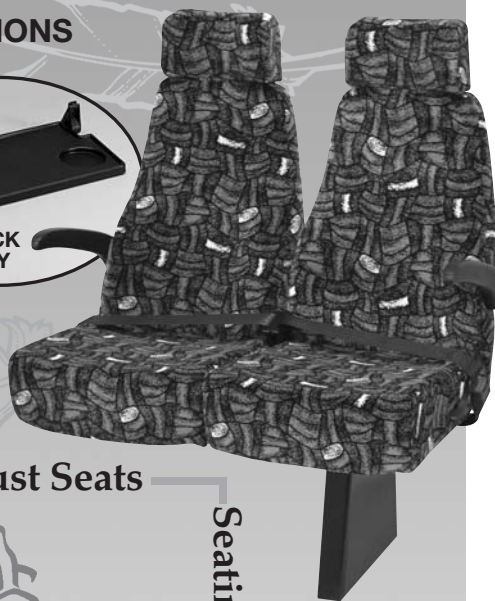
PILLOW SEAT



SNACK TRAY



FOOTREST



Not Just Seats



Seating Solutions™

**FREEDMAN**  
SEATING COMPANY

an ISO 9001:2000 certified company

4545 W. Augusta Blvd., Chicago, IL 60651  
(773) 524-2440 (800) 443-4540 Fax (773) 252-7450  
e-mail: sales@freedmanseat.com  
WWW.FREEDMANSEATING.COM

We are constantly updating and improving our seats; therefore we reserve the right to change or modify specifications or materials without notice. All Freedman Seating Company seats meet or exceed FMVS standards.

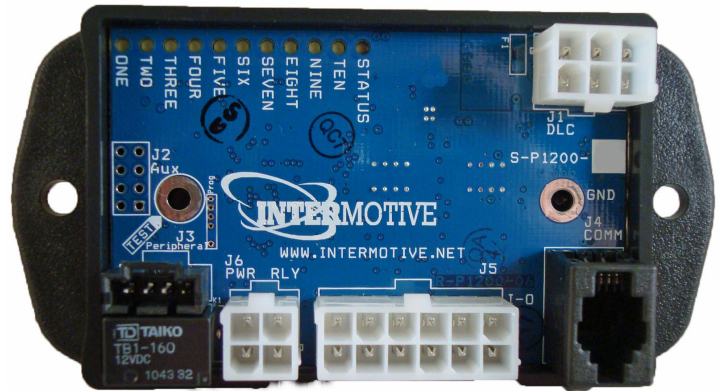
ISO 9001:2000 registered

# GATEWAY<sup>AI</sup>

## High Idle & Lift Interlock With Programmable Load Control

### FEATURES & BENEFITS

- ♦ Fully compliant FMVSS 403/404 wheel-chair lift interlock
- ♦ Dynamic Load Response (DLR) technology– monitors engine RPM & maintains speed at all load conditions
- ♦ Charge protect on gas & diesel engines
- ♦ Automatic engagement when on A/C command is detected
- ♦ *Heater Boost* for improved cabin heat on diesel engines
- ♦ Dash-mounted control panel has LEDs to display electrical system, Automatic Fast Idle (AFIS) & Intelligent Lift Interlock System (ILIS) status
- ♦ Simple, single-point “Plug & Play” connection.. Super fast installation & No cutting of factory wires
- ♦ Solid state microprocessor controller.. No additional solenoids, cables, or brackets
- ♦ Capable of providing “Real-Time” chassis data via the CAN Bus
- ♦ Diagnostic trouble codes can be retrieved for “hard” faults & intermittent faults in non-volatile memory
- ♦ Intermittent Fault Filter (IFF)® technology filters out all erroneous changes in sensor signals
- ♦ Multiple & configurable chassis electrical load inputs/outputs



Gateway<sup>AI</sup> Module

### WHY GATEWAY<sup>AI</sup>?

- ♦ Gateway<sup>AI</sup> is a fully Compliant FMVSS 403/404 wheelchair interlock & fast idle system all in one, easy to install module!
- ♦ **Fast Idle**– monitors OEM sensor inputs from transmission, engine, charging system, air conditioner, ambient air temperature, & vehicle speed to determine if high idle is needed. Automatically maintained when loads are added or removed such as A/C or wheelchair lift.
- ♦ **Lift Interlock**– Controls shift interlock by processing signals from transmission, parking brake and lift door to electronically lock down the vehicles ability to move in unsafe conditions



# GATEWAY<sup>AI</sup>

## Gateway<sup>AI</sup> Options

### THE GATEWAY<sup>AI</sup> PRODUCT FAMILY

- ◆ Gateway with BrakeMax Controller
  - ◆ All of the features of the Gateway/ILIS plus a controller for Ford & GM vehicles with Tow/ Haul mode. This controller engages the Tow/Haul mode on start-up of the vehicle thereby providing the fleet with maximum "Tow/ Haul" mode benefits without having the driver think about it.
- ◆ Gateway with DuraTrans
  - ◆ All of the features of the Gateway/ILIS plus a controller for Ford & GM vehicles with an Overdrive button. Overdrive is disabled until the vehicle speed reaches 55 MPH. Overdrive will not be disabled until the vehicle speed drops below 30MPH
- ◆ Gateway with Merlin
  - ◆ All of the features of Gateway/ILIS plus the ability of the Merlin Multiplex System to use real-time chassis data to operate coach loads
- ◆ Azure Option
  - ◆ ILIS interlock functions for use on an Azure hybrid electric vehicle



Standard Gateway<sup>AI</sup> LED Panel

Starcraft uses the panel below as standard



Standard Gateway<sup>AI</sup> Door Ajar LED Panel



Interlock Only LED Panel



Interlock Only Door Ajar LED Panel

### SPECIFICATIONS

#### Physical Specifications:

Dimensions: 2.0"W x 4.0"L x 0.9"H  
 Weight: .14 lbs  
 Operating Temperature: 40°C to 85°C

#### Electrical Specifications

Power Input: +8 to 16 Vdc @ 1 amps for module control  
 +8 to 16 Vdc @ 8 amps for lift enable  
 Lift Enable: +12v @ 8 amps  
 Programmable Outputs: Ground @ 0.5 amps each

US Patent No's. 6,594,565 / 6,965,819 / 7,274,980


**MECHANICAL DATA**

Case dimensions (excluding brackets):	29 <sup>1</sup> / <sub>4</sub> x 6 <sup>1</sup> / <sub>4</sub> x 2" / 743 x 159 x 49.5mm (l x h x d)
Viewing area:	27 <sup>1</sup> / <sub>4</sub> x 4" / 692 x 102mm (l x h)
Sign construction:	Punched and folded aluminum case (no welds), for increased strength, no louvers required. Matte black, powder coat finish.
Weight:	11.4lbs / 5kg
Cable exit points:	Top left, top right, bottom left, bottom right (to be specified at time of order)

**DISPLAY DATA**

Maximum character height:	4" / 102mm
Text format:	Static, paging or scrolling, 1 line
Font options:	Hanover fonts as supplied with Helen programming software plus Windows™ fonts
Display technology:	High visibility LEDs (with integrated ambient light sensor control (full linear range from 10-100% range))
Communication interfaces:	RS485 (standard). J1708, RS232, IBIS, Ethernet (via display controller)

**LED SPECIFICATION**

Lifespan (to ½ brightness):	100,000 hours MTBF (LED manufacturer's data)
Size and type:	<sup>1</sup> / <sub>8</sub> x <sup>5</sup> / <sub>32</sub> " / 3.2 x 4.0mm (w x h) oval through-hole
Dominant color wavelength:	Amber 588 - 594nm (typically 591nm)
Pitch:	Horizontal: <sup>3</sup> / <sub>8</sub> " / 9.7mm - vertical: <sup>13</sup> / <sub>32</sub> " / 10.2mm
Viewing angle (horizontal):	120°

**ELECTRICAL DATA**

Operating voltage:	24v DC nominal (18-32v)
Typical power consumption (33% on at 100% brightness):	6 watts (0.26A measured at 24v)
Maximum power consumption (all on at 100% brightness):	10 watts (0.43A measured at 24v)
Electrical protection:	Anti-surge, reverse polarity
Display processor fuse rating:	5A quick blow

**OPERATIONAL DATA**

Temperature range (storage):	0 - 140°F (0 - 180°F) / -20° to +60°C (-20° to +80°C)
Humidity:	95% max

**Product guaranteed for 10 years against faulty materials and/or workmanship.**

**Buy America compliant – Signs (including casework and PCB's) are all manufactured in the USA.**

Hanover Displays LED signs meet Automotive EMC Directive ECE R10 as amended. Certificate N°E11 10R-046100. ADA, Equality Act 2010, PSV Accessibility Regulations & Annexe 11 compliant.


**MECHANICAL DATA**

Case dimensions (excluding brackets):	38 <sup>1</sup> / <sub>2</sub> x 8 <sup>1</sup> / <sub>4</sub> x 2" / 976 x 210 x 50mm (l x h x d)
Viewing area:	37 <sup>1</sup> / <sub>4</sub> x 6" / 946 x 152mm (l x h)
Sign construction:	Punched and folded aluminum case (no welds), for increased strength, no louvers required. Matte black, powder coat finish.
Weight:	9.7lbs / 4.5kg
Cable exit points:	Rear panel, top left, top right, bottom left, bottom right (to be specified at time of order)

**DISPLAY DATA**

Maximum character height:	6" / 152mm
Text format:	Static, paging or scrolling, 1 or 2 lines
Font options:	Hanover fonts as supplied with Helen programming software plus Windows™ fonts
Display technology:	High visibility LEDs (with integrated ambient light sensor control (full linear range from 10-100% range))
Communication interfaces:	RS485 (standard). J1708, RS232, IBIS, Ethernet (via display controller)

**LED SPECIFICATION**

Lifespan (to ½ brightness):	100,000 hours MTBF (LED manufacturer's data)
Size and type:	<sup>1</sup> / <sub>8</sub> x <sup>5</sup> / <sub>32</sub> " / 3.2 x 4.0mm (w x h) oval through-hole
Dominant color wavelength:	Amber 588 - 594nm (typically 591nm)
Pitch:	Horizontal: <sup>3</sup> / <sub>8</sub> " / 9.7mm - vertical: <sup>13</sup> / <sub>32</sub> " / 10.2mm
Viewing angle (horizontal):	120°

**ELECTRICAL DATA**

Operating voltage:	24v DC nominal (18-32v)
Typical power consumption (33% on at 100% brightness):	12 watts (0.48A measured at 24v)
Maximum power consumption (all on at 100% brightness):	20 watts (0.83A measured at 24v)
Electrical protection:	Anti-surge, reverse polarity
Display processor fuse rating:	5A quick blow

**OPERATIONAL DATA**

Temperature range (storage):	0 - 140°F (0 - 180°F) / -20° to +60°C (-20° to +80°C)
Humidity:	95% max

**Product guaranteed for 10 years against faulty materials and/or workmanship.**

**Buy America compliant – Signs (including casework and PCB's) are all manufactured in the USA.**

Hanover Displays LED signs meet Automotive EMC Directive ECE R10 as amended. Certificate N°E11 10R-046100. ADA, Equality Act 2010, PSV Accessibility Regulations & Annexe 11 compliant.

**Hanover Displays Inc.**

1601 Tonne Road  
Elk Grove Village, IL 60007

T +1 (773) 334 9934  
www.hanoverdisplays.com

1-540791-1



#### MECHANICAL

Case dimensions (w x h x d):	4 <sup>1</sup> / <sub>8</sub> x 2 x 4 <sup>3</sup> / <sub>4</sub> " / 105 x 48 x 121mm
Mounting cut-out dimensions (w x h):	3 <sup>5</sup> / <sub>8</sub> x 1 <sup>3</sup> / <sub>4</sub> " / 92 x 45mm
Mounting type:	Dashboard/panel using DIN clamps or screw fixing
Approximate weight:	1.1lbs / 0.5kg
Driver interface :	4 button function/navigation keypad

#### DISPLAY

Display size (w x h):	2 <sup>3</sup> / <sub>4</sub> x 3 <sup>3</sup> / <sub>4</sub> " / 71 x 19mm
Display format:	256 x 64 pixels, multi-line or graphics including sign mimic
Display technology:	High resolution amber OLED with automatic screen dimming

#### DATA STORAGE

Memory capacity:	8MB
Dual database capacity:	Timed update triggered by programmable real-time clock
Data loading:	USB storage device via front panel socket

#### COMMUNICATIONS, INPUT/OUTPUT

Sign communications:	RS485 (standard communications with Hanover signs)
Secondary communications:	J1708 (std), RS232, RS485, isolated RS485, IBIS (optional)
Digital input/output:	1x digital output 2x digital inputs
Piezo sounder:	Monophonic multi-note sounder

#### ELECTRICAL

Operating voltage:	9-36Vdc
Typical power consumption:	3.6 watts (0.15A measured at 24V in testing signs mode)
Electrical protection:	Reverse polarity and transient

#### OPERATIONAL

Temperature range (storage):	0 – 140°F (0-180°F) / -20° to +60°C (-20° to +80°C)
Humidity:	95% max

**Product guaranteed for 10 years against faulty materials and/or workmanship.**

**Buy America compliant – Driver Consoles are all manufactured in the USA.**

Hanover Displays DG3 meet Automotive EMC Directive/ ECE R10 as amended. Certificate N°E11 10R-045763.

ADA, Equality Act 2010, PSV Accessibility Regulations & Annexe 11 compliant.

Product code (Keylo): KF001

Product code (Base station): KFBS001



The Keylo has been developed to make the process of transferring destination lists to vehicle-based controllers more convenient. It offers the additional advantages that it is small, portable and robust and fits easily into the user's pocket. In addition, no transfer cable is required.

In conjunction with its partner Base Station and the HELEN destination list software, data can be quickly and easily loaded into the Keylo. The Keylo can then be taken to the desired controller(s). Once plugged, the transfer of data to the controller is handled automatically.

The Keylo is for use with computer USB ports and self-powered hub ports.

Supported features:

- Timed updates
- Container files and profiling using the profile (PF) parameter in the controller
- Firmware upgrades to the controller

## MECHANICAL DATA

Unit size (Keylo):	W34mm x H50mm x D15mm
Weight (Keylo):	50g
Unit size (Base station):	W50mm x H30mm x D87mm
Weight (Base station):	200g
Memory size dataflash:	32Mbit (4MByte)

## PC HARDWARE & SOFTWARE COMPATIBILITIES

Computers:	PC compatible
Operating system:	Windows 7, 8, 10
Standard communications:	USB compatible, all standards
HELEN software:	Version 3.3 or later Please contact Hanover for the latest HELEN software

## CONTROLLER COMPATIBILITIES

Controllers:	ERIC++ controllers DERIC+ controllers
Connection to ERIC++/DERIC+ controller:	Via the front panel 9-way connector

## OPERATIONAL DATA

Temperature range:	0°C to +70°C
--------------------	--------------

**Disclaimer:** Details subject to change.

540022-5



## HANOVER DISPLAYS WARRANTY POLICY

HANOVER DISPLAYS warranty obligations are limited to the terms set forth below.

### NEW MANUFACTURED PRODUCTS LIMITED WARRANTY:

HANOVER DISPLAYS guarantees that each product is free from defects in material and workmanship.

HANOVER DISPLAYS also guarantees the performance of their products for the following periods from original ship date from HANOVER DISPLAYS:

*Amber LED (on-board & wayside) systems and On-board Next stop signs: 12 years.*

*White & Color LED systems: 5 years*

*Audio-Visual TFT systems: 2 years*

If the product fails to operate as specified and has not been tampered with or abused during this warranty period, HANOVER DISPLAYS shall have the option to repair or replace any defective part or the product free of charge. Such services by HANOVER DISPLAYS shall be the original purchaser's sole and exclusive remedy.

This warranty does not apply: (a) to damage caused by accident, abuse, misuse, misapplication or improper installation (b) to damage caused by conditions outside the manufacturer's specifications including but not limited to vandalism, fire, water, temperature, humidity, dust or other perils (c) to damage caused by service (Including upgrades) performed by anyone who is not a HANOVER DISPLAYS authorized technician (d) to a product or a part that has been modified without the written permission of HANOVER DISPLAYS or (e) if any HANOVER DISPLAYS serial number has been removed or defaced.

HANOVER DISPLAYS shall not be liable for the cost of removal or installation of products nor shall HANOVER DISPLAYS be responsible for transportation costs.

HANOVER DISPLAYS shall not be liable for any special, incidental or consequential damages for loss, damage directly or indirectly arising from customer's use or inability to use the equipment either separately or in combination with other equipment, or for personal injury or loss or destruction of other property, or from any other cause.



## **HANOVER DISPLAYS WARRANTY POLICY (continued)**

**WARRANTY REPAIRS** - A replacement or repaired product assumes the remaining warranty of the original product. When a product or part is exchanged, any replacement item becomes the original purchaser's property and the replaced item becomes Hanover Displays property.

**OBTAINING WARRANTY SERVICE** - The original purchaser is responsible for returning any defective products to HANOVER DISPLAYS upon obtaining a Returned Merchandise Authorization (RMA) number from our Customer Service Department. No items will be accepted without an RMA number. Be sure to have the serial number of the equipment to hand.

The original purchaser must package the product properly. HANOVER DISPLAYS is not responsible for any damage to the product caused during transit or for any package lost by the shipping company.

The original purchaser assumes all cost in shipping the defective product to HANOVER DISPLAYS and HANOVER DISPLAYS will assume the cost in shipping back to the customer. All replacement/repaired products are shipped UPS Ground unless a rush is requested. The cost of shipping using any other mode other than UPS Ground is to be paid by the original purchaser.

Ship to:      Hanover Displays Inc.  
                    1601 Tonne Road  
                    Elk Grove Village, IL, 60007

## **NON-WARRANTY REPAIR POLICY:**

Non-warranty repairs made by HANOVER DISPLAYS carry a limited repair warranty of 90 days on services and replacement parts only. Defects in repair work or any parts replaced will be corrected at no charge if the defect occurs within 90 days from shipment from our facility.

## **FIELD SERVICE:**

Field service calls will be made to customer's facility upon request. Time, expenses, and materials will be charged at standard rates unless other arrangements are made in advance. Field Service is treated as any repair. All travel must be pre-approved and is based upon actual prevailing airfare, hotel/motel rooms and Per Diem rates.



## **HANOVER DISPLAYS WARRANTY POLICY (continued)**

### **NON-HANOVER DISPLAYS EQUIPMENT RECEIVED FOR REPAIR:**

Items received for repair that were not manufactured or supplied by HANOVER DISPLAYS will be logged in and HANOVER DISPLAYS will require that the customer supply us with their shipper number in order to return the item.

# TECHNICAL DATA SHEET



## COMPONENT SPECIFICATIONS

### ProAir 435 / 445 / 465 Low Profile Heaters

---

Where a smaller height is required and high heat is of utmost importance the 435, 445 and 465 Low Profile auxiliary heaters deliver maximum BTUs with outstanding CFMs.

**Features:** Long Life Motor, 3 Year Warranty, Standard Plug-In on Harness and Filter Option Available

#### 435 / 445 Heater Performance

35,000 Btu/hr 435 Heater and 45,000 Btu/hr 445 Heater Capacity

##### Power Requirement

12 Volts DC

Draw is 5.0 Amps @ 13.5 Volts

##### Air Flow

313 CFM @ 0 static Pressure

##### Weight

8 Lbs. 435 Heater 9 Lbs. 445 Heater

##### Physical Size

W 10.25" x H 7.5" x D 9.5"



#### 465 Heater Performance

65,000 Btu/hr Heating Capacity

##### Power Requirement

12 Volts DC

Draw is 10.0 Amps @ 13.5 Volts

##### Air Flow

640 CFM @ 0 static Pressure

##### Weight

15 Lbs.

##### Physical Size

W 21" x H 7.5" x D 9.5"



---

#### Warranty

ProAir systems are covered by an industry-leading two-year warranty. Complete terms are outlined in our Warranty Statement, Consult ProAir for detailed information.

# ILIS-C

## Wheelchair Lift Interlock School Bus & Light Weight Vehicles

### ***FEATURES & BENEFITS***

- ♦ Meets ADA Title 49 & FMVSS 403/404 Lift Interlock requirements
- ♦ Fully automatic lift interlock system
- ♦ Lift can be operated from outside of vehicle with key off
- ♦ Prohibits lift operation anytime the vehicle is unsecured
- ♦ Dash-mounted LED panel displays system status
- ♦ Prevents driving vehicle with parking brake accidentally left on or lift door open
- ♦ "Plug & Play" harness connectors to Ford & Chevy chassis; no cutting of factory wires
- ♦ Patented solid state, microprocessor controlled unit
- ♦ CPU performs self-diagnostics every time vehicle is started
- ♦ Intermittent Fault Filter® (IFF) technology; filters out erroneous changes in sensor signals
- ♦ Compact unit is easy to install
- ♦ U.S. Patent No's. 6,594,565 / 6,965,819 / 7,274,980



STANDARD ILIS-C LED PANEL



ILIS-C DOOR AJAR LED PANEL

ILIS-C  
MODULE



An ISO 9001:2008 Registered Manufacturer  
www.InterMotive.net 800-969-6080



Rev. C





# Certificate of Registration

This is to certify the Quality Management System of:

**FOREST RIVER MANUFACTURING, LLC**  
Division 5

**Location Addresses:**

Starcraft Bus: Commercial  
2367 Century Drive  
Goshen, IN 46528

Starcraft Bus: School Bus  
2408 Century Drive  
Goshen, IN 46528

StarTrans Bus  
2367 Century Drive  
Goshen, IN 46528

has been assessed and found to be in compliance with the requirements of

**ISO 9001:2015**

ISO 9001:2015

for the following scope:

Design, Manufacturing, Sales, and Administration of Commercial, Government and School Busses

Certificate Number: **SARA-2006-CA-0031-A**

Originally Registered:  
**January 26, 2009**

Latest Issue:  
**January 26, 2018**

Expiry Date:  
**January 25, 2021**

*President, SARA Registrar*



This registration is subject to the company maintaining its system to the required standard which will be monitored by SARA Registrar. This certificate remains the property of Standards American Registrations Authority (SARA Registrar) and shall be returned immediately upon request.  
SARA Registrar Headquarter Mailing: 1807H Santa Rita Road, #175, Pleasanton, CA 94566





# Certificate of Registration

This is to certify the Quality Management System of:

**Forest River Manufacturing, LLC**  
Division 5

**Location Addresses:**

Starcraft Bus: Commercial  
2367 Century Drive  
Goshen, IN 46528

Starcraft Bus: School Bus  
2408 Century Drive  
Goshen, IN 46528

StarTrans Bus  
2367 Century Drive  
Goshen, IN 46528

has been assessed and found to be in compliance with the requirements of

**ISO 9001:2008**

for the following scope:

Design, Manufacturing, Sales, and Administration of Commercial, Government and School Busses.

Certificate Number: **SARA-2006-CA-0031-A**

Originally Registered:  
**February 28, 2006**

Latest Issue:  
**January 26, 2015**

Expiry Date:  
**January 25, 2018**

*President, SARA Registrar*



This registration is subject to the company maintaining its system to the required standard which will be monitored by SARA Registrar. This certificate remains the property of Standards American Registrations Authority (SARA Registrar) and shall be returned immediately upon request. An electronic certificate can be authenticated online [www.sararegistrar.com](http://www.sararegistrar.com) – verify certificates.

SARA Registrar Headquarters: 1807D Santa Rita Road, #175, Pleasanton, CA 94566



2018 Product Application Guide • 3-7-18



**NCL1000-2 CENTURY SERIES™**



# NCL1000-2 Century Series™ Features

- Fully automatic NHTSA compliant lift, operated by an attendant
- Loading position - either direction
- Interfaces with OEM interlocks
- Lift mounted lights - platform illuminated as it deploys
- Hand control with illuminated functions
- Locking mechanical Inboard Barrier (IB), powder coated yellow for safety and high visibility, prevents movement if occupied
- Pump design prevents platform folding when occupied, quiet operation and low current draw
- Durable redesigned baseplate reduces lift weight and allows for quicker and easier service of hose/wiring
- Easily installed, step-by-step installation instructions, no peripheral hardware required
- Visual and audible warning provides notification of unsafe conditions
- Spring-loaded outer barrier that will transition to the fully up position as the platform leaves the ground, has durable rubber nose guard and is powder coated yellow for safety and high visibility
- Parallel arms lift with hydraulic cylinders
- Side or rear door application
- Several platform widths and lengths
- Dual handrails for security and convenience
- Bridging feature permits the wheelchair user to board the lift from sidewalks or inclines
- Floor to ground travel is 48"
- Lifting capacity is 1000 lbs
- Integrated back-up pump
- Equipped with an adjustable anti-rattle feature to avoid unpleasant noise in the vehicle during transit
- Durable high-gloss powder coated finish
- Lift-Tite system stows the lift platform securely while the vehicle is in transit
- Pump module with removable cover offers easy access to all components

# NCL1000-2 Century Series™ Models

## NCL1000IB3351-2

NHTSA Compliant Usable Platform: 33" x 51"

## NCL1000IB3451-2

NHTSA Compliant Usable Platform: 34" x 51"

## NCL1000IB3451HB-2

NHTSA Compliant Usable Platform: 34" x 51"

## NCL1000IB3454-2

NHTSA Compliant Usable Platform: 34" x 54"

## NCL1000IB3454HB-2

NHTSA Compliant Usable Platform: 34" x 54"

## NCL1000IB3751HB-2

NHTSA Compliant Usable Platform: 37" x 51"

## NCL1000IB3754HB-2

NHTSA Compliant Usable Platform: 37" x 54"

For a front-mounted pump assembly, add "F" to the model number when ordering (example: NCL1000FIB3351-2).

IB = Inboard Barrier HB = Handrail Belt

General Function: Electrohydraulic, power up/gravity down operation

Operation: Hydraulic pump with two lifting cylinders

Control: hand-held control box

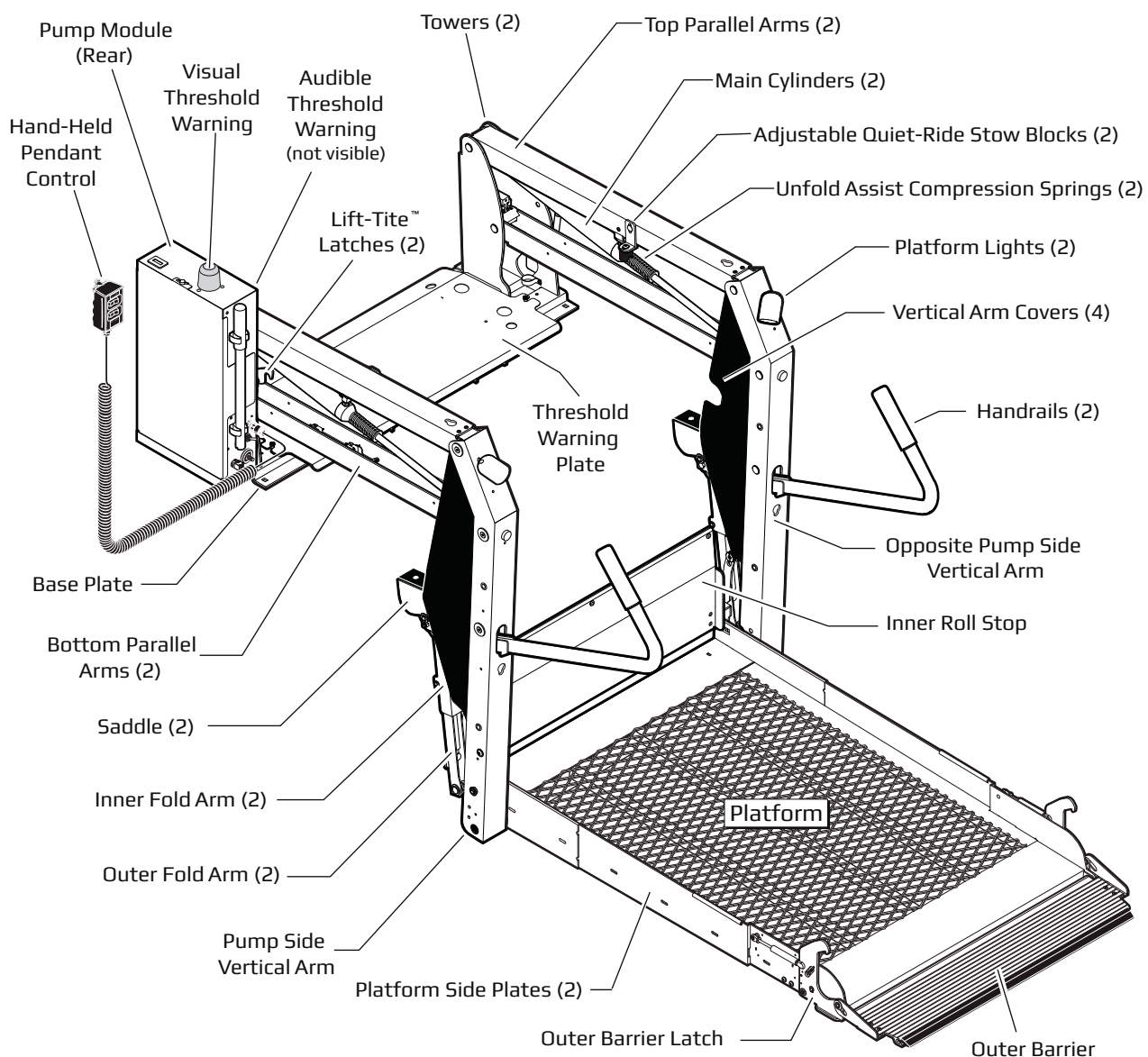
Hydraulic: Pressure Max. 2,495 psi, Fluid is Univis HVI 26, oil reservoir is .33 gal

Construction: Steel structure with powder coat finish

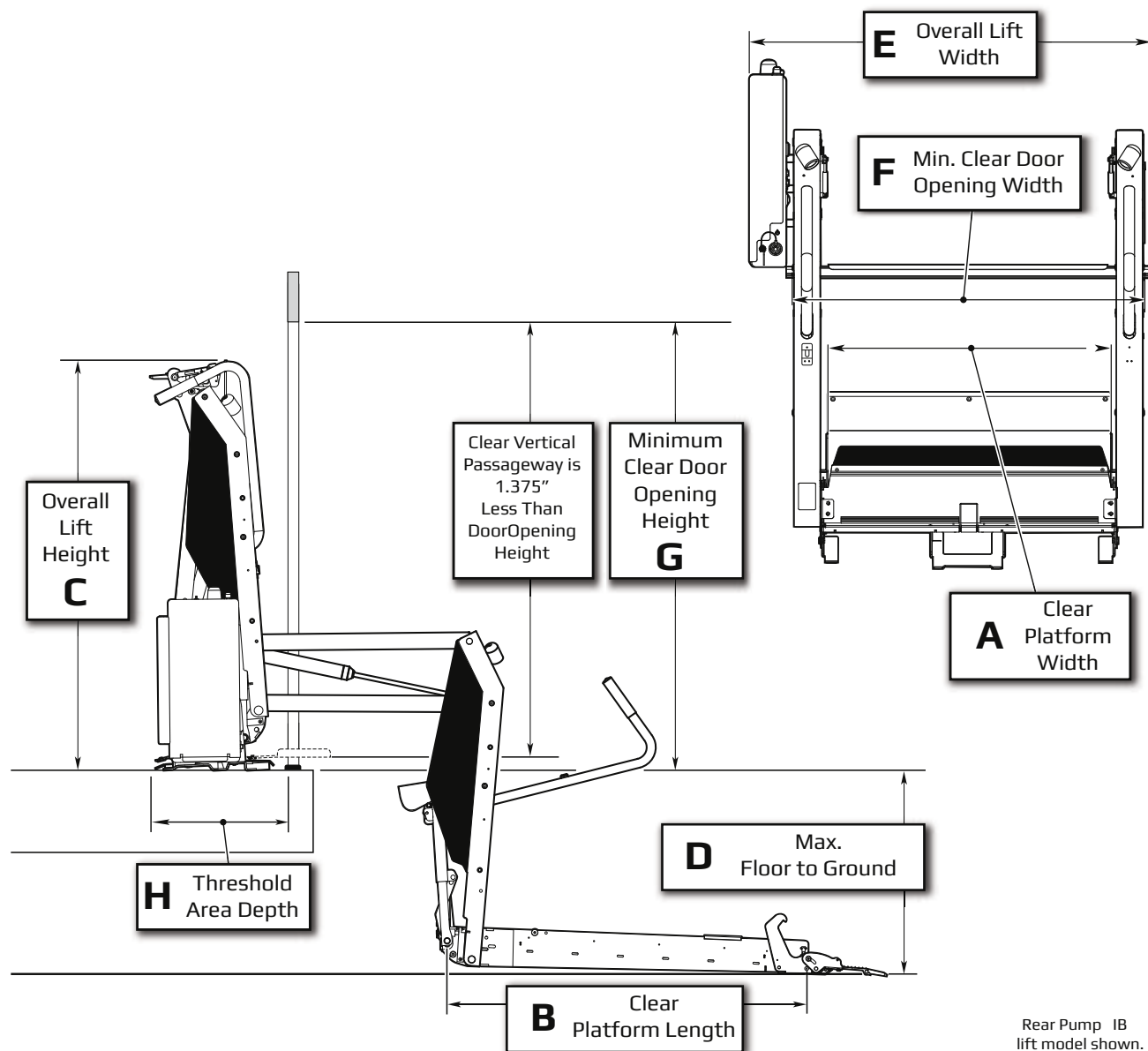
Operating Temperature: 0°F to 140°F

Power Supply: 12VDC

Current Consumption: Max. 70A (12V)



# NCL1000-2 Century Series™ Dimensions



Rear Pump 1B lift model shown.

All dimensions are for reference only.

NCL1000-2 Century Series™			A	B	C	D	E	F	G	H
Lift Model Number	Lift Weight lbs	Lifting Capacity lbs	Clear Platform Width	Clear Platform Length	Overall Lift Height	Max. Floor to Ground	Overall Lift Width	Min. Clear Door Opening Width	Min. Clear Door Opening Height	Threshold Area Depth
NCL1000IB3351-2	358	1000	33"	51"	56.25"	48"	46"	42"	57.375"	18"
NCL1000IB3451-2	358	1000	34"	51"	56.25"	48"	47"	43"	57.375"	18"
NCL1000IB3451HB-2	358	1000	34"	51"	61.25"	48"	47"	43"	62.375"	18"
NCL1000IB3454-2	358	1000	34"	54"	59.25"	48"	47"	43"	60.375"	18"
NCL1000IB3454HB-2	358	1000	34"	54"	66.25"	48"	47"	43"	67.375"	18"
NCL1000IB3751HB-2	380	1000	37"	51"	61.25"	48"	50"	46"	62.375"	18"
NCL1000IB3754HB-2	385	1000	37"	54"	66.25"	48"	50"	46"	67.375"	18"

## NCL1000-2 Century Series™

## NHTSA Installation Kits

	<b>Std. Length Rear Door</b>	<b>Ext. Length Rear Door</b>
<b>Ford Transit</b> (2015)	<b>400774KS</b>	<b>400773KS</b>
<b>Ford Transit Template</b> (2015)	<b>400778KS</b>	<b>400778KS</b>
<b>Sprinter</b> (2014 & up)		<b>401174KS</b>
<b>Sprinter Template</b> (2014 & up)		<b>401177KS</b>

Van Mounting Kits contain floor reinforcements for 403/404 compliance.

## NCL1000-2 Century Series™

## Accessories



◀ **31579KS**  
**Handrail Restraint**  
**Retractable -**  
**for 51" Platforms**

**35533KS**  
**Handrail Restraint**  
**Retractable -**  
**for 54" Platforms**

**35331KS**  
**Handrail Restraint**  
**Non-Retractable**



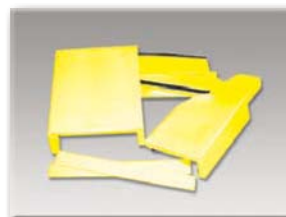
◀ **35295K**  
**Upper Tower Support Kit**



◀ **33659KS**  
**Replacement**  
**Hand-Held**  
**Control**



◀ **23708A913**  
**"Full Curtain"**  
**Lift Cover**  
**(NCL917-2)**



◀ **402605KS**  
**Padding Kit**  
**NCL2 Series**

# NCL1000-2 Century Series™ Specifications

## **COMMERCIAL WHEELCHAIR LIFT SPECIFICATIONS - IN COMPLIANCE WITH United States Department of Transportation Rules and Regulations 49CFR, Part 38. FROM THE AMERICANS WITH DISABILITIES ACT OF 1990 and NHTSA Rule 403 (2004) “Provided to make your spec writing easier.”**

The wheelchair lift is compliant with Federal Motor Vehicle Safety Standard 403 for platform lift systems for motor vehicles. The lift shall have been tested to a minimum static load of 2400#. The lift shall have 1000# rated lifting capacity. The base plate shall be a corrugated designed member to provide rigidity to minimize lift deflection when placed under load.

The power supply shall be a 12 volt electro-hydraulic system operating two single-acting cylinders. The hydraulic power pack system shall be of modular design allowing for easy removal and field replacement, if needed. The operation of the unit shall provide a smooth, jerk-free ride in both up and down directions. The power operation of the hydraulic cylinders shall be of a pull-type design for smooth lifting operation and improved synchronous arm movement. The pivot pins in the trunnion (knuckle) of the pivot arms shall be of stationary design. The hydraulic system shall be regulated by two separate relief valves, one of which is designed to prevent accidental stowing when occupied.

The hand control for lift operation shall be of a one-hand operation design made of durable plastic. The hand control will provide user with illuminated functions. The hand control cable shall be coiled with quick-change connections for ease of maintenance or field change.

A manual back-up system shall be provided to ensure operation of the lift in case of electrical failure. The back-up system shall provide a reliable means of manually raising and lowering the lift while occupied. The back-up system shall fold and unfold the platform. The back-up pump shall be integrated with the hydraulic power pack system such that no hydraulic lines or fittings are required.

The platform shall be of steel construction and the surface shall be of see-through grating allowing for improved visibility and safer use in inclement weather. The platform shall have a minimum usable wheelchair passageway width of 33 inches and a minimum usable length of 51 inches requiring a 57 inch vertical clear door opening. The sides of the platform shall be a minimum of 2.5 inches high.

The platform shall be automatically folded and unfolded and fully automatic in operation. The platform shall allow both inboard and outboard facing of wheelchair and mobility aid users. The platform entrance ramp shall be extruded aluminum for weight savings, have a rubber leading edge and raised ribs for traction. The outer barrier must not raise if occupied with 25 lbs. The outer barrier shall be the sole outboard wheelchair retention device and shall be interlocked and comply with the FMVSS 403 requirements. Dual handrails shall be provided to add security and convenience. These handrails shall be 1.25 inch minimum diameter, minimum 30 inches in height, minimum of 8 inches in length, and withstand a 100# force in any direction (including vertical) without permanent deformation. The lift must have a fail safe system to prevent stowing if solenoid welds. The platform shall have “built in” lighting to meet 404 platform lighting requirements with no auxiliary lighting.

All lift components shall be finished with a baked-on powder coating, which will meet a salt spray test of 1000 hours, to provide corrosion resistance and a long service life. BraunAbility Century Series to include but not limited to the following model numbers:

- NCL1000IB3351-2, NCL1000FIB3351-2, NCL1000IB3451-2, NCL1000FIB3451-2, NCL1000IB3451HB-2, NCL1000FIB3451HB-2, NCL1000IB3454-2, NCL1000FIB3454-2, NCL1000IB3454HB-2, NCL1000FIB3454HB-2, NCL1000IB3751HB-2, NCL1000FIB3751HB-2, NCL1000IB3754HB-2, NCL1000FIB3754HB-2



braunability.com

800.THE.LIFT

ISO 9001:2008

631 West 11th Street, Winamac, IN 46996, USA



<b>FSTL Final Test Report</b>		<u>Test Facility:</u> <b>FSTL</b>
<u>Test Date:</u> 6/25/2012	<u>Test Procedure:</u> FMVSS-207/210	<b>4545 W. Augusta Blvd. Chicago, IL 60651</b>
<b>Description of Item Tested</b>		
<p>All test items are obtained according to FSTL procedure LAI-011 unless otherwise noted. All items are tested for compliance with applicable standards, previously reviewed and approved by the party requesting this test, unless otherwise specifically noted:</p> <p>FSTL installed a FSC, AM2 foldaway, forward facing, wall mounted seat [32298] in a Starcraft Test Buck, curbside. The seat was installed on a bracket with (6) 1/2"-20, grade 8 bolts, 1/2" washers, and 1/2" gra. 8 nuts to the floor bracket, and (2) 7/16" gr.8 bolts to the wall. The bracket attached to the floor with (6) 1/2" gr.8 bolts. Please see attached drawings.</p>		
<b>Description of Results</b>		
		
<b>Summary of FMVSS 571.207.S4.2a &amp; Section 571.210.S5.1</b>		
<p>A force of 5,000 lb shall be applied to each lap belt at <math>10^\circ \pm 5^\circ</math> above the horizontal plane. In addition, a force (1,350 lb) equal to 20 times the system mass was applied simultaneously through the CG of the seating system. The required forces must be reached within 30 seconds from the onset of the test then, when reached must be held for 10 seconds. The total of the forces applied during this test was 11,350 lb.</p>		
<p><b>Note:</b> Full compliance with FMVSS and its Regulations, as set forth under 49 USC 301, et. seq., can only be achieved through proper in-vehicle testing. Freedman Seating Company, its agents, employees, affiliates and subsidiaries ("Freedman Seating") is not liable for damages resulting from the installation of any seat in a vehicle that has not been FMVSS tested or any installation of a seat that deviates from a FMVSS tested installation method. Freedman Seating has no responsibility for the design of any vehicle in which the subject seat may be placed, or any resulting damages.</p>		
<b>Test Opinions and Interpretations</b>		
<p><b>Note:</b> This Test Report is provided solely for the use of the party requesting the same identified below, and for no other person, entity or purpose. Reproduction of this document is strictly prohibited without the prior written permission of FSTL in each instance.</p>		
<p>The seat system as tested reached and held FMVSS loads within the time requirements.</p>		
The test complied with the above Test Procedure: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
<b>Test Report Reviewed by:</b> 	Digitally signed by Miguel Flores, C = US, O = Freedman Seating Co., OU = FSTL Reason: I have reviewed this document Deputy Technical Mgr. Date: 2012.07.03 09:40:41 -0500	<b>Test Requested By:</b> Larry Hall, Forest River / Starcraft 2367 Century Drive, Goshen IN
<b>Test Report Approved by:</b> 	Digitally signed by David D. O'Malley DN: CN = David D. O'Malley, C = US, O = FSTL, OU = FSTL Reason: I am approving this document, Technical Manager Date: 2012.07.03 09:53:47 -0500	<b>Request Received D</b> 5/21/2012

## Equipment Documentation

## Test Fixtures:

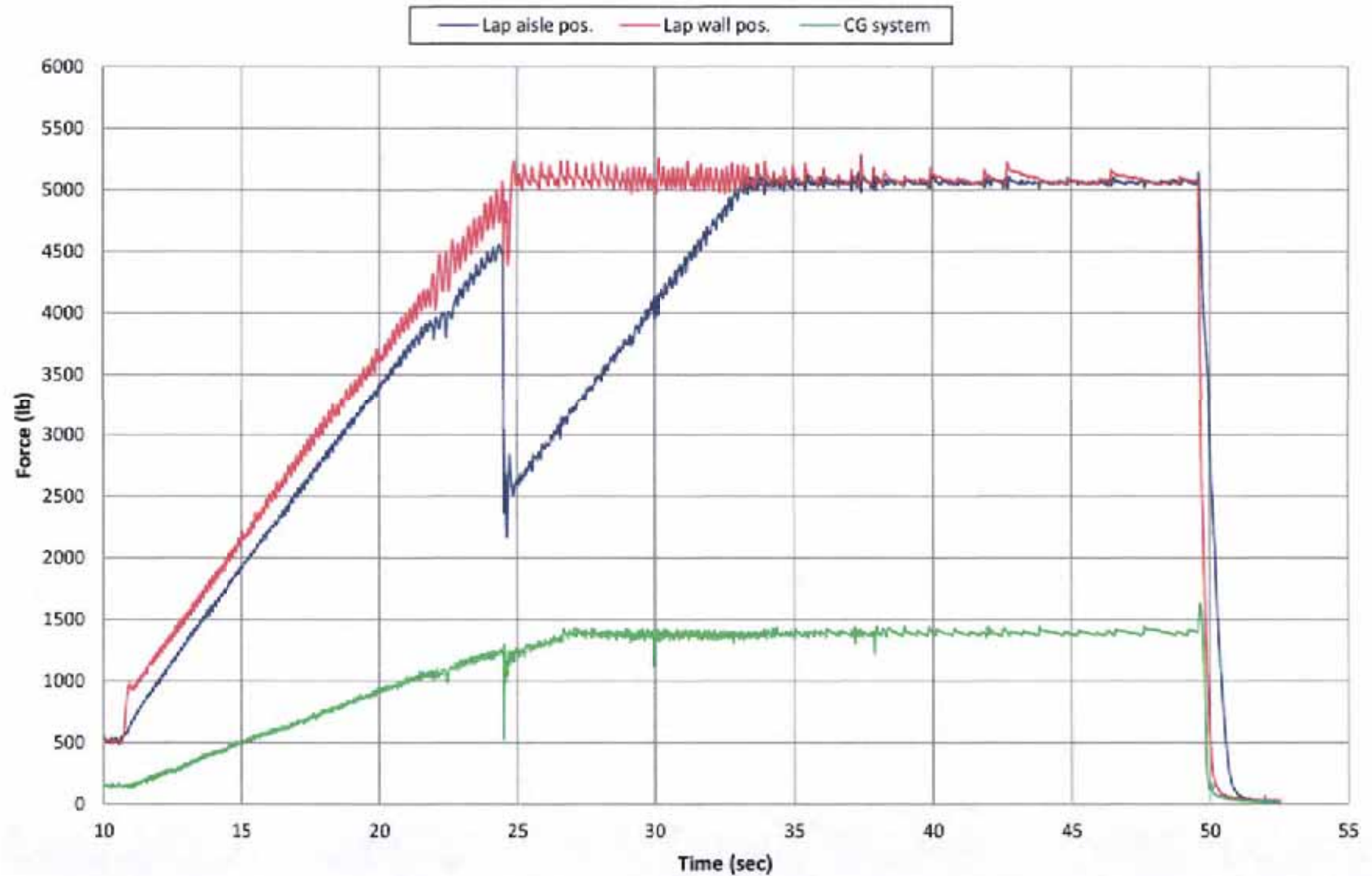
Fixture #.	Description
PL-001	Pull Test Machine
PL-205	Body Block

## Measurement Equipment:

Equipment #.	Description	Last Calibration #
LC-001	Load Cell -15K S.N. Y35083	C1202
LC-002	Load Cell -15K S.N. Y51758	C1202
LC-003	Load Cell -15K S.N. Y68886	C1202

### Force vs. Time

1205BJ\_ FSC, dbl, Foldaway, type I, wheel w. cs seat in Starcraft test buck.





Pre Test Photo



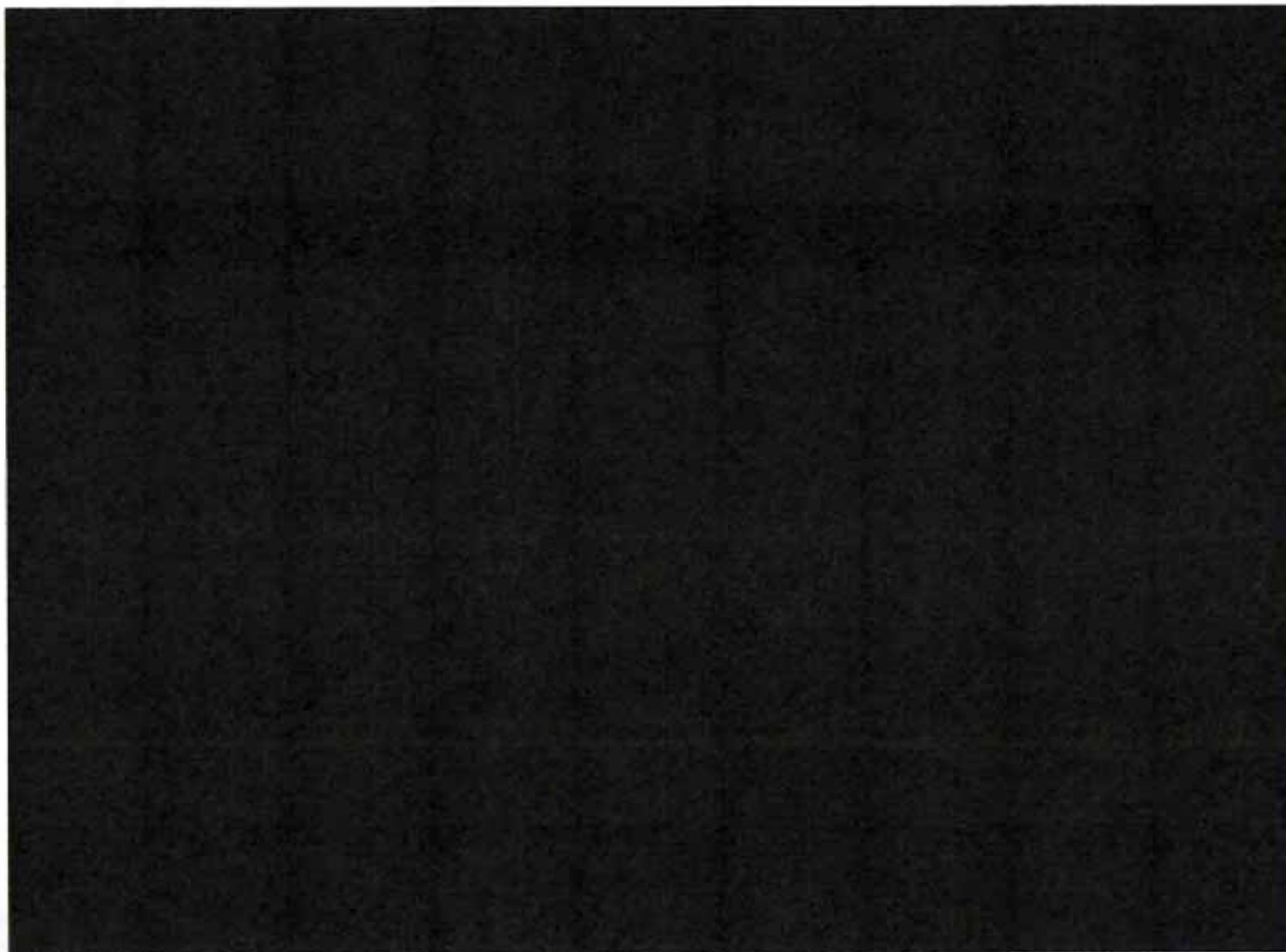
Post Test Photo





Video

Double Click on Video to Play WMV File



FSTL

4545 W. Augusta Blvd.  
Chicago, IL 60651**In-Vehicle Seat Test Request Form**

Customer: FOREST RIVEN Date Generated: 5/21/12  
 Contact Name: CAROL HALL FSC Engineer (if applicable): N/A  
 Contact Phone Number: 18003487440x252 FSC Salesperson (if applicable): N/A  
 Contact E-mail: h111@forest-riven.com FSTL Work Order No.: 1205BJ

What seat will be tested? 2003 DA 3PT Forward (3) w/ w Forward (3) DD X Forward  
 Position of Seat in Vehicle? 3RD ROW w/ WIND-SHIELD 2ND ROW  
 Specific Name of Vehicle (section)? SEACRAFT POS. 2

What tests are requested?  
☒ FMVSS 207  
☒ FMVSS 210  
☒ CMVSS 207  
☒ CMVSS 210  
☐ Other \_\_\_\_\_  
☐ FMVSS 225  
☐ CMVSS 210.1  
☐ CMVSS 210.2  
☐ FSTL\_Tension

What test completion date is needed? ASAPScheduled Completion Date (if different from test date): 6/29/12

Is the test body a complete vehicle?

☐ Yes ☒ No

If "Yes" is checked above, is the vehicle drivable?

☐ Yes ☒ No N/A

Required Drawing: Due to size constraints of our laboratory facilities, we require that you provide a drawing to FSTL showing the overall dimensions of the test vehicle, all locations in the vehicle of the seats to be tested, the locations of any structural tie downs and BR points for the vehicle, and the turning radius, if the vehicle is drivable.

When will the test body be sent? MAY 23, 2012When will the test body arrive? SAME DAYWhat carrier will deliver the test body? LOGISTICS BY BENTLEY  
800-666-0034

Customer Please Note: You are responsible for all shipping and scrap charges for the test vehicle. Test vehicles shall be ready to test before arriving at FSTL. If more than minor modifications are to be made to a test vehicle, FSTL shall perform said modifications at the prevailing hourly rate, plus materials, including but not limited to any assembly, welding, reinforcement, hardware, or supplies. Hardware used to attach the seats to the test platform:

☐ Shall be provided by or ☐ As specified by the customer.

General Understanding of Tests: Tests are destructive and may damage the test vehicle structure, likely rendering the test vehicle unusable. Responsibility for seating systems is that of both the seat supplier and the vehicle OEM. The seat supplier's responsibility consists of meeting all of the established system performance requirements and obtaining and supplying the required test data to the vehicle OEM. The vehicle OEM has the ultimate system responsibility in assuring that all requirements for safe seat applications have been met.

Customer Monitoring of Test: FSTL shall afford you or your designated representative reasonable access to relevant areas of the laboratory for the witnessing of this testing. However, FSTL may restrict the viewing of certain items in these areas in order to maintain the confidentiality of other customers. Will Monitor Testing? ☐ Yes ☒ No N/A

This section is to be filled out by FSTL personnel.

Date Request Received: 5/21/12Received By: J. O'ReillyDate Request Reviewed: 5/21/12Reviewed By: J. O'Reilly

Upon reviewing availability of resources and testing capabilities, FSTL is capable of performing this test as requested:

☒ Yes ☐ No If not, then the reason being: N/A

This Test Request shall be performed by a competent subcontractor (ISO/IEC 17025 Accredited when Required)

Name of Subcontractor: N/AChosen By: ☒ FSTL ☐ Customer N/AIf chosen by FSTL the reason being: ☐ Unforeseen Reasons ☒ Continuing Base/ArrangementUpon receiving a copy of the Review the Customer has been notified in writing of the Testing being Subcontracted: ☒ Yes ☐ No N/ADate Reviewed Request was Submitted to Customer: 5/24/12 Customer review signature: [Signature]



## FSTL Work Order Packet Cover Page

FSTL

4545 W. Augusta Blvd.  
Chicago, IL 60651Work Order Number: 1205BJDate Generated: 5/21/12

Name of Testing Agency Performing Work: FSTL  
 Testing Agency Address: 4545 W. AUGUSTA BLVD  
 Contact Person: DAVID O'MALLEY  
 Telephone: 773-524-2440 x256 Fax: \_\_\_\_\_  
 E-mail: \_\_\_\_\_

Name of Customer Requesting Test: FORREST RIVER  
 Customer Address: 2367 CENTURY DR.  
 Customer Contact: LARRY HALL  
 Telephone: 1-800-348-7440 x252 Fax: N/A  
 E-mail: L.HALL@FORRESTRIVERINC.COM

Manufacturer of Item to be Tested: SEE ATTACHED

Description of Item to be Tested:  
 Attach an assembly drawing and include the assembly drawing number, if available. If no drawing exists, include a sketch describing the assembly. List the fastener types (bolts, washers, and nuts) and sizes, as well as specific amounts and locations to be used. Instructions for the specific mounting configuration to the test fixture must also be included (a drawing or sketch is preferred).

NOTE: Setup of artifacts (drilling holes, fixture fabrication, etc.) is conducted per artifact physical locations as received, not per drawing unless otherwise specifically agreed upon.

Production Model Seat: ☐ Yes ☒ No N/A Production Built Seat: ☐ Yes ☒ No N/A

If 'No' is checked above, describe the construction of the seat: N/A

Item to be tested is a: ☐ Finished Assembly - the artifact is a complete upholstered seat  
☒ Unfinished Assembly - the artifact is a complete seat frame and base frame assembly without foam or cover  
☐ Weldment - the artifact is a complete welded piece without other attachments  
☐ Other (describe) \_\_\_\_\_

The test platform is a: ☐ Complete New Vehicle  
☐ Complete Used Vehicle  
☒ Full - Scale Vehicle Body Section  
☐ Reduced - Scale Vehicle Body Section  
☐ Static Pull Test Machine Base  
☐ Other (describe) \_\_\_\_\_

Reason for Test: NEW FLORIDA DESIGN

ECN Number (if applicable): N/A

Follow-up Test: ☐ Yes ☒ No N/A

If 'Yes' is checked above, list previous tests: N/A

David O'Malley

---

**From:** Larry Hall [lhall@forestriverinc.com]  
**Sent:** Monday, June 25, 2012 12:52 PM  
**To:** David O'Malley  
**Subject:** RE: FSTL

Dave, before you pull the other wheel well seat can I have you change the seat base to frame mounting bolts to ½ fine grade 8.

---

**From:** David O'Malley [mailto:davido@freedmanseat.com]  
**Sent:** Monday, June 25, 2012 12:32 PM  
**To:** Larry Hall  
**Cc:** Miguel Flores  
**Subject:** RE: FSTL

Please follow these FTP instructions

<http://www.freedmanseating.com/fstl/documents/ftpguide.pdf>

I have put all of the pictures, videos, and charts on our FTP site for you to download.

user :: FSTL\_10

password :: XXXXXXXXXXXXXXXX

Dave O'Malley

<http://www.freedmanseating.com/fstl>

Please consider the environment before printing this email.

---

**From:** David O'Malley  
**Sent:** Monday, June 25, 2012 11:25 AM  
**To:** 'Larry Hall'  
**Cc:** Miguel Flores  
**Subject:** RE: FSTL

1205BG was compliant in position A

1205BI was non-compliant in pos C. a bolt failed in the rear, see attached picture.

We will proceed to pos E after lunch.

I have asked our IT dept to setup a FTP user/password for you to download all the pictures, videos, and charts. This should happen shortly.

Dave O'Malley

<http://www.freedmanseating.com/fstl>

Please consider the environment before printing this email.

---

**From:** Larry Hall [mailto:lhall@forestriverinc.com]  
**Sent:** Friday, June 22, 2012 2:29 PM  
**To:** David O'Malley  
**Subject:** RE: FSTL



**FMVSS 207/210 Pull Test Checklist****FSTL**

4545 W. Augusta Blvd.

Chicago, IL 60651

- ☒ Position the Test Vehicle in the Test Area so that it is facing the direction of force application with its centerline parallel within  $\pm 3^\circ$  of the line of force application.
- ☒ Raise and support the vehicle securely on rigid frame members and allow the suspension to hang so that all 4 wheels are approximately 1 inch off the floor surface and the vehicle floor is level.
- ☒ Bolt a tie down plate to each of the four embedded floor anchor sets.
- ☒ Connect a chain with ratcheting tensioner from each of the tie down plates to the nearest secure frame member of the vehicle.
- ☒ Tighten each chain so that a vibration induced in one chain is seen in the other chains. If possible, tighten opposite corners simultaneously to balance the forces.
- ☒ [207 specific] Locate the center of gravity of the seat.
- ☒ [207 specific] Install the seat in the vehicle.
- ☒ [207 specific] Measure the height of the center of gravity of the seat.
- ☒ [207 specific] Adjust the pull test machine beam height in order to apply forces to the seat assembly in the horizontal plane passing through its center of gravity.
- ☒ [207 specific] Select the hydraulic cylinder required to test the seating system.
- ☒ [210 specific] Measure the height of the vehicle floor and calculate the force application angles.
- ☒ [210 specific] Adjust the pull test machine beam heights in order to apply forces to the seat assembly at the required angle.
- ☒ [210 specific] Install seat belts at each designated seating position to be tested. Double each webbing set or substitute wire rope as required.
- ☒ [210 specific] Place the body blocks in each designated seating position and connect the safety belts or wire rope restraints snugly around the body blocks.
- ☒ [210 specific] Pad any areas where webbing may contact the seat frame or body block to prevent abrasion or cutting of the seat belt webbing.
- ☒ [210 specific] Determine the number of hydraulic cylinders required to test the seating system.
- ☒ [210 specific] Using the calculated angles of force application, position the required cylinders on the test machine frame.
- ☒ Note the force application point of the cylinder used for the test and connect the hydraulic supply lines to it.
- ☒ Turn on the hydraulic pump power switch and press the start button.
- ☒ Turn on the power switch for the valve control box.
- ☒ Turn on the monitor, computer power supply backup, and amplifier power, then boot up the computer.
- ☒ Connect the signal input cable from the valve control box to the corresponding output on the computer cabinet.
- ☒ Use the program "6 Cylinder Manual Control (Setup)" to fully extend the hydraulic cylinders that will be used in the test.
- ☒ Attach a load cell to the cylinders and connect the signal output cable to the corresponding input on the computer cabinet.
- ☒ [207 specific] Connect the load cell to the seat at the CG. Remove as much slack from the connection as possible to maximize useful cylinder stroke.
- ☒ [210 specific] Connect a chain from each body block to its corresponding load cell. Remove as much slack from the connection as possible to maximize useful cylinder stroke.
- ☒ Open the program FMVSS 210 1 to 6 Cylinder Real-Timed Logging.
- ☒ [207 specific] Enter the total seat weight to obtain target load values.
- ☒ Select the load cell and cylinder combinations; enter pre-load and target load values; type a description of the tested item and the load cell assignments in the comment section of the program.
- ☒ Type a description of the tested item and the load cell assignment in the comment section of the program.
- ☒ Select a file name according to FSTL conventions and type it over the XXYYZ in the File Path box.
- ☒ Verify all connections, tie downs, and bolted joints.
- ☒ Ensure the area is safe and clear of onlookers.
- ☒ Run Test.

## Test Setup Review Checklist

FSTL

4545 W. Augusta Blvd.  
Chicago, IL 60651

OK	N/A	
✓		The correct fasteners are used to connect the leg/pedestal to the floor
	✓	The correct fasteners are used to connect the leg/pedestal to the base frame
✓		The correct fasteners are used to connect the seat base frame/pedestal to the wall
✓		The correct fasteners are used to connect the seat frame to the base frame
	✓	All strut nuts are fully engaged in base frame, wall, and/or floor tracks
	✓	The leg is placed at the correct distance from the wall
	✓	The legs are placed the correct distance apart and from the end of the base frame
✓		All required add-on braces, brackets, reinforcements, etc. have been added correctly
✓		All fasteners have been tightened to the correct torque specification
✓		The seat back angle, pedestal height, slide track position, etc. are adjusted correctly
✓		The correct seat weight has been used to calculate the CG pull forces
✓		The seat system center of gravity location is correct
✓		The target loads for the test are correct
✓		The target load ramp rate is correct
✓		Angles of force application are correct
✓		The seat belts are routed correctly around the body blocks

NOTE : Please provide test lab personnel with specific location[s] to include photographs.

MP

By my signature, I have reviewed the seat assembly to be tested and the test parameters, and find them to be correct. Correcting information gathered on FSTL Records requires the originator to correct the error by lining out the error, provide the correction, and then initial and date the correction.

Seat Designer/Project Engineer

Matt M

Date:

6/25/12

FSTL Personnel

D. O'Malley

Date:

6/25/12

Note: Tests will not be conducted without a copy of this form signed, dated, and completed by the seat designer or project engineer.

Test Performed By:

M. J. Galt

Date:

6/25/12

Test Witnessed By:

N/A

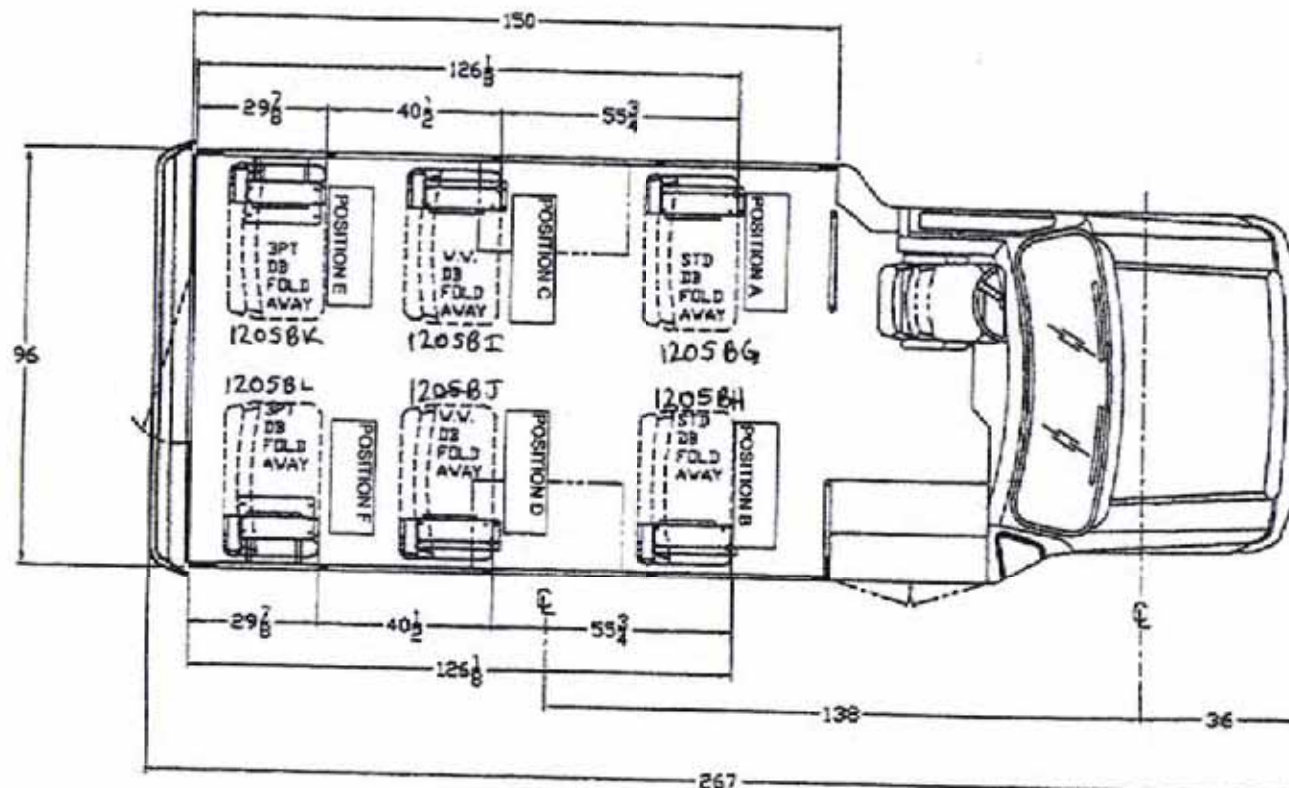
Date:

N/A

Work Order No.:

1205BJ





**RECEIVED**

By David I O'Malley at 2:07 pm, 5/22/12

SEAT FRAMES  
FOR TESTING.

DEALER APPROVAL

☐ APPROVED

CUSTOMER SIGNATURE

E-350 11,500 GVWR

SCALE  
IN INCHES



**STARCRRAFT BUS**



2011 ALLSTAR WITH NEW HAT  
CHANNELS 138 INB 20 FT JAN 2012

THIS DRAWING AND THE INFORMATION THEREON ARE THE EXCLUSIVE PROPERTY OF STARCRRAFT BUS, A DIVISION OF FOREST RIVER. IT SHALL NOT BE COPIED OR DUPLICATED IN ANY MANNER, NOR SHALL IT BE SUBMITTED TO OUTSIDE PARTIES FOR EXAMINATION WITHOUT OUR WRITTEN CONSENT. IT IS LOANED FOR USE WITH REFERENCE TO WORK UNDER CONTRACT WITH, OR PROPOSALS SUBMITTED BY,

DESCRIPTION OF CHANGE

BY

CHK

DATE

EDN NO.

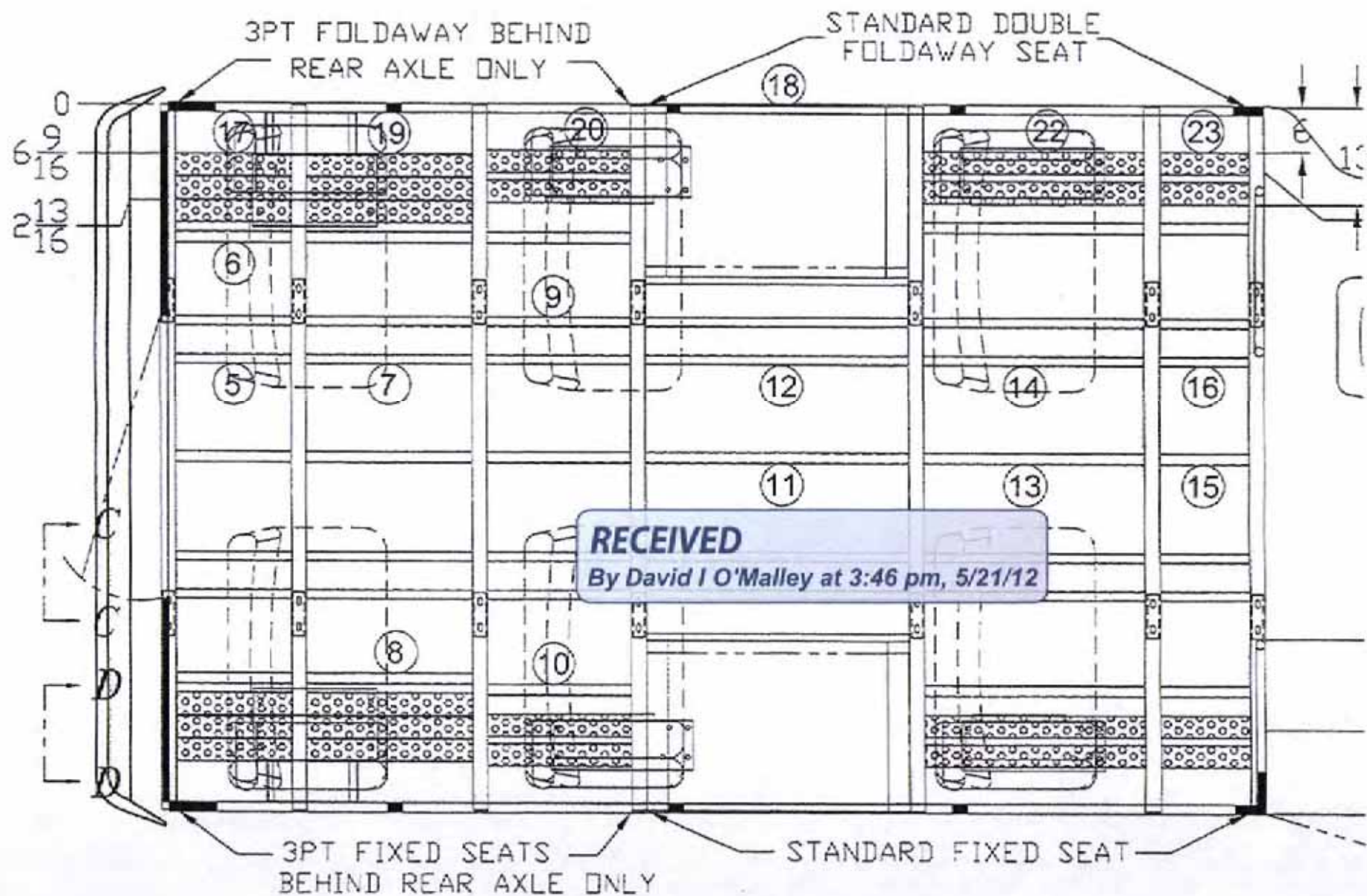
TELEPHONE PLACES

21-0000000000

VOICED OTHER

1/8" 1/16" DATE 5/25/12

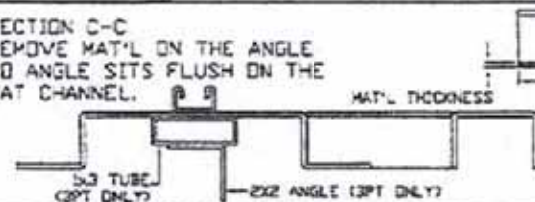
1" 1/2" NAME KOB





USAGE: 2010 FORD 138" WHEEL BASE 150" BODY, STANDARD FLOOR

▼ DETAIL CONTROL ITEM E DRIVE/MIKEXLINE/2010 ALLSTAR WITH NEW HAT CHANNELS 138 WB 20FT.DWG

SECTION C-C  
REMOVE MAT'L ON THE ANGLE  
SO ANGLE SITS FLUSH ON THE  
HAT CHANNEL.

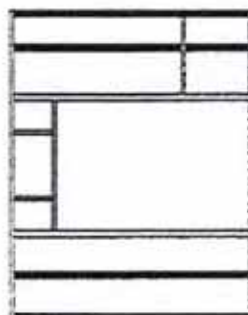
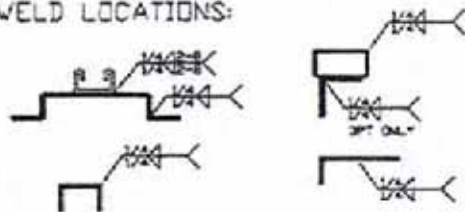
□ = 14GA. 6-1/4" HAT CHAN.  
OPTIONAL HAT CHAN. ONLY

□ = 14GA. 1" x 3" TUBE  
FOR FOLDAWAYS

□ = 14GA. 1" x 3" ANGLE  
FOR L-TRACK

□ = 14GA. 1" x 1-1/2" C-CHAN.  
FOR CENTER & OUTER SUPPORT

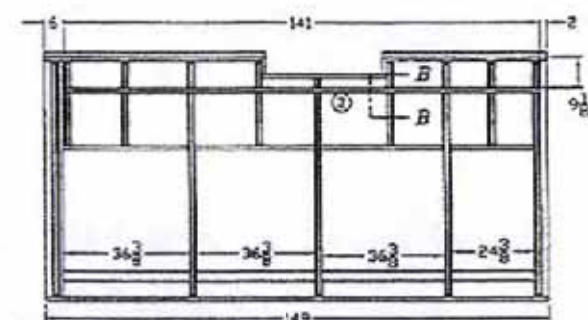
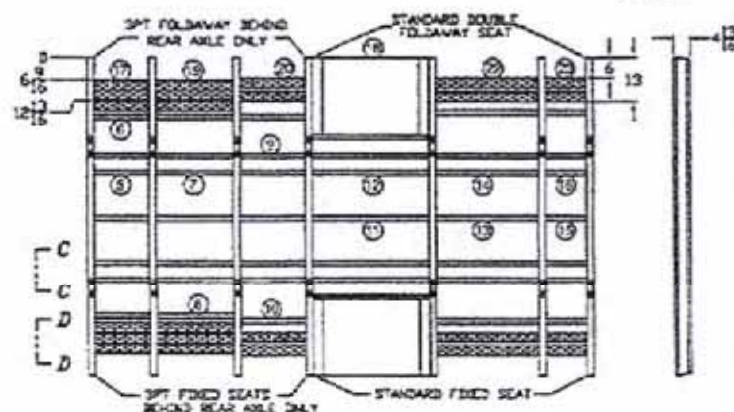
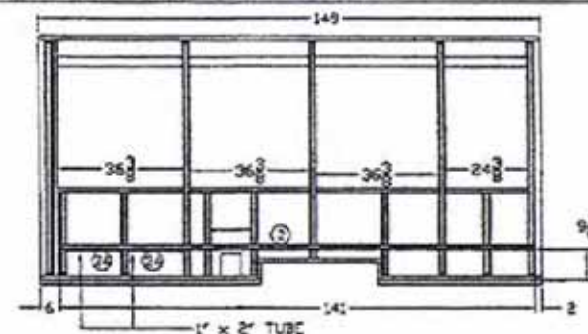
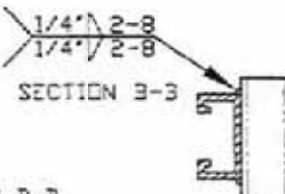
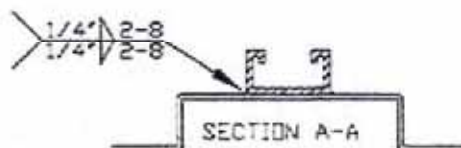
WELD LOCATIONS:



NOTES:

1- DRAWING VIEWED FROM INTERIOR SIDE OF UNIT.

24	2	TUBE 1" x 3" x 15-15/16"lg.
23	4	TUBE 1" x 3" x 12-1/8"lg.
22	4	TUBE 1" x 3" x 30"lg.
21	0	
20	4	TUBE 1" x 3" x 21-1/4"lg.
19	6	TUBE 1" x 3" x 22-3/8"lg.
18	2	WHEEL VELL.
17	8	TUBE 1" x 3" x 15-1/8"lg.
16	2	HAT CHANNEL 12-1/8"lg.
15	3	ANGLE 1" x 3" x 12-1/8"lg.
14	2	HAT CHANNEL 30"lg.
13	3	ANGLE 1" x 3" x 30"lg.
12	2	HAT CHANNEL 35-5/8"lg.
11	3	C-CHANNEL 1" x 3" x 35-5/8"lg.
10	2	ANGLE 1" x 3" x 19-3/4"lg.
9	2	HAT CHANNEL 19-3/4"lg.
8	3	ANGLE 1" x 3" x 22-3/8"lg.
7	2	HAT CHANNEL 22-3/8"lg.
6	3	ANGLE 1" x 3" x 15-1/8"lg.
5	2	HAT CHANNEL 16-1/8"lg.
4	0	
3	0	
2	2	SEAT TRACK 141"lg.
1	0	



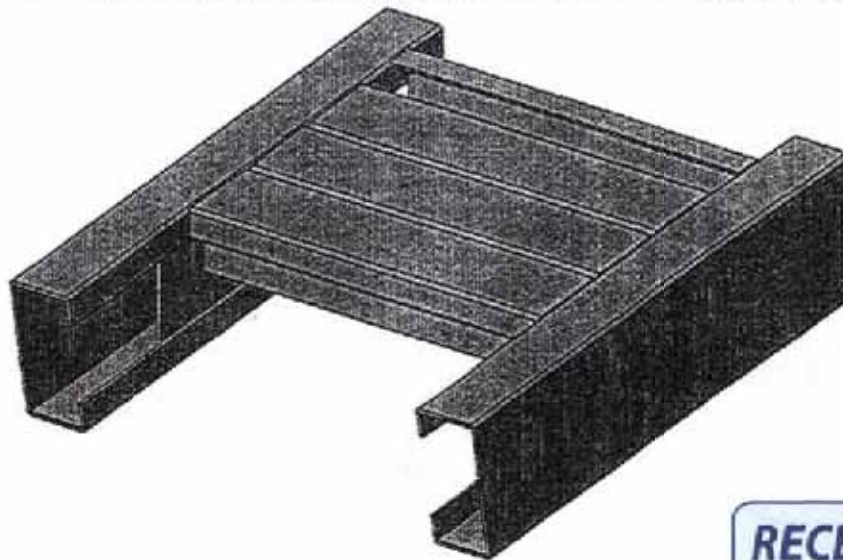
REF. NO. QTY MATERIAL DESCRIPTION

This drawing and the information thereon are property of Starcraft Bus & Mobility. It shall not be duplicated in any manner, nor shall it be submitted for examination without our written consent. For use with reference to work under contract with Starcraft Bus & Mobility.

**RECEIVED**

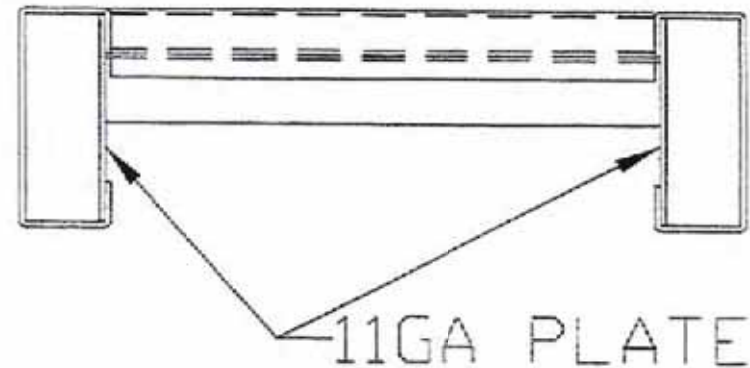
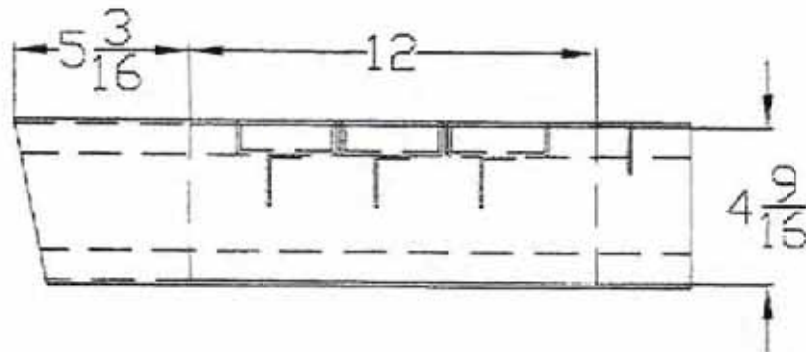
By David I O'Malley at 3:46 pm, 5/21/12

Starcraft Bus  
Division of Forest River, Inc.  
TITLE Layout, Seat Track  
138" Wheel Base 150" Body  
DATE 04/13/12  
BY 154 MDK  
2011 ALL STAR WITH NEW HAT CHANNELS 138 WB 20 FT APP. 2012



**RECEIVED**

By David I O'Malley at 3:46 pm, 5/21/12



**STARCRAFT BUS**  
a division of Forest River, Inc.

DATE 04/25/12

OFFICE LOCATION

Drawn

Checked

1 000 1 000

1 000 1 000

1 000 1 000

TEST JACK WITH ADDED  
ANGLE UNDER DOUBLE FOLDAWAY TUBES

Drawn

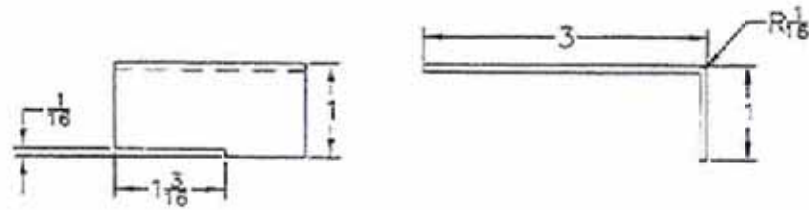
200 ALLSTAR WITH MEV HAT CHANNELS  
138 V2 25 FT JAN 2012 30 D SIDE

Sheet 1 of 1

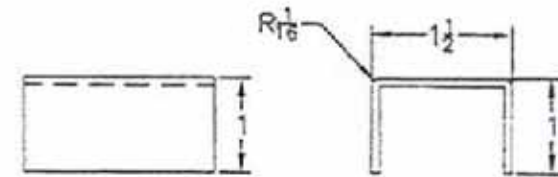
THE DRAWING AND THE INFORMATION HEREON  
ARE THE SOLE PROPERTY OF THE DRAWING  
ENGINEER. IT SHALL NOT BE LOANED, REPRODUCED,  
COPIED, OR IN ANY MANNER BE USED FOR ANY  
OTHER PROJECT WITHOUT THE WRITTEN  
CONSENT OF THE DRAWING ENGINEER. IT IS NOT  
TO BE USED FOR ANY OTHER PROJECT WITHOUT THE  
WRITTEN CONSENT OF THE DRAWING ENGINEER.

7/25/11

3" CMC



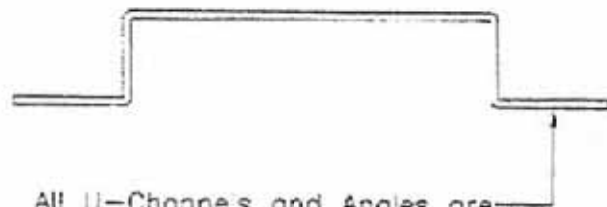
14Ga. STEEL



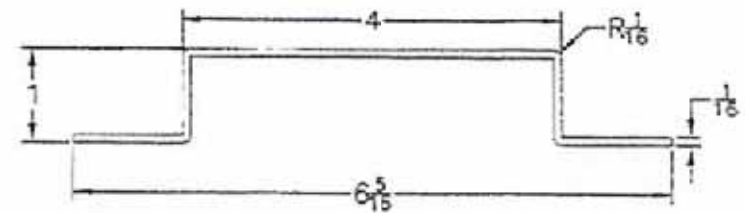
16Ga. STEEL

**RECEIVED**

By David I O'Malley at 3:46 pm, 5/21/12



All U-Channels and Angles are notched to fit over Hat Channel



16Ga. STEEL

**STARCRAFT BUS**

a division of Forest River, Inc.

DATE: 05/23/11

BY: MOK

U-CHANNEL AND ANGLE AND HAT CHANNEL FOR TRUE FLAT FLOOR BUSSES

2011 ALLSTAR TRUE FLAT FLOOR PART CALLOUTS

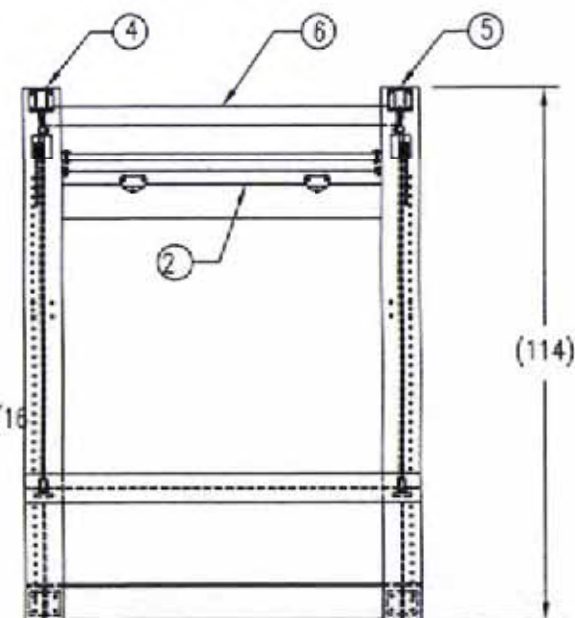
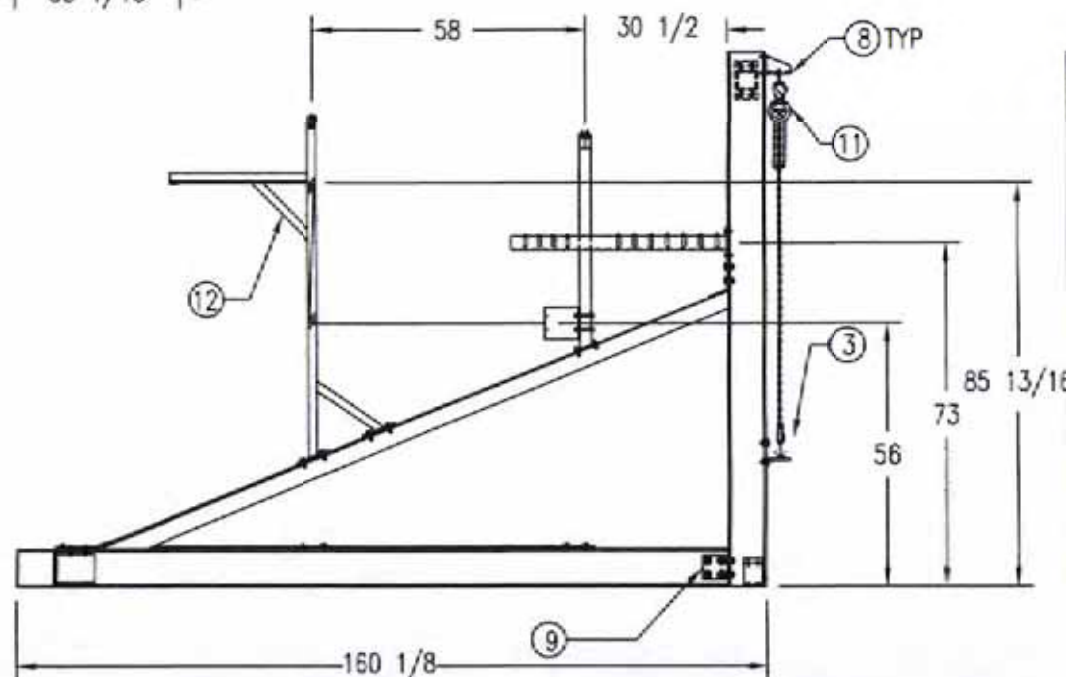
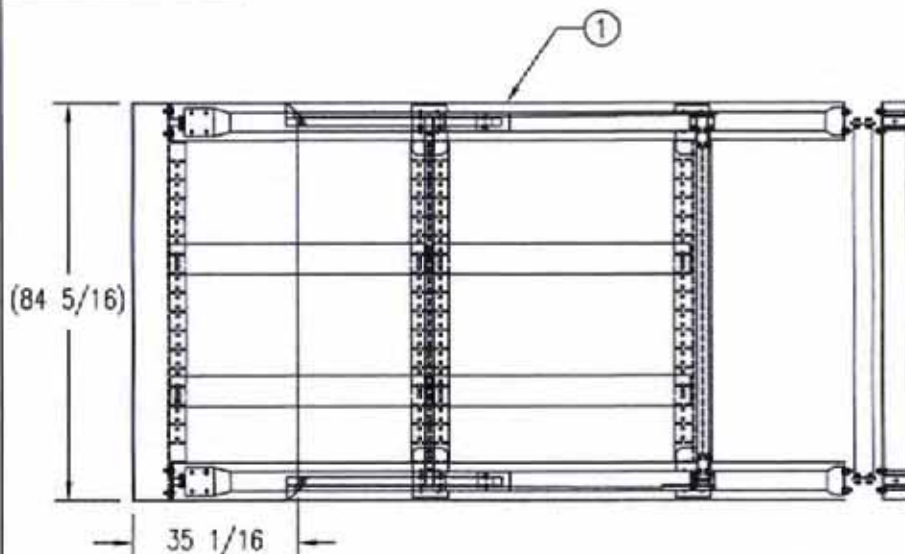
1 of 1





PL-001

Work Order No.: 1205B-1

NOT TO BE DISCLOSED OR REPRODUCED WITHOUT PERMISSION  
PROPERTY OF THE FREEDMAN SEATING COMPANY.

ITEM	QTY	PART #	DESCRIPTION
1	1	PL-002	PULL TEST MACHINE BASE ASSEMBLY
2	1	PL-005	CYLINDER SUPPORT ASSEMBLY
3	3	PL-034	CYLINDER SUPPORT BEAM
4	1	PL-035	VERTICAL SUPPORT 1
5	1	PL-036	VERTICAL SUPPORT 2
6	1	PL-037	UPPER CROSS BAR
7	2	PL-038	BRACE SUPPORT BEAM
8	2	PL-039	HOIST OVERHANG SUPPORT
9	1	PL-033	BACK ANGLE BRACKET
10	1	PL-045	CHAIN HOLDER
11	1		HAND OPERATED CHAIN HOIST, CM SERIES 622, 1/2 TON.
12	1	PL-430	PULL KILL SWITCH ASSEMBLY

DESIGN: Page 18 of 23

				Tolerance Unless Otherwise Specified		Material:		Freedman Seating Co.		4545 W. Augusta Chicago, IL 60651	
				FRACTIONAL 1/32 ±1/32		SPECIFICATIONS:		Part Name		PULL TEST MACHINE	
				DECIMAL .001 ±0.02"		Drawn by: MF		Date: 05/05/04		DO NOT SCALE DRAWING	
				ANGULAR ±1°				Drawing No.		PL-001	
Rev. Level	Description of Change	By	Date	ECN #	Rev. Level	Description of Change	By	Date	ECN #	Rev.	A
					A	RELEASE TO SYSTEM		AS 10/04 4087			



The American Association for Laboratory Accreditation

## *Accredited Laboratory*

A2LA has accredited

**FSTL**

*Chicago, IL*

for technical competence in the field of

**Mechanical Testing**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-LAF Communiqué dated 8 January 2009).

Presented this 19<sup>th</sup> day of May 2011.



  
\_\_\_\_\_  
President & CEO  
For the Accreditation Council  
Certificate Number 2324.01  
Valid to June 30, 2013

*For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.*





"World Class Accreditation"

The American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

FSTL  
4545 W. Augusta Blvd.  
Chicago, IL 60625  
Dave Klopp (773) 524 2440

## MECHANICAL

Valid To: June 30, 2013

Certificate Number: 2324.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on transportation seating products:

<u>Test</u>	<u>Test Methods</u>
Seating Systems: Tension (0 to 9000) pounds	FMVSS 571.207; CMVSS 207; FSTL Tension Test Procedures LP03, LP25
Seat Belt Assembly Anchorages: Tension (0 to 9000) pounds	FMVSS 571.210; CMVSS 210; FSTL Tension Test Procedures LP03, LP25
Child Restraint Anchorage Systems: Tension (0 to 9000) pounds Displacement (0 to 36) inches	FMVSS 571.225; CMVSS 210.1, 210.2; FSTL Tension Test Procedures LP03, LP25 FSTL Displacement Test Procedure LP01
Compression (0 to 5000) lbs	FSTL Compression Test Procedures LP04, LP23, LP25
Cyclic Fatigue: (100 ± 250) pounds (0 ± 12) inches (0 ± 10) hertz	FSTL Fatigue Test Procedures LP02, LP24

Also using similar test methods based on the parameters listed above.

# Certificate Of Calibration

Equipment Calibration was performed at the address below for

**FREEDMAN SEATING**

4545 W. AUGUSTA BLVD.

CHICAGO, IL 60651-

Date of Calibration

**Thursday, February 09, 2012**

Calibration Performed By

**Cal-Rite Corporation, Naperville, IL**

**Machine Profile** Customer #: LC-003

Manufacturer: RICE LAKE Capacity: 2000 Next Calibration: 09-Aug-2012

Model: RL20001-T10-15K Serial #: Y68886-T-L Temp/Humidity: 65.2/13.4

**Force Calibration Result** Language: Lbs Accuracy 0.5 %

Range	Verification Range	Uncertainty %	Maximum Error %
2000	200 - 2000	0.30	0.40

CAL-RITE CORPORATION HAS CALIBRATED THE TESTING EQUIPMENT DESCRIBED ABOVE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS (B-CR-21, DAVID 1792 AND ISO 10012) AND MIL-STD 883A. ALL VERIFICATION DEVICES CALIBRATED IN ACCORDANCE WITH ASTM E74 PRACTICES AND ARE TRACEABLE TO NIST. THIS CERTIFICATE RELATES ONLY TO THE ITEMS CALIBRATED.

THE UNCERTAINTY OF THE CALIBRATION PROCESS WAS ESTIMATED AT THE 95% CONFIDENCE LEVEL (K=2).  
THE EQUIPMENT LISTED ABOVE HAS MET ALL APPLICABLE CLAUSES OF THE GOVERNING SPECIFICATION UNLESS NOTED BELOW.

- |   |   |
|---|---|
| <input type="checkbox"/> 10.1 Lower Limit below 200X Resolution       | <input type="checkbox"/> 10.5 Does not return to zero in 30 seconds       |
| <input type="checkbox"/> 10.3 Less than 5 readings taken below 10% FS | <input type="checkbox"/> 18.3 Does not meet +/- 1 % accuracy requirement. |



Certificate # 866,01  
Calibration

Specification: ASTM E 4-10

Calibration Procedure: CR100 Rev 13

HATHAWAY, NATHAN 2/16/2012

Service Order #: 12378 - 27

SERVICE ENGINEER DATE

As a mutual protection to the purchaser, the public, and ourselves, all Cal-Rite calibration reports are submitted as the confidential property of the purchaser, and any authorization for publication of statements, conclusions, or extractions from or regarding our reports is reserved pending our prior written approval.

STD1009

Page 1 of 2

Customer PO # V98516-00

LC-03-T-Low



# Certificate Of Calibration

Equipment Calibration was performed at the address below for

**FREEDMAN SEATING**  
4545 W. AUGUSTA BLVD.  
CHICAGO, IL 60651-

Date of Calibration

Thursday, February 09, 2012

Calibration Performed By

Cal-Rite Corporation, Naperville, IL

**Machine Profile** Customer #: LC-002

Manufacturer: RICE LAKE Capacity: 9000 Next Calibration: 09-Aug-2012  
Model: RL20001-T10- Serial #: Y51758-T Temp/Humidity: 64.6/12.8

**Force Calibration Result** Language: Lbs Accuracy 0.5 %

Range	Verified Force Range	Uncertainty %	Maximum Error %
9000	2000 - 9000	0.30	0.33

CAL-RITE CORPORATION HAS CALIBRATED THE TESTING EQUIPMENT DESCRIBED ABOVE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS (18-CFR-21, ISO/IEC 17025 AND ISO 10012-1 AND MIL-STD 4613A). ALL VERIFICATION DEVICES CALIBRATED IN ACCORDANCE WITH ASTM-E74 PRACTICES AND ARE TRACEABLE TO NIST. THIS CERTIFICATE RELATES ONLY TO THE ITEMS CALIBRATED.

THE UNCERTAINTY OF THE CALIBRATION PROCESS WAS ESTIMATED AT THE 95% CONFIDENCE LEVEL (K=2).  
THE EQUIPMENT LISTED ABOVE HAS MET ALL APPLICABLE CLAUSES OF THE GOVERNING SPECIFICATION UNLESS NOTED BELOW.

- ☐ 10.1 Lower Limit below 200X Resolution ☐ 10.5 Does not return to zero in 30 seconds  
☐ 10.3 Less than 5 readings taken below 10% FS ☐ 18.3 Does not meet +/- 1 % accuracy requirement.



Certificate # 866.01  
Calibration

Specification: ASTM E 4-10

Calibration Procedure: CR100 Rev 13

HATHAWAY, NATHAN 2/16/2012

Service Order #: 12378 - 24

SERVICE ENGINEER DATE

As a mutual protection to the purchaser, the public, and ourselves, all Cal-Rite calibration reports are submitted to the confidential property of the purchaser, and any authorization for publication of statements, conclusions, or extractions from or regarding our reports is reserved pending our prior written approval.

STDMM1009

Page 1 of 2

Customer PO # V98516-00

LC-02-1



# Certificate Of Calibration

Equipment Calibration was performed at the address below for

**FREEDMAN SEATING**  
4545 W. AUGUSTA BLVD.  
CHICAGO, IL 60651-

Date of Calibration

Thursday, February 09, 2012

Calibration Performed By

Cal-Rite Corporation, Naperville, IL

Machine Profile Customer #: LC-001

Manufacturer: RICE LAKE Capacity: 9000 Next Calibration: 09-Aug-2012  
Model: RL20001-T10-15K Serial #: Y35083-T Temp/Humidity: 64.9/13.0

Force Calibration Result Language: Lbs Accuracy 0.5 %

Range	Verified Value	Uncertainty %	Maximum Error %
9000	2000 - 9000	0.30	-0.47

CAL-RITE CORPORATION HAS CALIBRATED THE TESTING EQUIPMENT DESCRIBED ABOVE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS (18-CFR-21, ISO/IEC 17025 AND ISO 10012-1 AND MIL-STD 45663A). ALL VERIFICATION DEVICES CALIBRATED IN ACCORDANCE WITH ASTM E74 PRACTICES AND ARE TRACEABLE TO NIST. THIS CERTIFICATE RELATES ONLY TO THE ITEMS CALIBRATED.

THE UNCERTAINTY OF THE CALIBRATION PROCESS WAS ESTIMATED AT THE 95% CONFIDENCE LEVEL (K=2). THE EQUIPMENT LISTED ABOVE HAS MET ALL APPLICABLE CLAUSES OF THE GOVERNING SPECIFICATION (UNLESS NOTED BELOW).

- ☐ 10.1 Lower Limit below 200X Resolution ☐ 10.5 Does not return to zero in 30 seconds  
☐ 10.3 Less than 5 readings taken below 10% FS ☐ 18.3 Does not meet +/- 1 % accuracy requirement.



Certificate # 866.01  
Calibration

Specification: ASTM E 4-10

Calibration Procedure: CR100 Rev 13

HATHAWAY, NATHAN 2/16/2012

Service Order #: 12378 - 23

SERVICE ENGINEER DATE

As a mutual protection to the purchaser, the public, and ourselves, all Cal-Rite calibration reports are submitted as the confidential property of the purchaser, and any authorization for publication of statements, conclusions, or extensions from or regarding our reports is reserved pending our prior written approval.

STD1009

Page 1 of 2

Customer PO # V98516-00

LC-09-T-000  
LC-01-T



## Founded in 1972

The fastest-growing vehicle lighting manufacturer in the U.S., Optronics International attributes its success to delivering better value, better options and better lighting to its customers. Optronics International is a premier worldwide manufacturer of industrial and commercial vehicle safety lighting products. Optronics specializes in interior and exterior LED and incandescent lighting for the HD, trailer, RV, marine, and transit vehicle markets.

## ISO Certified

Optronics is headquartered in Tulsa, Oklahoma, with an ISO/TS 16949:2009 certified manufacturing facility in Annan District, Tainan, Taiwan, and additional manufacturing capabilities in its ISO 9001:2008 certified facility in Muskogee, Oklahoma. The company has an ISO 9001:2008 certified distribution facility in Goshen, Indiana, as well as distribution through its location in Ontario, Canada.

## Lifetime LED Warranty

ALL Optronics LED lighting is now covered by a one-diode lifetime warranty that replaces the lamp if even one diode fails.



Muskogee, OK



Goshen, IN



Tainan City, Taiwan





MCL66AB

## MCL66 SERIES

### Sealed LED Surface Mount Marker/Clearance Lights

- Select from 6-LED and 2-LED models in amber and red
- Sonically sealed, waterproof
- Surface mount, mounts on 3" centers
- Includes both lead and ground wire
- MCL166 series lights include a gasket and wire outlet grommet

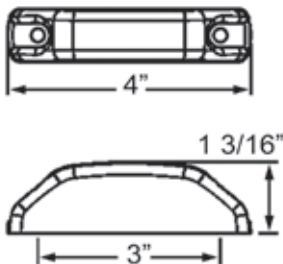
BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>YELLOW</b>			
MCL66AB	MCL66ABP	6-LED, 12V	20



MCL66RB

<b>RED</b>			
MCL66RB	MCL66RBP	6-LED, 12V	20

<b>ACCESSORIES</b>			
A66GB	A66GBP	Gasket, black	100



FMVSS	P2
MATERIALS	Polycarbonate lens and housing
VOLT/AMP	12.8VDC - 0.057A
WT/DIMS	.088 lbs. / 4" x .875" x 1.188"
WARRANTY	Lifetime LED Warranty

## STL43 SERIES

### 4" Round Sealed LED Lights

- Sonically sealed, waterproof
- Kits include grommet and plug
- Mount in any 360 degree position
- Available in 12V and 24V models
- Available with standard PL-3 or optional weathertight connection



STL43RB

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
----------	--------------	-------------	-----

#### RED STOP/TURN/TAIL LIGHT - 10 DIODES

STL43RB	STL43RBP	PL-3 connection, 12V	10
---------	----------	----------------------	----

#### YELLOW PARKING/TURN SIGNAL - 10 DIODES

STL43AB	STL43ABP	PL-3 connection, 12V	10
---------	----------	----------------------	----

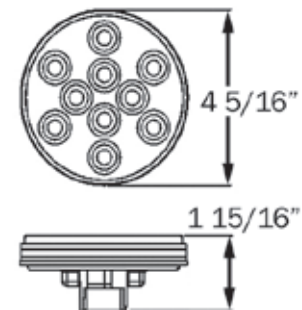
#### ACCESSORIES

A45GB	A45GBP	Grommet	50
-------	--------	---------	----



STL43AB

FMVSS	Red S T I P2; Yellow I6 P
MATERIALS	Polycarbonate lens and housing
VOLT/AMP	Red: 12.8VDC - .360A Stop/Turn, .030A Tail Yellow: 12.8VDC - .310A Turn, .046A Parking
WT/DIMS	.265 lbs. / 4.313" x 4.313" x 1.938"
WARRANTY	Lifetime LED Warranty



HOLE CUT-OUT: 4.5"

LED SEALED STOP/TURN/TAIL &  
PARKING/TURN SIGNALS



**BUL11 SERIES****4" Round Sealed Clear  
DOT LED Back-Up Lights**

- Sonically sealed, waterproof
- Certified for back-up light function when installed as pair in two-lamp system [SAE (2)R]
- Available in grommet and flange mount models
- Grommet mount version available with standard 2-pin, or optional weathertight connection
- Grommet mount version available in 12V and 24V

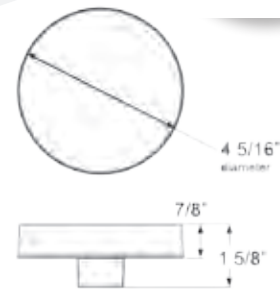


BUL11CB

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
----------	--------------	-------------	-----

**CLEAR BACK-UP LIGHTS - 10 DIODES**

BUL11CB	BUL11CBP	12V, two-pin connection	10
---------	----------	-------------------------	----

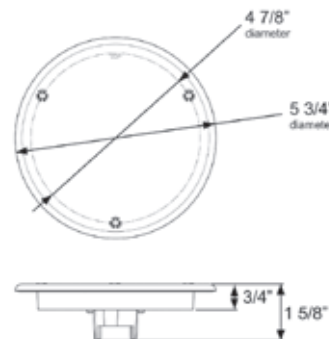


HOLE CUT-OUT: 4.5"

**ACCESSORIES**

A45GB	A45GBP	Grommet	50
-------	--------	---------	----

FMVSS	(2) R
MATERIALS	Polycarbonate lens and housing
VOLT/AMP	12.8VDC - 0.26A
WT/DIMS	BUL11CB/CKB: .309 lbs. / 4.313" x 4.313" x 1.625"
	BUL11CMB/CM24B: .309 lbs. / 4.313" x 4.313" x 1.625"
	BUL11CBX: .353 lbs. / 5.75" x 5.75" x 1.625"
WARRANTY	Lifetime LED Warranty



HOLE CUT-OUT: 4.5"



**STL90 SERIES****7" Round LED Transit Lights**

- Sonically sealed, waterproof
- Surface mount light with mounting gasket
- Hard wired with separate ground wire
- Available in 12V and 12-24V models



BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
----------	--------------	-------------	-----

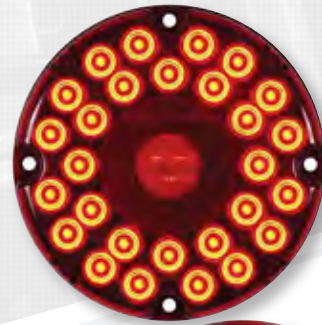
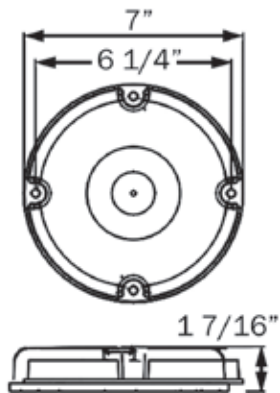
**RED STOP/TURN/TAIL LIGHT - 31 DIODES**

STL90RB	STL90RBP	Stop/turn/tail light, 12V	5
---------	----------	---------------------------	---

**YELLOW TURN SIGNAL - 31 DIODES**

STL90AB	STL90ABP	Parking/turn signal, 12V	5
---------	----------	--------------------------	---

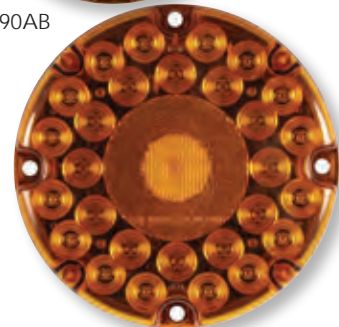
FMVSS	Red S2 I6 T2 P2 A; Yellow I6 P2 A
MATERIALS	Polycarbonate lens and housing
VOLT/AMP	Red: 12.8VDC - .243A Stop/Turn, .046A Tail Yellow: 12.8VDC - .275A Turn, .042A Parking
WT/DIMS	.970 lb. / 7" x 7" x 1.438"
WARRANTY	Lifetime LED Warranty



STL90RB



STL90AB



**LPL12 SERIES****3/4" Sealed LED License Light**

- Sealed, waterproof
- Meets SAE J587 when properly mounted using brackets listed below
- Design includes both lead and ground wire



LPL12CB

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>LICENSE LIGHT - 2 DIODES</b>			
LPL12CB	LPL12CBP	Light with .180 female barrels	20

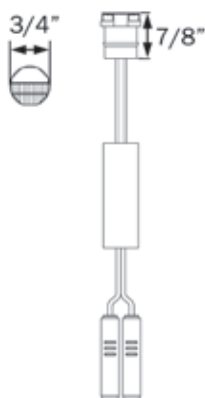
Bracket with gasket, A11GLPB grommet

**ACCESSORIES**

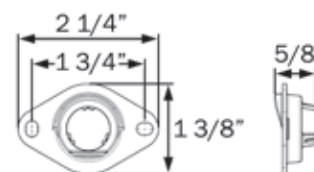
A11BLPB	A11BLBP	Black flush mount bracket	50
---------	---------	---------------------------	----



FMVSS	L
MATERIALS	Polycarbonate lens and housing
VOLT/AMP	12.8VDC - 0.11A
WT/DIMS	.022 lb. / 0.74" x 0.74" x .938"
WARRANTY	Lifetime LED Warranty



LPL12CB



A11GLPB

**MCL48 SERIES****LED Intermediate Side Marker Light  
with Supplemental Mid-Ship Turn**

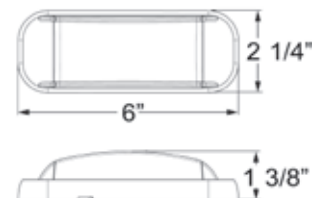
- Sonically sealed, waterproof
- Surface mount, mounts on 4-13/16" centers
- Includes both lead and ground wires

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>YELLOW - 16 DIODES</b>			
MCL48AB	MCL48ABP	Light	20
<b>ACCESSORIES</b>			
A48CB	A48CBP	Chrome bezel	50

FMVSS	P2
MATERIALS	Polycarbonate lens and housing
VOLT/AMP	12.8VDC - Side marker .074A; Turn signal .248A
WT/DIMS	.221 lbs. / 6" x 2.25" x 1.375"
WARRANTY	Lifetime LED Warranty



MCL48AB





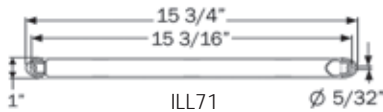
## ILL70/71/72 SERIES

### Opti-Brite™ LED Interior Strip Lights for Surface Mount



ILL71CB

- Low profile, slimline lights – only 1" wide by 5/8" thick
- Hard wired design includes both lead and ground wires
- Select from 9-inch, 16-inch and 22-inch strip lights and 11" and 18" awning lights
- Sealed, waterproof



#### 16" WHITE LED STRIP LIGHT - 18 DIODES

ILL71CB	ILL71CBP	Strip light	20/10
---------	----------	-------------	-------

#### MATERIALS

Polycarbonate lens and housing

#### VOLT/AMP

ILL70: 12.8VDC - .150A

ILL71: 12.8VDC - .300A

ILL72: 12.8VDC - .480A

#### WT/DIMS

ILL70: .154 lb. / 9.625" x 1" x .625"

ILL71: .187 lb. / 15.75" x 1" x .625"

ILL72: .210 lb. / 21.875" x 1" x .625"

#### WARRANTY

Lifetime LED Warranty

**Raw lumen output:** 370 lm

**Effective lumen output:** 342 lm

## ILL31/32/35 SERIES

### LED Low Profile Dome Lights

- Low profile dome lights for semi-recess or surface mount
- Durable steel housing and replaceable polycarbonate lens
- Hard wired design includes power and ground wires
- Select from standard diode or SMD LED models



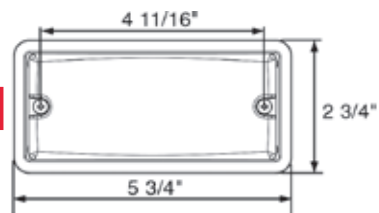
#### SURFACE MOUNT DOME LIGHT - 10 DIODES

ILL32CB	ILL32CBP	SMD LED	10
ILL32CPG	-	SMD LED, .180 male bullets	10

**Raw lumen output:** 70 lm

**Effective lumen output:** 53 lm

<b>MATERIALS</b>	Polycarbonate lens, plated steel housing
<b>VOLT/AMP</b>	12.8VDC - .024A
<b>WT/DIMS</b>	ILL31/35: .243 lb. / 5.75" x 2.75" x .938"
	ILL32: .243 lb. / 5.75" x 2.75" x .75"
<b>WARRANTY</b>	Lifetime LED Warranty

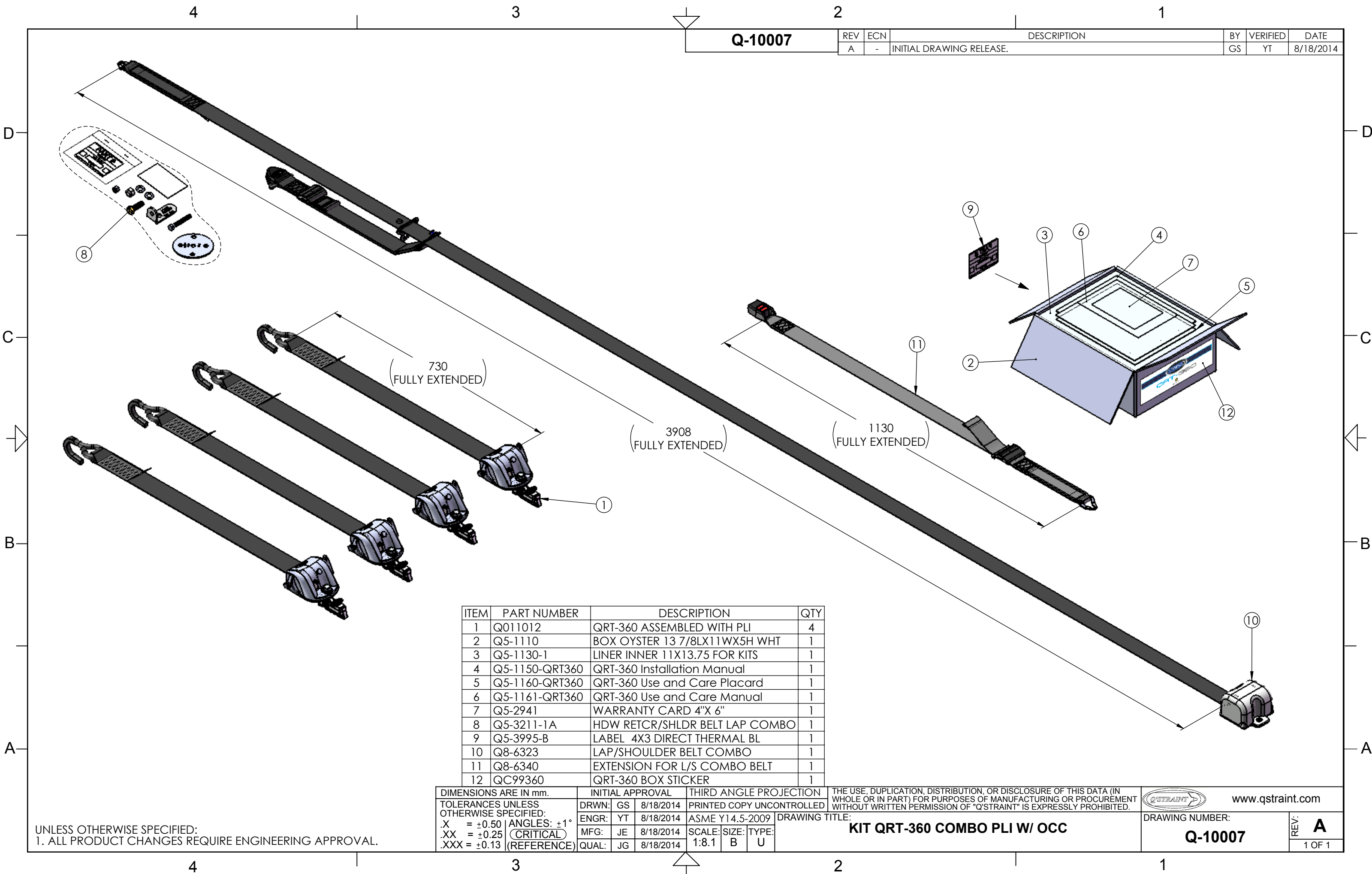


ILL31/32/35



ILL32 - surface mount





Q-10007

REV	ECN	DESCRIPTION	BY	VERIFIED	DATE
A	-	INITIAL DRAWING RELEASE.	GS	YT	8/18/2014

ITEM	PART NUMBER	DESCRIPTION	QTY
1	Q011012	QRT-360 ASSEMBLED WITH PLI	4
2	Q5-1110	BOX OYSTER 13 7/8LX11WX5H WHT	1
3	Q5-1130-1	LINER INNER 11X13.75 FOR KITS	1
4	Q5-1150-QRT360	QRT-360 Installation Manual	1
5	Q5-1160-QRT360	QRT-360 Use and Care Placard	1
6	Q5-1161-QRT360	QRT-360 Use and Care Manual	1
7	Q5-2941	WARRANTY CARD 4"X 6"	1
8	Q5-3211-1A	HDW RETCR/SHLDR BELT LAP COMBO	1
9	Q5-3995-B	LABEL 4X3 DIRECT THERMAL BL	1
10	Q8-6323	LAP/SHOULDER BELT COMBO	1
11	Q8-6340	EXTENSION FOR L/S COMBO BELT	1
12	QC99360	QRT-360 BOX STICKER	1

DIMENSIONS ARE IN mm.		INITIAL APPROVAL		THIRD ANGLE PROJECTION		THE USE, DUPLICATION, DISTRIBUTION, OR DISCLOSURE OF THIS DATA (IN WHOLE OR IN PART) FOR PURPOSES OF MANUFACTURING OR PROCUREMENT WITHOUT WRITTEN PERMISSION OF "Q'STRAIT" IS EXPRESSLY PROHIBITED.		www.qstraint.com	
TOLERANCES UNLESS OTHERWISE SPECIFIED:		DRWN:	GS	8/18/2014	PRINTED COPY UNCONTROLLED	DRAWING TITLE:		DRAWING NUMBER:	
X = ±0.50		ENGR:	YT	8/18/2014	ASME Y14.5-2009				
.XX = ±0.25		MFG:	JE	8/18/2014	SCALE: SIZE: TYPE:				
.XXX = ±0.13		QUAL:	JG	8/18/2014	1:8.1 B U			Q-10007	
								REV: A	
								1 OF 1	

UNLESS OTHERWISE SPECIFIED:  
1. ALL PRODUCT CHANGES REQUIRE ENGINEERING APPROVAL.

KIT QRT-360 COMBO PLI W/ OCC



Thinking **Beyond** Safety

# QRT™ SERIES

The New Standard  
in Wheelchair Securement and Passenger Safety



# QRT-3 SERIES



Meets the Requirements of **WC18**  
Compatible with **WC19** Wheelchairs



## QRT-360

# MEETING TOMORROW'S STANDARDS, TODAY

### Introducing the **QRT-3 SERIES** Wheelchair and Occupant Securement System:

The first 4-point, heavy duty, fully automatic retractable tie-downs designed, engineered and built to perform in wheelchair crash tests under **WC19** as well as withstand the higher loads of the **WC18 standard**.

More impressively, the new **QRT-360** meets these increased standards years ahead of their effective date in 2015.



### **WC18/WC19** at a Glance

As WC19 wheelchairs become increasingly popular, the countdown has already begun for wheelchair tie-downs to be compatible. Year-end 2015 will see the effective date of the revised RESNA WC18 standard for Wheelchair Tie-downs and Occupant Restraint Systems (WTORS).

The most significant implication of the revised standard is that wheelchair tie-downs must be stronger. WC19 covers the design and testing of wheelchairs for use in passenger transportation, and it brings about much needed passenger protection as well as some challenges for WTORS manufacturers.

These crash tested wheelchairs will feature lap belts that are integrally mounted onto the wheelchair frame, as opposed to relying on traditional WTORS equipment where the passenger belts are mounted separately. During a collision, this new dynamic produces higher loading on the WTORS as much as 60%. Enter the QRT-360, the first retractor to meet these new requirements.



# AN ALL NEW DESIGN FROM THE FLOOR UP

Stronger than any previous retractors, the QRT-360 utilizes innovative energy management designs and material technologies to deliver the system's full strength for maximum load capacity.

An energy-absorbing steel frame, new high strength 58 mm webbing and fine-adjust self tensioning from 25 high-strength teeth, the QRT-360 retractors achieve a surrogate wheelchair rating that meets the requirements of WC18. The geometry of the teeth and an innovative new locking bar design provide perpendicular alignment for maximum strength. A re-engineered Positive Locking Interface contributes to the system's ability to secure extremely heavy loads.

With many more safety features than manual straps and significantly lighter and more practical than 6-point systems, space-efficient QRT-360 retractors safely secure both the chair and occupant in an easy-to-use 4-point restraint. This not only meets the new WC18 standard for combined occupant and chair securement, but it eliminates the need, cost and additional securement time associated with having four anchorages dedicated to the rear securement.

## Compatible with Most Vehicles and Chairs

The QRT-360 offers a shortened retractor footprint that allows placement flexibility and better accommodates large chairs by increasing the available space in the securement location. Like other Q'Straint systems, it's compatible with the widest variety of wheelchairs and scooters.

## A More Secure Connection, Every Time

With Q'Straint J-hook attachments, operators can achieve a secure attachment on virtually any wheelchair. An updated Positive Lock Indicator provides the operator with clear and certain visual confirmation that the retractor is locked and the vehicle is ready to go. Our patented design eliminates the guesswork when passenger safety is involved. When the indication mark is in-line, the attachment is secure.

## Automatic Tightening Increases Safety

Q'Straint's industry-leading self-tensioning system automatically tightens the straps to eliminate any slack created by small wheelchair movements. The belts continue to tighten during low-g vehicle movements, which reduce the potential for dangerous excursions in the event of a collision.

## Automatic Release Makes it Easy to Use

Securement is simplified by the compact and ergonomically designed knob. Thanks to Q'Straint auto-release, operators and attendants can pull and secure the wheelchair hook in one step without having to press a release button.

## SOLUTIONS FOR EVERY TRANSPORTATION APPLICATION

Personal  
Mobility

Para-Transit

School/Pupil  
Transportation

Transit

Motorcoach

Taxi



# QRT-1 SERIES

## THE SECUREMENT SYSTEM THAT CHANGED EVERYTHING

The original 4-point wheelchair securement system, QRT-1 Series retractors defined the way passenger safety devices are designed and tested.

### Solutions for Every Need and Budget

Today, QRT-1 Series retractors provide a full range of options for simple, safe and effective securement of wheelchairs in Para-Transit vehicles, mini-van, rail, city bus, coach bus, and school bus applications.



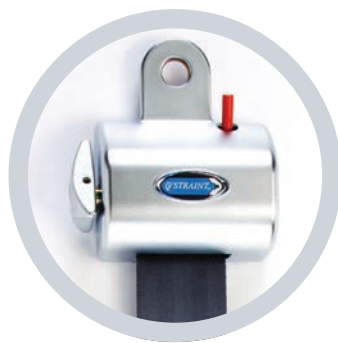
### QRT Max

is a **fully automatic**, knobless retractor offering innovative features that maximize ease of use and ensure passenger safety.



### QRT Deluxe

is the world-class original **self-locking and self-tensioning** retractable system. The Max and Deluxe models feature a new ergonomic streamlined housing.



### QRT Standard

is simple and economical semi-automatic retractor system appropriate for many applications.

## QRT-1 Series Specifications

#### Compatible Anchorages:

Slide 'N Click and L-Track floor anchorages, or may be directly mounted to vehicle floors, seat legs or barriers

#### Warranty:

3 years (QRT Max, QRT Deluxe);  
2 years (QRT Standard)

#### Testing:

Crash tested to 30mph/20g  
Impact Test Criteria

#### Meets or exceeds the following standards and regulations:

- SAE J2249
- ISO 10542
- FMVSS 209, 302, 210, 222
- CMVSS 209
- CSA Z605
- ADA

QRT SERIES-1		QRT	QRT	QRT
FEATURES COMPARISON		MAX	DELUXE	STANDARD
<b>Knobless, One-Handed Operation</b>	No knobs to interfere with wheels and footrests.	●		
<b>Dual Tensioning Knobs</b>	Provides additional tensioning if needed.		●	
<b>Single Tensioning Knob</b>	Provides additional tensioning if needed.			●
<b>Automatic, Self-Locking</b>	Allows easy, one-handed hook-up.	●	●	
<b>Self-Tensioning</b>	Retractors automatically take up 'slack'.	●	●	
<b>Positive Lock Indicator</b>	Patented feature clearly indicates when fitting is locked in anchorage.	●	●	●
<b>Interchangeable</b>	Eliminates confusion: no right, left, front or rear locations.	●	●	●
<b>Low Profile &amp; Compact</b>	Elimination of mounting bracket allows retractors to fit under most footrests.	●	●	●
<b>Accommodates Larger Wheelchairs</b>	Reduced overall retractor length leaves more room for wheelchairs.	●	●	
<b>Universal Design</b>	Accommodates virtually all wheelchair designs, including scooters.	●	●	●
<b>Durable</b>	Constructed from hardened steel and coated in zinc for maximum corrosion resistance.	●	●	●
<b>J-Hook</b>	Reduces twisting of belts and ensures proper securement with a quarter turn accommodating virtually all wheelchair designs.	●	●	●
<b>Foot Release Lever</b>	Easy release.	●	●	●



[Qstraint.com](http://Qstraint.com)

**Q'Straint America**  
5553 Ravenswood Road, #110  
Ft. Lauderdale, FL 33312  
Tel: 800-987-9987  
Fax: 954-986-0021  
Email: [qstraint@qstraint.com](mailto:qstraint@qstraint.com)

**Q'Straint Europe**  
72-76 John Wilson Business Park  
Whitstable, Kent, CT5 3QT  
United Kingdom  
Tel: +44 (0)1227 773035  
Fax: +44 (0)1227 770035  
Email: [info@qstraint.co.uk](mailto:info@qstraint.co.uk)

**Q'Straint Australia**  
Tramanco Pty Ltd.  
21 Shoebury Street,  
Rocklea, Australia, QLD. 4106  
Tel: +61 7 3892 2311  
Fax: +61 7 3892 1819  
Email: [info@tramanco.com.au](mailto:info@tramanco.com.au)

**Q'Straint Canada**  
18-100 Sheldon Dr.  
Cambridge, ON N1R 7S7  
Tel: 1-800-987-9987  
Email: [qstraint@qstraint.com](mailto:qstraint@qstraint.com)

MKM4821 - QRT3



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-09	2018-07-24 13:30:00	CRFQ 0805 PTR1900000001	1

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV

25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman , Inc.

5120 Wards Road

Evington, VA 24550

(P) 1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers

(304) 558-2063

michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation

**ADDITIONAL INFORMATION:****Request for Quotation**

The West Virginia Purchasing Division is soliciting bids on behalf of the Division of Public Transit and any other state agency that desires to utilize this contract to establish an open-end contract for 176" - 190" Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles with air conditioning, fixed seats, wheelchair securements and lift to provide specialized transportation services in an urban and suburban-rural environment, including hilly terrain and a severe operating climate suited to stop-start duty cycles.

INVOICE TO		SHIP TO	
ACCOUNTS PAYABLE PUBLIC TRANSIT DIVISION OF BLDG 5 RM 650 1900 KANAWHA BLVD E CHARLESTON WV25305-0432 US		GENERAL MANAGER PUBLIC TRANSIT DIVISION OF KANAWHA VALLEY REGIONAL TRANSPORTATION AUTHORITY 1550 FOURTH AVE CHARLESTON WV 25324 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	176" - 190" Wheelbase Cutaway Vehicle	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
25101502	Startrans		Senator II

**Extended Description :**

176" - 190" Wheelbase Cutaway Vehicle

\*\*\*\*\*

Vendor should type or clearly print the information into the Exhibit A-Pricing Page to prevent errors in the evaluation. If Vendor is submitting bid online Vendor must submit Exhibit A -Pricing Page as attachment. TOTAL BID FOR EVALUATION is the amount Vendor is to enter into wvOASIS commodity line when submitting. Notwithstanding the foregoing, the Purchasing Division may correct errors at its discretion.

STATE OF WEST VIRGINIA  
Purchasing Division

## PURCHASING AFFIDAVIT

**CONSTRUCTION CONTRACTS:** Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

**ALL CONTRACTS:** Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

**EXCEPTION:** The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

**DEFINITIONS:**

**"Debt"** means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

**"Employer default"** means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

**"Related party"** means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

**AFFIRMATION:** By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

**WITNESS THE FOLLOWING SIGNATURE:**

Vendor's Name: Sonny Merryman Inc.

Authorized Signature: 

Date: 07/31/2018

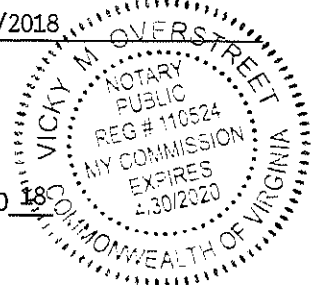
State of Virginia

County of Campbell, to-wit:

Taken, subscribed, and sworn to before me this 31 day of July

20 18

My Commission expires April 30, 20 20.



**AFFIX SEAL HERE**

**NOTARY PUBLIC**



*Purchasing Affidavit (Revised 01/19/2018)*

**DESIGNATED CONTACT:** Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

C. Seals - Commercial Sales

(Name, Title)

Chad Seals, Commerical Sales

(Printed Name and Title)

5120 Wards Road, Evington, VA 24550

(Address)

(434) 821-1000 x 352

(Phone Number) / (Fax Number)

chad@sonnymerryman.com

(email address)

**CERTIFICATION AND SIGNATURE:** By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Sonny Merryman, Inc.

(Company)

C. Seals - Commercial Sales

(Authorized Signature) (Representative Name, Title)

Chad Seals, Commerical Sales

(Printed Name and Title of Authorized Representative)

8-2-18

(Date)

434-821-1000 x 352

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM  
SOLICITATION NO.:

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

*(Check the box next to each addendum received)*

☒ Addendum No. 1

☐ Addendum No. 6

☒ Addendum No. 2

☐ Addendum No. 7

☐ Addendum No. 3

☐ Addendum No. 8

☐ Addendum No. 4

☐ Addendum No. 9

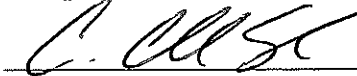
☐ Addendum No. 5

☐ Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Sonny Merryman, Inc.

Company



Authorized Signature

08/02/18

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #1**

**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

**Location(s) of Technical Service Representative(s)  
closest or in the State of West Virginia**

**Name:** Brady Childress

**Address:** 5120 Wards Road

Evington, VA. 24550

**Telephone:** 1-800-533-1006 Ext.332

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Location(s) of Parts Distribution Center(s)  
closest or in the State of West Virginia**

**Name:** Derek Shelton

**Address:** 5120 Wards Road

Evington, VA. 24550

**Telephone:** 1-800-533-1006 Ext.386

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #2**

**CERTIFICATION FOR AIR & WATER POLLUTION  
MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

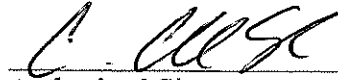
The Vendor certifies that the vehicles proposed:

**ARE** xx in compliance with the regulations in 40 CFR Part 85, 40 CFR Part 86, 40 CFR Part 600, Clean Water Act and the air/water pollution criteria established by the Environmental Protection Agency of the United States Government.

**ARE NOT** \_\_\_\_\_ in compliance with the regulations in 40 CFR Part 85, 40 CFR Part 86, 40 CFR Part 600, Clean Water Act and the air/water pollution criteria established by the Environmental Protection Agency of the United States Government.

08/02/18

Date



Authorized Signature

Commercial Sales

Title

Sonny Merryman Inc

Company Name

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

BID FORM #3

DISADVANTAGED BUSINESS ENTERPRISE  
VENDORS/ MANUFACTURERS CERTIFICATION

MANDATORY BID FORM – MUST BE SUBMITTED WITH BID

(Check appropriate statement)

\_\_\_\_\_ The Vendor, if a transit vehicle manufacturer, hereby certifies that it has complied with the requirements of 49 CFR Section 26.49 by submitting an annual DBE goal to the Federal Transit Administration (FTA). The goal has either been approved or not disapproved by FTA.

XX \_\_\_\_\_ The Vendor, if a non-manufacturing supplier, hereby certifies that the manufacturer of the transit vehicle to be supplied has complied with the above-referenced requirement of 49 CFR Section 26.49.

08/02/18

Date



Authorized Signature

Commerical Sales

Title

Sonny Merryman Inc

Company Name

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #4**

**BUY AMERICA CERTIFICATION  
ROLLING STOCK  
MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

**Certificate of Compliance**

The bidder or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. § 5323(j), as amended and the applicable regulations of 49 CFR 661.12:

08/02/18

Date



Authorized Signature

Sonny Merryman Inc  
Company Name

Chad Seals  
Name

Commerical Sales  
Title

**Certificate for Non-Compliance**

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. § 5323(j), as amended, but may qualify for an exception to the requirement consistent and the applicable regulations in 49 CFR 661.7.

Date

Authorized Signature

Company Name

Name

Title

Revised 10/27/14

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #5**

**FEDERAL MOTOR VEHICLE  
SAFETY STANDARDS CERTIFICATION**

**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

The vendor hereby certifies that it shall submit, as required by Title 49 of the CFR, Part 663 - Subpart D, its self-certification information stating that the vehicle(s) will comply with the relevant Federal Motor Vehicle Safety Standards issued by the National Highway Traffic Safety Administration in Title 49 of the Code of Federal Regulations, Part 571.

08/02/18

Date



Authorized Signature

Commercial Sales

Title

Sonny Merryman Inc

Company Name

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #6**  
**U.S. Comptroller's Debarment List Certification**  
**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

Sonny Merryman Inc hereby certifies that it

       IS or

XX IS NOT (specify one) included on the U.S. GSA's debarment and suspension  
information available at <https://www.sam.gov>.

08/02/18  
Date

  
Authorized Signature

Commercial Sales  
Title

Sonny Merryman Inc  
Company Name

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #7**

**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**  
**CERTIFICATION OF PRIMARY PARTICIPANT REGARDING**  
**DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS**

The Primary Participant (applicant for an FTA grant or cooperative agreement, or potential contractor for a major third party contract),

Sonny Merryman Inc (COMPANY NAME) certifies  
to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
2. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (2) of this certification; and
4. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

If the primary participant (applicant for an FTA grant, or cooperative agreement, or potential third party contractor) is unable to certify to any of the statements in this certification, the participant shall attach an explanation to this certification.)

THE PRIMARY PARTICIPANT (APPLICANT FOR AN FTA GRANT OR COOPERATIVE AGREEMENT, OR POTENTIAL CONTRACTOR FOR A MAJOR THIRD PARTY CONTRACT),

Sonny Merryman Inc., CERTIFIES OR AFFIRMS THE  
TRUTHFULNESS AND ACCURACY OF THE CONTENTS OF THE STATEMENTS  
SUBMITTED ON OR WITH THIS CERTIFICATION AND UNDERSTANDS THAT THE  
PROVISIONS OF 31 U.S.C. SECTIONS 3801 ET SEQ. ARE APPLICABLE THERETO.

C. Case - Commercial Sales  
Signature and Title of Authorized Official

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #8**  
**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

***VENDOR'S CERTIFICATION OF  
UNDERSTANDING AND ACCEPTANCE***

The Vendor hereby certifies that all Technical Specifications and Contract Terms and Conditions have been carefully reviewed, are fully understood and shall be adhered to in performance and completion of any contract resulting from this bid.

08/02/18

Date



Authorized Signature

Commercial Sales

Title

Sonny Merryman Inc

Company Name

**SPECIFICATION COMPLIANCE**

NOTE: Please check if what is offered is not in exact compliance with specifications. Any discrepancies must be listed as an attachment to the bid proposal. Exact dimensions and/or descriptions must be provided as a part of the Vendor's bid proposal when submitted.

- XX Bid proposal submitted meets and/or exceeds all specification requirements.
- Bid proposal submitted contains deviations from specification requirements.  
Detailed descriptions of these deviations have been provided with this bid proposal.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #9**  
**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**  
**CERTIFICATION OF RESTRICTIONS ON LOBBYING**

The undersigned (Vendor, Contractor) certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influence or attempt to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress regarding the award of a Federal grant, loan (including a line of credit), cooperative agreement, loan guarantee, or loan insurance, or the extension, continuation, renewal, amendment, or modification of any Federal grant, loan (including a line of credit), cooperative agreement, loan guarantee, or loan insurance.
2. If any funds other than Federal appropriated funds have been or will be paid to any person to influence or attempt to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or any employee of a Member of Congress in connection with any application for a Federal grant, loan (including a line of credit), cooperative agreement, loan guarantee, or loan insurance, the undersigned assures that it will complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," Rev. 7-97; and
3. The undersigned understands that the language of this certification shall be included in the award documents for all sub awards at all tiers (including subcontracts, sub grants, sub agreements, and contracts under grants, loans (including a line of credit), cooperative agreements, loan guarantees, and loan insurance.

Undersigned understands that this certification is a material representation of fact upon which reliance is placed by the Federal government and that submission of this certification is a prerequisite for providing a Federal grant, loan (including a line of credit), cooperative agreement, loan guarantee, or loan insurance for a transaction covered by 31 U.S.C. 1352. The undersigned also understands that any person who fails to file a required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The (Vendor, Contractor) Sonny Merryman Inc., certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the (Vendor, Contractor) understands and agrees that the provisions of 31 U.S.C. §§ 3801, et seq., apply to this certification and disclosure.

08/02/18

Date



Authorized Signature

Commercial Sales

Title



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

BID FORM #10

**CERTIFICATION OF COMPLIANCE WITH FTA'S  
BUS TESTING REQUIREMENTS**

The undersigned (Vendor/Manufacturer) certifies that the vehicle offered in this procurement complies with 49 U.S.C. 5318, as amended by MAP-21, and FTA regulations, "Bus Testing," 49 CFR Part 665.

The undersigned understands that misrepresenting the testing status of a vehicle acquired with Federal financial assistance may subject the undersigned to civil penalties as outlined in the Department of Transportation's regulation on Program Fraud Civil Remedies, 49 CFR Part 31. In addition, the undersigned understands that FTA may suspend or debar a manufacturer under the procedures in 49 CFR Part 29.

08/02/18

Date



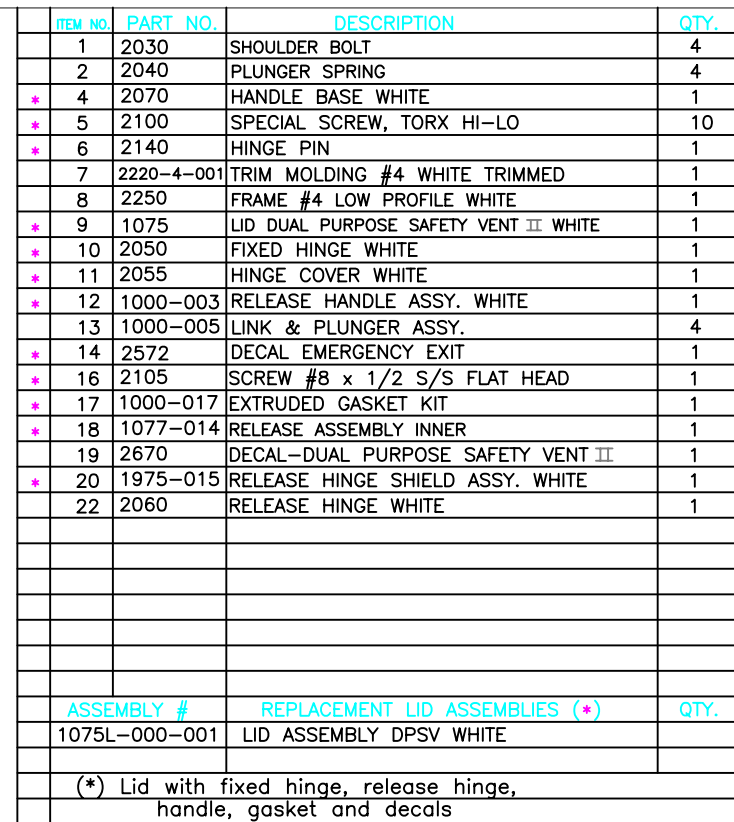
Authorized Signature

Commercial Sales

Title

Sonny Merryman Inc.

Company Name

[illegible]



# NEW YORK SINCE 1907



Rosco was established in 1907. For over a century, our goals have remained the same: We are committed to producing the highest quality automotive products and providing the level of service our customers have grown to expect.

Today, we supply our products to every nearly every fire apparatus and emergency vehicle manufacturer in North America. Our products are designed and largely built in the USA. Our staff has grown to over 250 people in facilities totaling over One hundred thousand square feet.

As we move forward we have set our goals even higher. We are now certified to ISO-9001:2008. Our focus on Total Quality Management and continuous improvement will keep our product quality at levels our customers demand.

We will strive to improve our customer service through online and other electronic resources. We will continue to develop newer and better products to serve the ever-changing needs of the marketplace of tomorrow.



A CENTURY OF AUTOMOTIVE VISION SAFETY

90-21 144th Place, Jamaica, New York 11435

TEL (800) 227-2095 • FAX (718) 297-0323

info@roscomirrors.com

www.roscomirrors.com www.roscovision.com

CAT NO. 072916



# COMMERCIAL BUS

Mirror Assemblies  
Mirror Mounts & Arms  
Integrated Products  
Sun Visors

Continuous & Event Video Recording  
Cameras & Backup Safety Products





# Rosco Vision Systems

## Industries & Products

### Industries We Serve

Rosco's standard and custom products are engineered and manufactured for these industries:



### Product Matrix



# Backup Safety Products

## Backup Cameras & Monitors

### Safety Starts with a Rearview Camera

We cover all the safety angles so your vehicle can backup safely. Replace a standard rearview mirror with one that displays an LCD image as soon as the vehicle is shifted into reverse. Or install a **Rearview Mirror Backup Camera** that delivers an unobstructed view of what's behind the vehicle even when it's dark outside. Reduce the risks of moving in reverse. Drivers will be able to maneuver easily in reverse with one of our backup camera kits.



STSK7965  
Complete Camera Kit



STSC106  
Bullet Cam



STSC109B  
Rear Look Down or  
Side Mount



STSC112  
License Plate Cam



STSC118  
Interior Dome Cam



STSC128  
Universal  
Side Cam

### Cameras Types Include:

- Rear look down
- Universal side mount
- Interior dome
- License plate
- Small bullet
- Brake light

### Monitor Options Include:

- 5" LCD
- 7" LCD
- Single to quad screen
- Black-lit LCD
- Ultra bright mirror-monitors



STSM206  
5" Color LCD



STSM207  
7" Color LCD  
w/ Quad Screen Capability

Rosco's line of **Integrated Rear Light Backup Cameras** are made for work vans such as the Sprinter, GM/Chevy Express and Nissan NV 1500-3500 series. Enhance safety with these seamless backup cameras suited for your vehicle and engineered to work with most Rosco monitors and mirror monitor combos.



STSC160  
Sprinter Cam



STSC149  
Ford Transit



STSC162  
Nissan NV 1500 - 3500



STSC165  
Dodge Promaster



STSC161  
GM/Chevy Express



STSC166  
Universal Flat Surface



# Backup Safety Products

## Backup Cameras & Backup Sensors

### MOR-Vision Mirror/Monitor Backup Camera Systems



Rosco Vision Systems introduces a revolutionary new backup camera system (**STSK4530**) for small to medium vehicles. This new system utilizes an interior rearview mirror (**STSM230**) to display a 4.3" LCD monitor when the vehicle is in reverse operation. This monitor allows the driver to see behind the vehicle, and once the vehicle is shifted to all other modes of operation a normal mirror view reappears.



This **STSM230** mirror-monitor is also compatible with the brake light backup cameras (**See STSC160, STSC161, STSC162, STSC149, STSC165, STSC166 on page 11**) for the Sprinter, GM/Chevy Express and Nissan NV 1500-3500 work trucks. The **MOR-Vision** series also includes our **STSK5530 kit, STSK6630 kit, and STSK1030 kit** for small and large buses. Buses equipped with **MOR-Vision** have options for multiple cameras and automatic monitor view changes based on operational conditions of the bus.



STSK5530



STSK6630

### Backup Safety Sensors

A wireless backup sensor kit alerts drivers to unsafe situations behind a vehicle. Rosco designs flush mount and under-the-bumper backup sensors for a range of applications. Commercial vehicle backup sensors give drivers the information they need for safe reversing to loading dock alignments.

Look to Rosco backup sensors for trucks and other hardworking vehicles. With sensor kits and backup cameras, we deliver rugged tools for smooth driving.



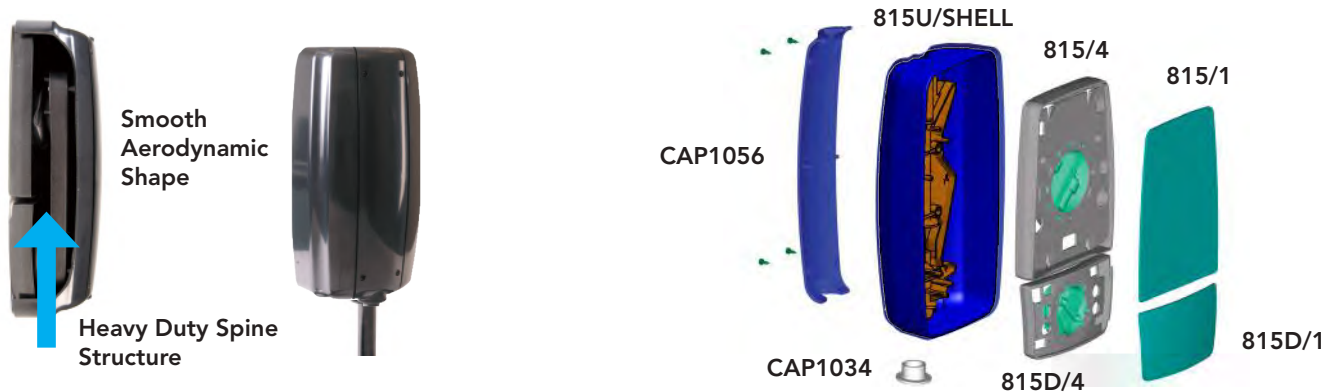
BSSK1001

# AccuStyle® 815 Series

## Rearview Mirrors

### Features and Benefits

- Lightweight.
- Certified by OEM's to meet FMVSS-111 requirements.
- Same model can be mounted as upright, overhang or two point mount.
- Reduces inventory of replacement parts.
- Aerodynamic, wind tunnel tested profile has lower drag coefficient for increased fuel economy.
- Used on all commercial bus types including cutaway, conventional and transit style.
- Available heated, motorized, embedded or external turn signal LED's, chrome.
- Each motorized mirror lens is four way adjustable.
- Hidden wire and connectors.
- Full height rear entry cap allows for simple installation and ease of maintenance including access to wires and harnesses.

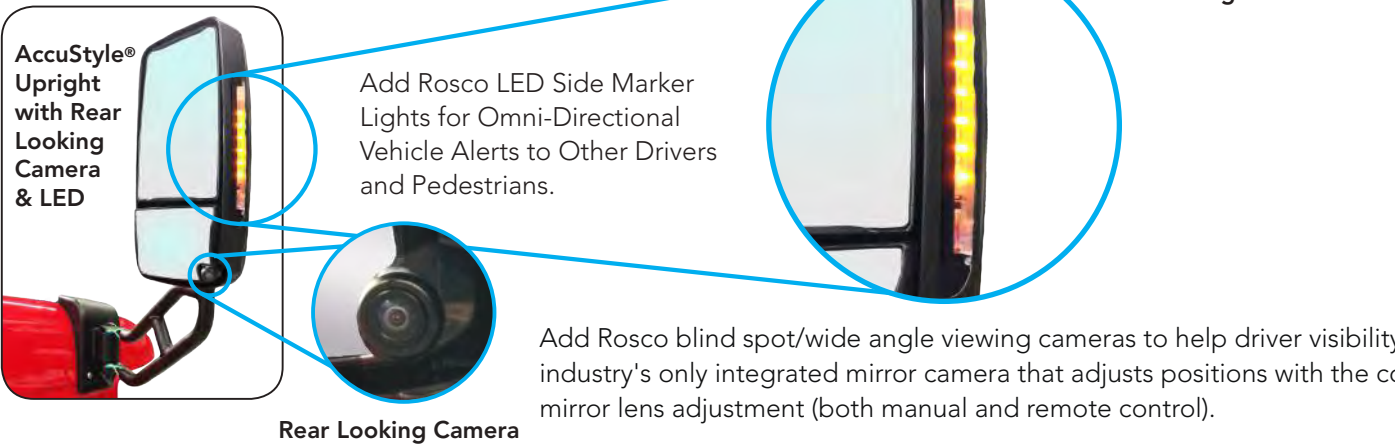


### AccuStyle® 815 Series 8" x 15" Dual Mirrors

PART NO.	DESCRIPTION
815	8" x 15" dual mirror, two point mount, motorized, 12 volt
815OG	8" x 15" dual mirror, overhang mount, motorized, 12 volt
815SLU OR 815SRU	8" x 15" dual mirror, upright mount, motorized, 12 volt with L or R signal lens LEDs
815SLEU OR 815SREU	8" x 15" dual mirror, upright mount, motorized, 12 volt with exterior L or R signal LEDs
815U	8" x 15" dual mirror, upright mount, motorized, 12 volt
M815	8" x 15" dual mirror, two point mount, hand adjustable
M815OG	8" x 15" dual mirror, overhang mount, hand adjustable
M815U	8" x 15" dual mirror, upright, hand adjustable

\* For Heated Add "H" to the End of All Part Numbers

### Rearview Camera and LED Options



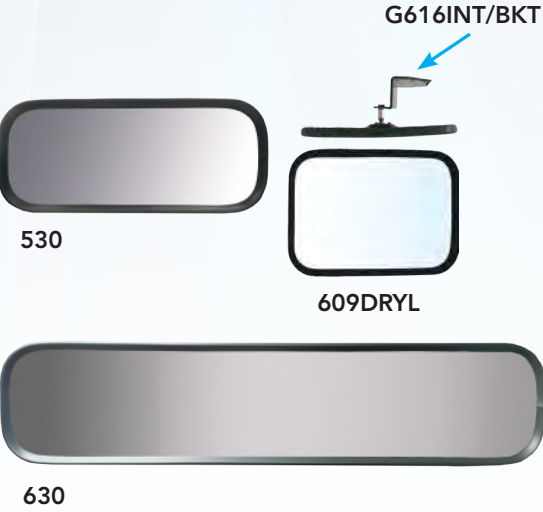
Add Rosco blind spot/wide angle viewing cameras to help driver visibility. The industry's only integrated mirror camera that adjusts positions with the convex mirror lens adjustment (both manual and remote control).



Combo & Interior Mirrors  
Rearview & Crossview Assemblies



AccuStyle® Rearview & Eye-Max® LP Crossview Combination Assembly



Combination Assemblies

More than one Rosco fender mounted mirror can benefit from the uniquely stable E-Z Bracket® HD mounting base. The "Combo" fender mounted mirror design allows both **Rearview and Front Crossview Mirrors** to efficiently install on a common point, thus minimizing holes in the vehicle and maximizing ease of installation, and performance.

Interior Mirrors

- All models manufactured with safety glass.
- Padded edges meet federal and state requirements for safety.
- Available with non-glare glass.
- Many come complete with mounting brackets.
- Powder coated for durability.
- Available in various sizes and mounting configurations.

PART NO.	DESCRIPTION
530	6" x 16" interior mirror, safety glass
630	6" x 30" interior mirror, safety glass
416	4" x 16" interior mirror, safety glass
609D	6" x 9" entrance door convex mirror
609DRYL	6" x 9" entrance door convex mirror w/ 616INT/BKT
616DRYL	7" x 16" entrance door convex mirror w/ 616INT/BKT
355N/355S/355V	6" round flat mirror w/ mounting bracket
362R	12" round convex mirror w/ ball stud mount
601D	6" round convex mirror w/ center ball stud
710	7" x 10" convex mirror



Ford Transit Rearview Mirror

The new **Rosco Ford Transit Rearview Mirror** assembly features our aerodynamic AccuStyle® mirror with a jog down arm. Due to the short, sloped hood, a conventional passenger side fender mounted mirror system is not feasible. Rosco has engineered a (custom) solution utilizing the spacer window between the entry door and front quarter panel for mirror viewing. Windshield mirror viewing options are also available. With a larger viewing surface than the OEM mirror head, the AccuStyle® covers more area around the vehicle to increase safety for the driver and pedestrians around the vehicle.

Fleet Safety Management  
Continuous HD Video & Event Recording



Rosco's Dual-Vision XC4 has the capacity to identify unsafe driving behavior through its ability to continuously record video and provide instant driver feedback when an event occurs.



P/N: DV440

KEY FEATURES

- HD Quality Video Recording.
- 720p Forward View Camera, 960H Interior Camera.
- Optional 960H Auxiliary Cameras For a Total of Four Views.
- One-Piece Locking Mounting Bracket Protects SD Card.
- Compatible with Current and Future High-Capacity SD Memory Cards.
- 3,000+ hours of Recording Time per High-Capacity SD Card.
- Built-in Infrared LED's for Excellent Night Interior View.
- Includes DV-Pro® 5 Software.
- Includes Database Management and Alert Notification.
- Optional Auto Download System – Highest Wi-Fi Speeds.
- Optional 4G Cellular Compatibility For Live Tracking and Video Streaming.

DATA RETRIEVAL OPTIONS



Fleet to remove secured SD card from recorder and view/save video.

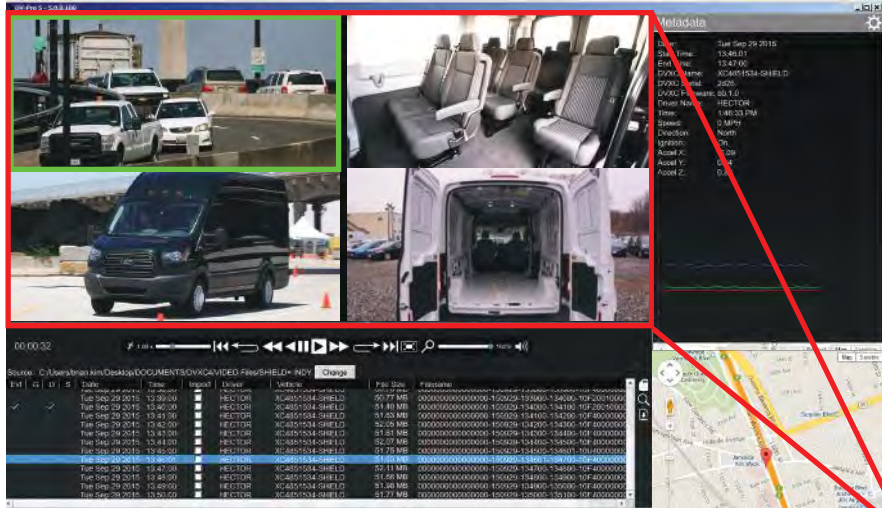
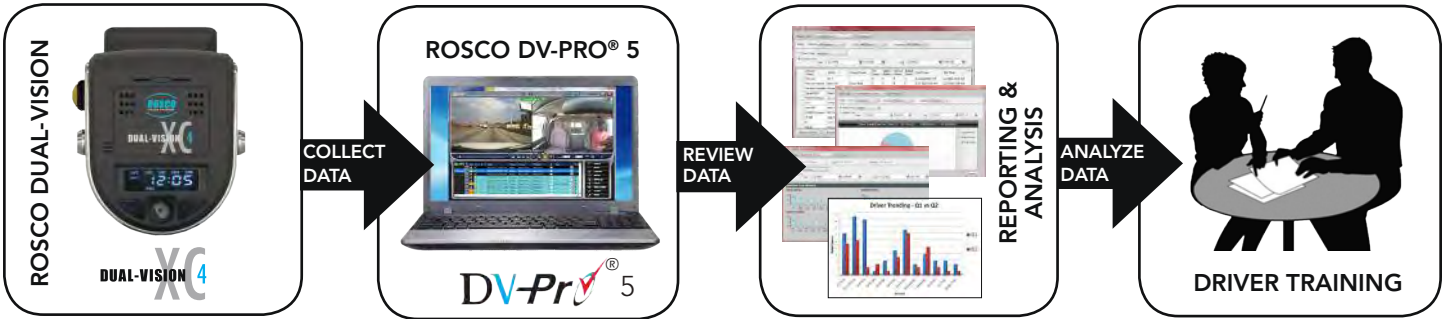


Fleet to have Wi-Fi upload of events and/or continuous video upon vehicle return to base.



Fleet to receive real time video clip or .jpg photo data via cellular transmission.

DV-PRO® 5 ADVANCED DATA MANAGEMENT SOFTWARE



Maximize your data's potential with the **DV-Pro®5 Fleet Database Management System**. This software was developed specifically for organizing information captured by Dual-Vision XC4 recording device. DV-Pro®5 makes it fast and easy to view or transfer recorded data, locate specific events on footage, archive or discard content, and compile reports or email files. DV-Pro®5 driver tools give greater control of information generated by high capacity Dual-Vision XC4 recorders. You can conduct searches based on detailed criteria and quickly make note of key events such as speed overages.

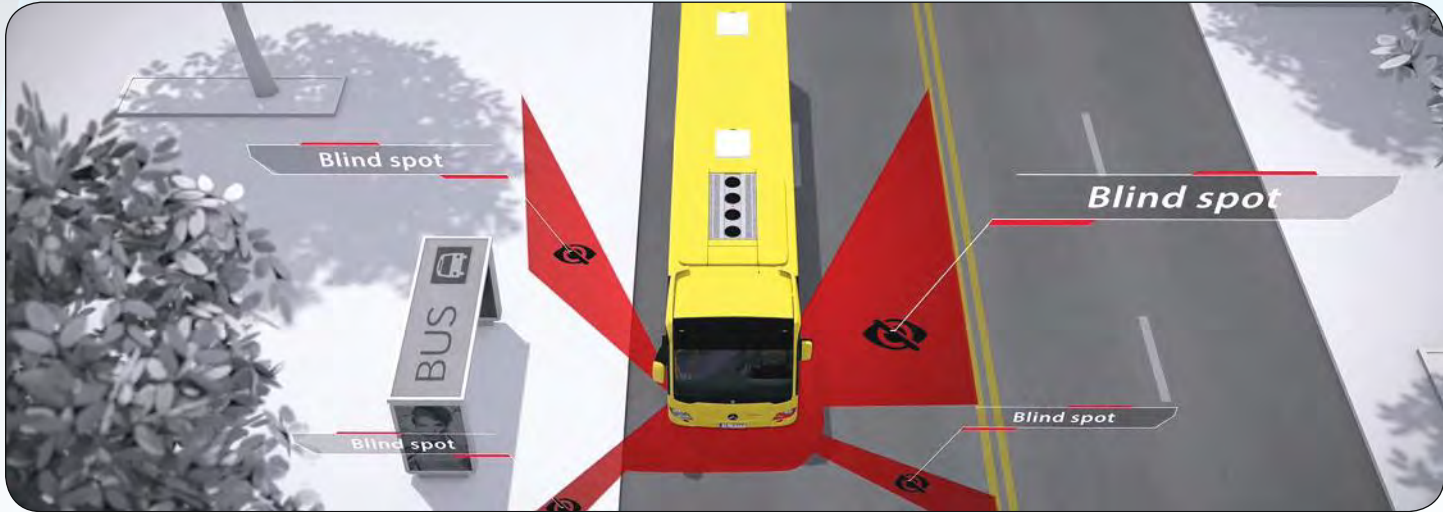
Four Camera Quad Screen View



# MOBILEYE® SHIELD +

## Our Solution For Pedestrian and Cyclist Safety

The **Mobileye® Shield+ System** is the latest technological advancement for preventing collisions between vehicles and vulnerable road users (**VRUs**) including pedestrians and cyclists. VRUs often are not seen by the bus operator due to large blind spots around the bus, especially when making turns on busy city streets. Bus operating conditions on congested, urban streets demand the highest level of awareness by the vehicle operator. Shield+ increases awareness and safety for the driver and VRUs around the bus to prevent collisions.



## Reduce Pedestrian Collisions, Save Lives . . .

In addition to all the benefits of the original **Mobileye® Collision Avoidance System**, this unique, smart vision multi-sensor system provides drivers with alerts when pedestrians and cyclists are in the danger zones on the side of the bus. The addition of the pedestrian and cycle side-sensing makes the driver aware of pedestrians and cyclists in the bus path, before an incident occurs, giving the driver time to react and take corrective action. These alerts can help save lives and improve your organization's safety record.



### Interior Components



(3) Driver Alert Displays



(2) Windshield Mounted Smart Sensor Cameras

### Exterior Components



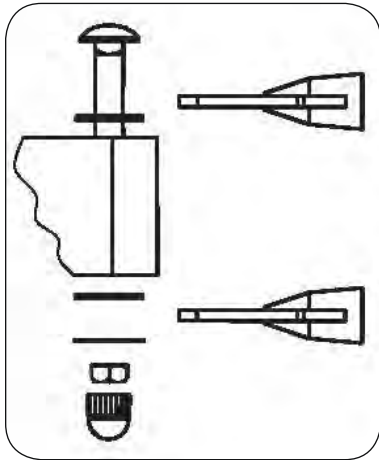
(2) Exterior Camera Housings With Smart Sensor Cameras



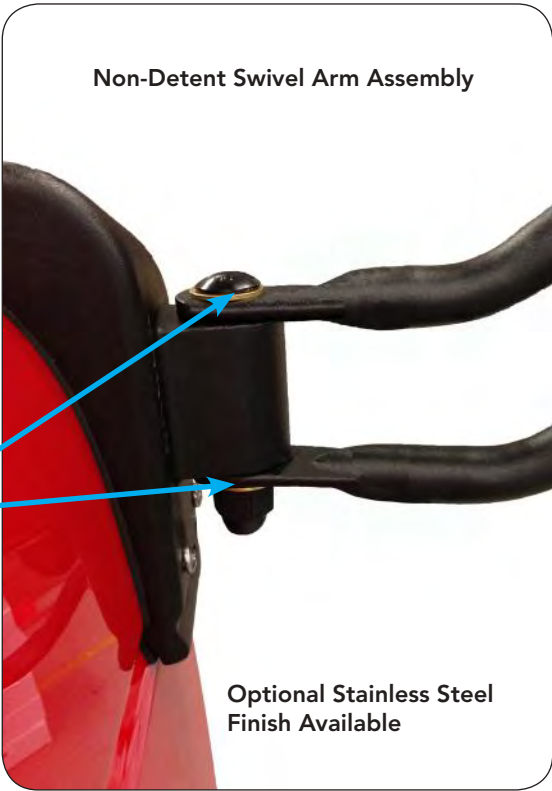
# Breakaway Arm Assemblies Swivel & Spring-Break® Detent

## Non-Detent Swivel Arm Assembly

- Rosco's **Non-Detent Swivel Arm Assembly** is the industry standard. Its unique sandwich design provides unparalleled mirror assembly adjustment while being powerful enough to hold positions at highway speeds.
- With infinite adjustability, the vehicle operator can locate the mirror arm and head to an optimal location for each distinctive driver eye-point location.



Unique Hinge Design Allows for Wide Range of Swinging Motion Allowing Drivers to Adjust the Position of Arms as Well as Mirrors to Find the Optimal View From the Driver's Seat.

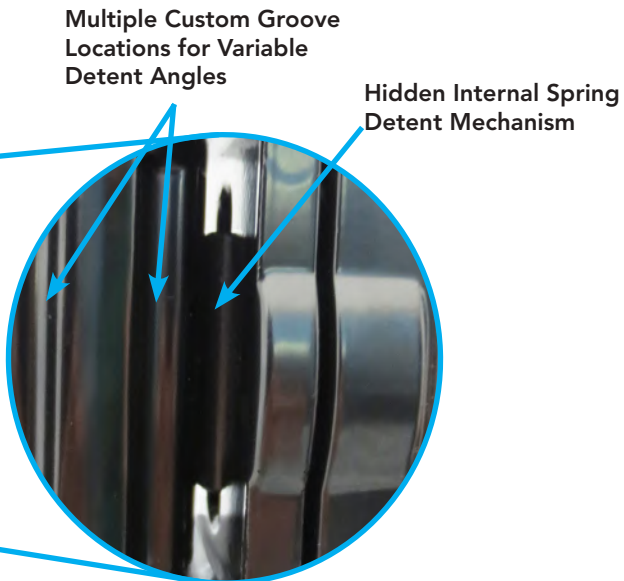
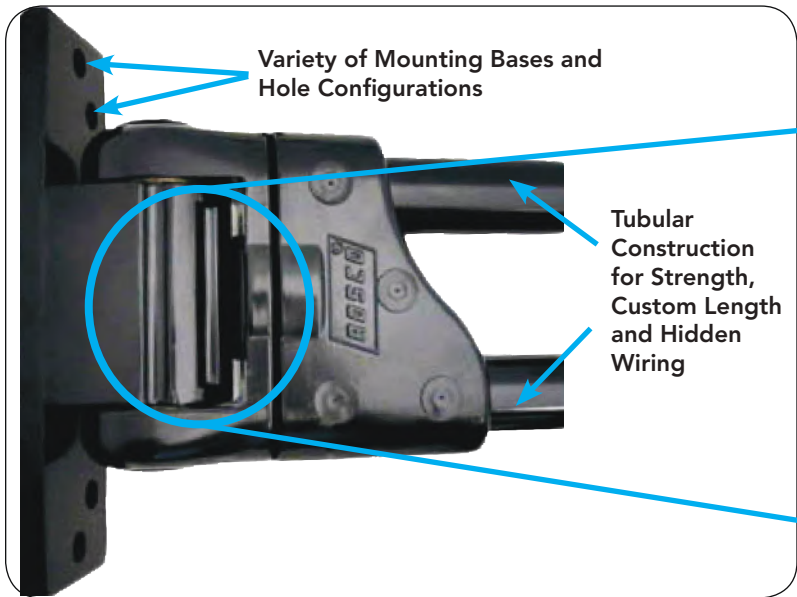


Non-Detent Swivel Arm Assembly

Optional Stainless Steel Finish Available

## Spring-Break® Detent

This line of mounting arms has a unique **Spring Loaded Detent** mechanism that dampens vibration and keeps the arm locked in position. Heavy-duty cast aluminum mount and swivel provide long lasting reliability and unequaled stability. Tubular construction keeps things economical. Totally maintenance free and offered for Ford, GM, Freightliner and Navistar cutaway buses.



Spring-Break® Detent Detail



# E-Z Bracket®

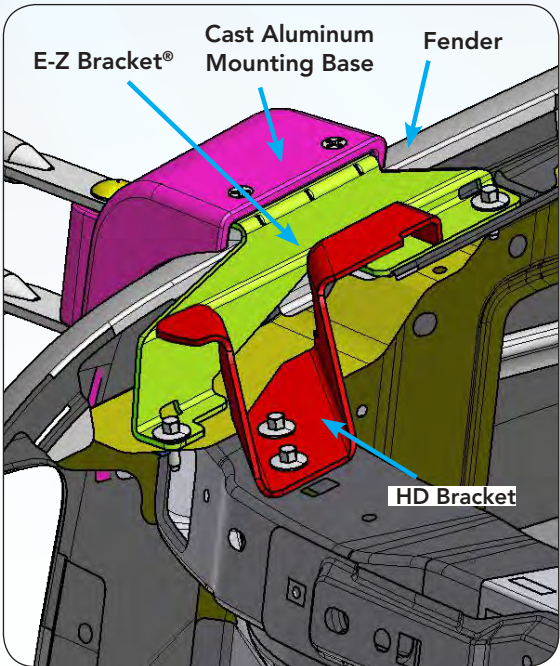
## Heavy Duty Fender Mount

### Features and Benefits

- Simple and fast Installation: Rosco's patented **E-Z Bracket® System** makes installation of a Type "A" bus mirror system easier than ever before. (Patent No. 7,055,973). The under-the-fender mount utilizes existing fender mounting bolts to secure the mount below the hood.
- Rosco's unique ferrule system transfers the strength of the inner heavy-gauge fender wall to the exterior of the vehicle.
- Installation is completed with two holes instead of as many as twelve.
- Eliminates the large arms and braces commonly used on passenger side mirror.
- Massive cast aluminum mounting base provides a stable mount for vibration resistance and durability.
- Low-profile construction is aerodynamic and aesthetically appealing.
- Contoured profile matches the fender perfectly for a solid mount that looks great on the vehicle.
- Available for both Ford and GM vehicles.
- Vibration reduction / dual wall tube.
- For Ford E-Series, HD Bracket w/ nose extension.



HD E-Z Bracket® Installation



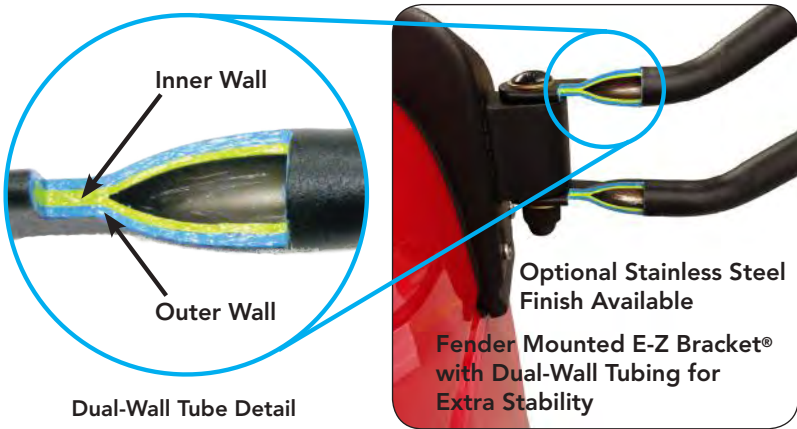
HD E-Z Bracket® Model

## Improving Safety & Efficiency

### Stronger Arms and More Mirror Options

### Dual-Wall Tubing

**Dual-Wall Arms** have the added strength where it is needed most at the mounting location, but the benefit of thinner wall, light weight performance through the majority of the arm. When coupling all three of Rosco's fender mount weapons... the Dual-Wall Arm, the **E-Z Bracket® HD**, and the **AccuStyle®** lightweight mirror head, the Rosco Mirror "System" has never been stronger in overcoming the many challenges of light weight fenders.



Dual-Wall Tube Detail

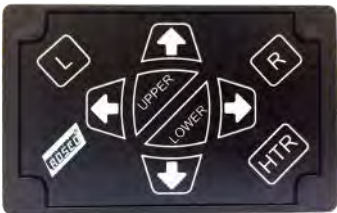
# Switches & Harnesses

## Control Switches & Wire Harnessing

### Features and Benefits

- A variety of **switches**, including heater controls and timers, are available to suit all requirements. **Wire harnesses** are available from stock or in custom lengths, with many different standard and weatherproof connectors.
- A variety of mirror control switches in various sizes to suit every need.
- Heater control switches available in four types with optional heater timer and shut off.

PART NO.	DESCRIPTION
SW-3	Remote mirror control switch, 12V, 1.4" diameter, 12" harness
SW-5	Mirror heater momentary switch, 1" x 0.5"
SW-5-HT	Mirror heater momentary switch, with 10 minute heater timer relay and shut off
HAR5004	2X SW-3 round remote switches & 1X SW5-HT heater remote with timer
HAR5007	2X SW-3 remote switches & 1X SW-5HT heater switch with timer, 10-pin for LED
HAR5012	Switch Plate Assembly, 2 remote switches and 1 momentary heater switch w/ 10 minute heater timer relay, w/ 10 pin connectors for LED turn signal
HAR5013	Switch Plate Assembly, 2 remote switches & 1 momentary heater switch w/ 10 minute heater timer relay



Integrated Membrane switch



HAR5012 (H/R/LED) or HAR5013 (H/R)



### Integrated Membrane Switches

PART NO.	DESCRIPTION
SWI1010	Integrated membrane switch w/ heater timer for remote and heated, vertical configuration, illuminated
SWI1011	Integrated membrane switch w/ heater timer for remote and heated, horizontal configuration, illuminated
SWI1013	Integrated membrane switch w/ heater timer for remote / LED and heated / remote / LED, vertical configuration, illuminated
SWI1014	Integrated membrane switch w/ heater timer for remote / LED and heated / remote / LED, horizontal configuration, illuminated

### Ford E-Series Driver Door Mounted Switches

PART NO.	DESCRIPTION
HAR5020	Switch Pod w/ toggle heater switch, red illuminated and 2 remote switches
HAR5024	Switch Pod w/ toggle heater switch, red illuminated
HAR5029	Switch Pod w/ momentary heater switch (green), timer, 2 remote switches
HAR5032	Switch Pod w/ momentary heater switch (green), timer, 2 remote switches, 10 pin connectors for LED mirror turn signal



HAR5020



# FREEDMAN SHIELD DRIVER SEATS

Shield  
Rigid  
Seat



**NOW  
AVAILABLE**

Sport Seat  
Upgrade



Shield  
Recliner  
Seat



LeMans Adjustable Arm



*Sustainable Seating Solutions*  
Freedman Seating Company

**Not Just Seats**



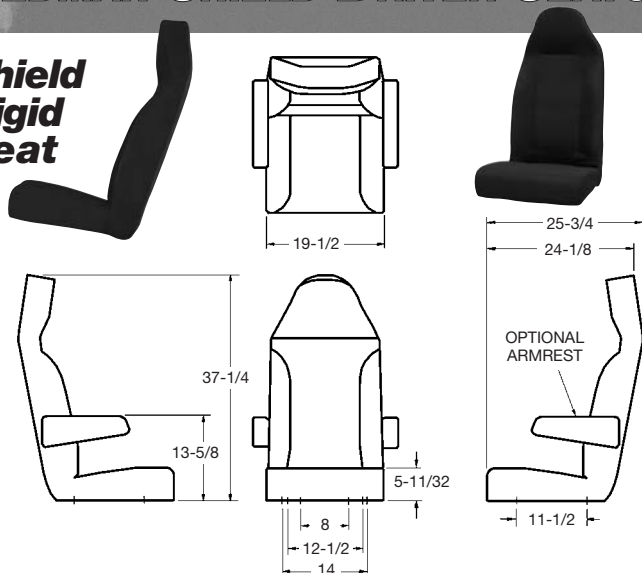
Seating Solutions™

**FREEDMAN**  
SEATING COMPANY

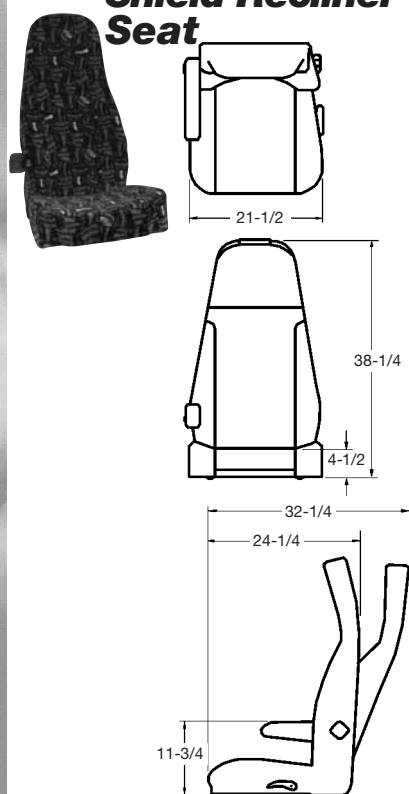


# FREEDMAN SHIELD DRIVER SEATS

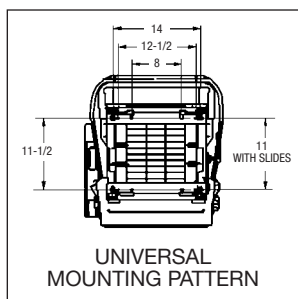
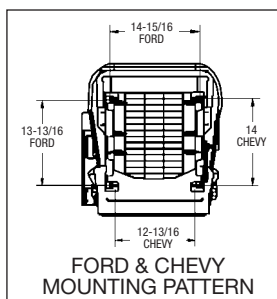
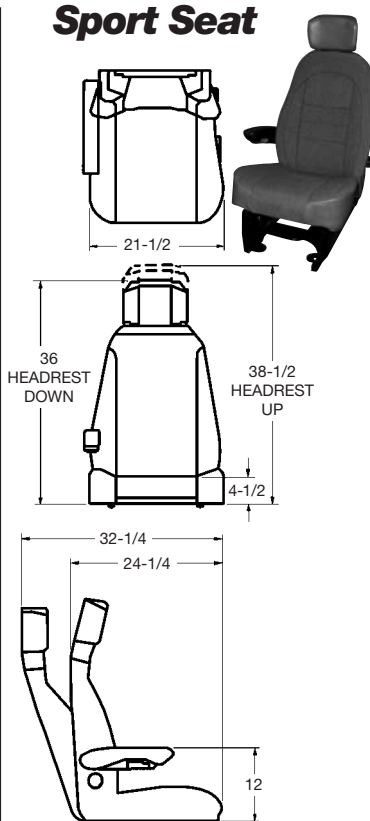
## Shield Rigid Seat



## Shield Recliner Seat



## Sport Seat



## MARKETS



DELIVERY TRUCK



BUS



VAN



MARINE



SPECIALTY

We are constantly updating and improving our seats; therefore we reserve the right to change or modify specifications or materials without notice. All Freedman Seating Company seats meet or exceed FMVS standards.

## Shield Rigid Seat

### Standard features:

- Designed and tested to comply with all applicable FMVSS requirements including 202A headrest standard
- Taller and wider headrest with decreased backset
- "Cushier" headrest for dynamic impact headrest absorption
- Automotive grade 4-spring seat flex-o-later for even load support and long life
- J-clip upholstery fastening for quick change out with no special tools
- High quality molded polyurethane seat and back cushions
- Universal mounting holes to fit Freedman Seating pedestals and most aftermarket bases

### Rigid Seat optional features:

- Flip arms: US Arm, AMA upholstered or wide upholstered
- Mesh map pocket
- Vertical stitching
- Wide array of fabrics and vinyls
- 4-position adjustable lumbar support
- S3 Bio Cushions
- Fore/Aft slide tracks

## Shield Recliner and Sport Seats

### Standard features:

- Designed and tested to comply with all applicable FMVSS requirements including 202A headrest standard
- Taller and wider headrest with decreased backset
- "Cushier" headrest for dynamic impact headrest absorption
- Mesh map pocket
- Automotive grade 4-spring seat flex-o-later for even load support and long life
- J-clip upholstery fastening for quick change out with no special tools
- High quality molded polyurethane seat and back cushions

### Recliner Seat additional standard features:

- 4-position adjustable lumbar-LH lever (RH lever on copilot)
- RH Shield arm
- Heavy duty recliner mechanism
- Mounting brackets to fit Ford E-Series and Chevy cutaway seat delete bases

### Recliner Seat optional features:

- Vertical stitching (not for Sport)
- Wide array of fabrics and vinyls
- FTA foam
- S3 Bio Cushions
- Universal mounting kit to fit Freedman Seating pedestals and aftermarket bases
- Fore/Aft slide tracks (not for Ford or Chevy seats), required for universal mounting

### Sport Seat additional standard features:

- Infinitely adjustable 4-way lumbar (up/down and in/out)
- RH LeMans arm



Sustainable Seating Solutions  
Freedman Seating Company

Not Just Seats



Seating Solutions™

**FREEDMAN**  
SEATING COMPANY

4545 W. Augusta Blvd., Chicago, IL 60651  
(773) 524-2440 (800) 443-4540 Fax (773) 252-7450  
WWW.FREEDMANSEATING.COM  
e-mail: sales@freedmanseat.com

**PRETORIA**

## Energy Absorbing Bumpers for Today's Mid Size and Heavy Duty Buses

SMI Energy Absorbing Bumpers are made with an ultra, high strength "pultruded" back up structure. Corrosion resistant material ensures long life, even when subjected to harsh weather conditions and road salt.

Our energy absorbing bumper is interchangeable for the, left or right side. Designed with fewer parts and less weight for Improved performance and quick installation.



Medium Duty



Heavy Duty

**Two Piece Construction  
Reduces Inventory Requirements and Cost  
Lower Weight—Higher Fuel Efficiency  
Durable Outer Skin Resist Tearing  
Long Life Corrosion Resistance  
Sleek, Modern Appearance  
Range of Widths from 80" to 102"**



**SPECIALTY  
MANUFACTURING**

**TRANSPEC**



ISO 9001:2008

**SpecFlor**

Pretoria Transit Interiors  
1975 Joe B. Jackson Pkwy  
Murfreesboro, TN 37127  
Phone: 615 867-8515  
[www.pretoriausa.com](http://www.pretoriausa.com)  
[www.smiglobal.net](http://www.smiglobal.net)



Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Request for Quotation  
36 — Vehicles

Proc Folder: 457733

Doc Description: 176" - 190" Wheelbase Cutaway Vehicle

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-07-09	2018-07-24 13:30:00	CRFQ 0805 PTR1900000001	1

**BID RECEIVING LOCATION**

BID CLERK  
DEPARTMENT OF ADMINISTRATION  
PURCHASING DIVISION  
2019 WASHINGTON ST E  
CHARLESTON WV 25305  
US

**VENDOR**

Vendor Name, Address and Telephone Number:

Sonny Merryman , Inc.  
5120 Wards Road  
Evington, VA 24550  
(P) 1-800-533-1006

**FOR INFORMATION CONTACT THE BUYER**

Michelle L Childers  
(304) 558-2063  
michelle.l.childers@wv.gov

Signature X

FEIN # 54-0806176

DATE 8/2/18

All offers subject to all terms and conditions contained in this solicitation

**ADDITIONAL INFORMATION:****Request for Quotation**

The West Virginia Purchasing Division is soliciting bids on behalf of the Division of Public Transit and any other state agency that desires to utilize this contract to establish an open-end contract for 176" - 190" Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles with air conditioning, fixed seats, wheelchair securements and lift to provide specialized transportation services in an urban and suburban-rural environment, including hilly terrain and a severe operating climate suited to stop-start duty cycles.

INVOICE TO		SHIP TO	
ACCOUNTS PAYABLE PUBLIC TRANSIT DIVISION OF BLDG 5 RM 650 1900 KANAWHA BLVD E CHARLESTON WV25305-0432 US		GENERAL MANAGER PUBLIC TRANSIT DIVISION OF KANAWHA VALLEY REGIONAL TRANSPORTATION AUTHORITY 1550 FOURTH AVE CHARLESTON WV 25324 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	176" - 190" Wheelbase Cutaway Vehicle	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
25101502	Startrans		Senator II

**Extended Description :**

176" - 190" Wheelbase Cutaway Vehicle

\*\*\*\*\*

Vendor should type or clearly print the information into the Exhibit A-Pricing Page to prevent errors in the evaluation. If Vendor is submitting bid online Vendor must submit Exhibit A -Pricing Page as attachment. TOTAL BID FOR EVALUATION is the amount Vendor is to enter into wvOASIS commodity line when submitting. Notwithstanding the foregoing, the Purchasing Division may correct errors at its discretion.

## INSTRUCTIONS TO VENDORS SUBMITTING BIDS

**1. REVIEW DOCUMENTS THOROUGHLY:** The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

**2. MANDATORY TERMS:** The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

**3. PREBID MEETING:** The item identified below shall apply to this Solicitation.

☒ A pre-bid meeting will not be held prior to bid opening

☐ A **NON-MANDATORY PRE-BID** meeting will be held at the following place and time:

☐ A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing.

Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

**4. VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are nonbinding.

Submitted e-mails should have solicitation number in the subject line.

Question Submission Deadline: July 16, 2018 at 10:00 AM EDT

Submit Questions to: Michelle Childers, Senior Buyer  
2019 Washington Street, East  
Charleston, WV 25305  
Fax: (304) 558-4115 (Vendors should not use this fax number for bid submission)  
Email: Michelle.L.Childers@wv.gov

**5. VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

**6. BID SUBMISSION:** All bids must be submitted electronically through wvOASIS or signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include electronic submission via wvOASIS, hand delivery, delivery by courier, or facsimile.

The bid delivery address is:  
Department of Administration, Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305-0130

A bid that is not submitted electronically through wvOASIS should contain the information listed below on the face of the envelope or the bid may be rejected by the Purchasing Division.:

SEALED BID:  
BUYER:  
SOLICITATION NO.:  
BID OPENING DATE:  
BID OPENING TIME:  
FAX NUMBER:

The Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. Submission of a response to an Expression of Interest or Request for Proposal is not permitted in wvOASIS.

**For Request For Proposal ("RFP") Responses Only:** In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus     N/A     convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: (This only applies to CRFP)

- ☐ Technical  
☐ Cost

**7. BID OPENING:** Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time:                      July 24, 2018 at 1:30 PM EDT

Bid Opening Location: Department of Administration, Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305-0130



**8. ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

**9. BID FORMATTING:** Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

**10. ALTERNATE MODEL OR BRAND:** Unless the box below is checked, any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

☐ This Solicitation is based upon a standardized commodity established under W. Va. Code § 5A-3-61. Vendors are expected to bid the standardized commodity identified. Failure to bid the standardized commodity will result in your firm's bid being rejected.

**11. EXCEPTIONS AND CLARIFICATIONS:** The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

**12. COMMUNICATION LIMITATIONS:** In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

**13. REGISTRATION:** Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the \$125 fee, if applicable.

**14. UNIT PRICE:** Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

**15. PREFERENCE:** Vendor Preference may be requested in purchases of motor vehicles or construction and maintenance equipment and machinery used in highway and other infrastructure projects. Any request for preference must be submitted in writing with the bid, must specifically identify the preference requested with reference to the applicable subsection of West Virginia Code § 5A-3-37, and should include with the bid any information necessary to evaluate and confirm the applicability of the requested preference. A request form to help facilitate the request can be found at:

<http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

**15A. RECIPROCAL PREFERENCE:** The State of West Virginia applies a reciprocal preference to all solicitations for commodities and printing in accordance with W. Va. Code § 5A-3-37(b). In effect, non-resident vendors receiving a preference in their home states, will see that same preference granted to West Virginia resident vendors bidding against them in West Virginia. A request form to help facilitate the request can be found at:

<http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

**16. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:** For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

**17. WAIVER OF MINOR IRREGULARITIES:** The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

**18. ELECTRONIC FILE ACCESS RESTRICTIONS:** Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately accessed and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or remove access restrictions to allow the Purchasing Division to print or electronically save documents provided that those documents are viewable by the Purchasing Division prior to obtaining the password or removing the access restriction.

**19. NON-RESPONSIBLE:** The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1-5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform, or lacks the integrity and reliability to assure good-faith performance.”

**20. ACCEPTANCE/REJECTION:** The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.5. and § 148-1-6.4.b.”

**21. YOUR SUBMISSION IS A PUBLIC DOCUMENT:** Vendor’s entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled “confidential,” “proprietary,” “trade secret,” “private,” or labeled with any other claim against public disclosure of the documents, to include any “trade secrets” as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

**22. INTERESTED PARTY DISCLOSURE:** West Virginia Code § 6D-1-2 requires that the vendor submit to the Purchasing Division a disclosure of interested parties to the contract for all contracts with an actual or estimated value of at least \$1 Million. That disclosure must occur on the form prescribed and approved by the WV Ethics Commission prior to contract award. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

**23. WITH THE BID REQUIREMENTS:** In instances where these specifications require documentation or other information with the bid, and a vendor fails to provide it with the bid, the Director of the Purchasing Division reserves the right to request those items after bid opening and prior to contract award pursuant to the authority to waive minor irregularities in bids or specifications under W. Va. CSR § 148-1-4.6. This authority does not apply to instances where state law mandates receipt with the bid.

## **GENERAL TERMS AND CONDITIONS:**

**1. CONTRACTUAL AGREEMENT:** Issuance of a Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

**2. DEFINITIONS:** As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

**2.1. "Agency" or "Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

**2.2. "Bid" or "Proposal"** means the vendors submitted response to this solicitation.

**2.3. "Contract"** means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

**2.4. "Director"** means the Director of the West Virginia Department of Administration, Purchasing Division.

**2.5. "Purchasing Division"** means the West Virginia Department of Administration, Purchasing Division.

**2.6. "Award Document"** means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

**2.7. "Solicitation"** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

**2.8. "State"** means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

**2.9. "Vendor" or "Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

**3. CONTRACT TERM; RENEWAL; EXTENSION:** The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☒ **Term Contract**

**Initial Contract Term:** **Initial Contract Term:** This Contract becomes effective on \_\_\_\_\_ upon approval \_\_\_\_\_ and extends for a period of one (1) year(s).

**Renewal Term:** This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be delivered to the Agency and then submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Unless otherwise specified below, renewal of this Contract is limited to three (3) successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

☐ **Alternate Renewal Term** – This contract may be renewed for \_\_\_\_\_ successive \_\_\_\_\_ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

**Delivery Order Limitations:** In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within \_\_\_\_\_ days.

☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within \_\_\_\_\_ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that maintenance, monitoring, or warranty services will be provided for \_\_\_\_\_ year(s) thereafter.

☐ **One Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☐ **Other:** See attached.

**4. NOTICE TO PROCEED:** Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

**5. QUANTITIES:** The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☒ **Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

**6. EMERGENCY PURCHASES:** The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute a breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

**7. REQUIRED DOCUMENTS:** All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

☐ **BID BOND (Construction Only):** Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

☐ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of 100% of the contract. The performance bond must be received by the Purchasing Division prior to Contract award.

☐ **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under \$100,000. Personal or business checks are not acceptable. Notwithstanding the foregoing, West Virginia Code § 5-22-1 (d) mandates that a vendor provide a performance and labor/material payment bond for construction projects. Accordingly, substitutions for the performance and labor/material payment bonds for construction projects is not permitted.

☐ **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

☐

☐

☐

☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.



**8. INSURANCE:** The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below and must include the State as an additional insured on each policy prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed in this section.

Vendor must maintain:

☒ **Commercial General Liability Insurance** in at least an amount of: \$1,000,000.00 per occurrence.

☒ **Automobile Liability Insurance** in at least an amount of: \$1,000,000.00 per occurrence.

☐ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: \_\_\_\_\_ per occurrence.

☐ **Commercial Crime and Third Party Fidelity Insurance** in an amount of: \_\_\_\_\_ per occurrence.

☐ **Cyber Liability Insurance** in an amount of: \_\_\_\_\_ per occurrence.

☐ **Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.

☐ **Pollution Insurance** in an amount of: \_\_\_\_\_ per occurrence.

☐ **Aircraft Liability** in an amount of: \_\_\_\_\_ per occurrence.

☐☐☐☐

Notwithstanding anything contained in this section to the contrary, the Director of the Purchasing Division reserves the right to waive the requirement that the State be named as an additional insured on one or more of the Vendor's insurance policies if the Director finds that doing so is in the State's best interest.

**9. WORKERS' COMPENSATION INSURANCE:** The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

**10. [Reserved]**

**11. LIQUIDATED DAMAGES:** This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

☐ \_\_\_\_\_ for \_\_\_\_\_

☐ Liquidated Damages Contained in the Specifications

**12. ACCEPTANCE:** Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

**13. PRICING:** The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.

**14. PAYMENT IN ARREARS:** Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears.

**15. PAYMENT METHODS:** Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

**16. TAXES:** The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

**17. ADDITIONAL FEES:** Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

**18. FUNDING:** This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

**19. CANCELLATION:** The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

**20. TIME:** Time is of the essence with regard to all matters of time and performance in this Contract.

**21. APPLICABLE LAW:** This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

**22. COMPLIANCE WITH LAWS:** Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

**SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

**23. ARBITRATION:** Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

**24. MODIFICATIONS:** This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

**25. WAIVER:** The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

**26. SUBSEQUENT FORMS:** The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

**27. ASSIGNMENT:** Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments.

**28. WARRANTY:** The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

**29. STATE EMPLOYEES:** State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

**30. PRIVACY, SECURITY, AND CONFIDENTIALITY:** The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/default.html>.

**31. YOUR SUBMISSION IS A PUBLIC DOCUMENT:** Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

**32. LICENSING:** In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

**SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

**33. ANTITRUST:** In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

**34. VENDOR CERTIFICATIONS:** By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein.

Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

**35. VENDOR RELATIONSHIP:** The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

**36. INDEMNIFICATION:** The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

**37. PURCHASING AFFIDAVIT:** In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State, Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Purchasing Division affirming under oath that it is not in default on any monetary obligation owed to the state or a political subdivision of the state.

**38. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE:** This Contract may be utilized by other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts ("Other Government Entities"), provided that both the Other Government Entity and the Vendor agree. Any extension of this Contract to the aforementioned Other Government Entities must be on the same prices, terms, and conditions as those offered and agreed to in this Contract, provided that such extension is in compliance with the applicable laws, rules, and ordinances of the Other Government Entity. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

**39. CONFLICT OF INTEREST:** Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

**40. REPORTS:** Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☒ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at [purchasing.requisitions@wv.gov](mailto:purchasing.requisitions@wv.gov).

**41. BACKGROUND CHECK:** In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision. The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Revised 06/08/2018



Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

**42. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS:** Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

- a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.
- b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:
- c. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or
- d. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

**43. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL:** In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars (\$50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a

“substantial labor surplus area”, as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

**44. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE:** W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$1 million, the vendor must submit to the Agency a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-award interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**SPECIFICATIONS**

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of the Division of Public Transit and any other state agency that desires to utilize this contract to establish an open-end contract for 176" – 190' Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles with air conditioning, fixed seats, wheelchair securements and lift to provide specialized transportation services in an urban and suburban-rural environment, including hilly terrain and a severe operating climate suited to stop-start duty cycles.

Vehicles supplied shall conform in all respects to the applicable Motor Vehicle Laws of the State of West Virginia, Federal Motor Vehicle Safety Standards, Environmental Protection Agency, Federal and State Regulations in effect at the time of manufacture and all must be in compliance with Americans with Disabilities Act (ADA) regulations at the time production of the vehicle commences.

The Vendor is to deliver a complete new 2019 or current year vehicle in one of the two (2) proposed floor plans as defined in these specifications with different configurations identified as a Class on the Exhibit A- Pricing Pages, ready for operation. **All required Federal Transit Administration certification forms shall be included in the bid proposal.**

2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them.
- 2.1 "Contract Item" means the 176" – 190" Wheelbase Dual Rear Wheel (DRW) Cutaway vehicles more fully described by these specifications.
- 2.2 "Pricing Pages" or "Contract Items" means the list of buses with the configurations identified herein and on the Pricing pages as Classes A through F.
- 2.3 "Division" means the West Virginia Division of Public Transit, DPT.
- 2.4 "EPA" means Environmental Protection Agency.
- 2.5 "Gross Vehicle Weight Rating (GVWR)" means the maximum loaded weight (including curb weight, operator & passenger weight, and payload) in pounds (lbs.) of a single vehicle. Vehicle manufacturers specify the maximum GVWR on the vehicle certification label.
- 2.6 "Manufacturer/Brand" means the name of the maker of the contract item which will be supplied by the vendor.
- 2.7 "Model & Number" means the model name and model number associated with the contract item as defined by the manufacturer.
- 2.8 "OEM" means Original Equipment Manufacturer.
- 2.9 "Powertrain" means the group of components used to transmit engine power to the wheels. The powertrain includes the engine, clutch, transmission, universal joints, drive shaft, and rear-axle gears.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 2.10** “**Pricing Page**” means the pages, contained in wvOASIS or attached as Exhibit A, upon which Vendor should list its proposed price for the Contract Items.
- 2.11** “**QVM**” means Qualified Vehicle Manufacturer.
- 2.12** “**Solicitation**” means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.
- 2.13** “**Vendor Name**” means the company name of the vendor who will be supplying the contract item(s) to the Division.
- 2.14** “**Warranty**” means the written guarantee issued with new motor vehicles or related equipment. It defines the manufacturer’s responsibility for the repair or replacement of defective parts and other services provided as part of the purchase price. A warranty can be nullified if the user does not follow certain stipulations of the manufacturer, such as preventive maintenance.
- 2.15** “**Wheelbase**” means the distance from the centerline of the front axle to the centerline of the rear axle. Minimum of 176”.
- 2.16** “**Curb Weight**” means Weight of the vehicle including maximum fuel, oil, and coolant and all equipment required for the operation as required by this specification without passengers or driver.
- 2.17** “**Gross Load**” means one hundred and seventy five (175) pounds for every design passenger seating position and for the driver and three hundred (300) pounds for every wheelchair station. Vehicles will be operated without standees.
- 2.18** “**Fireproof**” means materials that will not burn or melt at temperatures less than 2,000 degrees Fahrenheit.
- 2.19** “**Fire Resistant**” means Materials that have a flame-spread index less than 150 as measured in a radiant panel flame test per FTA Docket 90A  
  
<https://www.govmark.com/pdf/information-bulletin/public-transportation-requirements.pdf>
- 2.20** “**ASTM**” means American Society for Testing and Materials
- 2.21** “**SAE**” means Society of Automotive Engineers
- 2.22** “**FMVSS**” means Federal Motor Vehicle Safety Standards
- 2.23** “**EPA**” means Environmental Protection Agency

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 2.24 "DMV" means Division of Motor Vehicles, State of West Virginia
- 2.25 "FTA" means Federal Transit Administration
- 2.26 "ADA" means Americans with Disabilities Act of 1990 including applicable federal regulations issued pursuant to the Act and in effect at the time production of the vehicle commences.
- 2.27 "DBA" means the decibel scale A weight to measure upper middle frequencies over time that can impact hearing loss.
- 2.28 "RPM" means Revolutions per minute.
- 2.29 "HP" means the power of an engine measured in terms of a unit of power equal to 550 foot pounds per second.
- 2.30 "GAWR FR" is the maximum distributed weight that may be supported by the front axle.
- 2.31 "GAWR RR" is the maximum distributed weight that may be supported by the rear axle.

### 3. GENERAL REQUIREMENTS

**3.1 CONTRACT Items and Mandatory Requirements:** Vendor shall provide Agency with the Contract Items listed below on an open-end and continuing basis. Contract Items must meet or exceed the mandatory requirements as shown below.

- 3.1.1 In all cases, materials shall be furnished as specified. Where brand names or specific items or processes are used in the specifications, consider the term or equal to follow.
- 3.1.2 **Legal Requirements** – The vehicle shall meet all applicable FMVSS, DMV, ADA and federal and state regulations in effect at the date of manufacture. Vendor shall supply certification that vehicle meets all FMVSS Regulations and that vehicle complies with all relevant federal and State of West Virginia Standards at the time of delivery.
- 3.1.3 **Components, Materials, Workmanship, and Completeness:** These specifications reflect the Division of Public Transit's preference as to dimensions, materials, and major components. However, the vendor shall not omit any part or detail which goes to make the vehicle complete and ready for service, even though such part or detail is not mentioned in these specifications.
- 3.1.4 All units or parts shall be manufacturer's best quality and shall conform in material, design and workmanship to the best practice known in the automotive industry. All parts shall be new and in no case will used, reconditioned, or

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

obsolete parts be accepted. The parts on all vehicles provided by the same manufacturer shall be interchangeable.

- 3.1.5 The price quoted in any proposal submitted shall include all items of labor, material, tools, equipment, and other costs necessary to fully complete the manufacture and delivery of the vehicle pursuant to these specifications.
- 3.1.6 It is the intent of these specifications to provide and require a complete vehicle of the type prescribed ready for operation. The vendor shall assume sole responsibility for the entire vehicle as to warranty and after-sales parts and service.
- 3.1.7 Warranty to become effective on the first day, after the date of final acceptance, of each vehicle by the Division of Public Transit.
- 3.1.8 **Exhaust Emissions Control Requirements:** The vehicle shall comply with all federal and state requirements applicable to the year of manufacture.
- 3.1.9 **Noise Control:** The exterior noise from the vehicle shall not exceed eighty-six (86) dba using the procedures set forth in the SAE Standard SAE J 366. Vendor shall supply report showing testing results of noise control.

The interior noise at a location two (2) feet from the rear window and four (4) feet from the floor shall not exceed 86 dba with the vehicle standing with the transmission in neutral and the engine operating a maximum rated RPM.

- 3.1.10 **Inspection Facilities:** In order to comply Inspection Stations, the manufacturer shall provide on its premises a suitable hoist for a complete inspection of the underside of the vehicle. **A pit is not acceptable.** This includes, but is not limited to, wiring and hosing runs, structural integrity, through floor securements, OEM defects and completeness, and coverage of the undercoating
- 3.1.11 Body shall be thoroughly water tested and made tight to prevent leakage. All vehicles purchased under this contract shall, during the course of the manufacture and prior to acceptance, shall be subjected to a water test to determine body leaks. This test shall consist of a series of nozzles, which are strategically located around the perimeter of the vehicle as to spray water over the entire surface of the vehicle. The nozzles shall eject a volume of water no less than twenty-two pounds per square inch measured at the nozzle tip. Body shall be thoroughly water tested and made tight to

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

prevent leakage. The bidder shall provide the procuring agency with details of its water testing procedures with the bid.

LOCAL GOVERNMENT BODIES: UNLESS THE VENDOR INDICATES IN THE BID HIS/ HER REFUSAL TO EXTEND THE PRICES, TERMS AND CONDITIONS OF THE BID TO COUNTY, SCHOOL, MUNICIPAL AND OTHER LOCAL GOVERNMENT BODIES, THE BID SHALL EXTEND TO POLITICAL SUBDIVISIONS OF THE STATE OF WEST VIRGINIA. IF THE VENDOR DOES NOT WISH TO EXTEND THE PRICES, TERMS AND CONDITIONS OF THE BID TO ALL POLITICAL SUBDIVISIONS OF THE STATE, THE VENDOR MUST CLEARLY INDICATE SUCH REFUSAL IN HIS/ HER BID.

ALSO, THE PRICES, TERMS AND CONDITIONS OF THE BID MAY BE EXTENDED TO WEST VIRGINIA TRANSIT AUTHORITIES AND PRIVATE NON PROFITS. VENDOR MUST CLEARLY INDICATE A REFUSAL IN HIS / HER BID.

### **3.2 CHASSIS**

- 3.2.1** Chassis shall be OEM's original wheelbase. Chassis extensions behind the rear axles to support the body shall be in accordance with OEM's recommended practices and painted to match the original. All welds and cuts shall be properly dressed and deburred to present a professional finish.

### **3.3 ENGINE / EXHAUST SYSTEM**

- 3.3.1** Engine shall have a minimum of 362 horsepower, gasoline engine.
- 3.3.2** The engine shall be furnished with a large capacity full flow oil filter easily reached and replaced without removal of any major component. Engine shall be equipped with oil fill access in top of rear valve pan cover. Front oil filler tube shall be extended to rear of front access door. All service tubes should be extended in a similar manner. Care should be taken to ensure that the battery and alternator supply wire is insulated to prevent grounding during oil filter removal/replacement. Transmission cooler lines should not interfere with the oil filter removal or replacement. A low voltage light shall be under the hood in order for service personnel to service vehicle.
- 3.3.3** An engine oil-cooling system and dry type air cleaner is required. Two (2) ambulance bilge-style cooling ports shall be installed on OEM hood to facilitate air exchange in the engine compartment.
- 3.3.4** The engine shall be installed to produce a minimum of vibration. A firewall of sandwich construction shall separate the engine and passenger compartments, providing both thermal and acoustic insulation and sealing

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

against intrusion of exhaust fumes into the vehicle. Non-combustible insulation shall be used.

- 3.3.5 Exhaust System** to be OEM stainless steel exhaust pipes and muffler installed with heat shield and baffles. The tail pipe shall be designed to direct exhaust away from the lift area toward the street side.

**3.4 FUEL SYSTEM**

- 3.4.1** A single fuel tank shall have the maximum capacity allowed by OEM and be located between the chassis rails behind the rear wheels. Fueling should be possible from the street or curbside. Engine mounted fuel filter is required with replacement type element. Locking fuel door to be provided on each vehicle.

**3.5 COOLING SYSTEM**

- 3.5.1** The cooling system shall have sufficient capacity to provide satisfactory cooling at 115 degrees Fahrenheit at sea level and shall be equipped with an overflow tank such that coolant expelled is saved and restored to the cooling system. The cooling system shall be the OEM chassis supplier's heaviest duty system.

**3.6 HIGH IDLE SYSTEM**

- 3.6.1** A high-idle system, intended to maintain battery charging under heavy demand when the vehicle is stationary and the emergency brake is applied shall be provided on all vehicles. The fast idle switch will automatically disengage when the vehicle is placed in forward or reverse gears.

**3.7<sup>1</sup> ENGINE OIL COOLER**

- 3.7.1** An OEM oil cooler shall be provided.

**3.8 TRANSMISSION**

All fill tubes must be extended to an accessible position for easy service access.

- 3.8.1** Transmission shall be a heavy-duty, six-speed automatic minimum, with increased cooling capacity to match GVWR of vehicle.
- 3.8.2** The transmission and drive shall be heavy duty. Each section of the drive shaft shall be equipped with a guard to prevent the shaft from striking the passenger compartment floor or the ground in the event it should break.
- 3.8.3** The transmission shall have a separate cooling system appropriate for the intended use of the vehicle. The cooling system shall be protected with permanent type antifreeze to twenty-five below zero Fahrenheit.
- 3.8.4** The vehicle shall be equipped with a differential having a gear ratio appropriate to maintain a speed of 70 mph with the vehicle loaded and not exceed



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

manufacture's recommended operation engine rpm. The gear ratio will be adjusted by the vendor after the delivery to the end user to be appropriate for the agency's use and terrain.

**3.9 SUSPENSION**

**3.9.1** Shall be the highest rating available. Suspension system shall provide the low, unsprung weight characteristics necessary for passenger comfort without sacrificing vehicle stability and shall provide heavy-duty shock absorbers. A front axle with independent suspension is preferred. Vendor must perform a front end alignment after each vehicle is completely built. The vendor shall supply a camber and caster kit for each vehicle. Vendor shall supply a statement of completion verifying that alignment was completed with warranty information.

**3.9.2** MOR/RIDE Suspension System or equal shall be supplied on each vehicle. Defined as rubber shear spring suspension that works in conjunction with the chassis steel leaf spring suspension to absorb road shock.

**3.10 AUDIBLE ALARMS /BACK UP CAMERA**

**3.10.1** A 12 volt dual horn shall be situated beneath the front end of the vehicle, protected from wheel wash.

**3.10.2** A rear alarm shall be provided that is clearly audible outside of the vehicle when the transmission is in reverse.

**3.10.3** An audible door ajar alarm/buzzer shall be provided for rear emergency exit door, emergency exit windows and non-ambulatory wheelchair lift door.

**3.10.4** An OEM back up camera will be provided at the rear of the vehicle. The viewing screen will be mounted to allow the driver a clear view of the area directly behind the vehicle. Location of the viewing screen will be determined by the successful vendor and the Division of Public Transit.

**3.11 FRONT AXLE AND STEERING**

**3.11.1** GAWR FR compatible with chassis OEM.

**3.11.2** The steering mechanism shall be constructed so that the vehicle can be easily steered by its operator and shall be such as to make the wheel free from road shock and vibration. The steering mechanism shall be self-centering, requiring little or no effort for the operator to bring the vehicle back to a straight-ahead position from a turning position. Steering wheel rim shall be 25 inches maximum in diameter and the wheel rim shall be of plastic or synthetic resin construction molded over metal. The steering gear box should be placed in an easily accessible location for service. Steering shall be power assisted.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**3.11.3** With the vehicle stationary on dry, level pavement and the engine idling, steering effort shall be as low as possible at the steering wheel. This effort shall remain approximately constant from just off straight-ahead to approaching full lock.

**3.11.4** OEM tilt-wheel, or adjustable steering column, with cruise control is required.

**3.12 REAR AXLE**

**3.12.1** GAWR RR compatible with chassis OEM.

**3.13 BRAKES**

**3.13.1 Service Brakes:** The Anti-Lock Brake System (ABS) foundation brakes shall be a power-actuated hydraulic split system of four-wheel disc-type, with four channel anti-lock braking control. Braking system shall include a red brake warning lamp in the instrument cluster that lights when the parking brake is on, when a front or rear hydraulic failure occurs, or when brake fluid is low in the reservoir.

**3.13.2** Emergency parking brakes shall be provided on the driveline or rear brakes.

**3.13.3** The brake system shall meet all federal and state requirements for vehicles over 10,000 GVWR for stopping distance, stability while braking, fade resistance, water recovery and warning devices. The warning devices must meet FMVSS standards.

**3.14 WHEELS**

**3.14.1** 16.0 diameter X 6.0" width or sized compatible with the suspension and GVWR will be furnished.

**3.14.2** Both inner and outer wheels shall be painted to match the basic body color, which is white.

**3.15 TIRES**

**3.15.1** Vehicles shall be equipped with seven (six regular and one regular sized spare) steel belted radial tires. Each inner dual rear wheel shall come with an air valve extender.

**3.15.2** Manufacturer shall provide a spare tire as standard equipment. The spare wheel and tire shall be sized per 3.15.1 and shall be shipped secured in the body of the vehicle appropriately secured so as not to damage the vehicle interior during shipment. Spare is to be the exact same tire and provided on the vehicle. Spare tire shall be painted as per 3.14.2 and it shall be as inflated to the proper pressure with air, not nitrogen.

**3.15.3** Tires shall be supplied with the vehicle from the factory.

**3.15.4** Tire Rating and Type E rating truck type treads shall be all weather type.

- 3.15.5** Rubber mud flaps shall be provided at all wheels. No hard plastic shall be permitted.

### **3.16 ELECTRICAL SYSTEM / WIRING**

- 3.16.1** The vehicles are to be supplied with a twelve (12) volt electrical system. All components are to be selected and integrated to function in an environment characterized by low engine (alternator) speeds and high amperage draws, due to lights, flashers, air conditioning or heaters, and other accessories in constant operation. As Built Schematics must be supplied and current with all vehicles in Word or Adobe reader format. **Two (2) 11" x 17" clearly readable laminated print copies of the as built schematics shall be provided for each vehicle at the time of delivery.** All wiring shall be loomed and held in place by insulated clamps spaced every 12 inches on center. Wiring shall be system coded, numbered and function coded. All wiring must be at least 14 gauge where possible. The Division will accept lower gauge wiring in places where 14 gauge is not possible by OEM. All wiring shall have adequate electrical insulation and provide flexibility and resistance against solvents or abrasives in accordance with SAE standards. All exposed underbody connectors shall be weather proofed for protection against the elements.

SAE Standard <http://standards.sae.org/ams3625/>

- 3.16.2** Wiring shall be correctly grouped and coded and installed such that systems checks, maintenance, and replacement can be affected with minimum effort.
- 3.16.3** Wiring shall be adequately supported. Where penetration of structural members occurs, grommets or similar devices shall be used to prevent chafing.
- 3.16.4** Where applicable, all circuits shall be suppressed with capacitors to eliminate interference with radio and TV transmission and reception.
- 3.16.5 Alternator:** OEM 225-amp alternator with a rectifier is required. Rectifier maybe either integral or externally connected. Bidder shall specify the nature of the rectifier and method of installation. The voltage regulator shall be solid state. The alternator shall be sized to provide a minimum of 90 percent of the continuous system draw at the engine manufacturer's recommended idle or 100 percent at automatic fast idle as specified (3.6 High Idle System). The alternator speed shall not exceed its recommended maximum or recommended high engine speed. The continuous system draw shall include all accessories in their "high" position, which could operate as the vehicle is in motion; i.e., excluding intermittently operating devices, such as turn signals, brake lights, or wheelchair lifts.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**3.16.6 Batteries:** Two (2) strongest duty 12 volt batteries shall be provided with a minimum total capacity of 1275 CCA.

**3.16.7** Batteries shall be at an easily accessible location from the exterior of the vehicle. Any chassis OEM battery located under the hood shall remain there. The second battery is to be installed in a stainless steel battery box on a stainless steel slide-out tray located on the curb side of the vehicle. An access door will be provided in the skirt to access this battery box. The access door will be secured with two (2) quarter-turn latches.

**3.17 INSTRUMENTS AND CONTROLS:**

The following instruments shall be provided. All controls shall be within the driver's arm reach when his seat belt is fastened. All instruments are to be grouped on a single panel in full view of the driver with no instruments obstructed by controls, trim panels, or other appurtenances and arranged in a consistent and uniform manner.

**3.17.1** Vehicle shall be equipped with the OEM's deluxe digital AM/FM/USB/MP3 radio stereo with a 6-speaker system for the passengers. One (1) additional speaker shall be installed in the driver's door or driver's side of the dashboard.

**3.17.2** Speedometer with recording odometer

**3.17.3** Ammeter or voltammeter gauge

**3.17.4** Low-charge warning light

**3.17.5** Oil pressure gauge

**3.17.6** Fuel tank level gauge(s)

**3.17.7** Engine temperature gauge

**3.17.8** Headlight on indication and headlight high beam indicator

**3.17.9** Directional signal and flasher action light

**3.17.10** Parking Brake Indicator

**The following controls, in addition to the normal steering, braking, and transmission functions shall be provided:**

**3.17.11** Separate switches and temperature controls for rear passenger compartment heater and air conditioner.

**3.17.12** Separate switch and temperature controls for driver's heater, defroster and air conditioner.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.17.13 Three speed electric windshield wipers with high, low and intermittent speeds and may be panel or column mounted.
- 3.17.14 Passenger compartment lights
- 3.17.15 Back Up Camera
- 3.17.16 Tilt Steering Wheel
- 3.17.17 Cruise Control
- 3.17.18 OEM charging port for cell phones.
- 3.17.19 Emergency flasher control facing driver and clearly visible
- 3.17.20 Master exterior light switch and auxiliary switches, if necessary, for any clearance or marker lights.
- 3.17.21 A two-speed heavy duty commercial vehicle circulation fan shall be provided in the driver's area for increased circulation. The fan shall be a minimum of six (6) inches in diameter with at least a three position control switch. Location will be approved by the West Virginia Division of Public Transit.
- 3.17.22 Glove box with 12 volt light inside.
- 3.17.23 Each vehicle shall be equipped with driver's side air bag.

**3.18 ELECTRICAL FUSES/CIRCUIT BREAKERS**

- 3.18.1 The fuse panel box shall be large enough so that the wires are not cramped and easily accessible for service. The panel door shall have enough space between door and panel so that the door and wires do not touch when closed.
- 3.18.2 All fuses and/or circuit breakers other than the OEM's chassis shall be placed in a waterproof electrical distribution panel located above the driver's door, accessible from inside the vehicle. Fuses will be automotive mini blade type fuses that plug into a modular distribution block, such as Cooper Bussman Series 3000 BEC, TCT, or equal.
- 3.18.3 The distribution panel access door shall be side or bottom hinged and contain a readily visible circuit diagram of the electrical services.

**3.19 BODY STRUCTURE / ROOF**

- 3.19.1 Body shall be steel framed with a minimum 18 gauge steel and be built as an integral welded unit mounted on a chassis and adequately reinforced at all joints

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

where stress concentration may occur. Side walls, rear wall, roof, and floor must be welded together; joining by other means is not acceptable. Details of body construction including materials, methods of joining and assembling components or sub-assemblies and method of attachment of the body to the chassis shall be submitted in bid. Honeycomb construction is not acceptable. Roof structure to include two roll bars fabricated from steel tubing incorporated into roof structure to provide additional strength.

- 3.19.2** Federal and state requirements including FMVSS #220 Rollover Protection are required to be met. The side and end forming shall be so designed and constructed that they will carry their proportion of the stresses imposed and absorb excessive impacts with as little damage as is practical. Adequate reinforcement shall be installed around all doors in order to transfer the stresses around these openings. All posts in body, side, and roof sections shall be of square section tubing or equal construction securely fastened to the under frame structure so that the entire frame shall act as one unit without any movement at the joining. The end posts shall be designed to standards as required for federal and state standards for shear, static load on roof, and side panel impact protection.

FMVSS Standard #220 <https://www.law.cornell.edu/cfr/text/49/571.220>

- 3.19.3** All steel components are to be anti-corrosive that meets ASTM B117 (3500 hours) and ASTM D870 (1000 hours). The Division will accept gray self etching primer on steel components and G40 galvanized materials as equals.

ASTM B117 <https://www.astm.org/Standards/B117.htm>

ASTM D870 <https://www.astm.org/Standards/D870.htm>

- 3.19.4** All nuts, bolts, clips, washers, clamps, and like-parts shall be galvanized, zinc-coated, or given a coat of primer as additional protection against corrosion. All exterior screws and bolts shall be stainless steel.
- 3.19.5** Interior surfaces of any exterior painted body panels and posts which are covered by trim material shall be given a coat of primer as additional protection against deterioration.
- 3.19.6** All exterior joints and seams shall be protected by the application of caulking compound of zinc chromate type or acceptable substitute. Application of exterior sidewalls with two-sided tape is not acceptable.
- 3.19.7** All interior panels shall be riveted, welded or fastened to the body frame. All fasteners shall be installed to resist vibratory loosening. Exterior seams shall be constructed in such a manner that they shed water; the leading panel shall be lapped over the following panel and in no case shall the sealing of the panels be dependent on caulking alone. All exterior joints and seams shall be protected by the application of caulking compound of zinc chromate type tape, butyl rubber type, or equal.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.19.8** All exposed surfaces and edges shall be smooth, free from burrs and other projections, and shall be neatly finished.
- 3.19.9** Lower skirts to be of thick molded fiberglass or galvanized steel. Skirt seams **MUST** be placed above the wheel wells or adjacent to one of the A/C skirt condensers only.
- 3.19.10** Ceiling and side panels shall match the interior color scheme and provide a hard, vandal resistant, flame-retardant surface.
- 3.19.11** The passenger entrance frame and wheelchair door shall be aluminum or stainless steel construction only.
- 3.19.12** The front cap shall have an extra framed support from the side of the passenger entrance door to the floor.
- 3.19.13** Roof shall be one piece metal, fiberglass, or equal panel with one and one half (1 – 1/2") minimum thickness rigid foam insulation or equivalent. Side panels above the floor line shall be one piece fiberglass reinforced plastic (FRP), steel, aluminum, or equals on the exterior, of one piece construction, firmly attached to prevent flexing of the panels to the frame structure to present a smooth pleasant appearance and to be free from drumming or oil canning. Vacuum lamination is the preferred method.
- 3.19.14** Side panels (skirt) below the floor line shall be detachable aluminum and separate from the above panels for ease of the maintenance and repair. An aluminum or galvanized steel underfloor shall be provided for the whole of the passenger compartment, and it shall be fully undercoated.
- 3.19.15** Stepwells shall be of one-piece stainless steel or aluminum construction welded into the floor and side-structures. The bottom of the steps and risers will be coated with undercoating, such as Z Tech Z guard 20060 B-2 or an equal. Stepwells shall be of one piece construction of corrosion resistant steel with covered corners and adequate reinforcement to prevent deflection.

Stepwell shall be the full width of the door opening, and designed like the Talon Tread-type step or approved equal, which eliminates separation and exposure of metal to moisture on the treads and risers. The preferred method of manufacturing is a process where the contrasting step nosing and flooring are heated with the metal stepwell so that the metal and flooring material are fused with fewer seams and less caulking.

The entire underside of the stepwell shall be fully undercoated. The nosing of each step shall be marked with bright yellow marking with abrasive strip insert not less than two (2) inches wide, reflective type material Ger floor or equal.

Floor covering shall be laid without gaps or openings. Joints shall be filled with color matching material to be tight against any influx or seepage of water and all edges to be sealed. Stepwells and walkways to be contrasting color against under passenger seat flooring for higher visibility.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.19.16** Wheel housing shall be steel and should provide clearance for wheels equipped with chains to move freely and to allow a wheel to be removed with the vehicle jacked on the rear axle.

**3.20 EXTERIOR:**

Vehicle exterior paint shall be OEM standard "white" finish.

- 3.20.1 Vehicle Vinyl Scheme: Vinyl Logo/Striping Schemes on Vehicle Classes A, C, E.** The Transit Authority's name, phone number and Logo Striping applied to both sides of the vehicle by the Vendor at the factory
- 3.20.2** The artwork for the logo and stripes will be provided by the Transit Authority upon award.
- 3.20.3** Signs and numbers shall be fade, chip, and peel-resistant: NO painted signs, decals or pressure sensitive appliques.
- 3.20.4** All decals shall be sealed with clear, waterproof sealant around the edges and on all exposed surfaces.
- 3.20.5** Successful vendor to work directly with Transit Authority regarding what logo, stripes, etc. to be applied. Successful vendor shall obtain written documentation from Transit Authority Official approving layout, colors and information prior to installation. See Exhibit C Examples of Paint Schemes.

**3.21 UNDERCOATING AND RUSTPROOFING:**

- 3.21.1** All exposed floor seams shall be sealed with an industrial grade butyl sealant or equivalent which conforms to ASTM C920. The entire surface of exterior lowered floor shall have a rust inhibiting coating, such as an epoxy primer base, applied to cover all welded areas, and then a fresh application of undercoating over the entire surface. Undercoating shall comply with current Federal and State flammability standards.

ASTM C920 Standards: <https://www.astm.org/Standards/C920.htm>

- 3.21.2** The vehicles shall be fully undercoated at the point of manufacture prior to delivery.

**3.22 DOORS – ACCESS AND ENTRANCE / EXIT**

- 3.22.1 Access Doors:** Access doors shall be provided where necessary to service transmission, engine, radiator, batteries, air conditioning, and radio system components.
- 3.22.2 Ambulatory Passenger Doorway:** A driver operated 2 leaf, outward opening passenger access door shall be located towards the front of the right of the vehicle.



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

3.22.3 Dimensions shall be:

Overall Clear Height	Approximately 80"
Overall Clear Width	Not Less Than 30"
Tread Depth	Minimum of 8.5"
Riser Height	Maximum of 9"
Distance Step to Ground	Maximum of 12"

- 3.22.4 The door shall be fully glazed or provided with upper and lower windows allowing the driver an adequate view of the curbside area outside of the door. **Tempered safety glass shall be used.**
- 3.22.5 When the door is closed, the lower step shall not protrude beyond the door line more than two (2) inches.
- 3.22.6 Brushes or other appropriate seals shall be fitted to the bottom of the door panels to assist in sealing and snow clearance.
- 3.22.7 Electrically Operated door to be provided with Kubota key switch or equal. Door control shall be within twenty-eight (28) inches from the right side of the driver's shoulder. The door frame shall be welded at all seams to ensure that the door frame will not separate. An additional post shall run from the side of the passenger entrance door to the cap to provide an extra support for the front cap.
- 3.22.8 The passenger entrance and non-ambulatory passenger entrance/exit door frames shall be aluminum or stainless steel construction only.
- 3.22.9 Passenger door shall be key operated from the outside and by a rocker or toggle switch from the driver's console. Door pivot pins shall incorporate permanently lubricated bearings. Door must have an emergency release in case electric is not properly working.
- 3.22.10 Driver's door shall have a diamond plate running board to provide easy access for the driver. The Division of Public Transit requests no less than 8.5" wide and within 12.5" off the ground.
- 3.22.11 An interlocking system such as Intermotive Gateway, ILIS, or equal, shall be provided which renders the door inoperative unless the transmission shift lever is in the "park" position. Once the door is closed and the vehicle is placed in drive, the interlocking system will disengage.
- 3.22.12 **Non-Ambulatory Passenger Entrance/Exit:** A driver operated two-piece wheelchair entrance door with large upper viewing window, capable of being locked, shall be located at the rear of the curbside and behind the rear wheels. Doors shall be fitted with heavy-duty, full-length piano hinges. These doors shall not sag when open, and if there is a possibility of sagging, additional preventative gussets need to be inserted.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.22.13 A minimum clear vertical distance of 68" inches required through the doorway and lift installation.
- 3.22.14 Overall door width of approximately 52 inches is required. The door width must provide operating clearance for a lift meeting the requirements of the lift section.
- 3.22.15 A warning light shall be provided at the driver's station to indicate when the door is open for wheelchair operation and a buzzer to indicate when it is ajar with the vehicle in motion.
- 3.22.16 Door ajar signal is to be activated by a magnetic proximity switch or a plunger type switch. The striker for the signal must not have contact with flexible section of the door. It must either make contact with the top mullion or have a two (2) inch by two (2) striker plate to prevent false alarms.
- 3.22.17 Air springs shall be heavy, riveted to body and door or double nut and lock nut. Air springs will firmly secure the door in the open position.
- 3.22.18 **Emergency Exit Door:** A full height rear emergency exit door with a minimum clear opening of thirty-five and a half (35.5) inches by fifty-seven (57) inches minimum that fully complies with ADA standards shall be provided on all floor plans.
- 3.22.19 Large upper and lower windows shall be provided in the door to maximize rearward visibility.
- 3.22.20 Emergency exits with full length stainless steel piano style hinges will be required on all floor plans. A cam-over or spring style holdback to be used to secure door in open position. A gas shock style hold open device will be accepted.
- 3.22.21 A warning light shall be provided at the driver's station to indicate when the door is open for wheelchair operation and a buzzer to indicate when it is ajar with the vehicle in motion.
- 3.22.22 **Roof Gutters:** Water deflecting roof gutters shall be provided over ambulatory and wheelchair accessible doors and windows.

### 3.23 BUMPERS / FENDERS AND MOLDING

- 3.23.1 **Bumpers:** The front bumper shall be the OEM chassis supplier's.
- 3.23.2 The rear bumper shall be unpressurized, self-contained, self-restoring, energy absorbing bumper of the HELP system, such as the ROMEO RIM, SMI or equal, having the same specifications as mentioned above.
- 3.23.3 **Fenders:** Flexible fenders shall be provided for the rear wheels, the Division of Public Transit shall approve materials and configuration. Rubber molding shall run the length of the passenger compartment at floor level. The molding shall be secured in a manner other than snapped onto a metal rail. The ends of the molding shall be

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

finished and caulked if necessary to prevent sharp edges at the angle cuts.

### **3.24 WHEELCHAIR LIFT**

The lift shall meet or exceed all the U.S. Department of Transportation's minimum and Americans with Disabilities Act requirements.

- 3.24.1** Vehicle shall be equipped with one (1) fully automatic wheelchair lift, Braun Century Series or equal. The lift shall have been tested to a minimum static load of 2,400 lbs. The lift shall have an one thousand (1,000) lbs. rated lifting capacity and shall be installed in the rear curbside of vehicle.
- 3.24.2** The lift shall have a self-cleaning, see-through, non-skid platform which can be folded and unfolded by one person.
- 3.24.3** Lift control switch shall be completely weather proof with illuminated functions and labeled as to function. The controls shall be placed adjacent to the lift in such a position to enable the attendant or the disabled person, once the person is on the platform, to operate the lift. In the fully lowered position the platform shall measure at least thirty seven (37) inches wide and have an effective length of at least fifty one (51) inches. A safety barrier shall be the full length of the curb side edge of the platform and shall be a moveable hinged surface to provide a barrier to prevent the wheelchair from rolling off the lift during operation. Barrier to have a durable rubber nose guard and be powder coated yellow for safety and high visibility. A two (2) inch high barrier shall also be provided on each side of the platform to prevent wheelchairs from rolling over the edge. Two (2) automatic fold handrails shall be provided one on each side of the platform. A safety belt shall be installed on the lift to secure the occupant during the use of the lift with retractable belt.
- 3.24.4** Power unit shall be twelve (12) volt electro-hydraulic system. Power unit shall be readily accessible for service. A manual hand crank shall be installed for lift operation in the event of power failure.
- 3.24.5** Lift shall be capable of being used from curb level or ground. The lift should be capable of safely lifting a one thousand (1,000) pound rated lifting capacity. The lift platform should be capable of being raised or lowered with a load in no more than twelve (12) seconds. All power units, operating joints, linkage, and mounting points to the body shall be certified by the manufacturer as being adequate for the loading. The operation of the unit shall provide a smooth, jerk-free ride in both up and down directions.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.24.6** All sliding surfaces and load bearing pivot points shall be free of exposed grease and constructed with ball and roller bearings. All electrical and hydraulic lines and units, all control mechanisms and cables shall be securely fastened and placed so as not to interfere with passenger ingress and egress, or with any moving parts. All moving parts shall be shielded from contact with passengers and operator.
- 3.24.7** Platform shall fold into door area for storing while not in use. Platform in stored position shall not intrude into vehicle body more than 14 inches. Lift shall be adequately restrained in stored position to prevent lift from coming adrift while vehicle is in motion. The lift in its stored position shall not rattle.
- 3.24.8** It is the vendor's responsibility to provide instructions on the use of lift to meet the specified performance standards, and on the safe operation, maintenance and service of the lift, as well as, warranty information. An instructional video explaining the lift operations and lift maintenance shall be provided with each vehicle.
- 3.24.9** Lift controls shall be interlocked with the vehicle brakes and transmission and door, or other approved means, to ensure that the vehicle cannot be moved when the lift is not stowed and so the lift cannot be deployed unless the interlock mechanism(s) are engaged. The lift must not be able to be deployed without engaging the interlock system and the interlock must prevent the vehicle from being moved until the lift is stowed. Any interlock which can be disengaged prior to lift stowage will cause the vehicle not to be accepted. Intelligent Lift Interlock System Model # ILIS501 or equal.
- 3.24.10** An interlocking system with fast idle, such as Intermotive Gateway, ILIS, or equal, shall be provided which renders the lift inoperative unless the transmission shift lever is in the "park" position and the emergency brake is applied.
- 3.24.11** A wheelchair lift light shall be located inside the vehicle to illuminate the lift. An additional light will be mounted in the area to illuminate the surrounding area of the street. The lights shall function automatically when the lift door is opened, even with the running lights switch is in the off position to provide illumination in accordance with FTA/ADA requirements. Installation of the lights shall not intrude upon the headroom or effective width of the wheelchair access area.
- 3.24.12** Lift Installation:
- 3.24.12.1** The lift shall be installed by bolting through the floor into structural steel that is an integral part of the body underfloor structure.
- 3.24.12.2** The power unit shall be placed at the forward side of the lift for rear mounted lifts and on the rear side for forward mounted lifts and be readily accessible for service. In the event of power failure, the deployed lift

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

platform shall be able to be lowered manually with passenger and raised without passengers.

- 3.24.12.3 System control valve shall be solenoid controlled and shall be accessibly mounted for easy maintenance. All lift components shall either be inside the vehicle or enclosed and protected for water wash.
- 3.24.12.4 Electrical control switches shall be completely weather proof and labeled as to function. All switches shall be of the momentary type.
- 3.24.12.5 The lift installation shall provide a hand-held switch for remote operation of the lift in addition to or in place of the regular door-mounted electrical lift controls. The lift control cable shall have a protective steel wire cover from control to base for lift, if available.
- 3.24.12.6 A caution sign shall be prominently displayed in full view of persons standing at curbside of the vehicle as a warning to stand clear for lift operations.
- 3.24.12.7 Activating the lift circuitry through a lift master switch will cause the rear hazard lights to flash.
- 3.24.12.8 Wheelchair lift shall have a grounding strap from the chassis frame to the lift frame.
- 3.24.12.9 The lift shall meet the NHTSA FMVSS platform lift systems for accessible motor vehicles in all areas, but not limited to minimum platform dimensions, maximum size limits on protrusions and other hardware, handrails, retaining barriers, and performance standards. A safety strap from handrail to handrail is required.

Federal Motor Vehicle Safety Standards; Platform Lift systems for Accessible Motor Vehicles Platform Lift Installations on Motor Vehicles:  
<https://www.federalregister.gov/articles/2000/07/27/00-18773/federal-motor-vehicle-safety-standards-platform-lift-systems-for-accessible-motor-vehicles-platform>

### 3.25 WINDOWS / GLAZING

- 3.25.1 **Windshield** shall be OEM tinted. Windshield shall be one (1) piece and laced in, but "not glued," unless OEM is a two piece windshield.
- 3.25.2 **Passenger Windows** shall be T slider top mounted with at least one curbside and two street side hinged to provide emergency egress. Emergency exits are to be denoted with fade and peel resistant decals, lighted and equipped with a buzzer if opened while the vehicle is moving. Size shall be approximately thirty six (36) inches wide by thirty six (36) inches high with 1/8 inch AS-3 tempered glass tinted for 31 percent transmittance. Heavy-duty latches are to be used on all windows.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.25.3 Passenger Door** panels shall have full height AS-3 tempered glass windows for maximum visibility of the curb.
- 3.25.4 Lift Door Windows** shall incorporate a single large window in each door panel consistent with the other passenger windows. Doors shall be two-piece as is specified in section 3.22.11.
- 3.25.5 Rear Windows** In addition to the windows in the rear emergency door, windows shall be provided on both sides of the door to increase rearward visibility.
- 3.25.6 Driver's Window** shall be OEM standard window to be controlled by electric switch.
- 3.25.7 Transition Window** The transition panel between the passenger door and the front fender shall have a window of approximately thirty-four (34) inches by ten (10) inches dimensions to enhance the view of the curb area.  
**Vendor shall submit dimensioned diagram with bid.**

**3.26 HEATING AND AIR CONDITIONING**

**3.26.1 Heating System:**

- 3.26.1.1** The heating system shall provide heat for both the driver and passengers, as well as, defrost air for the windshield. The system shall provide for a comfortable temperature for passengers throughout the vehicle by providing heat from both a dash and passenger compartment heater.
- 3.26.1.2** An electrical stepwell system heater, to be approved by the Division of Public Transit, shall be provided to eliminate ice and snow build-up. Heater using the coolant system shall be stainless steel.
- 3.26.1.3** A passenger compartment heater shall be provided towards the back of the vehicle to ensure consistent heat distribution throughout the vehicle. Gate valves shall be provided to allow the rear heater system to be shut off. Heater fans shall have high and low speeds. (Heater Capacity 2 x 35,000 BTU minimum).

**3.26.2 Air Conditioning:**

- 3.26.2.1** The OEM chassis supplier's heaviest duty air-conditioning system shall be supplied plus such other components as necessary to ensure effective, uniform cooling throughout the vehicle. Trans Air, ACC, Burgess, ACT are approved or equals. At a minimum, the system should consist of:

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.26.2.2 The OEM's engine driven compressor with a minimum displacement of 9 cubic inches. Provided a secondary engine-driven compressor of sufficient size to circulate the rear A/C per specifications.
- 3.26.2.3 The OEM's front mounted condenser shall not be removed.
- 3.26.2.4 A three fan oversized (minimum fan size – 12"; rated at 82,000 BTU's per hour), skirt-mounted condenser shall be shielded from road spray.
- 3.26.2.5 A ceiling mounted evaporator at the rear of the passenger compartment with a minimum capacity of 93,000 BTU's and separate fan speed control.
- 3.26.2.6 All A/C hoses, heater hoses and wiring shall be properly protected to ensure against wear from friction and the elements.
- 3.26.2.7 The A/C systems will include, as standard, ATCO, Quick Click, or approved equal connectors and hoses. Bead-lock fittings and rubber barrier hoses are not acceptable.
- 3.26.2.8 The A/C system shall utilize environmentally friendly R-134a refrigerant. Refrigerant hoses shall be double braided (Type C, Class II) and the refrigerant hoses and fittings must be SAE specification J2064 compliant.

### 3.27 INTERIOR LIGHTING

- 3.27.1 The interior shall be illuminated by LED fixtures. Interior shall be illuminated to provide a minimum of twelve (12) foot candles of illumination measured at thirty-six (36) inches above the floor over each two-passenger cross seat. Provide detailed information on the installed interior lights with bid submittal.
- 3.27.2 The stepwell area shall be illuminated to FTA/ADA standards by door activated LED stepwell lights including the immediate area outside. These lights shall be shielded to protect passengers' eyes from glare. Light fixture shall be totally enclosed, splash-proof, designed to provide ease of cleaning, as well as, lamp housing removal and shall not be easily removed by passenger. Stepwell lights shall be protected from damage caused by passengers kicking the lenses or fixtures and shall not be a hazard to passenger. Stepwell lights shall be activated by operating the passenger door even with the running lights switch in the OFF position.
- 3.27.3 Red LED location indicator lights shall be provided above all emergency doors and window exits.
- 3.27.4 Fire Retardancy must meet or exceed FMVSS 302, ASTM-E 162 Surface mobility, and Flame Spread Index F - 5<150.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

FMVSS 302:

[https://www.sp.se/en/index/services/firetest\\_building/firetest\\_bu%C3%ADding/FMVSS302/Sidor/default.aspx](https://www.sp.se/en/index/services/firetest_building/firetest_bu%C3%ADding/FMVSS302/Sidor/default.aspx)

- 3.27.5 Light fixtures shall be designed to prevent accumulation of dust, insects and other materials. Light fixture shall have an aluminum base and polycarbonate lens designed for easy maintenance and cleaning. Lens shall be effectively sealed such that incursion of dust and insects is prevented.
- 3.27.6 Light fixtures shall mount to the interior surface of the vehicle without requirement for perforation of that surface for other than threaded fasteners and wire. Light fixtures shall have formed endcaps that are shaped without sharp corners (rounded) and provide a finished appearance. If fixtures are round, end caps not required.

**3.28 EXTERIOR LIGHTING:**

- 3.28.1 Exterior lighting shall be in accordance with Federal Motor Vehicle Safety Regulations (393.12) See link below.  
<http://icsw.nhtsa.gov/cars/rules/standards/conspicuity/TBMpstr.html>
- 3.28.2 All exterior lights to be single contact. Double contact may be used for tail, stop and rear turn signals. **Light Emitting Diode (LED) lights shall be used for taillights, brake lights, turn signal, collision avoidance lights, and clearance marker lights.** Truck-Lite or Equal is recommended.
- 3.28.3 Headlights of sealed beam type are required with high and low beams controlled by column-mounted lever switch or by a foot switch mounted on the floor, which will be sealed from moisture. Sealed beam units shall be of the latest type and low beam rating of 600-hour life. **Headlights shall be wired for daytime running.**
- 3.28.4 Directional signals independent of the brake lights shall be provided and shall have sealed amber lens in front and rear. Rear stoplights are to be independent of directional and hazard warning signals.
- 3.28.5 LED Rear stop and taillights shall be provided. Rear stoplights are to be independent of directional and hazard warning signals.
- 3.28.6 In addition to the normal stop lights provided on the base vehicle, an extra LED stoplight shall be provided. This light shall be mounted on the centerline of the vehicle above the rear door and shall be wired to operate in conjunction with the normal stoplights.
- 3.28.7 Red rear reflectors shall be provided. Additional four reflectors, two on each side of the vehicle, amber front and red rear, shall be provided.
- 3.28.8 LED mid-ship side directional signals wired to operate with front directional signals shall be provided.



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.28.9** A circuit shall be provided for the directional signal which, when on, will cause them to function as traffic hazard warning signals.
- 3.28.10** License plate mounts: located on the rear cap. Prior to delivery, all vehicles must be pre-drilled, with hardware installed, to meet specifications that require rear license plate. Any vehicle delivered without such plate mounts will be rejected.
- A rear LED license plate light shall be provided to meet Federal and State of West Virginia regulations. License plate mounting and light are acceptable on the rear cap.
- 3.28.11** Two (2) LED back-up lights shall be provided which are adequate to meet Federal and State of West Virginia regulations.
- 3.28.12** An LED wheelchair lift light shall be located inside the vehicle to illuminate the lift. One (1) additional LED light will be mounted on the skirt below the lift to illuminate the surrounding area of the street. The light shall function automatically when the lift door is opened, even when the running light switch is in the off position and provide illumination in accordance with FTA/ADA requirements. Installation of the lights shall not intrude upon the headroom of effective width of the wheelchair access area.
- 3.28.13** LED Marker, Cluster, and all other lights as required by State and Federal regulations shall be provided. Lights shall operate with or **without engine running**.
- 3.28.14** The rear hazard flashers shall be activated when the lift operating circuits are energized.
- 3.28.15** All lights are to be LED lights with the exception of the dome lights and headlights.

**3.29 FLOOR AND FLOOR COVERING**

- 3.29.1** Flooring shall be constructed of a minimum of five-eighths inch (5/8"), five ply, exterior BC grade (or better) water-resistant plywood without visible cracks or holes firmly secured to the floor structure by the use of adhesive and mechanical fasters with no intrusions into the vehicle body compartment.
- 3.29.2** Floor shall be laid in such a matter as to be free from squeaking. All flooring shall be RCA Transit Flooring, Altro, Gerflor, or equal, being non-slip resistant, double grove rib design, able to stand up to heavy traffic. Color to be selected by the Division of Public Transit.
- 3.29.3** Entrance area shall be covered with one-eighth (1/8) inch floor covering. All step edges to be marked in accordance with FTA/ADA requirements. (Grid Style Yellow is the preferred color). Vendor must provide sample within 48 hours of request.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.29.4 Aisle front entrance and securement areas shall be covered with one-eighth (1/8) inch floor covering.
- 3.29.5 A Standee Line is required. Color to be same as step nosing. **(Yellow is the preferred color).**
- 3.29.6 Insulation of rigid closed cell polystyrene, polyurethane foam, or bagged fiberglass shall be provided for the full depth of the structure between all interior and exterior panels and any cavities between the subfloor and floor construction. Vendor shall specify the type of insulation with their bid and provide documentation that it is flame retardant and non-toxic.

### 3.30 SEATING

- 3.30.1 Seats shall be Freedman or equal, being a Mid-high back double with semi-bucket and contoured configuration. Seats shall be spring base with five (5) inches of foam padding. Upholstery shall be grade 4 or higher with ABS Knee-Saver back. **Description of offered product to be provided with bid submittal. Five (5) seat belt extenders shall be provided per vehicle ordered.**
- 3.30.2 A padded grab rail shall be provided on top of each forward facing seatback and all fold-away. Grab rail is not required on the rearmost seats.
- 3.30.3 The seats shall be equipped with the Freedman USR (under seat retractor) system or equal complying with FMVSS 210. (see link below) Or equal would meet FMVSS 210 and the belts shall be fully retractable into housings and shall not touch the floor at any time. Retractable seatbelts shall be attached to the seat frames. All belts shall be permanently kept in the correct position for securement applications.

FMVSS 210

[http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571\\_1210&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571_1210&rgn=div8)

- 3.30.4 Seats shall use a single T pedestal leg with black painted finish and side rail for mounting.
- 3.30.5 **Priority Seating:** Appropriately positioned decals shall indicate that the first two (2) rows on each side are designated as priority seating for the elderly and persons with disability.
- 3.30.6 Seats shall conform to the following dimensions:

Width per Passenger	17.5 inches
Height of Seat Cushion	18 inches
Depth of Seat	17 inches
Height of Seat Back	23 inches max. (except rear row)
Hip-to-Knee Room	27 inches minimum
Aisle Width	14 inches minimum

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**3.30.7** Seats and Seating shall comply with the following FMVSS Standards:

FMVSS Standard 207 Seating Systems:

<https://www.law.cornell.edu/cfr/text/49/571.207>

FMVSS Standard 208 Occupant Crash Protection:

<https://www.law.cornell.edu/cfr/text/49/571.208>

FMVSS Standard 209 Seat Belt Assemblies and Anchorage:

<https://www.law.cornell.edu/cfr/text/49/571.209>

FMVSS Standard 210 Seat Belt Assemblies and Anchorage:

<https://www.law.cornell.edu/cfr/text/49/571.210>

- 3.30.8** A fold up armrest will be provided on all aisle passenger seats. Seat shall have FMVSS certified seat-belts with retractor.
- 3.30.9** Two (2) double mid-high seats will be **integrated child restraint seats** which are capable of securing one child between the height of thirty-three (33) inches and forty-nine (49) inches with a weight between twenty (20) to sixty (60) pounds and an adult. Instructions for the securement shall be printed on the seat in English and Spanish, and shall be easy to understand.
- 3.30.10** Two (2) double mid-high seats will have **installed CRS restraints for child seats**.
- 3.30.11** Driver's Seat: The driver's seat shall be power high-back bucket seat with commercial grade cloth material that matches the color of the passenger seats (Grade 4 cloth minimum). Driver's seat shall have a folding armrest, a headrest, and a lumbar support as a minimum. Freedman Shield operator seat or equal. Seat shall have a minimum of four (4) inches fore and aft adjustment. Seat installation shall allow for unimpeded movement over the whole seat range. A shoulder belt is required. Seat Belt Extension to be provided for driver seat.
- 3.30.12** A Freedman Seating 3 Step Forward Facing Fold Down Double Seat, or equal, being mid-high back seats with headrest that does not block passenger viewing, knee saver back for more hip to knee room, jig welded heavy duty tubular frames and seat belts designed not to fall on the floor. Fold down double seats shall be used in every wheelchair position on the street side of the unit for use by non-disabled persons when the securement system is not needed. When folded up, the seat shall not interfere with the use of the wheelchair positions by passengers in wheelchairs. An under-seat retractable seat belt shall be provided for each seated position. **Seat height shall be 14" from the floor to the bottom of the seat cushion.**

Seats and seating shall comply with the following FMVSS Standards:

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

Standard Number 207 Seating Systems

[http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571\\_1207&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571_1207&rgn=div8)

Standard Number 208 Occupant Crash Protection

[http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571\\_1208&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571_1208&rgn=div8)

Standard Numbers 209 Seat Belt Assemblies [http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571\\_1209&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571_1209&rgn=div8)

[http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571\\_1209&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=7d443eb75ceba033fed91e90f816b574&node=se49.6.571_1209&rgn=div8)

Standard Number 210 Seat Belt Anchorage

<https://www.law.cornell.edu/cfr/text/49/571.210>

**3.31 WHEELCHAIR SECUREMENT SYSTEM:**

- 3.31.1** Wheelchair securement areas and systems shall fully comply with all applicable U.S. Department of Transportation's Americans with Disabilities Requirements.

**Vendor is to supply the description, warranty and literature information of this product with bid.**

- 3.31.2** Vehicle shall be equipped with two (2) wheelchair positions.

**3.31.2.1** Each wheelchair station shall have a securement system fully complying with ADA requirements and capable of securing most common wheelchairs and other mobility aid devices. Each wheelchair space shall have at least six (6") inches in between each space for easy access of driver.

**3.31.2.2** At each required wheelchair position a wheelchair securement system shall be provided to securely hold the wheelchair in the wheelchair position.

**3.31.2.3** Provisions shall be made, in the wheelchair position area, to stow the straps and buckles off the floor when they are not in use. The stored straps shall not interfere with passenger movement or sitting space.

- 3.31.3** The vendor shall provide with each vehicle upon delivery a pamphlet, brochure or similar literature describing and instructing the use and maintenance of the wheelchair securement system and shall demonstrate to the recipient

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

the proper method of using the system. Demonstration of the securement system must be performed to insure correct use of the system.

**3.32 MOBILITY AID / OCCUPANT RESTRAINT SYSTEM**

- 3.32.1** A restraint system shall be provided for the occupant of the wheelchair at each wheelchair position. The restraint system shall be a seat belt assembly permanently attached to the floor or side of the vehicle or to the wheelchair lock supports. The restraint system shall be capable of securing a passenger in all types of wheelchairs or Scooters, while the chairs are locked in position. The seat belt shall be at least eighty (80) inches long and shall be easily fastened and unfastened by the wheelchair occupant. Each seat belt shall be equipped with a retractor or other device, which keeps the seat belt webbing or strap off the floor when the seat belt is not in use. A complete retractable wheelchair and occupant restraint system with S- Hooks shall be installed at each wheelchair location. The system will have automatic belt retractors; tensioning knobs; and easy to use tension release mechanisms. The system shall be a Q-Straint QRT 360 Deluxe; Secura brand, or equal with the brand appropriate L-Track System to be used.
- 3.32.2** Wheelchair retractors shall be fully automatic, auto locking and self- tensioning.
- 3.32.3** Retractors shall automatically remove any slack in the webbing after they are secured to the wheelchair.
- 3.32.4** Retractors are self-retracting; therefore no belts are left on the floor, keeping them cleaner and longer lasting.
- 3.32.5** Retractor shall have a "LOCKED" indicator tag and shall only be visible when the retractor is in the LOCKED mode assuring the retractor is not in the release condition when properly secured to the wheelchair.
- 3.32.6** Retractors shall be heavy duty with heat treated structural components and plated for superior corrosion resistance.
- 3.32.7** Retractors shall have a chrome plated metal cover for long lasting protection.
- 3.32.8** Retractors shall have BLUE or BLACK webbing and the occupant restraints shall be of a contrasting color for easy identification in the field. Retractors shall be designed to be low profile to fit under most wheelchair foot rests.
- 3.32.9** Retractors shall be equipped with anchoring points for the attachment of the occupant restraint lap belts.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.32.10 Retractors shall be able to be used with a variety of shoulder/lap belt combinations.
- 3.32.11 Retractors shall have manual knobs for additional tightening if needed.
- 3.32.12 Retractor shall be able to secure a wheelchair with one hand in as little as 10 seconds.
- 3.32.13 Retractors shall have a warranty period of 3 years and shall have a manufacturing label to identify the part number and date of manufacture for easy traceability.
- 3.32.14 Retractors, occupant restraints and anchoring equipment shall be installed in accordance with the manufacturer's installation instructions and recommendations.
- 3.32.15 Medium-Duty Series L-Track with flanges, mounting holes and clear anodized finish to be used, like FE-748-100-PD4C track with end caps, or Equal, floor anchoring product for wheelchair Tie-Downs and Occupant restraint systems. The Division accepts standard non-anodized aluminum L-Track. L-Track shall run full length of the vehicle.
- 3.32.16 The seams between the flooring and the track need to be treated to ensure that no moisture can get to the track to cause track deterioration.
- 3.32.17 Track and securement system need to comply with manufacturer's recommendations regarding using the same manufacturer's track and securement systems.
- 3.32.18 Vendor shall provide **four (4) each of sixteen inch (16") quick straps** for each securement location.
- 3.32.19 The retractors shall be designed to be low profile to fit under most wheelchair foot rests.
- 3.32.20 Retractors and occupant restraints shall meet or exceed but not limited to the following specifications:

30mpg/20g Impact Test Criteria per SAE J2249  
[http://standards.sae.org/j2249\\_199901/](http://standards.sae.org/j2249_199901/)

ISO 10542  
[http://www.iso.org/iso/catalogue\\_detail.htm?csnumber=60372](http://www.iso.org/iso/catalogue_detail.htm?csnumber=60372)

Canadian Z605  
<http://www.scc.ca/en/standardsdb/standards/6595>

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

National Standards for School Buses  
<http://www.nasdpts.org/ncstonline/>

ADA (49 CFR Part 38)  
<https://www.law.cornell.edu/cfr/text/49/part-38>

FMVSS 209  
<https://www.law.cornell.edu/cfr/text/49/571.209>

FMVSS 222  
<https://www.law.cornell.edu/cfr/text/49/571.222>

FMVSS 302  
[https://www.element.com/landing/aircraft-interiors-flammability-testing?utm\\_source=google&utm\\_medium=cpc&utm\\_campaign=US\\_Flammability&mfept=ppc\\_mt\\_flammability&gclid=EAIaIQobChMI3sWXj\\_XT2wIVk1qGCh2NWAIIIEAAYASAAEgImvD\\_BwE](https://www.element.com/landing/aircraft-interiors-flammability-testing?utm_source=google&utm_medium=cpc&utm_campaign=US_Flammability&mfept=ppc_mt_flammability&gclid=EAIaIQobChMI3sWXj_XT2wIVk1qGCh2NWAIIIEAAYASAAEgImvD_BwE)

- 3.32.21** The vendor shall provide with each vehicle upon delivery a pamphlet, brochure or similar literature describing and instructing the use and maintenance of the wheelchair securement system and shall demonstrate to the recipient the proper method of using the system. Demonstration of the securement system must be performed to insure correct use of the system.

### **3.33 MIRRORS**

#### **3.33.1 Exterior:**

Two (2) six and one-half inch (6-1/2") x nine and one-half inch (9-1/2") minimum size fully adjustable outside rear-view mirrors, such as the Rosco model number 71H for Driver's side and 717H for passenger side, or equal shall be provided: one at the driver's door and one at the right front body corner. Mirror arms shall be constructed on anodized aluminum, stainless steel, powder coated steel, or another non-corrosive, approved equal material. Mirror arm may be chrome plated. Convex "blind spot" mirrors shall also be provided on each side of the vehicle, with a minimum five inch (5") diameter. The convex mirror shall be built into the same head as the flat mirror and shall not be of the stick on type. Both mirrors shall be reinforced mounted breakaway mirrors. Bolts shall be of the heaviest grade to ensure from breaking or snapping. Mirrors shall be heated and remote controlled, such as those produces by Rosco, Lucerix, or equal, and shall be heated and remote controlled. **Crossover mirrors are not acceptable.**

- 3.33.2 Interior:** Vehicle shall have a rectangular flat mirror with a viewing area of at least 6"X 16" installed that provides a complete view of the interior to the driver.

- 3.33.3** Each vehicle shall be equipped with a sun visor for driver that is able to

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

pivot to cover their door unless a single visor is provided by OEM.

**3.33.4 Rear View Mirror:** The OEM rear view mirror shall be retained.

**3.33.5 Fresnel Lens:** Each vehicle shall be equipped with a large Fresnel flat, wide-range lens, approximately 11"X 14", ready for installation/placement by the purchaser upon delivery of the vehicle.

**3.34 PASSENGER ASSISTS**

**3.34.1** Passenger assists shall be constructed of seamless stainless steel tubular stock having an outside diameter of between 1.25 inches and 1.50 inches and shall be provided as specified below on all vehicles. Assists shall be securely installed to prevent passengers from moving or twisting the assists when grasped.

**3.34.2** Assists shall be securely installed as inclined hand rails 30 inches above the step treads on both sides of the passenger step well.

**3.34.3** Passenger assists shall be provided as floor-to-ceiling vertical stanchions at the top of the steps at both sides of the step well and shall be fully padded above seat level operations.

**3.34.4** Passenger assists shall be provided as over-head assists on both sides of and parallel to the center aisle for the full-length of the passenger compartment except where they will substantially interfere with wheelchair operation.

**3.34.5** Passenger assists shall be provided as vertical stanchions, padded above seat level, elsewhere within the vehicle, including the driver's barrier.

**3.34.6** All stanchions shall have rubber fittings at top and bottom where the tube inserts into the anchor to provide more stability and vibratory wear resistance.

**3.35 MODESTY PANELS**

**3.35.1** Sturdy modesty panels constructed of padded material complementing the interior trim shall be provided ahead of the forward row of seats on both sides the aisle. A full height 3/8" LEXAN translucent barrier shall be provided behind the driver's seat and above the modesty panel. **Location of modesty panel installation must be approved by the Division of Public Transit.**



### **3.36 EXTERIOR REFLECTIVE VINYL TAPE:**

- 3.36.1** The vehicle shall be stripped from front to back with exterior white reflective vinyl tape around the egress passenger windows, meeting DOT-C2 standards. (See the following link regarding DOT-C2 standards.)

<http://sharplogger.vt.edu/documents/Conspicuity%20and%20reflector%20requirements%20393%2011.pdf>

- 3.36.2** When the existing logos are not on the rear of the vehicle, the white reflective vinyl must circle the rear emergency door window, if present, even when the color vinyl is used in the logo.
- 3.36.3** When reflective tape and paint are used for the same color on one vehicle, they must match (Example: painting the vehicle skirt and using tape stripes for the side of the vehicle must match.)
- 3.36.4** Finished surfaces shall not be damaged by controlled applications of commonly used graffiti-removing chemicals.

### **3.37 DIGITAL DESTINATION SIGNS**

- 3.37.1** Front and side digital destination signs shall be provided. A lightweight all LED sign that provides a wide viewing angle for visibility at day or night with automatic brightness adjustment. Signs must be compatible with all Windows platforms programming platform for easy transit system use. The signs must come with all accessories for the transit system to change routes daily if needed, including an operator control unit (OCU) with PC card port for uploading data will be required for each vehicle along with a 12V DC converter. The destination signs must meet all ADA standards and must have a minimum operating life of 100,000 hours. The sign shall be fastened to the body of the vehicle on the top and bottom of each destination sign to secure and eliminate all movement. Brackets should be used in addition to normal installation procedures to secure signs at the top and bottom.
- 3.37.2** The Division of Public Transit shall approve size and location of window.
- 3.37.3** Dimensions: front-All LED minimum 16 x 80 Pixel and 6 1/2" x 31 5/8" display small pitch signs. Side All LED 8 x 64 Pixel and 3 1/4" x 25 1/4" display. All programmable software and hardware is to be provided.
- 3.37.4** Customer support shall be provided.
- 3.37.5** Control panel for the signs shall be located at a position convenient for driver operation and shall be approved by the Division of Public Transit. Vendor shall submit details with bid.

### **3.38 PASSENGER SIGNALING SYSTEM**

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 3.38.1 Passenger signaling system with a pull cord stop request system and touch tape with buzzer at wheelchair positions shall be provided. The pull cord system shall be at height that individuals with disabilities can access the cord at seat level front to rear.

**3.39 MOBILE PA SYSTEM**

- 3.39.1 Mobile PA system with a handheld mic, one external speaker, and two internal speakers shall be provided. PA system may be integrated into the radio system if it can be done without excessive slicing; otherwise, the system should be separate.

**3.40 FARE BOX PROVISION**

- 3.40.1 Fare box provision requires that the forward stanchion at the driver's shoulder shall be prewired for mounting of fare box with enough slack for the positioning of the fare box to be moved.

**3.41 STROBE LIGHT**

- 3.41.1 A protected or guarded clear lens strobe light shall be installed on top of the vehicle. The Division of Public Transit shall approve the type, the installation location, and the process.

**3.42 RADIO INSTALLATION PREP/ VEHICLE COMMUNICATION**

- 3.42.1 The vehicle shall be provided with adequate grounding material at roof level or at side level as directed for a radio antenna. Such material shall provide direct grounding to the main vehicle body frame.
- 3.42.2 A conduit or other path shall be provided for an unexposed antenna cable routing between the antenna mounting area and an area to be provided for installation of a mobile radio receiver within easy reach of the driver, together with the necessary wiring for a power supply.
- 3.42.3 Vendor shall supply a ground wire, loom (conduit) and pull wire. A power wire is not necessary.

**3.43 BIKE RACK MOUNTING PLATE**

- 3.43.1 A bike rack mounting plate only shall be supplied on the front or rear of the vehicle meeting receiving transit authority's preference.

**3.44 SECURITY CAMERA SYSTEM –**

- 3.44.1 Each Vehicle shall be equipped with Pro-Vision HD Recording System Model DVR-808, or equal. Or equal having the following characteristics:

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**3.44.1.1 Solid State Design**

**3.44.1.2 1080p True HD Video Quality**

**3.44.1.3** System shall be capable of recording sixteen (16) cameras simultaneously at the maximum quality and frame rate.

**3.44.1.4** The system must include at least one SDXC Card with a capacity of no less than 128GB.

**3.44.1.5** The system must have a removable 2.5" drive tray to support an optional 500GB, 1TB or 2TB Solid State Drive space for expanded recording capacity.

**3.44.1.6** The system must at minimum provide video coverage for person entering the door, the driver, front row passengers and all the way to the rear seating area with the use of one camera.

**3.44.1.7** The system must have the ability to use a single wide angle interior camera to provide coverage of the driver, the seat area of the bus, and of persons standing outside the entry door on the passenger side.

**3.44.1.8** The system must have the ability to use wide angle exterior cameras to provide coverage from headlight to taillight on each side of the vehicle with a single camera per side.

**3.44.1.9** The system must include a lockable enclosure constructed of no less than 18 gauge steel to prevent access to the storage device, power, camera connection, and all mounting screws.

**3.44.1.10** The system must have the ability to download video manually by removing the storage device, manually through WI-FI, or automatically through Wi-Fi.

**3.44.1.11** The system must be capable of complete setup and aiming of cameras with a web based interface.

**3.44.1.12** All software, cables and necessary equipment needed to install the system and operate it must be included.

**3.45 DUAL PURPOSE SAFETY VENT**

**3.45.1** Each vehicle shall be equipped with a five (5) way, 23" X 23" minimum dual purpose safety vent capable of being used as a multi-position roof ventilator and as an emergency exit/escape in compliance with FMVSS 217 and 302.

FMVSS 217: <https://www.law.cornell.edu/cfr/text/49/571.217>

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**3.46 STORAGE COMPARTMENT**

- 3.46.1** A storage compartment capable of accommodating jumper cables, seat belt cutter, and other items shall be provided in the front header above the driver. The compartment will be provided with a latching or other mechanism to hold it in the open position.
- 3.46.2** Bottom hinged compartment doors will be provided with restraint straps to limit its movement to 90 degrees. **The Division of Public Transit must approve location and size.**
- 3.46.3** A storage box, when no room is available, floor mounted to curbside of engine cover is allowed. **The Division of Public Transit must approve location and size.**
- 3.46.4** Storage bins shall be provided in driver's door.

**3.47 INTERIOR DECALS:** To be supplied and installed unless noted otherwise.

- 3.47.1** "No Smoking" at the front top of vehicle.
- 3.47.2** "Seat Belt Usage Required" at the front top of the vehicle.
- 3.47.3** **EMERGENCY EQUIPMENT** – Transit Authority will install.
- 3.47.4** All emergency exits and windows to be noted with decal.
- 3.47.5** "Clearance \_\_\_ feet \_\_\_ inches" above driver's visor. Specific figures on clearance will be determined by exact dimension of vehicle.
- 3.47.6** "Emergency Dial 911" at the front top of the vehicle.
- 3.47.7** Black lettering on yellow background "Watch Your Step" decals shall be affixed to entrance step risers.

**3.48 EXTERIOR DECALS:** To be supplied and installed.

- 3.48.1** "Vehicle Stops at all Railroad Crossings" on the back of the vehicle.
- 3.48.2** The International Wheelchair Accessibility Symbol on the back of the vehicle.
- 3.48.3** "Caution Frequent Stops" on the back of the vehicle.
- 3.48.4** "CAUTION: STAND CLEAR FOR LIFT OPERATIONS" on lift door.

**3.49 EMERGENCY/SAFETY EQUIPMENT**

- 3.49.1** **First Aid Kit** - First-Aid Kit shall comply with United States Department of Labor, Occupational Safety & Health Administration's minimal acceptable number and type of first-aid kits required under paragraph (d)(2) of the logging standards. (See link below) First-aid kits shall be stored in

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

storage compartment or mounted so as to provide for access in the event of an accident, away from foot traffic.

[https://www.osha.gov/pls/oshaweb/owadis.show\\_document?p\\_table=STANDARDS&p\\_id=9863](https://www.osha.gov/pls/oshaweb/owadis.show_document?p_table=STANDARDS&p_id=9863)

**3.49.2** Kit shall be housed in a polypropylene or metal box which contains at least the following items:

- 3.49.2.1** Instant Cold Pack (1)
- 3.49.2.2** Certicaine or Burn Spray (1 oz.)
- 3.49.2.3** 1" x 3" Adhesive Bandages, twenty-five (25)
- 3.49.2.4** 3/4" x 3" Adhesive Bandages, ten (10)
- 3.49.2.5** Extra Large Adhesive Bandages, ten (10)
- 3.49.2.6** 3" x 3" Gauze Pads, ten (10)
- 3.49.2.7** Antiseptic Wipes, ten (10)
- 3.49.2.8** Alcohol Prep Pads, twenty (20)
- 3.49.2.9** Ammonia Inhalants, ten (10)
- 3.49.2.10** 2" x 6 yds. Gauze Bandage
- 3.49.2.11** 1/2" x 2.5 yds. Adhesive Tape
- 3.49.2.12** Burn Ointment (1/8 oz.), four (4)
- 3.49.2.13** Insect Sting Swabs, four (4)
- 3.49.2.14** PVP Iodine Swabs, four (4)
- 3.49.2.15** Tweezers, one (1)
- 3.49.2.16** Scissors, one (1)
- 3.49.2.17** Safety Pins, five (5)

**3.49.3 Fire Extinguisher**– 5 lb. dry chemical fire extinguisher with a minimum of a 20-A:180-B: C rating shall be provided in vehicle and shall be mounted in an accessible compartment with a hinged door or on a vehicular-type quick access bracket away from foot traffic.

**3.49.4 Reflectors** – Three (3) bi-directional emergency reflective triangles conforming

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

to requirements of FMVSS No. 125, Section 571.125 shall be secured in the storage compartment of the vehicle.

**3.49.5 Bloodborne Pathogen Protection Kit** - A ten (10) unit (minimum) kit housed in a polypropylene or metal box and containing at least the following items:

**3.49.5.1** Gown/Cap (1)

**3.49.5.2** Goggles (Eye Shield) (1)

**3.49.5.3** Mask (1)

**3.49.5.4** Three (3) Pairs of Protective, Disposable Gloves

**3.49.5.5** Scraper (1) plastic, scoop to pick up biohazard fluids.

**3.49.5.6** Crepe Towels two (2)

**3.49.5.7** Antiseptic Towelettes, four (4)

**3.49.5.8** Disinfectant Towelette, four (4)

**3.49.5.9** Mouth to Mouth Barrier, one (1)

**3.49.5.10** Scoop Bag, three (3)

**3.49.5.11** Infectious Liquid Control Powder (2 oz.)

**3.49.5.12** Red Bio-Hazard Bags with Ties, two (2)

**3.49.6 Web/Seat Belt Cutter:** A 5.5" X 3" Web/Seat Belt Cutter – shall be secured in a location accessible from the driver's seat.

**3.49.7 Mylar Blankets:** Two (2) folded, sealed and stored silver 80-85" x 50-70" Mylar disposable rescue blankets.

**3.49.8 Wool Blankets:** Two (2) wool blankets (62" X 80" each) shall be provided.

**3.49.9 Safety Vest:** A highly-visible reflective safety vest to be worn by the driver in case of an emergency that makes the driver visible to evacuating passengers and other motorists.

**3.49.10 Wheel Chocks:** Each vehicle will be equipped with one (1) set of wheel chocks with storage.

**3.50 UNSPECIFIED ACCESSORIES & FEATURES**

**3.50.1** All parts, equipment, accessories, material, design and performance characteristics not specified herein, but which are necessary to provide a complete unit, must be furnished with each unit and required to confirm to

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

strength, quality of material, and quality of workmanship to those which are advertised and provided to the market in general by the unit industry. All parts and accessories advertised and regularly supplied as standard shall be included, except those which would represent duplication of these specified and except those which, by specification, are not to be furnished. All standard safety features, required by Federal and State Law, shall be included. Vehicles must have all equipment found on the manufacturer's base model plus other equipment requirements, packages, items, etc. needed to meet the specifications.

### 3.51 TRAINING

**3.51.1** The Vendor shall, at its own expense conduct two (2) one day training sessions at two different locations between the hours of 8:00 a.m. to 5:00 p.m. Dates will be mutually agreed upon, with the option of additional training days, if necessary. The Division will arrange a venue and registration. The vendor will provide one or more qualified instructor(s) and materials. Instructors shall conduct schooling sessions which shall be designated to instruct the Recipient Agency's in-house driver training staff in proper and safe on-road operation of the vehicle, in operating characteristics and limitations of the vehicle, and identification and proper operation of all driver's controls. Instructors shall also conduct training sessions for maintenance instructors and qualified mechanics to give thorough and proper training in the maintenance and repair of all operating systems of the vehicle including: (1) power train, (2) electrical system, (3) heating, ventilation and air conditioning system, (4) braking and air system, and (5) wheelchair lift and securement systems. The Vendor shall also provide visual and other teaching aids for use by each Recipient Agency's own staff.

### 4.0 VEHICLE CLASSES – Requirements specific to each vehicle class.

**4.1 Class A: Vehicle** – A vehicle having at least 8 fixed forward facing mid high back seats (doubles/singles) plus two (2) wheel chair positions, meeting all requirements of Section 3 of this RFQ. The Division of Public Transit shall approve the proposed seating configuration. The vehicles furnished per these specifications shall be of the following dimensions:

WHEELBASE	176" Minimum
REAR AXLE	Dual Rear Wheel
GVWR	14,500 Maximum
TIRE	225/75/R16 Minimum
LOAD RATING	E
WIDTH (MAXIMUM)	96"

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

OVERALL LENGTH	315" Maximum
OVERALL HEIGHT (MAXIMUM)	120"
TURNING RADIUS (MAXIMUM)	32'
SEAT/WHEELCHAIR CAPACITY	16+2 WC Passengers with one (1) Double Foldaway
PASSENGER HEAT	2 x 35,000 BTU with Circulating Pump
PASSENGER A/C	82,000 BTU Separate from the Dash
ENGINE TYPE	Gas
ENGINE CAPACITY	6.8 L Minimum
SPARE TIRE	Loose
BATTERY	Dual
FAST IDLE	Yes
CURBSIDE EMERGENCY WINDOWS	1 Minimum
STREETSIDE EMERGENCY WINDOWS	2 Minimum

- 4.1.1 Class A Vehicle:** Vehicles in Class A shall meet the mandatory requirements listed in Section 3 that include the Transit Authority Vinyl Logo and stripes as defined in Section 3.20. Examples of these logo and stripes have been provided in Exhibit B.

Logo, striping schemes and colors will be furnished to the successful Vendor by the Transit Authority.

Successful vendor to work directly with Transit Authority regarding what logo, stripes, etc. to be applied. Successful vendor shall obtain written documentation from Transit Authority Official approving layout, colors and information prior to installation.

- 4.2 Class B Vehicle: (Full Bus Body Paint or ¾ Bus Body Paint with Expanded Graphics:** Vehicles identified as Class B vehicles shall meet the mandatory requirements listed in Section 3 and the mandatory requirements of Class A with the exception that Class B vehicles shall have Full Bus Body Paint or ¾ Bus Body Paint with Expanded Graphics instead of vinyl logo and stripes. Examples of these Full Bus Body Paint or ¾ Bus Body Paint with Expanded Graphics is provided in Exhibit C Examples of Paint Scheme.

For Full Bus Body Paint or ¾ Bus Body Paint with Expanded Graphics, surfaces shall be properly cleaned and primed, as appropriate for the paint used. All exterior surfaces shall be impervious to gasoline and commercial cleaning agents.

Finished surfaces shall not be damaged by controlled applications of commonly used graffiti-removing chemicals.

Paint schemes and paint colors will be furnished to the successful Vendor by the Transit Authority.

Successful vendor to work directly with Transit Authority regarding what



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

paint schemes, logo, etc. to be applied. Successful vendor shall obtain written documentation from Transit Authority Official approving layout, colors and information prior to installation.

Where the logo covers the windows, perforated vinyl shall be used. Skirt painting shall be included in the price.

Matching touch up paint shall be provided to the Transit Authority.

- 4.3 Class C (Extended Wheelbase, Front Lift):** Vehicles identified as Class C vehicles shall meet the mandatory requirements listed in Section 3 and the mandatory requirements of Class A with the exception that Class C vehicles shall have an extended body with front lift with 7 forward facing mid high back double seats Vinyl logo and stripes.

Extended length with front lift option—Increase to 190" wheelbase chassis to accommodate front lift configuration and an additional double foldaway seat position per floor plan provided Section 21.

- 4.4 Class D (Extended Wheelbase, Front Lift, Full Bus Body Paint or ¾ Bus Body Paint with Expanded Graphics):** Vehicles identified as Class D vehicles shall meet the mandatory requirements listed in Section 3 and the mandatory requirements of Class A with the exception that Class D vehicles shall have Full Bus Body Paint or ¾ Bus Body Paint with Expanded Graphics as described in Class B instead of vinyl logo and stripes. Class D vehicles shall also have the extended length with front lift option per Class C.

- 4.5 Class E (Extended Wheelbase, Front Lift, Overhead Luggage, High Back Seats):** Vehicles identified as Class E vehicles shall meet the mandatory requirements listed in Section 3 and the mandatory requirements of Class A and Class C, extended length, front lift with the exception that Class E vehicles shall also have, overhead luggage and high back seats as listed below.

**4.5.1** Interior overhead luggage racks – Vendor should submit product description with bid.

**4.5.2** Substitute high back for mid high back passenger seats.

- 4.6 Class F (Extended Wheelbase, Front Lift, Overhead Luggage, High Back Seats, Full Bus Body Paint or ¾ Bus Body Paint with Expanded Graphics)** Vehicles identified as Class F vehicles shall meet the mandatory requirements listed in Section 3 and the mandatory requirements of Class A with the exception that Class F vehicles shall have Full Bus Body Paint or ¾ Bus Body Paint with Expanded Graphics as described in Class B instead of vinyl logo and stripes, Class C extended wheelbase, front lift, and Class E the vehicles shall have overhead luggage and high back seats.

**5.0 ADDITIONAL REQUIREMENTS APPLICABLE TO ALL VEHICLES**

**5.1 Summary of Items to Be Provided Upon Delivery**

By the time of delivery, the following items shall be furnished by the successful Vendor for each vehicle:

- 5.1.1** All warranty verification vouchers, certificates or coupons.
- 5.1.2** Current model year of the following manuals to each Transit Authority per model year.  
  
Parts manuals Chassis and Body  
Wiring schematics of auxiliary circuits and all other necessary prints for the maintenance of the vehicle and Operations manual Chassis and Body.
- 5.1.3** Completely filled fuel tank or tanks.
- 5.1.4** Protection to 20° F below zero with permanent type antifreeze.
- 5.1.5** A vehicle(s) free of dealer signs and emblems.
- 5.1.6** Assurance of compliance with manufacturer's pre-delivery service, lubed, serviced and ready for immediate service.
- 5.1.7** A vehicle(s) which is clean, (If delivery of the vehicle occurs during the winter months of October through March, the vehicle shall be washed directly prior to delivery at Kanawha Valley Regional Transportation Authority to ensure that the vehicle is free of dirt and salt deposits)
- 5.1.8** Operation, maintenance and warranty information for any add on equipment will be provided upon delivery if available to the Vendor. Such as: lift, wheelchair securement system, occupant restraint system, destination signs, PA system and security camera system.
- 5.1.9** Original vehicle chassis manufacturer's factory sticker itemizing equipment on the vehicle.
- 5.1.10** A certified weight slip showing front and drive axle weights for the vehicle at its curb weight.
- 5.1.11** Proof of Alignment.
- 5.1.12** Vehicle shall comply with and conform to the State of West Virginia Motor Vehicle Inspection Law and shall have the current inspection sticker attached to the windshield.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

5.1.13 Proof of rustproofing/undercoating warranty.

## 5.2 TITLE

- 5.2.1 Adequate documents for securing the vehicle in the name of the Transit Authority shall be provided to the Division of Public Transit at least 10 working days prior to the delivery of each vehicle. **The Division of Public Transit will supply with each release order the Transit Authority names(s) for titling documents.** The Vendor warrants that the title shall pass to the Division of Public Transit/Transit Authority free and clear of all liens, mortgages and encumbrances, financing statements, security agreements, claims and demands of any character.
- 5.2.2 According to WV State Code §5A-3-4(8), vendor agrees that liquidated damages shall be imposed at the rate of \$10 per calendar day for failure to provide the titling documentation at the time of vehicle delivery. This clause shall in no way be considered exclusive and shall not limit the State or agency's right to pursue any other additional remedy to which the State or agency may have legal cause for action including further damages against the vendor.
- 5.2.3 All documentation (Certificate of Origin, Delivery/Odometer Statement, Etc.) in original form must be mailed or hand carried to:
- 5.2.4 WV Division of Public Transit  
1900 Kanawha Blvd., East  
Building 5, Room 650  
Charleston, WV 25305

## 6.0 QUALITY ASSURANCE

### 6.1 QUALITY ASSURANCE ORGANIZATION

The Vendor shall establish and maintain an effective quality assurance organization. It shall be a specifically defined organization and should respond directly to the Vendor's management. The Vendor's complete quality assurance program for purchased components and in-plant inspection procedures shall be available for review by the Division of Public Transit prior to award.

#### Control

The quality assurance organization shall exercise quality control over all phases of production from initiation of design through manufacture and preparation for delivery. The organization shall also control the quality of supplied articles.

#### Authority and Responsibility

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

The quality assurance organization shall have the authority and responsibility for reliability, quality control, inspection planning, establishment of the quality control system, and acceptance/rejection of materials and manufactured articles in the production of the vehicles.

**6.2 QUALITY ASSURANCE ORGANIZATION FUNCTIONS**

The quality assurance organization shall include the following minimum functions.

**Work Instructions**

The quality assurance organization shall verify inspection operation instructions to ascertain that the manufactured product meets all prescribed requirements.

**Records Maintenance**

The quality assurance organization shall maintain and use records and data essential to the effective operation of its program. These records and data shall be available for review by the resident inspectors. Inspection and test records for this procurement shall be available for a minimum of one (1) year after inspections and test are completed.

**Corrective Actions**

The quality assurance organization shall detect and promptly assure correction of any condition that may result in the production of defective vehicles. These conditions may occur in designs, purchases, manufacture, tests, or operations that culminate in defective supplies, facilities, technical data, or standards.

**6.3 STANDARDS AND FACILITIES**

**Configuration Control**

The Vendor shall maintain drawings and other documentation that completely describe a quality vehicle that meets all of the options and special requirements of this procurement. The quality assurance organization shall verify that each vehicle is manufactured in accordance with these controlled drawings and documentation.

**Measuring and Testing Facilities**

The Vendor shall provide and maintain the necessary gauges and other measuring and testing devices for use by the quality assurance organization to verify that the vehicles conform to all specification requirements. These devices shall be calibrated at established periods against certified measurement standards that have known valid relationships to national standards.

**Production Tooling as Media of Inspection**

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

When production jigs, fixtures, tooling master patterns, and other devices are used as media of inspection, they shall be proved for accuracy at formally established intervals and adjusted, replaced, or repaired as required to maintain quality.

**Equipment Use By Division of Public Transit's Inspector(s)**

The Vendor's gauges and other measuring and testing devices shall be made available for use by the Division of Public Transit's inspector(s) to verify that the vehicles conform to all specification requirements. If necessary, the Vendor's personnel shall be made available to operate the devices and to verify their condition and accuracy.

**6.4 CONTROL OF PURCHASES**

The Vendor shall maintain quality control of purchases.

**Supplier Control**

The Vendor shall require that each supplier maintains a quality control program for the services and supplies that it provides. The Vendor's quality assurance organization shall inspect, and test materials provided by suppliers for conformance to specification requirements. Materials that have been inspected, tested, and approved shall be identified as acceptable to the point of use in the manufacturing or assembly processes. Controls shall be established to prevent inadvertent use of non-conforming materials.

**Purchasing Data**

The Vendor shall verify that all applicable specification requirements are properly included or referenced in purchases of articles to be used on vehicles.

**6.5 MANUFACTURING CONTROL**

The Vendor shall ensure that all basic production operations, as well as all other processing and fabricating, are performed under controlled conditions, establishment of these controlled conditions shall be based on the documented work instructions, adequate production equipment, and special working environments if necessary.

**Completed Items**

A system for final inspection and test of completed vehicles shall be provided by the quality assurance organization. It shall measure the overall quality of each completed vehicle.

**Non-conforming Materials**

The quality assurance organization shall monitor the Vendor's system for controlling non-conforming materials. The system shall include procedures for identification, segregation, and disposition.

### **Statistical Techniques**

Statistical analysis, tests, and other quality control procedures may be used when appropriate in the quality assurance processes.

### **Inspection Status**

A system shall be maintained by the quality assurance organization for identifying the inspection status of components and completed vehicles. Identification may include cards, tags, or other normal quality control devices.

## **6.5.1 INSPECTION SYSTEM**

The quality assurance organization shall establish, maintain, and periodically audit a fully documented inspection system. The system shall prescribe inspection and test of materials, work in progress and completed articles. At a minimum, it shall include the following controls.

### **Inspection Stations**

Inspection stations shall be at the best locations to provide for the work content and characteristics to be inspected. Stations shall provide the facilities and equipment to inspect structural integrity; electrical; hydraulic; through floor securements; OEM defects; coverage of the undercoating; and other components and assemblies for compliance with the design requirements.

Stations shall also be at the best locations to inspect or test characteristics before they are concealed by subsequent fabrication or assembly operations. These locations shall minimally include, as practicable, underbody structure completion, body framing completion, body prior to paint preparation, water test before interior trim and insulation installation, engine installation completion, underbody dress-up and completion, vehicle prior to final paint touch up, vehicle prior to road test, and vehicle final road test completion.

The manufacturer shall provide on its premises a suitable hoist for a complete inspection of the underside of the vehicle. **A pit is not acceptable.**

### **Inspection Personnel**

Sufficiently trained inspectors shall be used to ensure that all materials, components, and assemblies are inspected for conformance with the qualified vehicle design.

### **Inspection Records**

Acceptance, rework, or rejection identification shall be attached to inspected articles. Articles that have been accepted as a result of approved materials review actions shall be identified. Articles that have been reworked to specified drawing configurations shall not require special identification. Articles rejected as unsuitable or scrap shall be plainly marked and controlled to prevent installation on the vehicle. Articles that become

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

obsolete as a result of engineering changes for other actions shall be controlled to prevent unauthorized assembly or installation. Unusable articles shall be isolated and then scrapped.

Discrepancies noted by the Vendor or Division of Public Transit's inspector during assembly shall be entered by the inspection personnel on a record that accompanies the major component, subassembly, or vehicle from start of assembly through final inspection. Actions shall be taken to correct discrepancies or deficiencies in the manufacturing processes, procedures, or other conditions that cause articles to be in nonconformity with the requirements of the contract specifications. The inspection personnel shall verify the corrective actions and mark the discrepancy record. If discrepancies cannot be corrected by replacing the non-conforming materials, the Division of Public Transit shall approve the modification, repair, or method of correction to the extent that the contract specifications are affected.

**Quality Assurance Audits**

The quality assurance organization shall establish and maintain a quality control audit program. Records of this program shall be subject to review by the Division of Public Transit.

**Division of Public Transit's Inspector(s)**

The Division of Public Transit may be represented at the Vendor's plant by their inspectors, they shall monitor, in the Vendor's plant, the manufacture of vehicles built under this procurement. The Division of Public Transit's inspectors shall be authorized to release the vehicles for delivery. Upon request to the quality assurance supervisor, inspectors shall have access to the Vendor's quality assurance files related to this procurement. These files shall include drawings, material standards, parts lists, inspection processing and reports, and records of defects. The presence of these inspectors in the plant shall not relieve the Vendor of its responsibility to meet all of the requirements of this procurement.

The Division of Public Transit's inspectors shall not have the authority to stop the Vendor's production line until any apparent problem area of major significance that arises to warrant such actions is fully discussed with the Vendor's top management.

**6.6 SERVICE AND PARTS**

The Vendor shall state on **Bid Form #1** the representative(s) responsible for assisting the Recipient Agencies, as well as, the location of the nearest distribution center(s) which shall furnish a complete supply of parts and components for the repairs and maintenance of the vehicles to be supplied.

**6.6.1 Materials and Workmanship**

- 6.6.1.1** Vendor shall incorporate in the proposed vehicle(s) the latest technological achievements consistent to achieving maximum service life and superior attractiveness of appearance.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 6.6.1.2 Vehicle(s) shall be delivered in new, first-class condition, complete and ready for operation on the street and the Vendor shall assume all responsibility and liability incident to said delivery.
- 6.6.1.3 All materials used in the construction of vehicle(s) and in all its parts and accessories shall conform to A.S.T.M., S.A.E., or similar associations published standards, and be of top quality.
- 6.6.1.4 The vehicle(s) shall be built with suitable and easily accessible compartments provided for all apparatus, sound deadening insulation, wherever needed, and all operating devices so mounted as to reduce and keep all noise and vibration to an absolute minimum.
- 6.6.1.5 Vendor shall assume responsibility for all material and accessories used in vehicle(s) and their proper installation and their warranty, whether the same is manufactured by the Vendor or purchased ready-made from a source outside the Vendor's company.
- 6.6.2 **Spare Parts** – The Vendor shall guarantee the availability of replacement parts for these vehicles for at least a seven (7) year period after the date of acceptance. Spare parts shall be interchangeable with the original equipment and shall be manufactured in accordance with the quality assurance provision of this contract.
- 6.6.3 **Engineers** – The Vendor shall, at its own expense, have a competent engineering representative(s) available on request to assist the Recipient Agencies staff in the solution of engineering or design problems within the scope of the specifications that may arise during the warranty period.
- 6.6.4 **Documents** – The Vendor shall keep maintenance manuals available for a period of ten (10) years after the date of acceptance of the vehicles procured under this contract. The Vendor shall also keep parts books up-to-date for a period of ten (10) years. The supplied maintenance and operators' manuals shall incorporate all equipment ordered on the vehicles covered by this procurement.

## **6.7 WARRANTIES**

The Vendor has an obligation to ensure that the entire vehicle is covered by a warranty. The Vendor shall make every effort to assure that all obligations defined under all warranties applicable to the vehicle or any subpart of the vehicle are fulfilled.

### **6.7.1 WARRANTY REQUIREMENTS**

Warranties in this document are in addition to any statutory remedies or warranties imposed on the Vendor. Consistent with this requirement the Vendor warrants and guarantees to the Division of Public Transit each complete vehicle, and specific subsystems and components as follows:



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**6.7.2 Complete Vehicle**

The vehicle is warranted and guaranteed to be free from defects and related defects for three (3) years or 36,000 miles, whichever comes first, beginning on the first day after the date of final acceptance of each vehicle. During this warranty period, the vehicle shall maintain its structural and functional integrity. The warranty is based on regular operation of the vehicle under the operating conditions prevailing in the Recipient Agencies locales.

**6.7.3 Warranty of Basic Vehicle Structure**

The Vendor shall warranty the frame and suspension members for three (3) years or 36,000 miles, whichever comes first. This warranty shall not cover air bags, leveling valves, springs or other normal wearing parts. The Vendor is not liable for warranty if the Recipient Agencies voids the warranty as outlined in this Section. If the frame or suspension fails or shows indication of imminent failure, the Recipient Agencies will immediately notify the Vendor of said defect. Within ten (10) calendar days the Vendor will inform the Recipient Agencies on how the Vendor will repair the vehicle. Repair of frame and suspension failures will be the responsibility of the Vendor. Within fifteen (15) calendar days from notification of the defect the Vendor shall begin the repair of the frame and suspension defects. If the vehicle with the reported frame and suspension defect is out of revenue service for more than twenty (20) calendar days because of the reported defect, the Vendor will have to either provide a substitute vehicle of equal seating capacity with wheelchair lift (if applicable) of the same age or newer than the vehicle with the defect or directly reimburse the Recipient Agencies the cost of leasing a substitute vehicle. The maximum daily reimbursement will be \$300. The Vendor will have to continue to provide a substitute vehicle or reimburse the Recipient Agencies until the defect is completely repaired.

**6.7.4 Warranty Locations**

A description of how and by whom warranty service is to be provided in four (4) areas of West Virginia is to be included in the bid proposal. The information should cover both mechanical and body work. All bidders shall provide vendors who will do the warranty of both chassis and body, including vehicle body, air conditioning and wheelchair lifts. The four warranty service areas of West Virginia include: The Northern Panhandle, Eastern Panhandle, Central West Virginia and Southern West Virginia.

**6.7.5 Subsystems and Components –**

The subsystems and components are warranted and guarantees to be free from defects and related defects as follows:

ENGINE: Three (3) years or 36,000 miles, whichever comes first.

TRANSMISSION: Three (3) years or 36,000 miles, whichever comes first.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

DRIVE AXLE: Three (3) years or 36,000 miles, whichever comes first.

BRAKE SYSTEM: Excluding friction material, three (3) years or 36,000 miles, whichever comes first.

BASIC BODY STRUCTURE INTEGRITY: Three (3) years or 36,000 miles, whichever comes first.

AIR CONDITIONING SYSTEM: Two (2) years or two (2) operating seasons, whichever is greater.

WHEELCHAIR LIFT SYSTEM: Two (2) years.

ALL ADD ON COMPONENTS: Two (2) years, unlimited miles.

**6.8 VOIDING OF WARRANTY**

The warranty shall not apply to any part or component of the vehicle that has been subject to misuse, negligence, accident, or that has been repaired or altered in any way so as to affect adversely its performance or reliability, except insofar as such repairs were in accordance with the Vendor's maintenance manuals and the workmanship was in accordance with recognized standards of the industry. The warranty shall also be void if the Recipient Agencies fails to conduct normal inspections and scheduled preventative maintenance procedures as recommended in the Vendor's maintenance manuals.

**6.9 EXCEPTIONS TO WARRANTY**

The warranty shall not apply to scheduled maintenance items, and items such as tires and tubes, nor to items furnished by the Recipient Agencies such as radios, fare boxes and other auxiliary equipment, except insofar as such equipment may be damaged by the failure of a part or component for which the Vendor is responsible.

**6.10 DETECTION OF DEFECTS**

If the Recipient Agency detects a defect within the warranty periods defined in Section 6.6 of this Part, it shall promptly notify the Vendor's representative five (5) working days after receipt of notification, the Vendor's representative shall either agree that the defect is in fact covered by warranty, or reserve judgment until the subsystem or component is inspected by the Vendor's representative or is removed and examined at the Recipient Agencies property or at the Vendor's plant. At that time, the status of warranty coverage on the subsystem or component shall be mutually resolved between the Recipient Agency and the Vendor. Work necessary to affect the repairs defined in Section 6.7 of this Part shall commence within ten (10) working days after receipt of notification by the Vendor.

**6.11 SCOPE OF WARRANTY REPAIRS**

When warranty repairs are required, the Recipient Agencies and the Vendor's representative shall agree within five (5) days after notification on the most appropriate course for the repairs and the

exact scope of the repairs to be performed under the warranty. If no agreement is obtained within the five (5) day period, the Recipient Agencies reserves the right to commence the repairs in accordance with Section 6.7.3.

## **6.12 FLEET DEFECTS**

A fleet defect shall be defined as the failure of any identical items covered by the warranty and the specifications herein and occurring in a twenty percent (20%) portion of the vehicles purchased under this contract.

The Vendor shall correct a fleet defect under the warranty provision. After correcting defect, the Vendor shall promptly undertake and complete a work program reasonably designed to prevent the occurrence of the same defect in all other vehicles purchased under this contract. The work program shall include inspection and/or correction of the potential or defective parts in all of the vehicles purchased under this contract. The warranty on items determined to be fleet defects shall be extended for the time and/or miles of the original warranty. This extended warranty shall begin on the date of the repair/ replacement for the corrected item.

## **6.13 REPAIR PROCEDURES**

### **6.13.1 Repair Performance**

At its option, the Division of Public Transit, or its designated representative, may require the Vendor, or its designated representative, to perform warranty covered repairs that are clearly beyond the scope of Recipient Agencies capabilities. All warranty work done by Recipient Agencies personnel will be reimbursed by the Vendor.

### **6.13.2 Repairs by Vendor**

If the Recipient Agencies requires the Vendor to perform warranty covered repairs, the Vendor's representative must begin the work necessary to make repairs, within ten (10) working days after receiving notification of a defect from the Recipient Agencies. The Recipient Agencies shall make the vehicle available to complete repairs timely with the Vendor's repair schedule.

The Vendor will provide, at its own expense, all spare parts, tools and space required to complete repairs. At the Recipient Agencies option, the Vendor may be required to complete repairs. At the Recipient Agencies option, the Vendor may be required to remove the vehicle from Recipient Agency's property while repairs are being effected. If the vehicle is removed from Recipient Agency's property, repair procedures must be diligently pursued by the Vendor's representative.

### **6.13.3 Repairs by Recipient Agencies**

#### **6.13.3.1 Parts Used**

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

If the Recipient Agency performs the warranty covered repairs, it shall correct or repair the defect and any related defects using Vendor specified spare parts available from its own stock or those supplied by the Vendor specifically for this repair. Monthly, or at a period to be mutually agreed upon, reports of all repairs covered by this warranty shall be submitted by the Recipient Agency to the Vendor for reimbursement or replacement of parts. The Vendor shall provide forms for these reports.

**6.13.3.2 Vendor Supplied Parts**

The Recipient Agency may request that the Vendor supply new parts for warranty covered repairs being performed by the Recipient Agency. These parts shall be shipped prepaid to the Recipient Agency from any source selected by the Vendor within 10 (ten) working days of receipt of the request for said parts.

**6.13.3.3 Defective Components Return**

The Vendor may request that parts covered by the warranty be returned to the manufacturing plant. The total cost for this action shall be paid by the Vendor. Materials should be returned in accordance with Vendor's instructions.

**6.13.3.4 Reimbursement for Labor**

The Recipient Agencies shall be reimbursed by the Vendor for labor. The amount shall be determined by multiplying the number of man-hours actually required to correct the defect by the current per hour, straight wage rate, plus 53 percent fringe benefits, plus the cost of towing in the vehicle if such action was necessary and if the vehicle was in the normal service area.

These wage and fringe benefit rates shall not exceed the rates in effect in the Recipient Agencies service garage at the time the defect correction is made.

**6.13.3.5 Reimbursement for Parts**

The Recipient Agencies shall be reimbursed by the Vendor for defective parts and for parts that must be replaced to correct the defect. The reimbursement shall be at the invoice cost of the part(s) at the time of repair and shall include taxes where applicable and 10 percent handling costs.

**6.14 WARRANTY AFTER REPLACEMENT/REPAIRS**

If any component, unit, or subsystem is rebuilt or replaced by the Vendor or by the Recipient Agencies personnel, with the concurrence of the Vendor, the subsystem shall have the unexpired warranty period of the original subsystem.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**7. CONTRACT AWARD**

- 7.1 Contract Award:** The Contract is intended to provide Agencies with a purchase price on all Contract Items. The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages.
- 7.2** The Federal Transit Administration's "Third Party Contracting Circular" (4220.1F), requires grantees (the DPT) to conduct procurements in a manner that prohibits the use of statutorily or administratively imposed In-State or local geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference.

Therefore, the In-State vendor preference per West Virginia Code 5A-3-37 shall not apply to this procurement since it is partially or entirely funded with Federal Transit Administration funds.

**8. PRICING PAGE**

- 8.1** Vendor shall complete Exhibit A Pricing Page by listing the unit price for each vehicle Class, multiplying the unit price by the estimated quantity to arrive at a total. All prices quoted are to be in whole dollars and include delivery charges.
- 8.2** Exhibit A Pricing Page contains a list of the Contract Items and estimated purchase volume. The estimated purchase volume for each item represents the approximate volume of anticipated purchases only. No future use of the Contract or any individual item is guaranteed or implied. Vendor should complete the Pricing Pages in their entirety as failure to do so may result in Vendor's bids being disqualified.
- 8.3** Vendor should electronically enter the information into the Pricing Pages through wvOASIS, if available, or as an electronic document.
- 8.4** Additional agencies, as noted, could purchase from any awarded contract resulting from this bid. Specified deliverables would be as originally advertised, competed, evaluated and awarded.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**9. BID REQUIREMENTS**

- 9.1** All bids must remain in effect for the life of the contract except if vehicle chassis manufacturer issues a model year chassis price increase. A request for a model year chassis price increase is the only price increase that will be considered.
- 9.2** To request a new model year chassis price increase, the request shall be submitted to the Division of Public Transit. Documentation from the actual chassis manufacturer of the chassis price increase is required to be included in the request or the price increase will not be considered.

**10. VENDOR QUALIFICATIONS**

The Vendor must be a person, firm or corporation that:

- 10.1** Has in operation, a manufacturing plant adequate to assure delivery of all equipment within the time specified under the contract.
- 10.2** Has adequate engineering and service personnel, or has the capability to have such personnel, to satisfy any engineering or service problems that may arise during the warranty period.
- 10.3** Has similar vehicles in operation in comparable service for a minimum of one (1) year. The Vendor may be required to furnish a customer list indicating the number of units and dates in service during or equal period or during the bid evaluation period in addition to the requirements under Section 11.1.8 of these specifications.
- 10.4** In lieu of this requirement, certified results of a shaker test may be requested by the Division of Public Transit during the or equal period to prove the proposed vehicles to be capable of operating the service contemplated for these vehicles.
- 10.5** Has the necessary facilities and financial resources to complete the contract in a satisfactory manner within a required time. The Division of Public Transit shall have the right to conduct a pre-award survey of each Vendor.
- 10.6** Has complete and accurate maintenance, parts and operators' manuals.

**11. MISCELLANEOUS ITEMS TO BE SUPPLIED WITH BID**

**11.1 Pre-Award Review** – The Vendor shall submit the following items and any further items requested.

- 11.1.1** Complete mechanical description of vehicle, its construction and equipment including manufacturer's model name and/or number. Equipment to be described shall include the wheelchair lift, air conditioner, flip-up seat, and wheelchair securement system, if these items are specified herein.
- 11.1.2** Proposed interior floor plans, showing detailed dimensions including the location of the wheelchair securement system and stanchions if specified.
- 11.1.3** Curb weight (empty weight) and gross vehicle weight rating (GVWR) of vehicle.
- 11.1.4** Description of the warranties the Vendor proposes to furnish for the vehicle and for required ancillary equipment, including a listing of sites where warranty work will be performed.
- 11.1.5** The location of the nearest depot which will furnish a complete supply of parts and components for the repair and maintenance of the vehicle to be supplied.
- 11.1.6** Description of the undercoating/rustproofing system, including warranty to be provided.
- 11.1.7** Identification of the specific location of the place of assembly in the case of a vehicle or the place of a conversion in the case of a converted vehicle. If the location changes, the Vendor must notify the Division of Public Transit, in which case the Division of Public Transit reserves the right to perform an inspection similar to the pre-award inspection identified. If the results of the inspection are unsatisfactory, the Division of Public Transit may begin the contract termination process through the WV State Purchasing Division.
- 11.1.8** A list of five (5) users names, addresses, and telephone numbers who have been provided similar equipment by the Vendor. If the Vendor has not provided similar equipment, the Division of Public Transit reserves the right to determine the acceptability of the equipment proposed by the Vendor.

**12. FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS, CONDITIONS AND CERTIFICATIONS:**

Current FTA Terms and Conditions are included in this bid and must be met. Certifications for Vehicle Purchases, including Federal Motor Vehicle Safety Standards, Debarred Bidders, Disadvantaged Business Enterprise Manufacturers, Buy America Rolling Stock, Byrd Anti-Lobbying and Vehicle Testing certifications are provided on Bid Form Pages #1 - #10. **All bid forms provided shall be properly completed and furnished by the Vendor as part of the bid. Failure to submit any of these forms shall disqualify the bid.**

**12.1 No Government Obligation to Third Parties**

The Division of Public Transit and the Vendor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to the Contract and shall not be subject to any obligations or liabilities to DPT, the Vendor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

The Vendor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified except to identify the subcontractor who will be subject to its provisions.

**12.2 Program Fraud and False or Fraudulent Statements and Related Acts**

The Vendor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended 31 U.S.C. §§ 3801 *et seq.* and U.S. Department of Transportation regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Contract. Upon execution of the underlying contract, the Vendor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract for the FTA assisted project for which this Contract work is being performed. In addition to other penalties that may be applicable, the Vendor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Vendor to the extent the Federal Government deems appropriate.

The Vendor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Vendor, to the extent the Federal Government deems appropriate.



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

The Vendor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

**12.3 Access to Records**

The Vendor agrees to permit DPT, the Secretary of the US DOT and the Comptroller General of the United States, or their authorized representatives, to inspect all Contract work, materials, payrolls and other data and records with regard to the Contract. The Vendor also agrees to permit an audit of the books, records, and accounts of the Vendor and its subcontractors.

**12.4 Federal Regulation Changes**

Vendor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement (FTA MA (24) dated October 1, 2017) <http://www.fta.dot.gov> between the WV Department of Transportation, Division of Public Transit and FTA, as they may be amended or promulgated from time to time during the term of this contract. Vendor's failure to so comply shall constitute a material breach of this contract.

**12.5 Civil Rights Requirements**

In connection with the execution of this contract, the following requirements will apply:

**12.5.1 Nondiscrimination.** In accordance with Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000d, *et seq.*, Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6101, *et seq.*, Americans with Disabilities Act of 1990, as amended, 42 U.S.C. § 12101, *et seq.*, and Federal transit law at 49 U.S.C. § 5332, as amended, the Vendor agrees that it will not discriminate against any employee or applicant for employment on the basis of race, color, religion, national origin, sex, age or disability. In addition, the Vendor agrees to comply with any other applicable Federal statutes that may be signed into law or regulations that may be promulgated.

**12.5.2 Equal Employment Opportunity.** The following equal employment opportunity requirements apply to the underlying contract:

**12.5.2.1 Race, Color, Religion, National Origin, Sex, Disability, Age, Sexual Orientation, Gender Identity or Status as a Parent.** In accordance with Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000e, *et seq.*, and Federal transit laws at 49 U.S.C. § 5332, the Vendor agrees to comply with all

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

applicable equal employment opportunity requirements of the U.S. Department of Labor (US DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 *et seq.*, (which implement Executive Order Number 11246, "Equal Employment Opportunity", as amended by Executive Order Number 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Vendor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during their employment, without regard to their race, color, religion, national origin, sex, disability, age, sexual orientation, gender identity or status as a parent. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms or compensation; and selection for training, including apprenticeship. In addition, the Vendor agrees to comply with any implementing requirements FTA may issue.

- 12.5.3** The Vendor also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

**12.6     Incorporation of FTA Terms**

The preceding provisions include, in part, certain Standard Terms and Conditions required by the U.S. Department of Transportation, whether or not expressly set forth in the preceding Contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F, dated November 1, 2008, and are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Vendor shall not perform any act, fail to perform any act, or refuse to comply with any DPT requests which would cause DPT to be in violation of the FTA terms and conditions.

**12.7     Energy Conservation Requirements**

The Vendor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the State Energy Conservation Plan issued in compliance with the Energy Policy and Conservation Act.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**12.8     Debarment and Suspension**

This contract will comply with the requirements of 2 CFR Part 180, subpart C as adopted and supplemented by U.S. DOT regulations at 2 CFR Part 1200. Vendor is required to submit **Bid Forms #6 & #7** with bid.

The Division will not enter into any arrangement to participate in the development or implementation of a contract with any Vendor that is debarred or suspended except as authorized by Executive Orders No. 12549, "Uniform Suspension, Debarment or Exclusion of Participant from Procurement or Non-procurement Activity," October 13, 1994, 31 U.S.C. § 6101 note, as amended by Executive Order No. 12689, "Debarment and Suspension," August 16, 1989, 31 U.S.C. § 6101 note, and other applicable federal laws, regulations, or guidance regarding participation with debarred or suspended Vendors.

The Division will review the U.S. GSA "System for Award Management – Lists of parties Excluded from Federal Procurement and Non-Procurement Program," <https://www.sam.gov>,

As required by U.S. DOT regulations, 2 CFR Part 1200. If the Vendor's name is on the list, the Division cannot enter into a contract with a Vendor on the debarred list.

Should an approved Vendor have subcontracts, it is required to include similar provisions in each subcontract and review the SAM at <https://www.sam.gov>, to determine that the subcontractor is not on the debarred or suspended list.

- 12.9     Buy America Certification** – Vendor agrees to comply with 49 U.S.C. § 5323(j) and 49 CFR Part 661, which provides that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR 661.7 and include, microcomputer equipment, software, and small purchases (currently not more than \$150,000) made with capital, operating, or planning funds. Separate requirements for rolling stock are set out at 49 CFR 661.11. Rolling stock not subject to a general waiver must be manufactured in the United States and have a 65 percent domestic content.

**12.9.1.** A bidder must submit to the Division the appropriate Buy America certification on **Bid Form #4** with all bids on FTA-funded contracts, except those subject to a general waiver. **Per FTA requirements, bids that are not accompanied by a completed Buy America certification must be rejected as non-responsive.** This requirement does not apply to lower tier subcontractors.

**12.9.2.** **Should the Vendor be declared responsive and low bid, pursuant to Pre-Award and Post Delivery Audit Requirements, the Division will require the Vendor to submit documentation (prior to any award) that lists:**

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 12.9.2.1 Component and sub-component parts of the rolling stock to be purchased identified by manufacturer of the parts, their country of origin and costs;
  - 12.9.2.2 The location of the final assembly point for the rolling stock, including a description of the activities that will take place at the final assembly point and the cost of final assembly.
  - 12.9.2.3 The Vendor shall submit one manufacturer's Federal Motor Vehicle Safety Standards (FMVSS) self-certification sticker providing information that the vehicle quoted complies with relevant FMVSS, or Manufacturer's certified statement that the contracted vehicles will not be subject to FMVSS regulations.
- 12.9.3 As required by the Post Delivery Audit Requirement, any successful vendor will be required to furnish the following prior to any completed vehicle being placed into service or before any payment can be made:
- 12.9.3.1 Actual component and sub-component parts of the rolling stock provided, identified by manufacturer of the parts, country of origin and costs; and
  - 12.9.3.2 Actual location of the final assembly point for the rolling stock provided, including a description of the activities that took place at the final assembly point and the actual cost of final assembly.

**12.10 Byrd Anti-Lobbying Amendment**

Every Vendor who applies or bids for an award of \$100,000 or more shall file the certification of **Bid Form #9** required by 49 CFR Part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose the name of the registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. § 1352. Such disclosures are forwarded from tier to tier up to the Division.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**12.11 Environmental Regulations**

The Vendor agrees it will not use any violating facilities, will report the use of facilities placed on or likely to be placed on the U.S. EPA "List of Violating Facilities," will report violations of use of prohibited facilities to the Division who will in turn report each violation to FTA and the appropriate EPA Regional Office and will comply with the inspection and other requirements issued pursuant to the Environmental Protection Agency (EPA regulations (40 CFR, Part 15), which prohibits the use under nonexempt federal contracts, grants or loans of facilities included on the EPA list of violating facilities.

**12.12 Clean Air & Clean Water**

The Vendor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act, 42 U.S.C. §§ 7401 – 7671q and the Federal Water Pollution Control Act, U.S.C. 33 §§ 1251 – 1388, as amended.

The Vendor agrees to report each violation to the Division and understands and agrees that the Division will, in turn, report each violation as required to FTA and the appropriate EPA Regional Office.

The Vendor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance by FTA.

**12.13 Air Pollution and Fuel Economy**

Vendor is to ensure compliance with applicable Federal air pollution control and fuel economy regulations, such as EPA regulations, "Control of Air Pollution from Mobile Sources," 40 CFR Part 85; EPA regulations, "Control of Emissions from New and In-Use Vehicles," 40 CFR Part 86; and EPA regulations, "Fuel Economy and Greenhouse Gas Exhaust Emissions of Motor Vehicles" 40 CFR Part 600.

**12.14 Contract Work Hours and Safety Standards Act**

The Vendor shall comply with Section 102 of the Contract Work Hours and Safety Standards Act (40 USC §§ 3701 *et seq.*, esp. § 3702) as supplemented by Department of Labor Regulations (29 CFR, § 5 & 29 CFR § 1926) as they involve the employment of mechanics and laborers.

**12.14.1 Overtime Requirements** – No Vendor or subcontractor for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweeks.

- 12.14.2 Violation - Liability for Unpaid Wages; Liquidated Damages –** In the event of any violation of the clause set forth in above paragraph of this section, the Vendor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such Vendor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in above paragraph of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty (40) hours without payment of the overtime wages required by the clause set forth in above paragraph of this section.
- 12.14.3 Withholding for Unpaid Wages and Liquidated Damages –** The Division shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Vendor or subcontractor under any such contract or any other Federal contract with the same prime Vendor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Vendor, such sums as may be determined to be necessary to satisfy any liabilities of such Vendor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 12.4.2 of this section.
- 12.14.4 Subcontracts –** The Vendor or subcontractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Vendor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in this section.
- 12.14.5 Payrolls and Basic Records –** Payrolls and basic records relating thereto shall be maintained by the Vendor during the course of the work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b) (2) (B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the Vendor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

Vendors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of the training programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

**12.15 Disadvantaged Business Enterprise (DBE)**

Transit, 12.15.1 All U.S. Department of Transportation, Federal Transit Administration (FTA) assisted contracts between FTA, the Division of Public

and any Vendor shall include the following language:

**12.15.2 Policy** – It is the policy of the U.S. Department of Transportation that Disadvantaged Business Enterprises (DBE) as defined in 49 CFR Part 26 that DBEs shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with federal funds under this agreement. Consequently, the DBE requirements of 49 CFR Part 26 apply to the agreement.

**12.15.3 DBE Obligation** – The recipient or its Vendor agrees to ensure that DBEs as defined in 49 CFR Part 26 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with federal funds under this agreement. Consequently, the DBE requirements of 49 CFR Part 26 apply to the agreement. In this regard, all recipients or Vendors shall take all necessary and reasonable steps in accordance with 49 CFR Part 26 to ensure that DBEs have the maximum opportunity to compete for and perform contracts. Recipients and their Vendors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of U.S. Department of Transportation-assisted contracts.

**12.15.4** The manufacturer of transit vehicles shall certify that it has complied with the requirements of 49 CFR Part 26 (March 4, 1999), Section 26.49, and "Transit Vehicle Manufacturers". This certification shall be submitted with responses to this solicitation on **Bid Form #3**.

**12.15.5** The Vendor shall make good faith efforts to replace a DBE subcontractor that is unable to perform, with another DBE subcontractor.

**12.15.6** Where the Vendor is found to have failed to exert sufficient reasonable

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

and good faith efforts to involve DBEs in the work provided, the Division of Public Transit may declare the Vendor noncompliant and in breach of contract.

**12.15.7** The Vendor will keep records and documents for a reasonable time following performance of this contract to indicate compliance with the Division of Public Transit DBE Program. These records and documents will be made available at reasonable times and places for inspection by any authorized representative of the Division of Public Transit and will be submitted to the Division of Public Transit upon request.

**12.15.8** The awarded Vendor agrees to include the following assurance in every subcontract it signs relevant to this contract: The Vendor and each Third Party Subcontractor must not discriminate on the basis of race, color, national origin, or sex in the award and performance of any FTA or U.S. DOT-assisted sub-agreement, third party contract, and third party subcontract, as applicable, and the administration of its DBE program or the requirements of 49 CFR Part 26.

The Vendor and each third party subcontractor must take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of U.S. DOT-assisted sub-agreements, third party contracts and third party subcontracts, as applicable.

Failure by the Vendor and any of its third party contracts or third party subcontractors to carry out the requirements of this subparagraph 13.d (4) (b) is a material breach of this contract, and

The following remedies, or such other remedy as the Division of Public Transit deems appropriate, include, but are not limited to, withholding payments; assessing sanctions; liquidated damages; and/or disqualifying the Vendor from future bidding as non-responsible.

**12.16      Accessibility**

Vendor agrees that any vehicles provided shall be in accordance with the 42 U.S.C. Sections 12101 *et seq.*, and US DOT regulations, "Transportation Services for Individuals with Disabilities Act (ADA)," 49 CFR Part 37; and Joint U.S. Architectural and Transportation Barriers Compliance Board (U.S. ATBCB) and U.S. DOT regulations, "Americans with Disabilities (ADA) Accessibility Specifications for Transportation Vehicles," 36 CFR Part 1192 and 49 CFR Part 38.

**12.17      Vehicle Testing**

The Vendor agrees to comply with 49 U.S.C. § 5318(e) and FTA's implementing regulation at 49 CFR Part 665 and shall perform the following:

**12.17.1** A manufacturer of a new vehicle model or a vehicle model produced



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

with a major change in components or configuration shall provide a copy of the final test report to the Division of Public Transit at a point in the procurement process specified by the Division of Public Transit which will be prior to the Division's final acceptance of the first vehicle reflecting a passing score.

**12.17.2** A manufacturer who releases a report under above paragraph shall provide notice to the operator of the testing facility that the report is available to the public.

**12.17.3** If the manufacturer represents that the vehicle was previously tested, the vehicle being sold should have the identical configuration and major components as the vehicle in the test report, which must be provided to the Division prior to the Division's final acceptance of the first vehicle. If the configuration or components are not identical, the manufacturer shall provide a description of the change and the manufacturer's basis for concluding that it is not a major change requiring additional testing.

**12.17.4** If the manufacturer represents that the vehicle is "grandfathered" (has been used in mass transit service in the United States before October 1, 1988 and is currently being produced without a major change in configuration or components), the manufacturer shall provide the name and address of the recipient of such a vehicle and the details of that vehicle's configuration and major components.

**12.17.5** Any bidder must submit to the Division FTA's Vehicle Testing Requirements Certification on **Bid Form #10**. Bids that are not accompanied by a completed certification must be rejected as non-responsive. **A copy of the vehicle testing report should be included with the bid if available.** This requirement does not apply to lower tier subcontractors.

**12.18 Bid Protest Procedures**

Vendors have the option of protesting certain decisions made by the Purchasing Division. Please refer to the following link for Vendor Protest Procedures under Section 6.8.

<http://www.state.wv.us/admin/purchase/vrc/VPG/default.html>

**12.19 Appeals to the Federal Transit Administration (FTA)**

Under the Federal Transit Administration's Circular 4220.1F, the Federal Transit Administration's (FTA's) appeals process for reviewing protests of a recipient's procurement decisions are:

**12.19.1 Requirements for the Protester** – The protester must:

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**12.19.1.1** Qualify as an "Interested Party" – Only an "interested party" qualifies for FTA review of its appeal. An "interested party" is a party that is an actual or prospective bidder or offeror whose direct economic interest would be affected by the award or failure to award the contract at issue.

- i) Subcontractors – A subcontractor does not qualify as an "interested party" because it does not have a direct economic interest in the results of the procurement.
- ii) Consortia//Joint Ventures/Partnerships/Teams – An established consortium, joint venture, partnership, or team that is an actual bidder or offeror and is acting in its entirety, would qualify as an "interested party" because it has a direct economic interest in the results of the procurement. An individual member of a consortium, joint venture, partnership, or team, acting solely in its individual capacity, does not qualify as an "interested party" because it does not have a direct economic interest in the results of the procurement.
- iii) Associations or Organizations – An association or organization that does not perform contracts does not qualify as an "interested party" because it does not have a direct economic interest in the results of the procurement.

**12.19.1.2** Exhaust Administrative Remedies – The protester must exhaust its administrative remedies by pursuing the WV Purchasing Division protest procedures to completion before appealing their decision to FTA.

**12.19.1.3** Appeal Within Five (5) Days – The protester must deliver its appeal to the FTA Regional Administrator, Region III, 1760 Market Street, Suite 500, Philadelphia, PA, 19103-4124 within five (5) working days of the date when the protester has received actual or constructive notice of the WV Purchasing Division's final decision. Likewise, the protester must provide its appeal to the same address within five (5) working days of the date when the protester has identified other grounds for appeal to FTA. For example, other grounds for appeal include the DPT's failure to have or failure to comply with the WV Purchasing Division's protest procedures or failure to review the protest.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**12.20     Extent of FTA Review - FTA limits its reviews of protests to:**

- 12.20.1** Failure of DPT to have or adhere to WV Purchasing Division written bid protest procedures, or failure of DPT to review a complaint or protest.
- 12.20.2** Alleged violations on other grounds are under the jurisdiction of the appropriate State or local administrative authorities.
- 12.20.3** Alleged violations of a specific Federal Law or regulation that provides an applicable complaint procedure shall be submitted and processed in accordance with that Federal Law or regulation. See, e.g., Buy America Requirements, 49 C.F.R. Part 661 (Section 661.15); Participation by Minority Business Enterprise in Department of Transportation Programs, 49 C.F.R. Section 26.89.

FTA will exercise discretionary jurisdiction over those appeals involving issues important to FTA's overall public transportation program. FTA will refer violations of Federal law for which it does not have primary jurisdiction to the Federal authority having proper jurisdiction.

**12.21     FTA Determination to Decline Protest Reviews**

FTA's determination to decline jurisdiction over a protest does not mean that FTA approves of or agrees with WV Purchasing Division's decision or that FTA has determined the contract is eligible for Federal participation. FTA's determination means only that FTA does not consider the issues presented to be sufficiently important to FTA's overall program that FTA considers a review to be required.

**12.22     Prohibited Interest**

No employee, officer, board member, agent or their family members of the Division of Public Transit may participate in the selection, award or administration of a contract supported by Federal funds if a real or apparent conflict of interest is involved. Such a conflict could arise when any of the parties mentioned above have a financial or other interest in the Vendor selected for the contract.

**12.23     Hold Harmless**

The Vendor agrees to protect, defend, indemnify and hold the State of West Virginia, the Division, its officers, employees and agents free and harmless from and against any and all losses, penalties, damages, settlements, costs, charges, professional fees or other expenses or liabilities of every kind and

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

character arising out of or relating to any and all claims, liens, demands, obligations, actions, proceedings or causes of action of every kind and character in connection with or arising directly or indirectly out of this Contract and/or the performance hereof. Without limiting the generality of the foregoing, and all such claims, etc., relating to personal injury, infringement of any patent, trademark, copyright (or application for any thereof) or of any other tangible or intangible personal or property right, or actual or alleged violation of any applicable statute, ordinance, administrative order, rule or regulation, or decrees of any court, shall be included in the indemnity hereunder. The Vendor further agrees to investigate, handle, respond to, provide defense for and defend any such claims, etc., at his/her sole expense and agrees to bear all other costs and expenses related thereto, even if such claim is groundless, false or fraudulent.

### 13. ORDERING AND PAYMENT TO VENDOR

#### 13.1 ORDERING:

- 13.1.1 Vendor shall accept orders by regular mail, facsimile, e-mail, or any other written forms of communication.

#### 13.2 PAYMENT:

- 13.2.1 When submitting invoices for payment to the Division of Public Transit, the Vendor shall be required to provide an original typed invoice. The following items shall appear on the invoice:
- 1) Vendor's Federal Employee Identification Number (FEIN)
  - 2) Order number
  - 3) Invoice should reflect the base vehicle cost and any applicable options with unit cost. **NOTE: Two invoices shall be submitted for each vehicle, one for 90% and one for 10%.**
  - 4) Submit all invoices to:  
Division of Public Transit  
Building 5, Room 650  
1900 Kanawha Blvd., East  
Charleston, West Virginia 25305
- 13.2.2 Payment of 90% of the total cost shall be paid upon conditional acceptance of the vehicle(s).
- 13.2.3 Conditional acceptance of the vehicle(s) by the Division of Public Transit shall be made upon completion of inspection by the Division of Public Transit under Section 16 of this CRFQ.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 13.2.4 Under the conditional acceptance of the vehicle(s) provided, the Division of Public Transit shall retain 10% of the total cost per vehicle until all vehicles provided have been in actual service for thirty (30) days.
- 13.2.5 In the event any vehicle is found to be unacceptable during the thirty (30) day period of conditional acceptance, the Division of Public Transit shall furnish to the Vendor, in writing, a letter of non- acceptance detailing any and all deficiencies.
- 13.2.6 Final acceptance on each vehicle shall be made by the Division of Public Transit in writing upon completion of the period of conditional acceptance and/or after any and all deficiencies have been corrected.
- 13.2.7 Final acceptance shall be made on each individual vehicle provided. (Some vehicles may be accepted, while acceptance of others remains pending.)
- 13.2.8 Final acceptance of each vehicle shall be provided in writing by the Director of the Division of Public Transit or his/her authorized representative.
- 13.2.9 All warranties as described in this contract shall begin with the first day after the date of final acceptance of each vehicle. **Vendor shall furnish Notification of Delayed Delivery Date of In-Transit Mileage Accumulation Forms for completion by the Division of Public Transit upon acceptance of the vehicle.**
- 13.2.10 Prompt Payment – The prime Vendor agrees to pay each sub-contractor under this prime contract for satisfactory performance of its contract no later than fifteen (15) days from the receipt of each payment the prime Vendor receives from the Division of Public Transit. The Vendor agrees further to return retainage payments to each sub-contractor within fifteen (15) days after the sub-contractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval from the Division of Public Transit. This clause applies to both DBE and non-DBE sub-contractors.

#### 14. PRE-DELIVERY ACCEPTANCE TESTS

##### 14.1 Responsibility

Fully-documented tests shall be conducted on each production vehicle following manufacture to determine its acceptance to the Division of Public Transit. These acceptance tests shall include pre-delivery inspections and testing by the Division of Public Transit after the vehicles have been delivered.

##### 14.2 Pre-Delivery Tests

The Vendor shall conduct acceptance tests at its plant on each vehicle following completion of manufacture and before delivery to the Division of Public Transit. These pre-delivery tests shall include visual and measured inspections, as well as testing the total vehicle operation. The tests shall be documented. Additional tests

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

may be conducted at the Vendor's discretion to ensure that the completed vehicles have attained the desired quality and have met the requirements of Section 3: Specifications. This additional testing shall be recorded on appropriate test forms provided by the Vendor.

The pre-delivery tests will be scheduled and conducted with sufficient notice so that they may be witnessed by the resident inspectors, who may accept or reject the results of the tests. The results of pre-delivery tests, and any other tests, will be filed with the assembly inspection records for each vehicle. The under-floor equipment will be made available for inspection by the resident inspectors, using a hoist. A scaffold, or elevated platform will be provided by the Vendors to easily and safely inspect vehicle roofs. Delivery of each vehicle will require written authorization of a resident inspector. Authorization forms for the release of each vehicle for delivery will be provided by the Vendor. An executed copy of the authorization will accompany the delivery of each vehicle.

**14.3 Inspection - Visual and Measured**

Visual and measured inspections shall be conducted with the vehicle in a static condition. The purpose of the inspection testing is to verify overall dimensional and weight requirements, to verify that required components are included and are ready for operation, and to verify that components and subsystems that are designed to operate with the vehicle in a static condition do function as designed.

**14.4 Total Vehicle Operation**

Total vehicle operations shall be evaluated during road tests. The purpose of the road tests is to observe and verify the operation of the vehicle as a system and to verify the functional operation of the subsystem that can be operated only while the vehicle is in motion.

Each vehicle shall be driven for a minimum of 15 miles during the road tests. Observed defects shall be recorded on the test forms. The vehicle shall be retested when defects are corrected and adjustments are made. This process shall continue until defects or required adjustments are no longer detected. Results shall be pass/fail for these vehicle operation tests.

**14.5 Final Pre-Delivery Inspection:**

Prior to delivery, all vehicles must be thoroughly inspected and serviced in compliance with the manufacturer's prescribed procedures which includes but is not limited to:

14.5.1 Complete vehicle lubrication;

14.5.2 Confirm oil level, fill crank case as needed, top off all fluids;

14.5.3 Adjust engine to proper operating condition;

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- 14.5.4 Verify tire pressure and correct as necessary;
- 14.5.5 Check front end alignment or four-wheel alignment, perform alignment, and balance all tires;
- 14.5.6 Wash/Clean interior and exterior of vehicle. Remove all unnecessary tags, stickers (including window stickers), papers, tags, etc.;
- 14.5.7 Upon delivery, the vehicles fuel tanks shall be full of fuel;
- 14.5.8 Affix a valid West Virginia Inspection Sticker to the windshield. The vehicle must be inspected in the month delivered;
- 14.5.9 No dealer insignia or other advertising shall be affixed to the vehicle or appear on any accessory such as mud flaps, bumpers, deck lids, etc. Vehicles delivered with such advertising will be rejected;
- 14.5.10 Perform operational checks which will cover all controls, systems, and devices, doors, windows, accessories, and road testing of the completed vehicle. Vehicle shall be driven at various speeds; brakes tested for dependability, vehicle checked for rattles, squeaks and must be in compliance with pre-delivery inspection/servicing procedures and make adjustments as necessary.

**15. DELIVERY AND RETURN:**

- 15.1 **Delivery Time and Location:** Vendors shall specify approximate delivery dates when submitting bids. Delivery of the vehicle shall be completed within 150 days after receipt of executed contract documents. Vendor shall ship all orders in accordance with the above schedule and shall not hold orders until a minimum delivery quantity is met.
- 15.2 **Late Delivery:** The Division must be notified in writing if delivery is delayed for any reason. The request for extension must be received by the Division of Public Transit no less than ten (10) days prior to the originally planned vehicle delivery date and must include detailed justification for the length of the time extension. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the delayed order, and/or obtaining the items ordered from a third party.

Any Agency seeking to obtain items from a third party under this provision must first obtain approval of the Purchasing Division.

Delivery shall be FOB destination to:

Kanawha Valley Regional Transit Authority (KRT)  
1550 4<sup>th</sup> Avenue,  
Charleston, WV 25324

Vendor must contact KRT 24 hours before delivery at 304-343-7594. Delivery will be accepted Monday through Friday, between 9 a.m. and 2 p.m. exclusive of State holidays. Any delay in delivery resulting from the common carrier's operations, accidents, or

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

mechanical failures in route shall be construed as a cause beyond the Vendor's control. However, the Vendor shall have the responsibility of releasing the vehicle to the common carrier in time to reach the delivery site under normal delivery conditions.

- 15.3 In case the delivery of the complete vehicle shall be necessarily delayed because of strike, injunction, civil disturbance, government controls, or by reason of any cause or circumstances beyond the control of the Vendor, as detailed in writing by the Vendor, the term of completion of delivery shall be extended by a number of days to be determined in each instance by mutual agreement of the Division of Public Transit and Vendor.

- 15.4 If the vehicle is delivered over-the-road, a written report shall be submitted by the driver to the Division of Public Transit listing all incidents and unusual vehicle performance during the trip.

Should any service or repair be required during delivery, a comprehensive report shall be submitted to the Executive Director of the Division of Public Transit describing the nature of the service or repair and the cause.

- 15.5 Prior to acceptance, the Vendor shall have total risk of loss of the vehicle, including any damage sustained during the Vendor's driveway operation. Drivers shall keep a maintenance log enroute and it shall be delivered to the Division of Public Transit with the vehicle.

## 16. POST-DELIVERY ACCEPTANCE TESTS

- 16.1 The Division of Public Transit shall within fifteen (15) calendar days of **notice from Vendor that vehicle is ready to be inspected for conditional acceptance**, proceed with its inspection of vehicle for conditional acceptance. The Division of Public Transit will conduct acceptance tests on each delivered vehicle. The purpose of these tests is to identify defects that have become apparent between the time of vehicle release and delivery to the Division of Public Transit. The post-delivery tests shall include visual inspection and vehicle operations. The road tests for total vehicle operation are similar to those conducted at the Vendor's plant. Operational deficiencies of each vehicle shall be identified and recorded.

- 16.2 Vehicles that fail to pass the post-delivery tests are subject to non-acceptance. The Division of Public Transit shall record details of all defects and shall notify the Vendor of non-acceptance of each vehicle within 5 days after completion of the tests.

## 17. Conditional Acceptance of Vehicle's

- 17.1 The vehicle shall undergo the Division of Public Transit's acceptance test. If the vehicle passes these tests, conditional acceptance of the vehicle by the Division of Public Transit occurs on the fifteenth day after delivery. Acceptance may occur earlier if the Division of Public Transit notifies the Vendor of early acceptance. If the vehicle fails these tests, it shall not be accepted until the repairs have been made.

### 17.1.1 Repairs After Non-Acceptance



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

The Division of Public Transit may require the Vendor, or its designated representative, to perform the repairs after non-acceptance or the work may be done by the Transit Authority or Recipient Agency's personnel with reimbursement by the Vendor.

**17.1.2 Repairs by Vendor**

If the Transit Authority or Recipient Agency requires the Vendor to perform repairs after non-acceptance of the vehicle, Vendor's representative must begin work within five (5) working days after receiving notifications from the Division of Public Transit or Transit Authority of failure of acceptance tests. The Transit Authority or Recipient Agency shall make the vehicle available to complete repairs timely with the Vendor's repair schedule.

The Vendor shall provide, at its own expense, all spare parts, tools and space required to complete the repairs. At the Transit Authority or Recipient Agency's option, the Vendor may be required to remove the vehicle from their property. The repair procedure must be diligently pursued by the Vendor's representatives and the Vendor shall assume risk of loss while the vehicle is under its control.

**17.1.3 Repairs by Transit Authority or Recipient Agency**

**17.1.3.1 Parts Used.** If the Transit Authority or Recipient Agency decides to perform the repairs after non-acceptance of the vehicle, it shall correct or repair the defect and any related defects using Vendor specified parts available from its own stock or those supplied by the Vendor specifically for this repair.

Monthly, or at a period to be mutually agreed upon, reports of all repairs covered by this procedure shall be submitted by the Transit Authority or Recipient Agency to the Vendor for reimbursement or replacement of parts. The Vendor shall provide forms for these reports.

**17.1.3.2 Vendor Supplied Parts.** If the Vendor supplies parts for repairs being performed by the Transit Authority or Recipient Agency, after non-acceptance of the vehicle, these parts shall be shipped prepaid to the Transit Authority or Recipient Agency from any source selected by the Vendor within ten (10) working days after receipt of the request for said parts, provided said parts are available for shipment.

**17.1.3.3 Return of Defective Components.** The Vendor may request that parts covered by this provision be returned to the

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

manufacturing plant. The total cost for this action shall be paid by the Vendor.

**17.1.3.4** Reimbursement for Labor. The Transit Authority or Recipient Agency shall be reimbursed by the Vendor for labor. The amount shall be determined by multiplying the number of actual "man-hours" straight wage rate plus 53 percent fringe benefits, plus the cost of towing in the vehicle if such action was necessary. These wage and fringe benefit rates shall not exceed the rates in effect at the Transit Authority or Recipients Agency's service garage at the time the defect correction is made.

**17.1.3.5** Reimbursement for Parts. The Transit Authority or Recipient Agency shall be reimbursed by the Vendor for defective parts that must be replaced to correct the defect. The reimbursement shall include taxes where applicable and ten (10) percent handling cost.

**17.1.4** Delivery Payment/Risk of Loss: Standard order delivery shall be F.O.B. destination to the Agency's designated location. Vendor shall include the cost of standard order delivery charges in its bid pricing/discount and is not permitted to charge the Agency separately for such delivery.

**18. VENDOR DEFAULT:**

**18.1** The Following shall be considered a vendor default under this Contract.

**18.1.1** Failure to provide Contract Items in accordance with the requirements c obtained herein.

**18.1.2** Failure to comply with other specifications and requirements contained herein.

**18.1.3** Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.

**18.1.4** Failure to remedy deficient performance upon request.

**18.1.5** The Following remedies shall be available to Agency upon default.

**18.1.6** Immediate cancellation of the Contract.

**18.1.7** Immediate cancellation of one or more release orders issued under this Contract.

**18.1.8** Any other remedies available in law or equity.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**19. MISCELLANEOUS:**

- 19.1 No Substitutions:** Vendor shall supply only Vehicles as submitted in response to the Solicitation unless a contract modification is approved in accordance with the provisions contained in this Contract.
- 19.2 Vendor Supply:** Vendor must carry sufficient inventory of the Contract Items being offered to fulfill its obligations under this Contract. By signing its bid, Vendor certifies that it can supply the Contract Items contained in its bid response.
- 19.3 Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

**Contract Manager:** C. Chad Seals

**Telephone Number:** 1-800-533-1006 Ext.352

**Fax Number:** (434) 821-4456

**Email Address:** chad@sonnymerryman.com

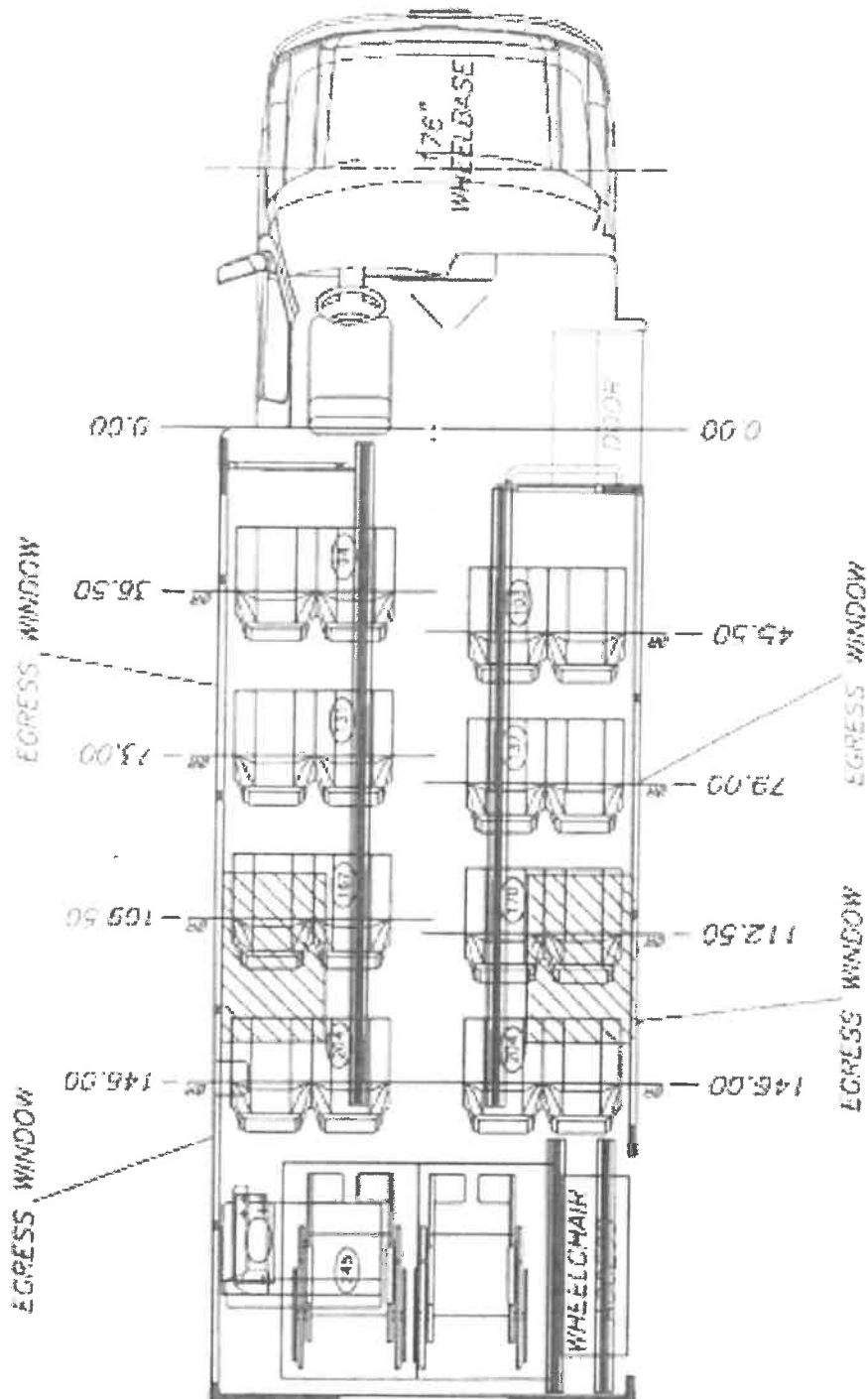
**20. NOTIFICATION OF FEDERAL PARTICIPATION**

Federal funding for this project is being provided by the Federal Transit Administration through various CFDA grants for 80% of the project cost. CFDA grants will be specified after award.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

21. PROPOSED FLOOR PLANS

Class A and Class B

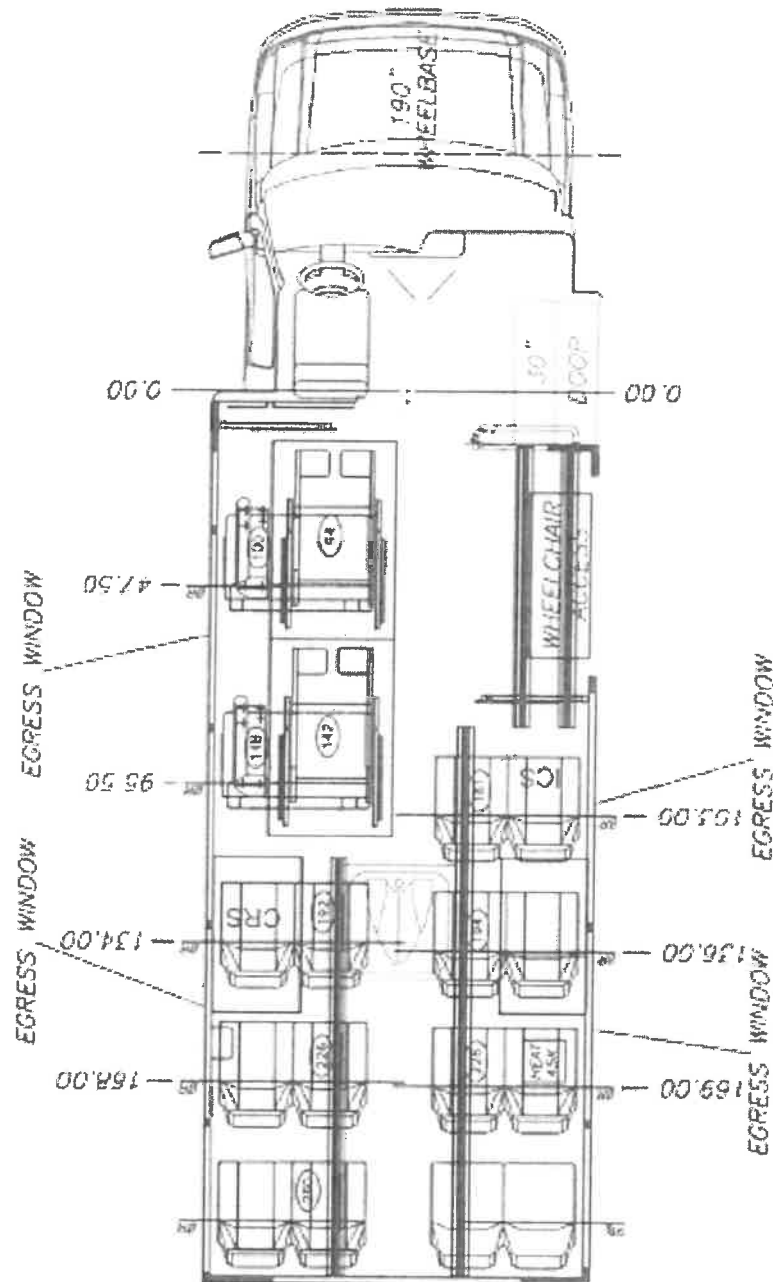


Revised 10/27/14

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

Classes C, D, E, and F



Revised 10/27/14

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**REQUIRED BID FORMS**

The following certifications must be properly **completed and furnished by the bidder as part of the bid**. Failure to submit any of these certifications **shall deem the bid non-responsive**.

*A required documentation checklist has been provided for bidder's usage.*

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #1**

**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

**Location(s) of Technical Service Representative(s)  
closest or in the State of West Virginia**

**Name:** Brady Childress

**Address:** 5120 Wards Road

Evington, VA. 24550

**Telephone:** 1-800-533-1006 Ext.332

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Location(s) of Parts Distribution Center(s)  
closest or in the State of West Virginia**

**Name:** Derek Shelton

**Address:** 5120 Wards Road

Evington, VA. 24550

**Telephone:** 1-800-533-1006 Ext.386

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

---

**CERTIFICATION FOR AIR & WATER POLLUTION  
MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

**ARE xx** in compliance with the regulations in 40 CFR Part 85, 40 CFR Part 86, 40 CFR Part 600, Clean Water Act and the air/water pollution criteria established by the Environmental Protection Agency of the United States Government.

08/02/18  
Date

### Commercial Sales

Sonny Merryman Inc

---

Company Name



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #3**

**DISADVANTAGED BUSINESS ENTERPRISE  
VENDORS/ MANUFACTURERS CERTIFICATION**

**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

**(Check appropriate statement)**

\_\_\_\_\_ The Vendor, if a transit vehicle manufacturer, hereby certifies that it has complied with the requirements of 49 CFR Section 26.49 by submitting an annual DBE goal to the Federal Transit Administration (FTA). The goal has either been approved or not disapproved by FTA.

XX The Vendor, if a non-manufacturing supplier, hereby certifies that the manufacturer of the transit vehicle to be supplied has complied with the above-referenced requirement of 49 CFR Section 26.49.

08/02/18  
Date

\_\_\_\_\_  
Authorized Signature

Commerical Sales  
Title

Sonny Merryman Inc  
Company Name

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #4**

**BUY AMERICA CERTIFICATION  
ROLLING STOCK  
MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

**Certificate of Compliance**

The bidder or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. § 5323(j), as amended and the applicable regulations of 49 CFR 661.12:

08/02/18  
Date

Authorized Signature

Sonny Merryman Inc  
Company Name

Chad Seals  
Name

Commerical Sales  
Title

**Certificate for Non-Compliance**

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. § 5323(j), as amended, but may qualify for an exception to the requirement consistent and the applicable regulations in 49 CFR 661.7.

Date

Authorized Signature

Company Name

Name

Title

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #5**

**FEDERAL MOTOR VEHICLE  
SAFETY STANDARDS CERTIFICATION**

**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

The vendor hereby certifies that it shall submit, as required by Title 49 of the CFR, Part 663 - Subpart D, it's self-certification information stating that the vehicle(s) will comply with the relevant Federal Motor Vehicle Safety Standards issued by the National Highway Traffic Safety Administration in Title 49 of the Code of Federal Regulations, Part 571.

08/02/18  
Date

\_\_\_\_\_  
Authorized Signature

Commercial Sales  
\_\_\_\_\_  
Title

Sonny Merryman Inc  
\_\_\_\_\_  
Company Name

---

Sonny Merryman Inc hereby certifies that it

XX IS NOT (specify one) included on the U.S. GSA's debarment and suspension information available at <https://www.sam.gov>.

Authorized Signature \_\_\_\_\_

Sonny Merryman Inc

---

Company Name

**BID FORM #7**

**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**

**CERTIFICATION OF PRIMARY PARTICIPANT REGARDING  
DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS**

The Primary Participant (applicant for an FTA grant or cooperative agreement, or potential contractor for a major third party contract),  
Sonny Merryman Inc \_\_\_\_\_ (COMPANY NAME) certifies  
to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
2. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (2) of this certification; and
4. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

If the primary participant (applicant for an FTA grant, or cooperative agreement, or potential third party contractor) is unable to certify to any of the statements in this certification, the participant shall attach an explanation to this certification.)

THE PRIMARY PARTICIPANT (APPLICANT FOR AN FTA GRANT OR COOPERATIVE AGREEMENT, OR POTENTIAL CONTRACTOR FOR A MAJOR THIRD PARTY CONTRACT),

Sonny Merryman Inc. \_\_\_\_\_, CERTIFIES OR AFFIRMS THE  
TRUTHFULNESS AND ACCURACY OF THE CONTENTS OF THE STATEMENTS  
SUBMITTED ON OR WITH THIS CERTIFICATION AND UNDERSTANDS THAT THE  
PROVISIONS OF 31 U.S.C. SECTIONS 3801 ET SEQ. ARE APPLICABLE THERETO.

Commercial Sales

\_\_\_\_\_  
Signature and Title of Authorized Official



**BID FORM #9**  
**MANDATORY BID FORM – MUST BE SUBMITTED WITH BID**  
**CERTIFICATION OF RESTRICTIONS ON LOBBYING**

1. No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influence or attempt to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress regarding the award of a Federal grant, loan (including a line of credit), cooperative agreement, loan guarantee, or loan insurance, or the extension, continuation, renewal, amendment, or modification of any Federal grant, loan (including a line of credit), cooperative agreement, loan guarantee, or loan insurance.
2. If any funds other than Federal appropriated funds have been or will be paid to any person to influence or attempt to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or any employee of a Member of Congress in connection with any application for a Federal grant, loan (including a line of credit), cooperative agreement, loan guarantee, or loan insurance, the undersigned assures that it will complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," Rev. 7-97; and
3. The undersigned understands that the language of this certification shall be included in the award documents for all sub awards at all tiers (including subcontracts, sub grants, sub agreements. and contracts under grants, loans (including a line of credit), cooperative agreements, loan guarantees, and loan insurance.

The (Vendor, Contractor) Sonny Merryman Inc., certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the (Vendor, Contractor) understands and agrees that the provisions of 31 U.S.C. §§ 3801, et seq., apply to this certification and disclosure.

Title

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**BID FORM #10**

**CERTIFICATION OF COMPLIANCE WITH FTA'S  
BUS TESTING REQUIREMENTS**

The undersigned (Vendor/Manufacturer) certifies that the vehicle offered in this procurement complies with 49 U.S.C. 5318, as amended by MAP-21, and FTA regulations, "Bus Testing," 49 CFR Part 665.

The undersigned understands that misrepresenting the testing status of a vehicle acquired with Federal financial assistance may subject the undersigned to civil penalties as outlined in the Department of Transportation's regulation on Program Fraud Civil Remedies, 49 CFR Part 31. In addition, the undersigned understands that FTA may suspend or debar a manufacturer under the procedures in 49 CFR Part 29.

08/02/18

\_\_\_\_\_  
Date

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Commercial Sales

\_\_\_\_\_  
Title

Sonny Merryman Inc.

\_\_\_\_\_  
Company Name



REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**REQUIRED BID DOCUMENTATION CHECKLIST**

Manufacturer: Startrans      Model Year: 2019      Model: Senator II

**Mandatory Bid Forms – must be submitted with bid:**

- ☒ Bid Form #1: Locations of Technical Service Representatives and Parts Distribution Centers
- ☒ Bid Form #2: Certification for Air & Water Pollution
- ☒ Bid Form #3: Disadvantaged Business Enterprise Vendors/Manufacturers Certification  
**The vendor shall also supply with bid FTA TVM DBE Goal Concurrence for the Current Fiscal Year Approval Letter.**
- ☒ Bid Form #4: Buy America Certification Rolling Stock  
**Should the Vendor be declared responsive and low bid, pursuant to Pre-Award and Post Delivery Audit Requirements, the Division will require the Vendor to submit documentation (with the bid or prior to any award) that lists:**
- 1) Component and sub-component parts of the rolling stock to be purchased identified by manufacturer of the parts, their country of origin and costs: and
  - 2) The location of the final assembly point for the rolling stock, including a description of the activities that will take place at the final assembly point and the cost of final assembly.
- ☒ Bid Form #5: Federal Motor Vehicle Safety Standards Certification  
**Vendor shall also supply with bid a breakdown of FMVSS standards to be met with proposed vehicle.**
- ☒ Bid Form #6: U.S. Comptroller's Debarment List Certification
- ☐ Bid Form #7: Certification of Primary Participant Regarding Debarment, Suspension, and Other Responsibility Matters
- ☒ Bid Form #8: Vendor's Certification of Understanding and Acceptance
- ☒ Bid Form #9: Certification of Restrictions on Lobbying
- ☒ Bid Form #10: Certification of Compliance with FTA's Vehicle Testing Requirements  
**A copy of the vehicle testing report (if available) shall be included with the bid.**
- ☒ Exhibit A Pricing Page

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

**DOCUMENTATION TO BE SUBMITTED WITH BID:**

**Section**  
**Referenced**

- x   3.1.11 Provide details of water testing procedures.
- x   3.2 Chassis: provide product description, warranty information and product literature.
- x   3.2 Wheelbase: provide length of proposed wheelbase.
- x   3.3 Engine: gasoline: provide product description, warranty information and product literature.
- x   3.5 Radiator and Cooling System: provide product description, warranty information and product literature.
- x   3.6 High Idle System, provide product description, warranty information and product literature.
- x   3.8 Transmission: provide product description, warranty information and product literature.
- x   3.10.4 Rear View Back-Up Camera: provide product description, warranty information and literature.
- x   3.11.4 Tilt Wheel, Cruise Control and Power Steering: provide product description.
- x   3.13 Brakes: provide product description, warranty information and product literature.
- x   3.14 Wheels: provide product description, warranty information and product literature.
- x   3.15 Tires: provide product description, warranty information and product literature.
- x   3.16.5 Alternator: provide product description, warranty information and product literature.
- x   3.16.6 Battery: provide product description, warranty information and product literature.
- x   3.17.1 Radio/AM/FM/USB/MP3: provide product description, warranty information and product literature.
- x   3.19 Body Structure/Roof Specifications: provide a description of how construction/ conversion will take place and meet the specification requirements. Provide actual interior height and body length of proposed vehicle.
- x   3.19.15 Stepwell: provide a description of construction. **Included in body construction document**
- x   3.22 Entrance, Exit, Lift and Emergency Exit Doors: Provide product description, dimensions, description of connection with interlock system, and locks to be provided.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- x   3.23      Rear Bumper: provide product description, warranty information and product literature.
- x   3.24      Wheelchair Lift: provide product description, warranty information and product literature.
- x   3.24.9      Interlock System: provide product description, warranty information and product literature.
- x   3.26      Front and Rear Heating and Air Conditioning: provide product description, warranty information, product literature.
- x   3.29      Flooring: provide a description of product to be used, samples of floor covering, colors to be used and assembly process.
- x   3.30.1      Passenger Seats and Restraints: provide product description, warranty information and product literature.
- x   3.30.2      Padded Grab Handle: provide product description.    **On Freedman brochures**
- x   3.30.11      Driver's Seat: provide product description, warranty information and product literature.
- x   3.31      Wheelchair Securement System: provide product description, warranty information and product literature.
- x   3.32      Mobility Aid/ Occupant Restraint Systems: provide product description, warranty information and product literature.
- x   3.33.1      Exterior Mirrors: provide product description, warranty information and product literature.
- x   3.37      Digital Destination Signs: provide product description, warranty information and product literature.
- x   3.38      Passenger Signaling System: provide product description, warranty information and product literature.
- x   3.39      Mobile PA System: provide product description, warranty information and product literature.    **Mobile PA is powered by radio and uses only a mic and plug.**
- x   3.40      Fare Box Provision: provide description of provision.  
The farebox provision will be compliant with specifications.
- x   3.41      Strobe Light: provide product description, warranty information and product literature.
- x   3.42      Radio Install Prep: provide description of process.  
**Radio prep will be conduit with pull wires and ground as specified to include access.**
- x   3.44      Security Camera System Including Playback: provide product description, warranty information and product literature.

REQUEST FOR QUOTATION  
176" – 190" Wheelbase Cutaway Vehicle

---

- x   3.45      Dual Purpose Safety Vent: provide product description, warranty information and product literature.
- x   3.46      Storage Compartment: provide information on proposed location.  
Destination signs will cause it to be installed on the floor as allowed
- x   3.51      Training: submit letter of understanding to the terms in this Section.
- x   4.5-4.6    Overhead Luggage Rack: provide product description and product literature. Classes E&F
- x   4.5-4.6    High Back Passenger Seating: provide product description, warranty information and product literature. Classes E & F
- x   6.7.4      Warranty Provider Locations: provide names of providers in WV.
- x   6.7.5      Warranties: provide information on warranties to be provided.
- x   11.1.1     Complete mechanical description of vehicle, its construction and equipment including manufacturer's model name and/or number.
- x   11.1.2     Proposed interior floor plans, showing detailed dimensions including the location of the wheelchair securement system.
- x   11.1.3     Curb weight (empty weight) and gross vehicle weight rating (GVWR) of vehicle.
- x   11.1.6     Rustproofing and Undercoating: provide product description, warranty information and product literature.
- x   11.1.8     A list of five (5) users names, addresses, emails and telephone numbers who have been provided similar equipment.
- x              No Debt Affidavit
- x              Addendum Acknowledgement

**REQUEST FOR QUOTATION  
EXHIBIT A PRICING PAGE  
176" - 190" Wheelbase Cutway Vehicle**

**VENDOR NAME:**

**MANUFACTURER/MAKE/MODEL:**

CLASS	VEHICLE DESCRIPTION	UNIT PRICE PER VEHICLE	ESTIMATED QUANTITY	EXTENDED PRICE
A	176" Vehicle, Eight (8) Fixed Double Seats, Two (2) Wheelchair Positions with One (1) Fold Up Seat (Double), Rear Curbside Lift Location, Vinyl Logo and Stripes	\$	5	\$
B	176" Vehicle, Eight (8) Fixed Double Seats, Two (2) Wheelchair Positions with One (1) Fold Up Seat (Double), Rear Curbside Lift Location, Full Bus Body Paint or 3/4 Bus Body Paint with Expanded Graphics	\$	5	\$
C	Vehicle, Seven (7) Fixed Double Seats, Two (2) Wheelchair Positions with Two (2) Fold Up Seats (Double), Extended Wheelbase to 190", Front Wheel Chair Lift Location, Vinyl Logo and Stripes	\$	5	\$
D	Vehicle, Seven (7) Fixed Double Seats, Two (2) Wheelchair Positions with Two (2) Fold Up Seats (Double), Extended Wheelbase to 190", Front Wheel Chair Lift Location, Full Bus Body Paint or 3/4 Bus Body Paint with Expanded Graphics	\$	5	\$
E	Vehicle, Seven (7) Fixed Double Seats, Two (2) Wheelchair Positions with Two (2) Fold Up Seats (Double), Extended Wheelbase to 190", Front Wheel Chair Lift Location, Vinyl Logo and Stripes, Overhead Luggage Racks, High Back Seats	\$	5	\$
F	Vehicle, Seven (7) Fixed Double Seats, Two (2) Wheelchair Positions with Two (2) Fold Up Seats (Double), Extended Wheelbase to 190", Front Wheel Chair Lift Location, Full Bus Body Paint or 3/4 Bus Body Paint with Expanded Graphics Overhead Luggage Racks, High Back Seats	\$	5	\$
<b>TOTAL BID FOR EVALUATION</b>				\$

**\*Complete form provided. The DPT may purchase more or less as needed.**

**Note: These are only estimated quantities and do not reflect any guarantee of purchase.**

**Please do not alter pricing page.**

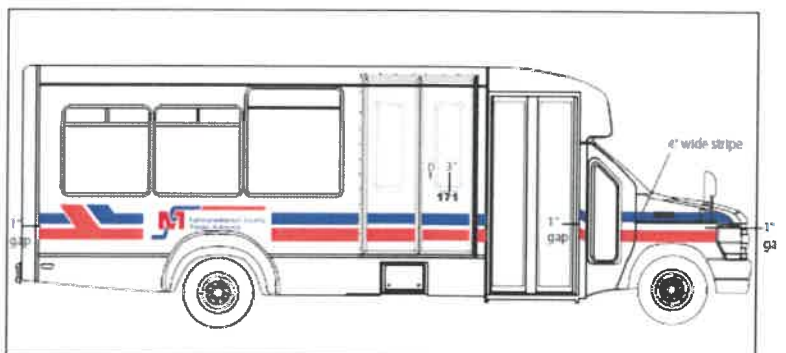
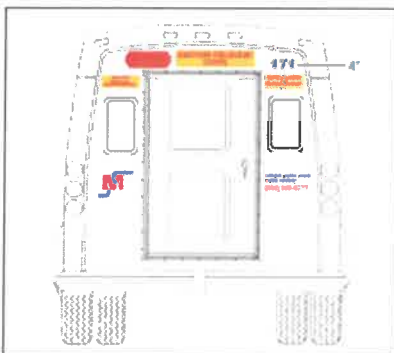
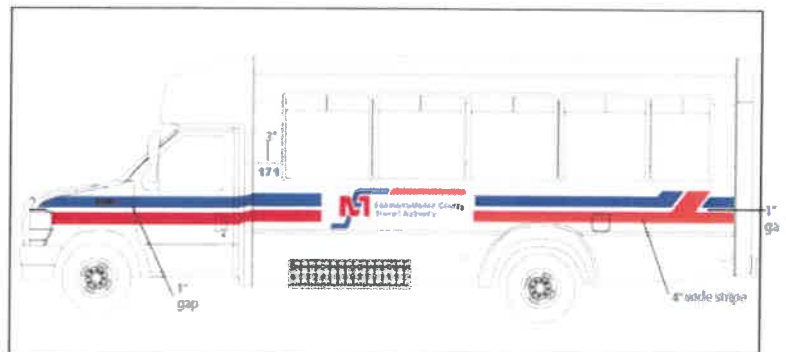
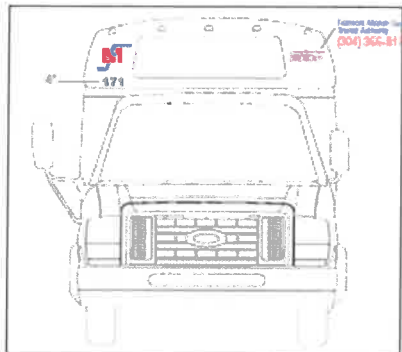
## EXHIBIT B, VINYL LOGOS AND STRIPES

CENTRA



## EXHIBIT B, VINYL LOGOS AND STRIPES

### Fairmont-Marion County Transit Authority



\* Graphic colors and placement are representative, the final product may vary. ■ 125 Wild Cardinal Red ■ 266 Patriot Blue ■ 2" White Conspicuity Tape



## EXHIBIT B, VINYL LOGOS AND STRIPES

### HERE & THERE TRANSIT





## EXHIBIT B, VINYL LOGOS AND STRIPES

### Ohio Valley Eastern Ohio Regional Transit



## EXHIBIT C, EXAMPLES OF PAINT SCHEMES

### Bluefield Area Transit





## EXHIBIT C, EXAMPLES OF PAINT SCHEMES

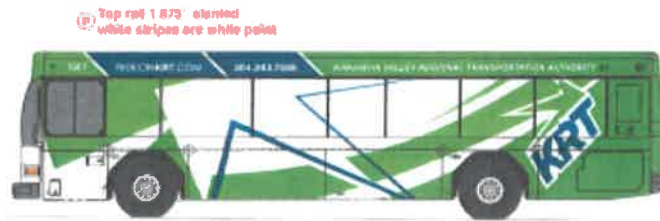
### Buckwheat Express



# EXHIBIT C, EXAMPLES OF PAINT SCHEMES

## Kanawha Valley Regional Transit Authority

FRONT  
24" Roof Numbers



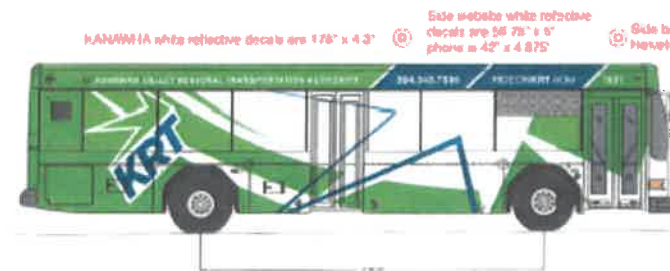
(B) Top roof 1 875" slanted white stripes are white paint

(D) Decals on the windows are non reflective 1 way vision except for the green/blue/white KRT logo/blue stripe are opaque reflective decals, slanted top roof blue is reflective decal

Rear\* microphone  
(D) white reflective decal is 46.35" x 3.3"



(B) Rear KRT reflective logo is 24.8" x 21.875"  
Rear bus number is blue reflective 8.25" height



KANAWHA white reflective decals are 178" x 4.3"

(B) Side website white reflective decals are 55.75" x 5"  
phone is 42" x 4.875"

(C) Side bus numbers are white reflective 8" height Helvetica Neue Condensed Bold



(B) Front KRT reflective logo is 23" x 18.25"

### CHARLESTON, WV

(M) Low Floor, 35 foot by 102 inches  
Serial Numbers 188934 - 189541  
Bus Numbers: 1801 - 1808

Supplies, gathering and all responses (1-10/17)  
any for initial response before of updated painting schedule  
Approved: Paul 8/27/17

8/27/17 10:00 AM

### PAINT (Axalta)

White 736083-EX  
Green 832135-EX  
Black Gloss N0001-EX  
Safety White Aerose #907 - Hubs  
Cameras painted to match scheme

Paint chip to cust: ☐ Yes ☐ NO

Sales Eng (K) Data sent: NA

Approved: ☒ Yes ☐ NO

Paint Blend: ☒ Yes ☐ NO

Hard ☒ Soft ☐

### DECALS

White Reflective-680CR-10  
Light Blue Reflective-680CR-70

The green in the KRT logo is custom printed on 680CR color matching the green paint.  
Green 832135-EX  
The blue in the logo is Light Blue Reflective-680CR-70



### Approval & Acceptance

Approved by: Doug Hartley

Title: Asst General Manager

For: KVRT

Date: 11/15/17

Rev: 3 Date: 11-17-17

PCO: \_\_\_\_\_

## EXHIBIT C, EXAMPLES OF PAINT SCHEMES

### Eastern Panhandle Transit Authority

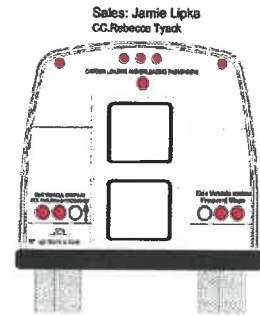


# EXHIBIT C, EXAMPLES OF PAINT SCHEMES

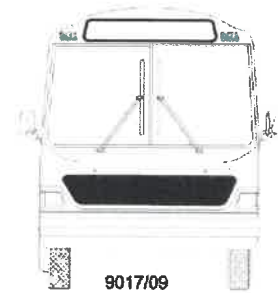
## Potomac Valley Transit Authority

Paint Scheme form

Unit #



2" Conspicuity Tape



Vinyl Colors & Numbers

1.) # 140 Blue

2.)

3.) # Spectra Everglade Green

Customer Signature

Generic form

Robin Miller  
(Graphics Dept.)

February 16,06



## EXHIBIT C, EXAMPLES OF PAINT SCHEMES

### Little Kanawha Transit Authority



## EXHIBIT C, EXAMPLES OF PAINT SCHEMES

### Tri-State Transit Authority





## EXHIBIT C, EXAMPLES OF PAINT SCHEMES

### Mid-Ohio Valley Transit Authority



## EXHIBIT C, EXAMPLES OF PAINT SCHEMES

Tri-River Transit



EXHIBIT C, EXAMPLES OF PAINT SCHEMES

Mountain Line Transit Authority





## EXHIBIT C, EXAMPLES OF PAINT SCHEMES

### New River Transit

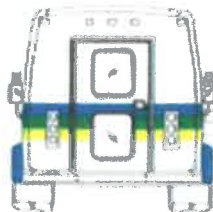
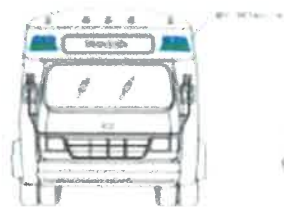


## EXHIBIT C, EXAMPLES OF PAINT SCHEMES

## Mountain Transit Authority

## Paint Scheme Mountain Transit Authority

1. Plot and transfer the data to a graphing calculator.

[illegible]

get in 20  
2000 get in 20

## Country Roads Transit



**DESIGNATED CONTACT:** Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

\_\_\_\_\_  
(Name, Title)

Chad Seals, Commerical Sales

\_\_\_\_\_  
(Printed Name and Title)

5120 Wards Road, Evington, VA 24550

\_\_\_\_\_  
(Address)

(434) 821-1000 x 352

\_\_\_\_\_  
(Phone Number) / (Fax Number)

chad@sonnymerryman.com

\_\_\_\_\_  
(email address)

**CERTIFICATION AND SIGNATURE:** By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

\_\_\_\_\_  
Sonny Merryman, Inc.

\_\_\_\_\_  
(Company)

\_\_\_\_\_  
(Authorized Signature) (Representative Name, Title)

\_\_\_\_\_  
Chad Seals, Commerical Sales

\_\_\_\_\_  
(Printed Name and Title of Authorized Representative)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
434-821-1000 x 352

\_\_\_\_\_  
(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM  
SOLICITATION NO.:

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

*(Check the box next to each addendum received)*

☒ Addendum No. 1

☒ Addendum No. 2

☐ Addendum No. 3

☐ Addendum No. 4

☐ Addendum No. 5

☐ Addendum No. 6

☐ Addendum No. 7

☐ Addendum No. 8

☐ Addendum No. 9

☐ Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Sonny Merryman, Inc.

\_\_\_\_\_  
Company

\_\_\_\_\_  
Authorized Signature

08/02/18

\_\_\_\_\_  
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.



# West Virginia Ethics Commission



## Disclosure of Interested Parties to Contracts

Pursuant to *W. Va. Code* § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of \$1 million or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

*"Business entity"* means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation, but does not include publicly traded companies listed on a national or international stock exchange.

*"Interested party"* or *"Interested parties"* means:

- (1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
- (2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
- (3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)

*"State agency"* means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of *W. Va. Code* § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

*This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: [ethics@wv.gov](mailto:ethics@wv.gov); website: [www.ethics.wv.gov](http://www.ethics.wv.gov).*

West Virginia Ethics Commission  
**Disclosure of Interested Parties to Contracts**

(Required by W. Va. Code § 6D-1-2)

Name of Contracting Business Entity: \_\_\_\_\_ Address: \_\_\_\_\_

Name of Authorized Agent: \_\_\_\_\_ Address: \_\_\_\_\_

Contract Number: \_\_\_\_\_ Contract Description: \_\_\_\_\_

Governmental agency awarding contract: \_\_\_\_\_

☐ Check here if this is a Supplemental Disclosure

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below (*attach additional pages if necessary*):

**1. Subcontractors or other entities performing work or service under the Contract**

☐ Check here if none, otherwise list entity/individual names below.

**2. Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)**

☐ Check here if none, otherwise list entity/individual names below.

**3. Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)**

☐ Check here if none, otherwise list entity/individual names below.

Signature: \_\_\_\_\_ Date Signed: \_\_\_\_\_

***Notary Verification***

State of \_\_\_\_\_, County of \_\_\_\_\_

I, \_\_\_\_\_, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Notary Public's Signature

**To be completed by State Agency:**

Date Received by State Agency: \_\_\_\_\_

Date submitted to Ethics Commission: \_\_\_\_\_

Governmental agency submitting Disclosure: \_\_\_\_\_

STATE OF WEST VIRGINIA  
Purchasing Division  
**PURCHASING AFFIDAVIT**

**CONSTRUCTION CONTRACTS:** Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

**ALL CONTRACTS:** Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

**EXCEPTION:** The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

**DEFINITIONS:**

**"Debt"** means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

**"Employer default"** means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

**"Related party"** means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

**AFFIRMATION:** By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

**WITNESS THE FOLLOWING SIGNATURE:**

Vendor's Name: Sonny Merryman Inc.

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_

State of \_\_\_\_\_

County of \_\_\_\_\_, to-wit:

Taken, subscribed, and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

My Commission expires \_\_\_\_\_, 20\_\_\_\_.

**AFFIX SEAL HERE**

**NOTARY PUBLIC** \_\_\_\_\_

# BEACONS

## 3000 Series Strobe



REPLACE (x) AND (xx) IN ORDER NUMBER FOR PERSONALIZED SELECTIONS

Product Number: 3 (xx) 7(x) (x) (x)

Watt Options: 1Ø = 10 Watt or 2Ø = 20 Watt

Flash: 7 = Double and Quad (included in product number)

Height Options: L = Low, 4" Dome or H = High, 6" Dome

Mounting Options: C = Flat/Pipe or M = Magnetic

LED Color/Dome Color Options: ● A = Amber LEDs/Amber Lens ○ C = White LEDs/Clear Lens

### Features

- > Lens with UV inhibitor prevents sun fade
- > Rated to last 20,000+ hours
- > Advanced circuitry designed tolerate high vibration applications

### accessories

Branch Guard and Dust Cover (Beacon not included)



Branch Guards (6" shown)

4" Height #PESB41BG4

6" Height #PESB41BG6



Dust Cover

6" Height #E36ØDC6

### TECHNICAL SPECIFICATIONS

FLASH PATTERNS	2 flash patterns - double or quad (user selectable)
TECHNOLOGY	Xenon Helix Strobe Tube
INPUT VOLTAGE	10-30 Vdc
CURRENT DRAW	10 Watts: 1 Amp @ 12 Vdc, 0.5 Amps @ 24 Vdc or 20 Watts: 2 Amps @ 12 Vdc, 1 Amp @ 24 Vdc
OPERATING TEMPERATURE	-40° C to 50° C
DIMENSIONS	4" Dome with base: 4.75" (12 cm) H 6" Dome with base: 6.7" (17 cm) H x 6.3" (16 cm) base diameter
MOUNTING	Permanent or Magnetic mount (polycarbonate lens and black base)
CERTIFICATIONS	SAE J 1318 Class 2 certified
WARRANTY	Two-year (strobe tube, one-year)



U.S. Department  
Of Transportation  
**Federal Transit  
Administration**

Headquarters

East Building, 5<sup>th</sup> Floor – TCR  
1200 New Jersey Avenue, SE  
Washington, DC 20590

November 9, 2016

Donall Hasty  
Starcraft Bus/StarTrans Bus  
DBE Liaison Officer  
2367 Century Drive  
Goshen, IN 46525

Re: TVM DBE Goal Concurrence/Certification Letter – Fiscal Year 2017

Dear Mr. Hasty:

This letter is to inform you that the Federal Transit Administration's (FTA) Office of Civil Rights has received Starcraft/StarTrans Bus' Disadvantaged Business Enterprise (DBE) goal and methodology for FY 2017 for the period of October 1, 2016–September 30, 2017. This goal submission is required by the U.S. Department of Transportation's DBE regulations at 49 CFR Part 26 and must be implemented in good faith.

We have reviewed your FY 2017 DBE goal and determined that it is compliant with DOT's DBE regulations. You are eligible to bid on FTA-funded transit contracts. This letter or a copy of the TVM listing on FTA's website may be used to demonstrate your compliance with DBE requirements when bidding on federally funded vehicle procurements.

FTA reserves the right to remove/suspend this concurrence if your DBE program or FY 2017 DBE goal is not implemented in good faith. In accordance with this good faith requirement, you must submit your DBE Uniform Report to FTA by December 1, 2016. This report should reflect all FTA-funded contracting activity for the second period of FY 2016 (i.e., from April 1 to September 30).

Please also be mindful that your FY 2018 DBE goal methodology must be submitted to FTA by August 1, 2017. Any updates to the program plan must be submitted to FTA as they occur. Thank you for your cooperation. If you have any questions regarding this approval, please contact the FTA DBE Team via e-mail at [FTATVMSubmissions@dot.gov](mailto:FTATVMSubmissions@dot.gov).

Sincerely,

John Day  
Program Manager for Policy and Technical Assistance  
Office of Civil Rights



## STARTRANS BUS WARRANTY

### NOTICE

Please return the warranty registration card to register the warranty with STARTRANS BUS so that STARTRANS BUS may record your rights under this limited warranty and to assure prompt assistance. Your dealer will provide the warranty card for you to sign. If you do not remember signing a STARTRANS BUS warranty card at the time of delivery, please contact your dealer.

### 1. Who Warrants the product

The product, as described and limited here, is warranted by the manufacturer and installer of the body: STARTRANS BUS, Division of Forest River, Inc., hereinafter referred to as STARTRANS BUS, 2408 Century Drive, Goshen, IN; an Indiana Corporation; and is administered by the STARTRANS BUS Customer Service Dept., Goshen, Indiana 46528.

### 2. Who Is Covered

STARTRANS BUS, the warrantor, extends this limited warranty to the original owner of the vehicle during the WARRANTY PERIOD.

### 3. What Is Covered

STARTRANS BUS, your warrantor, extends the following limited warranty to you, which limited warranty covers your conversion only as to material defects in all materials and workmanship supplied by or performed by STARTRANS BUS.

### 4. Warranty Period

The STARTRANS BUS limited warranty is for a period of one (1) year from the date of first delivery or 12,000 miles, whichever occurs first, except for other coverages listed under "Other Warranties that may Apply" and items listed under "Exclusions and Limitations" and "Limits of the Warranty."

### 5. Extended Warranty on Structural Items

Warrantor warrants to the original purchaser for a period of five (5) years from the date of first delivery or 75,000 miles, whichever comes first, that this produce shall be free of SUBSTANTIAL DEFECTS arising out of or relating to the structural portion of the product. THIS STRUCTURAL WARRANTY IS INTENDED TO COVER ONLY THE PERFORMANCE OF THE STEEL CAGE STRUCTURE OF THE BUS BODY.

Custom paint and/or tape application, if performed by STARTRANS BUS, is warranted to be free of substantial defects in workmanship and materials provided by STARTRANS BUS for one (1) year (12 months) from date of original purchase.

### 6. Other Warranties That May Apply

STARTRANS BUS does not warrant the base vehicle itself. The vehicle engine, chassis, drive train, suspension system, battery, and other chassis components are covered by a separate warranty offered by the manufacturer of the vehicle and administered by the manufacturer's authorized dealers. The tire manufacturer separately warrants tires. Examples of other manufacturer warranties, which may include the following, but not limited to:

- Electrical Components
- Air Conditioning and Heater(s)
- Wheelchair Restraints and Wheelchair Lifts

For a complete list of items and their respective warrantor, please contact STARTRANS BUS Customer Service Department.

### 7. Owner's Responsibility

Proper maintenance and cleaning of the exterior and interior of the vehicle is the responsibility of the owner. See the owner's manual for proper care instructions. Defects or damage as a result of improper care or maintenance are not covered by the warranty.

### 8. Exclusions and Limitations

Damage caused by abuse, misuse, neglect, failure to observe reasonable and required maintenance practices, acid rain, accidents, natural disasters, acts of war and normal wear and tear and facing of fabrics, carpeting and/or fiberglass are not covered. Light bulbs and fuses are not covered.

Damage or deterioration to the physical appearance of the unit if such damage is the result of normal use, wear and tear, or exposure to the elements.

Damages that may occur to the chassis, frame, other parts or components that occur due to overloading will not be covered and may invalidate portions of the STARTRANS BUS warranty.

Cosmetic or surface corrosion resulting from stone chips or scratches in paint are not covered.

STARTRANS BUS does not cover accessories covered by their own manufacturer's warranties. Those items listed in paragraph 6 above are not covered or warranted by STARTRANS BUS.

Replacement parts provided under terms of the warranty will whenever possible, match original equipment. When necessary, STARTRANS BUS will substitute parts of comparable function and value. Defective items may be replaced with new, remanufactured, reconditioned or repaired components.

Modifications, alterations or repairs performed by unauthorized personnel may invalidate portions of the STARTRANS BUS warranty. In addition, USING THIS VEHICLE TO TOW ANOTHER VEHICLE IS PROHIBITED AND MAY VOID WARRANTY. Contact STARTRANS BUS Customer Service before you make any changes.

## **9. Recovery Limitations**

NO PERSON SHALL BE ENTITLED TO RECOVER FROM WARRANTOR FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES ARISING OUT OF OR RELATING TO ANY DEFECT IN THE PRODUCT. These limitations include, but are not limited to, loss of time; loss of use; loss of revenues, salaries or commissions; towing charges; bus fares; car rentals; gasoline expenses; telephone charges; inconvenience or other incidental damages.

## **10. How to get warranty service**

To obtain warranty service, contact or visit the dealership where you originally purchased your vehicle or another warranty service facility designated by STARTRANS BUS. Have the dealership contact STARTRANS BUS Customer Service Department for authorization to have a warranty claim submitted. If you or your dealer has moved, or if your dealer is no longer in business, contact STARTRANS BUS Customer Service Department (see address and telephone numbers below) for the name of a STARTRANS BUS dealer nearest you. Your claim must be made within 30 days of the discovery of the defect. Based on the determination of STARTRANS BUS, and subject to the terms of the warranty, the warranty repair work will be authorized by STARTRANS BUS.

All warranty claims must be reported within the warranty period. Warranty personnel must authorize all warranty service prior to performance. Warranty service may be reported directly to the warrantor or to one of their authorized dealers. If warranty personnel approve warranty service, you must leave the unit at the appropriate warranty service location for a sufficient time to perform service.

## **11. Who Performs Warranty Service**

The best place to obtain warranty service is at the dealership where you originally purchased your bus. If the dealership cannot perform the service work, they should call STARTRANS BUS Customer Service Department for assistance (see number below). If you are unable to visit your original dealer, contact STARTRANS BUS Customer Service Department (address below) for the name and location of a STARTRANS BUS dealer near you.

## **12. Dispute Resolution**

Should you be unable to resolve a disagreement with your dealer regarding your right to pursue warranty coverage for a needed repair, contact the STARTRANS BUS Customer Service Department (see address below). If a dispute about warranty service arises between STARTRANS BUS and you, the owner, the disagreement will be resolved in accordance with the customary procedures of the American Arbitration Association relating to commercial transactions, or the dispute will be submitted to a panel of three (3) arbitrators for decision. The panel will be made up of one member appointed by STARTRANS BUS, one member appointed by the complainant/owner, and one member from the arbitrators group mentioned above. Any and all legal remedies shall be available to the owner after pursuing this informal dispute resolution if a ruling is entered against STARTRANS BUS and STARTRANS BUS fails to abide by the ruling. The expenses of arbitration will be paid by the party against whom the arbitrator(s) rule.

## **13. Limits Of Warranty**

This written statement of limited warranty represents the entire warranty authorized and offered by STARTRANS BUS. There are no warranties or representations beyond those expressed in this written document. Any dealership, salesperson or agent cannot amend it. It expressly limits all warranties, including, but not limited to, by way of specification, both express and implied warranties, including warranties or merchantability and fitness for a particular purpose along with all other liabilities or obligations of STARTRANS BUS.

## **FEDERAL COMPLIANCE**

THE TERMS OF THE WARRANTOR'S UNDERTAKING EXPRESSED IN THIS LIMITED WARRANTY ARE DRAFTED TO COMPLY WITH THE MAGNUSEN MOSS WARRANTY LEGISLATION, P.L. 93-637 OF 1974, AND OTHER APPLICABLE LAW. ANY WARRANTY PROVISIONS PROMULGATED BY THE FEDERAL TRADE COMMISSION PURSUANT TO RULES OR ANY OTHER LAW RELATIVE THERETO ARE EXPRESSLY INCORPORATED HEREIN. TO THE EXTENT ANY PROVISIONS OF THIS LIMITED WARRANTY ARE INCONSISTENT WITH STATE LAWS, ONLY THOSE PARTS INCONSISTENT ARE VOID.

STARTRANS BUS  
Division of Forest River, Inc.  
CUSTOMER SERVICE DEPT.  
2408 Century Drive  
Goshen, IN 46528  
Phone: 877.258.1391  
Fax: 574.970.6815





## **BODY CONSTRUCTION SPECIFICATION**

*The following information is submitted for all Startrans Bus products as supporting documentation of the structural soundness and impact resistance of the bodies manufactured. All vehicles are built using virtually the same materials with some minor differences in the height and width of cross members due to entry floor heights and/or body width variations.*

*A representative set of construction prints provided by engineering supplements this verbal accounting of our materials and assembly specifications.*

*If, in the reviewing of these written technical specifications and engineering frame prints submitted any questions arise, please contact us immediately for any clarification or help in interpretation and understanding.*

### **3.0 Body Construction – General Frame Construction**

*Manufactured from corrosion-resistant aluminized steel, the floor, roof, side walls, rear wall, driver halo assembly and entry door assembly are wire welded (MIG) together to form an integral steel frame cage, then mounted with specified hardware to the rubber body mount points (pucks) supplied by the chassis manufacturer. Once joined to the chassis, the bus finishing process begins.*

#### **3.0.1 Floor frame construction and assembly –**

- 3.0.1.1 Cross Members -- The floor cross members form the base structural support for the rest of the frame components. Our cross members are constructed of 14 gauge aluminized steel, formed to a capital “C” shape. Cross members over the fuel tank are made to provide the clearance needed to conform to FMVSS301, and include formed internal reinforcements welded in place for additional strength. All additional longitudinal and latitudinal structure is flush welded in place to form a one piece floor upon completion.*
- 3.0.1.2 Steel “Hat Posts” – 1”x1”x4” run the length of the floor between cross members and are welded into place. This extremely strong form is used to weld our HSLA steel seat track in place.*
- 3.0.1.3 Steel C Channel – 1”x1.5” C channel is welded in between cross members the full length of the floor in 5 places. Coupled with the Hat Posts this provides a one-piece strong “ladder” type frame for the flooring.*
- 3.0.1.4 Seat Track – 12 gauge roll formed high strength/low alloy steel is wire welded in place for seat mounting down each side of the bus, with lengths predicated on the floor plan chosen. This is yet another stiffener in our extensive construction process.*





- 3.0.1.5 Wheel Wells -- Constructed of 14 gauge steel, wheel wells are also welded in during the floor construction process. All seams in the wheel well are welded to create a one piece water resistant wheel housing structure. The wheel wells also provide additional strength to the body assembly, when welded in place.*
- 3.0.1.6 Structural Steel Angle – 1/8” thick 1.5” x 2.5” structural aluminized steel angle is used the full perimeter length of each floor assembly, welded to the ends of all floor cross members. This provides not only a flat plane for joining the sidewall assembly, but also ties all cross members together and provides additional side impact resistance.*
- 3.0.1.7 Additional structure – When adding vertical stanchions, wheel chair lifts and/or tie down options, additional structure is welded into the floor at locations specified by our engineering department on CAD drawings.*

### **3.0.2 Sidewall Construction –**

- 3.0.2.1 Sidewall vertical member – The heart of our sidewall is the vertical structure, a roll formed 18 gauge aluminized steel capital “C” channel with 8 bends that create extreme strength and rigidity. The vertical member is installed in full lengths and in shorter sections below window frames. Additional vertical structure is used at both ends of the sidewall enabling the structure to withstand the forces applied by the vehicle when in motion.*
- 3.0.2.2 Steel Tubing – 1”x1” lower and 1”x3” upper 16 gauge aluminized steel tubing is welded in horizontally between vertical members to frame in window openings. This adds front to rear reinforcement as well.*
- 3.0.2.3 Seat Track – 11 gauge high strength low alloy roll formed steel track is welded down each sidewall below the window frame. While serving as a seat attaching device, it adds excellent structure to the sidewall and also adds excellent side impact resistance.*
- 3.0.2.4 Wheelchair Options – Add another layer of metal. Depending on track locations, another structure of 11 gauge thick aluminized steel is welded in place between each vertical member for attaching a shoulder belt mount. Also, additional structure is added to accommodate wheelchair door frames – either 1”x1” or 1”x2” 16 gauge aluminized steel tubing.*
- 3.0.2.5 Full length steel tubing – 1”x1” 16 gauge aluminized steel tubing is stitch welded to the sidewall bottom and top at each vertical member for attaching to the floor and roof sections, respectively.*

### **3.0.3 Rear Wall Construction –**

- 3.0.3.1 Rear wall vertical member – The vertical sidewall capital “C” channel with 8 bends is also used in the rear wall assembly. Full length structure is used at varying places, depending on choice of rear window, or rear door. Shorter cut pieces are*



*used above windows and doors. Additional side windows used with the rear door also change the configuration.*

- 3.0.3.2 Steel Tubing – 1"x1" 16 gauge aluminized steel tubing is welded horizontally between vertical members to provide a window frame in the standard product, and used as an upper door frame in the optional rear assembly.*
- 3.0.3.3 Full length steel tubing – 1"x1" 16 gauge aluminized steel tubing is stitch welded to the rear wall top and bottom as in the sidewall assembly.*

### **3.0.4 Roof Construction –**

- 3.0.4.1 Roof Bows – Radius formed one-piece 16 gauge aluminized steel roof bows formed as a modified hat post design with eight bends for exceptional strength and located on 16" centers (the closest in the industry), including 4 bends in the web similar to our vertical sidewall steel provide a roof structure capable of taking severe loads. They are then capped with top flat pieces from flange to flange to provide abundant surface area for securing the exterior roof material.*
- 3.0.4.2 Steel Tubing – 1"x1" 16 gauge aluminized steel tubing is welded in horizontally to frame all lower window openings and 1" x 3" 16 gauge aluminized steel tubing to all upper window openings as required. A full perimeter is also welded on to mate the roof to the side walls and rear wall, with short vertical pieces providing support on the front and rear ends. The 3" wide aluminized steel tube supplies a structural mounting surface for shoulder belt attachment and has been pull tested to federal standards.*

### **3.0.5 Driver Compartment Overhead Halo –**

- 3.0.5.1 Steel Tubing – 1"x1" 16 gauge aluminized steel tubing is cut and jig welded into an integrated one piece structure spanning from the front roof bow of the body to the newly cut roof line of the cab. Also created during the structure manufacture is the housing for mounting the electronic circuit board.*
- 3.0.5.2 11 Gauge Steel – formed to make brackets used to mount to the chassis roof.*

### **3.0.6 False Floor (Cab to body transition) –**

- 3.0.6.1 Steel Tubing – 2" x2" 16 gauge aluminized steel tubing is welded together forming a flat body floor transition from the step area back to the actual body area. An overhang on the curbside provides a secure attach point frontally for the entry door frame added later.*
- 3.0.6.2 Structural steel angle – 11 gauge 1.5"x1.5" structural angle is added in short lengths in five places to provide attachment points to the chassis floor.*



### **3.0.7 Interior Vertical Transition Frames –**

*3.0.7.1 Steel Tubing – 1"x1" 16 gauge aluminized steel tubing is used vertically and a ladder type assembly is made welding the 1x1 tube to .75"x.75" 11 gauge steel tube that is used horizontally in the assemblies. These pieces transition from the body fronts on each side to the driver halo side assembly and the entry door frame assembly on the curbside.*

### **3.0.8 Entry Door & Step Assembly Frame –**

*3.0.8.1 Steel Tubing – 1"x1" 16 gauge and .75"x.75" 11 gauge aluminized steel tube is cut to length and welded together in a ladder type construction forming a rigid frame for attaching the entry door/step assembly.*

### **3.0.9 Entry Door/Step Assembly –**

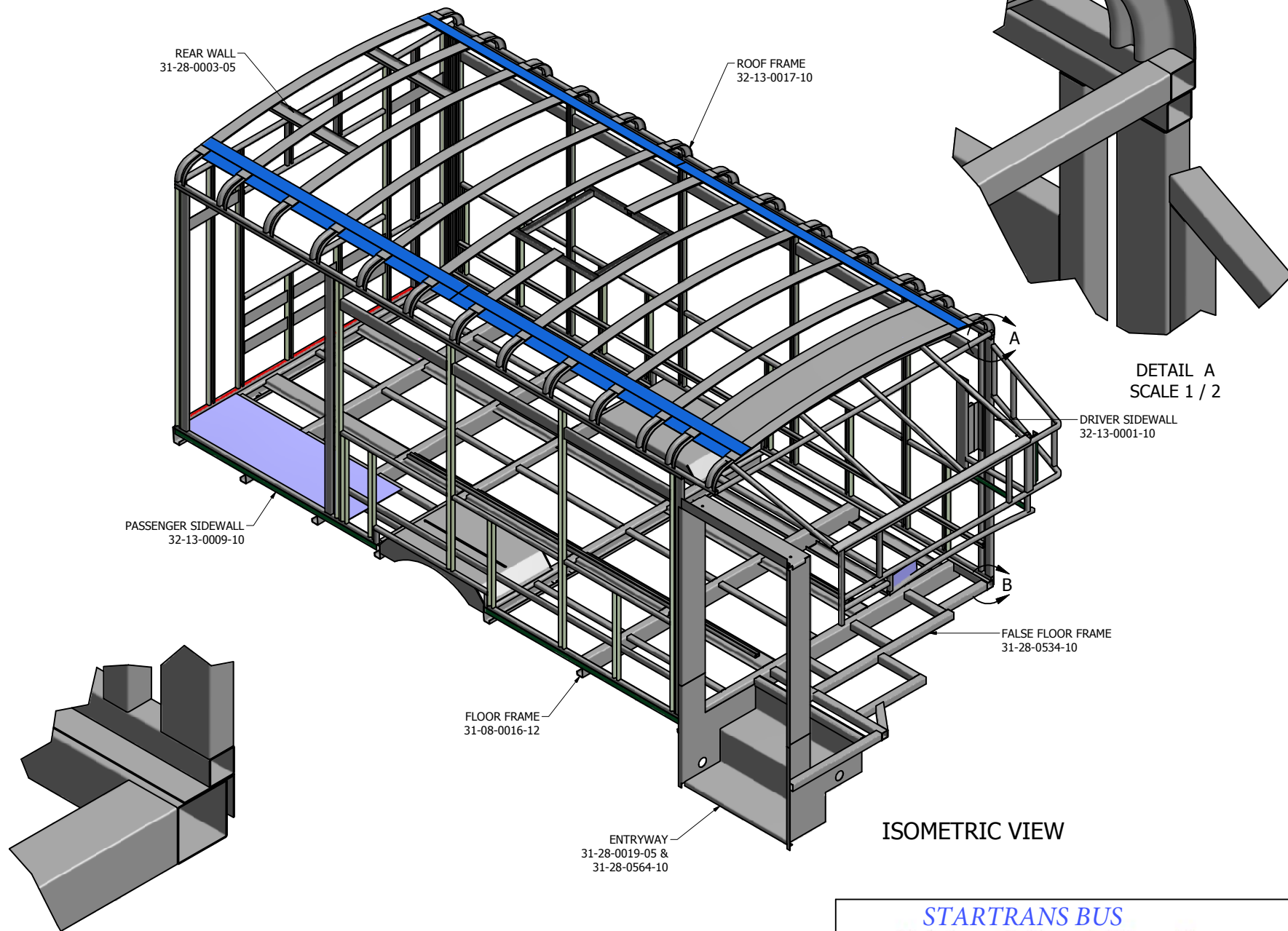
*3.0.9.1 11 Gauge Steel – The step riser/tread piece is manufactured from one-piece 11 gauge steel and uses 90° bends at all risers and treads. The bottom tread also adds an additional 90° bend for additional strength and safety. Upper and lower side pieces are then attached and an 11 gauge flat plate with holes is used to bridge the lower and upper side pieces, then is stitch welded and plug welded to form a strong one piece assembly prior to inserting and welding to the entry step framing.*

## **APPLICATION OF EXTERIOR SIDEWALL MATERIAL**

### **GALVANIZED STEEL SIDEWALLS OR OPTIONAL FIBERGLASS/FRP/COMPOSITE SIDEWALLS**

*The standard exterior side walls are .024" galvanized steel pre-painted white with an underlayment of 5/32" luan. The interior side walls are 5/32" luan covered with a light gray FRP or padded vinyl (customer's choice). The foam filled steel cage is placed in the center and all layers are adhered using polyurethane hot melt adhesive. The wall and roof sections are run through a pinch roller to apply pressure to the assembly, thereby squeezing out any air bubbles.*

*Optional composite FRP exterior sidewall panels are installed using the same method.*



**STARTRANS BUS**

*a division of Forest River, Inc.*

DFTSN:	TAS	TITLE	Ford - 158 WB - 175 BOX CAGE W/C REAR LIFT, STANDARD STYLE FLOOR
DATE:	12/18/12	DWG NO	40016-2
		SHEET	1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED
CAGES	"A"	Added missing standard roof steel	10/29/2013	TAS



## **REFERENCES**

### **U.S. General Services Administration (GSA)**

Federal Acquisition Services, Office of Acquisition Services  
Medium & Heavy Automotive Acquisition Support Division  
Craig Yokum  
1800 F St. NW HUB 3200  
Washington, DC 20405  
703-605-9291  
craig.yokum@gsa.gov

### **RTD – Regional Transportation District**

Robbie Hunter  
Senior Equipment Engineer  
1900 31st Street  
Denver, CO 80216  
303-299-6930

### **Colorado Department of Transportation – Transit Unit**

Jeff Sanders  
Transit Infrastructure Specialist  
4201 East Arkansas Avenue  
Shumate Building  
Denver, Colorado 80222  
303-757-9771

### **Minnesota Department of Transportation**

#### **Office of Transit**

Kathy Fuller  
Program Coordinator  
395 John Ireland Boulevard  
Saint Paul, MN 55155  
651-366-4190



**Tennessee Department of Transportation**

Jerry Roache  
Transportation Specialist  
505 Deaderick Street, STE 1800  
James K. Polk Building  
Nashville, TN 37243-0325  
615-253-1038  
[Jerry.Roache@tn.gov](mailto:Jerry.Roache@tn.gov)

**Kentucky Public Transit Association**

James Phillips  
Rural Transit Enterprises Coordinated, I  
100 E Main ST  
Mount Vernon, KY 40456  
(606) 256-9835  
[james@4rtec.com](mailto:james@4rtec.com)

**Missouri Department of Transportation**

Tom Veasman  
Senior General Services Specialist  
830 MoDOT Drive  
Jefferson City, MO 65102  
(573) 522-4404



# **SAFE-T-SCOPE™**

## **Color Backup Camera System with 7" LCD Monitor**

for Trucks, Vans, Buses & Motor Homes



- Weatherproof** - Heavy Duty Camera Provides 120° Field of Vision
- Night-Vision** - 18 High-Output InfraRed LED's Provide up to 30 ft. Range
- Integrated Audio** - Built in Camera Mic & Powerful Monitor Speakers
- High Resolution** - 7" LCD with Ultra Sharp Display & Rugged Housing
- Versatile Mount** - Dashboard, Windshield or Overhead Location



A Century of Automotive Vision Safety

**Vision Systems**

## MONITOR P/N: STSM242

Screen Size (Diagonal)	7"
Resolution	1440(H) x 234(V)
Screen Ratio	16:9
Contrast Ratio	350:1
Voltage Input	10~32 Vdc
Voltage Output	12 Vdc
Max No. of Cameras	1
Viewing Angles Up/Dn/Lt/Rt	15 x 35 x 50 x 50
Shock Rating	100g
Vibration Rating	15g
Color Configuration	RGB Stripe
Operating Temperature °F (C°)	-5° to +150° (-20° to +65°)
Storage Temperature °F (C°)	-13° to 158° (-25° to +70°)
Dimensions WxHxD in (mm)	6.9 x 5 x 1 (175 x 125 x 23)
Weight lb. (Kg)	0.9 (0.5)
Other Features	Switch - selectable mirror/normal image, Button - selectable day/night dimming



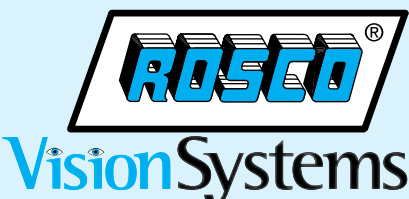
## CAMERA P/N: STSC141

Image Device	Sony 1/4" CCD
Pixels	270,000
TV Lines	420
Video Output	1.0 Vp-p, 75 Ohm
Field of View	120°
Lens Focal Length	2.6mm
Sync System	Internal
Minimum Illumination	0 Lux (Infrared LED's on)
Infrared LED's	18 High-Output
Night Vision Range	30 feet
Dust/Water Rating	IP67
Operating Temperature °F (°C)	5° to 150° (-15° to +65°)
Storage Temperature °F (°C)	-5° to 160° (-20° to +70°)
Dust/Water Rating	IP67
Shock Rating	100g
Vibration Rating	15g
Power Supply	12 Vdc from Monitor
Current	200 mA
Operating Temperature F° (C°)	-15° to +160° (-25° to +70°)
Storage Temperature F° (C°)	-20° to +176° (-30° to +80°)
Dimensions WxHxD in (mm)	3 x 2 x 2 (75 x 48 x 49)
Weight lb. (Kg)	0.6 (0.26)



## HARNESS P/N: STSH341

65' Heavy Duty with Twist-lock Connectors



*A Century of Automotive Vision Safety*

90-21 144th Place  
Jamaica, New York 11435  
Phone: 718-526-2601  
Fax: 718-297-0323  
www.roscovision.com  
Cat No. 0923





## TARABUS NT Specification Sheet

### Product description and composition:

- The flooring shall be specially designed for buses.
- The flooring shall be flexible PVC flooring in 2.25 mm thickness, composed of a compact plasticized wear layer.
- The wear layer shall contain inlaid silicon carbide particles to improve slip resistance.
- The wear layer shall not contain aluminium oxide particles or quartz granules to prevent from maintenance and cleaning issues.
- The wear layer shall not contain fillers (fillers<5phr).
- The design shall be inlaid through the whole thickness of the wear layer.
- The intermediate layer of the flooring shall be made of a glass fibre grid, providing outstanding dimensional stability:  $\leq 0.2\%$  according to EN 434.
- The flooring shall have a special textile backing designed for public transport vehicles, to enable bonding with acrylic glues onto plywood substrates or plywood with phenolic film substrates or aluminium.
- The flooring shall not crack and no white line shall appear when bended by 180 degrees.
- The welding rods shall be manufactured by the flooring manufacturer to enable a perfect weld.

### Environment:

- The flooring shall be free from heavy metals (Lead, Cadmium, Barium, Tin, Chromium...).
- The flooring shall be free from DEHP plasticizer.
- The manufacturer of the floor covering must be in possession of a valid ISO 14001 certificate.

### Technical characteristics:

- Fire class: the flooring material shall conform to the European Directive 95/28/EC
- Fire class: the flooring material shall conform to the FMVSS/CMVSS 302
- Fire class: the flooring shall have been tested to UTAC ST 18502/1 (Type A) and ISO 3795/76 (0mm/mn)
- Fire class: the flooring shall obtain CRF>0.50 W/cm<sup>2</sup> when tested according to NFPA 253 – ASTM E648
- The manufacturer of the floor covering must be in possession of a valid quality systems certificate, showing compliance with ISO 9001.

### Installation:

- All joints must be welded using a hot welding gun and PVC welding rods. To ensure the right watertightness of the flooring system, no sealant shall be used between 2 flooring sheets.



## Warranty Registration

TO REGISTER YOUR PRODUCT WARRANTY under the terms of Gerflor's North America Limited Product Warranty, please complete the form below and mail to:

**Gerflor USA Inc**  
595 Supreme Dr  
Bensenville 60106 IL USA.

I acknowledge having received and read GERFLOR's technical documents and specifications concerning the product warranty:

Product Type: \_\_\_\_\_

Roll numbers & Quantity (sq.yds/m<sup>2</sup>): \_\_\_\_\_

Installation Date: \_\_\_\_\_

Transit Authority: \_\_\_\_\_

Address: \_\_\_\_\_

State/Prov: \_\_\_\_\_ Zip/Postal Code: \_\_\_\_\_

OEM: \_\_\_\_\_

Address: \_\_\_\_\_

State/Prov: \_\_\_\_\_ Zip/Postal Code: \_\_\_\_\_

Represented by: \_\_\_\_\_

Signature: \_\_\_\_\_

## TARABUS PRODUCT WARRANTY



**TARABUS**  
TREND BOOK



## TARABUS FLOORCOVERINGS LIMITED WARRANTY AGREEMENT

### Warranty Terms and Conditions

GERFLOR, as a manufacturer, expressly warrants that TARABUS floorcoverings for buses and coaches are conform to the technical data sheet in force at the time of delivery.

GERFLOR further expressly warrants that the wear layer of TARABUS floorcoverings shall be free from defects in material for **12 years (twelve years)** from the date of sale, provided such floorcoverings are exclusively subject to normal use and service, and are installed and maintained in accordance exactly with GERFLOR's recommendations that the buyer declares to be aware of.

The wear layer consists of the material above the glass fiber web in the floorcovering. GERFLOR expressly warrants that the glass fiber web will not appear in the floorcovering for **12 years (twelve years)** from the date of sale.

This entire warranty will become null and void if conditions of the subflooring and method of installation do not conform exactly to GERFLOR's specifications.

This entire warranty does not cover damage caused, in whole or in part, by conditions beyond the control of GERFLOR, including but not limited to:

- Use for which material is not designated.
- Fire, explosion, or natural disasters.
- Faulty installation
- Casualties
- Ordinary wear and tear
- Abuse
- Faulty design or construction of the vehicles.
- Failure of the adhesive to adhere to the subfloor because of presence of moisture.
- Fault in the subfloor.
- Failure of the welding



- Uneven wear of sections of the floorcovering.
- Alteration of the initial appearance of the floorcovering, particularly in high traffic areas exposed to extreme heavy wear.
- Damage caused by negligent or improper maintenance procedures and other causes not specified but beyond the control of GERFLOR.
- Fading or discoloration from sunlight or heat.
- Mechanical damages, burns, chemical soiling or damage due to clamp or inadequate cleaning, not recommended by GERFLOR.

The presence of moisture between the TARABUS and the subfloor shall be considered proof of subfloor failure or faulty design or construction.

This warranty will be applied only if the product is admitted to be the only cause of disorder.

The sole and exclusive remedy against GERFLOR arising from the purchase or use of TARABUS is limited to supply of material in replacement of the sole defective part of material (after examination, verification and approval by GERFLOR) with material of equivalent quality –(colour shade between brand new material and existing one will be accepted by the owner)-. All other compensation of whatever nature will be excluded.

If the claim is accepted by GERFLOR, with respect to the warranty of the wear layer, for the first 2 (two) years from the date of sale, GERFLOR will supply the material, in replacement of defective one, free of charge. More than 2 (two) years from the date of sale, until the expiration of this express warranty of the wear layer, a depreciation of 7% (seven per cent) per year of the cost of supplied material will apply.

### WARRANTY AND LIABILITY LIMITS

THE ABOVE EXPRESSED MANUFACTURER'S WARRANTY SHALL BE THE EXCLUSIVE WARRANTY AND LIMITED TO THE QUALITY OF THE PRODUCT, AND GERFLOR MAKES NO OTHER WARRANTIES. GERFLOR EXPRESSLY DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE.

IT IS AGREED THAT GERFLOR SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, including but not limited to, loss of income, loss of use, damage to other property, the cost of removing and reinstalling TARABUS floorcoverings, attorney's fees, and any liability you may have with respect to any other person.



## TIME LIMIT FOR PLACING A CLAIM

To be admissible, all claims by means of this warranty contract must be carried out by **registered letter with return receipt** addressed to GERFLOR, at the address indicated at the top of this warranty contract, **accompanied by the purchase invoice** for the Product, within THIRTY DAYS following finding of irregularities and within the aforementioned warranty contract time limit. If any clauses of this Warranty Agreement conflicted with the law or a given jurisdiction, only said clause would be considered inapplicable, the remaining text of the Agreement remaining unaffected.


This Limited Warranty shall be governed and construed in accordance with the laws of the State of Illinois without regard to any choice of law principles: All disputes that may arise between You and GERFLOR relating in any way to this Limited Warranty Agreement, to the extent such disputes cannot be resolved by negotiation between You and GERFLOR, shall be decided by arbitration carried out in accordance with the Federal Arbitration Act and the Commercial Arbitration Rules of the American Arbitration Association. In the event of such a dispute, arbitration may be initiated by a request for arbitration by either party hereto addressed to the other party, and shall be completed within sixty (60) days of such request unless extended because of unavailability of an arbitrator or other events beyond the control either party. The arbitrator shall be chosen by mutual agreement of the parties and, in the event the parties cannot so agree, either party may file a written application to have the arbitrator designated by the American Arbitration Association. The arbitration proceeding shall take place in Chicago, Illinois or such other location as the parties shall agree and shall be conducted in accordance with the Commercial Arbitration "Expedited" Rules of the American Arbitration Association. The arbitrator shall have all powers necessary to determine the issues presented, including without limitation, but subject to the terms of this Limited Warranty, any damages. The decision of the arbitrator shall be final and conclusive, both as to costs and the merits, and the parties agree that they shall be bound by this decision.








**NEW**



**THE LIGHTEST  
THE STRONGEST  
FLOORING**



WEIGHT REDUCTION



# TARABUS

**BUS & COACH FLOOR COVERINGS**

**Gerflor®**  
theflooringgroup

# GAYA WOOD Noma



8297 Yosemite

NT



GAYA WOOD Walnut



# GAYA WOOD Walnut

---



NT

6057 Everglades



MK

NT

4521 Yellowstone

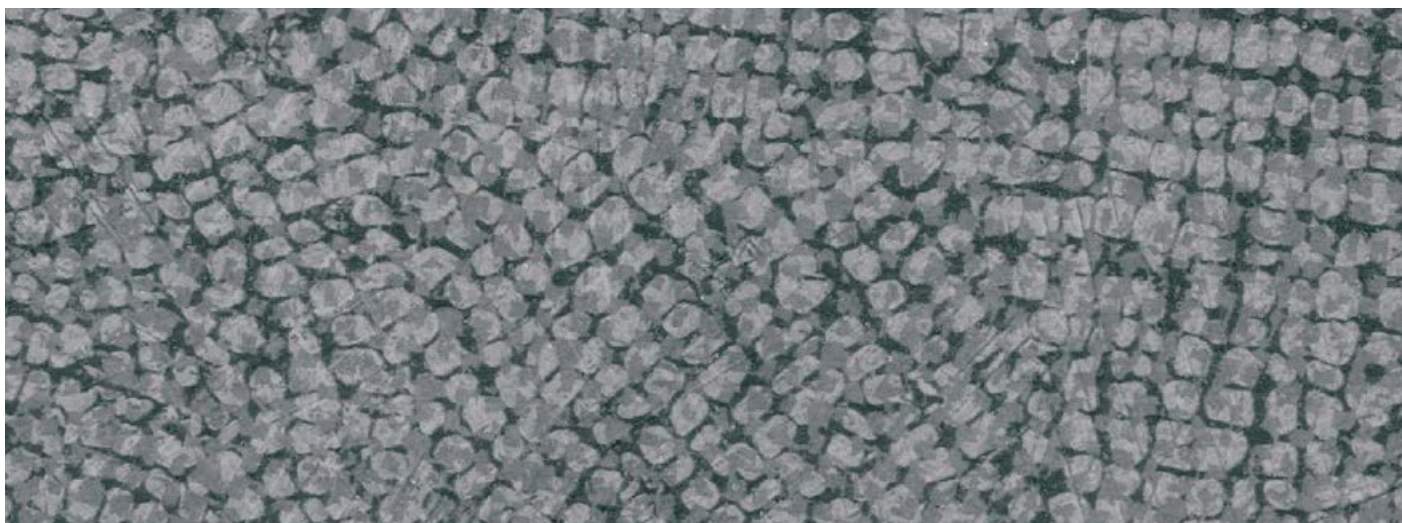


NT

3724 Kruger



# GAYA MOSAIC



4482 Babel

NT



4519 Galata

NT



GAYA MOSAIC

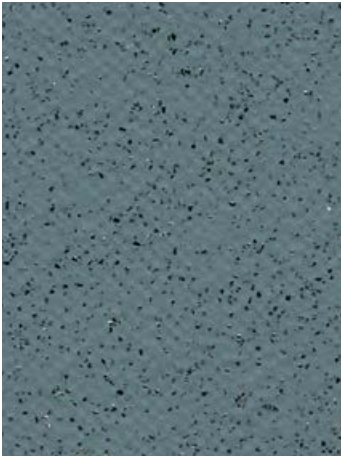


# SIRIUS



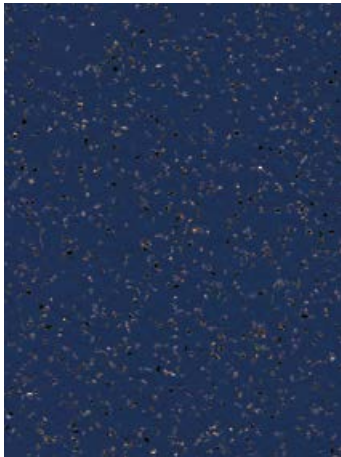
6768 Griffon

NT



6782 Dune

NT



6451 Corsaire

NT



6727 Anthracite

NT



6801 Graphite

NT

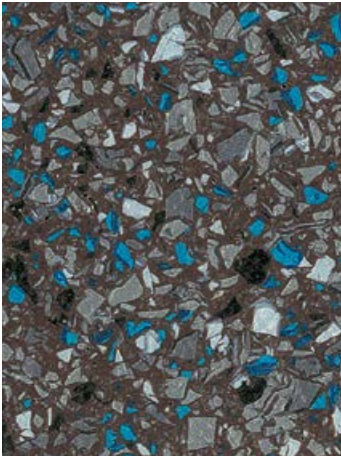
# APOLLO



4776 Masan

MK

NT



4479 Kilimanjaro

MK

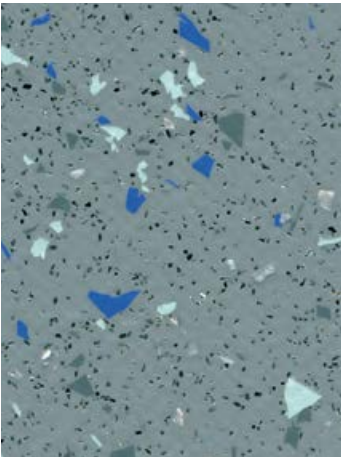
NT



4517 Fuji

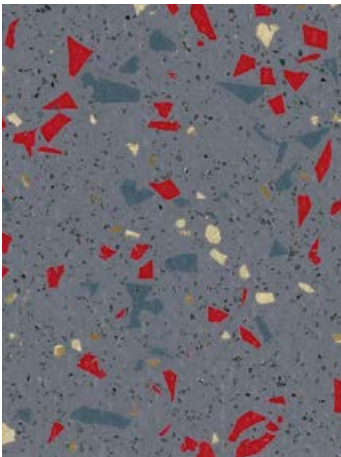
MK

NT



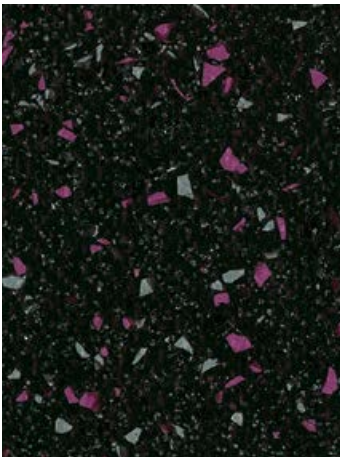
MK  
NT

8804 Selenium



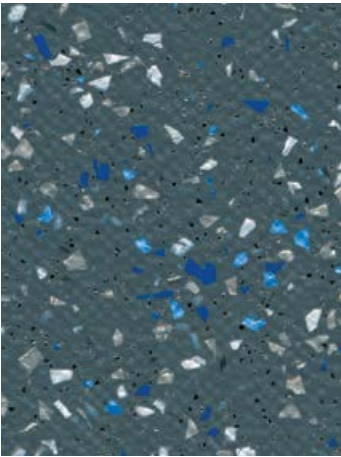
NT

4483 Dubnium



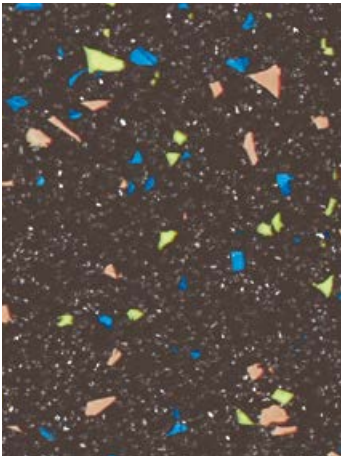
MK  
NT

3740 Indium



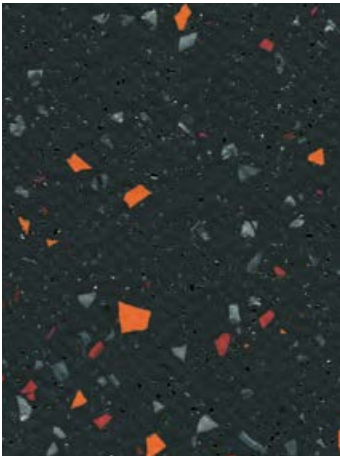
MK  
NT

8805 Palladium



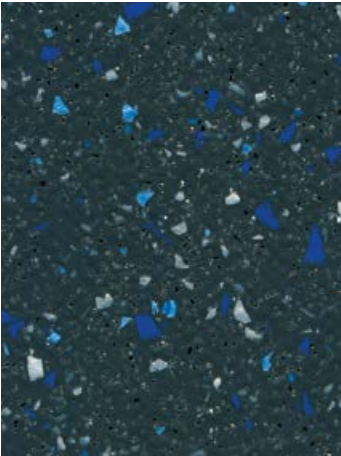
MK  
NT

8031 Samarium



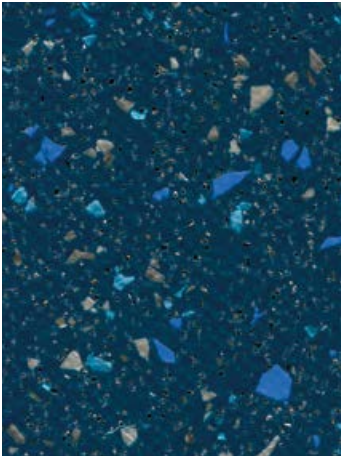
MK  
NT

8803 Gallium



MK  
NT

8806 Rhodium

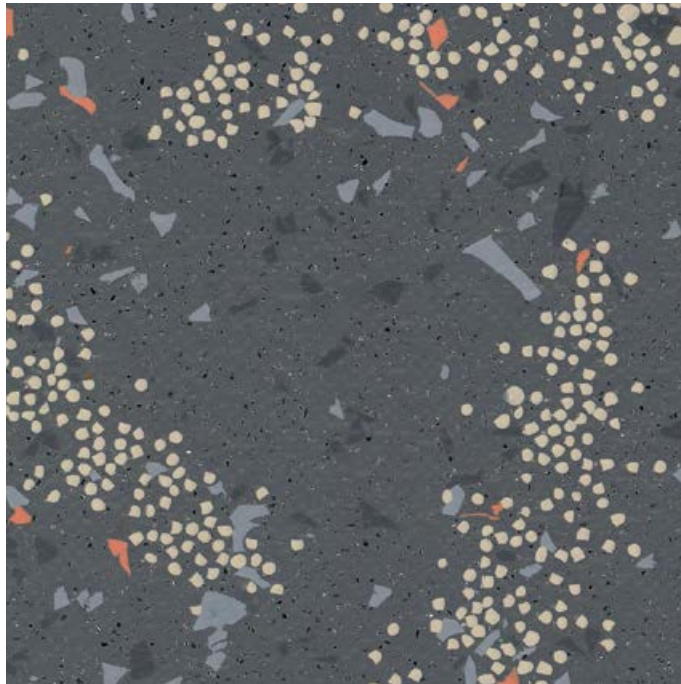


NT

8486 Vanadium

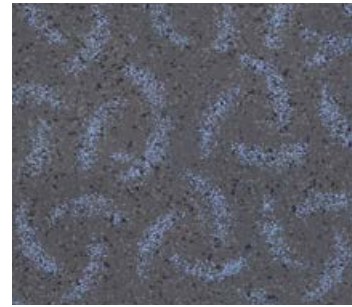
MK Foam backing  
NT Textile backing





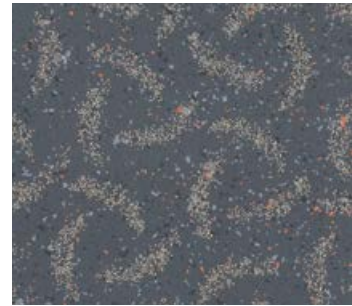
8816 Singapore

NT



NT

8729 Norway\*



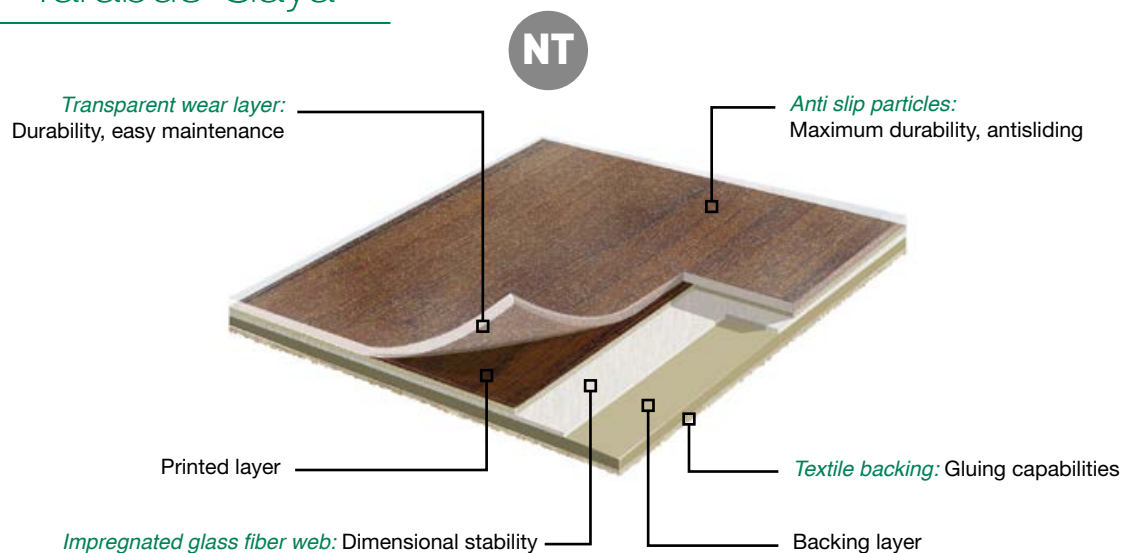
NT

8816 Singapore\*

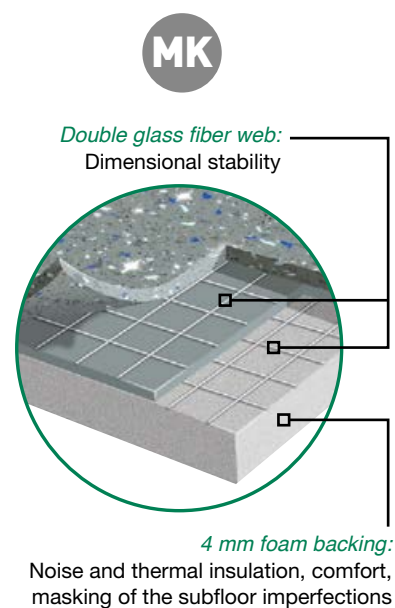
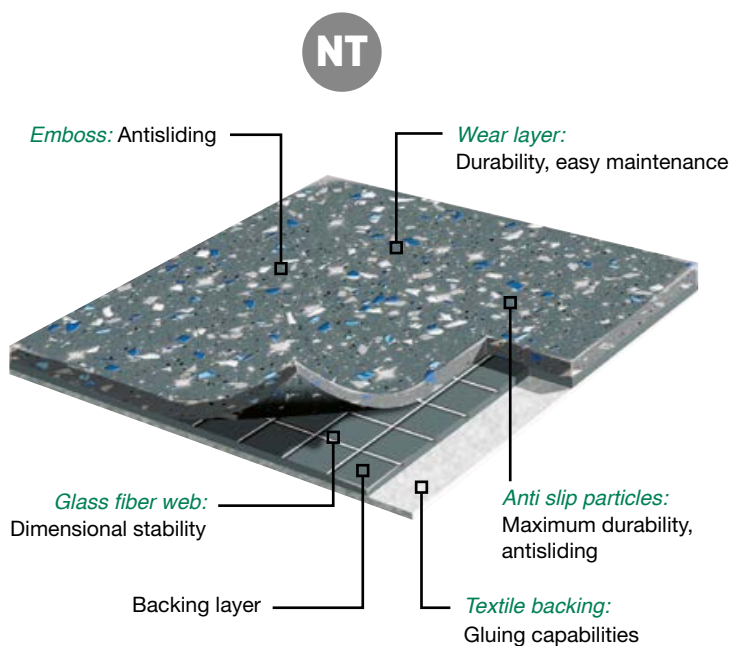
*\*Scale reduction*



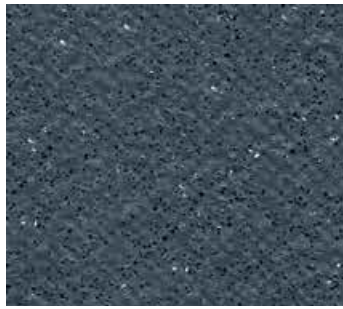
## ► Tarabus Gaya



## ► Tarabus standard



## ► Safebus X'tra



6822 Dark Grey

NT

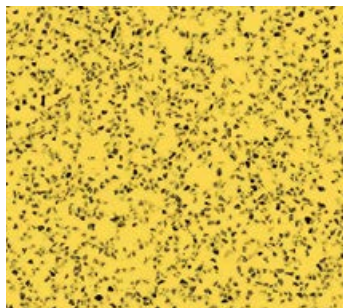
## ► Venus



6727 Anthracite

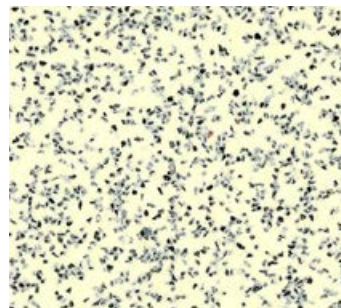
NT

## ► Safebus



6602 Caledonia

NT



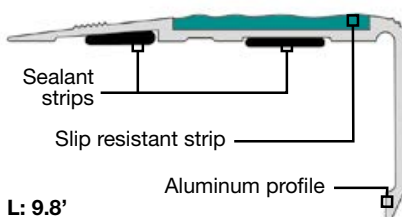
6203 Borneo

MK

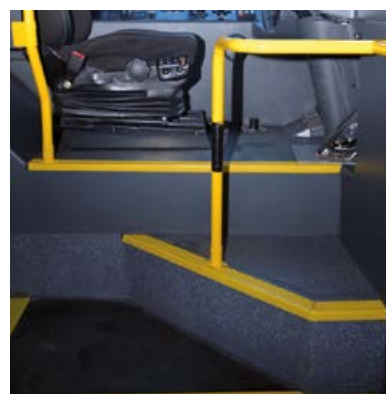
NT



## ► Stepbus



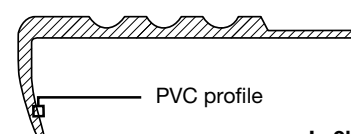
## ► Step nosing



Yellow



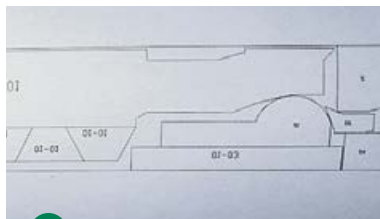
White





## KIT System

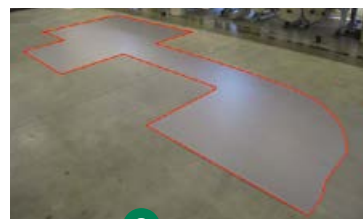
Pre-cut and pre-welded **TARABUS** floor covering system according to your drawings



**1** Send us your floor plan layout



**2** We cut with high precision



**3** ...and pre-weld if required

## TARABUS Self-Adhesive



**TARABUS** floor covering with self-adhesive backing

- > Environmental friendly bonding
- > Ready to bond
- > No curing time
- > Safer work conditions
- > Easy to use

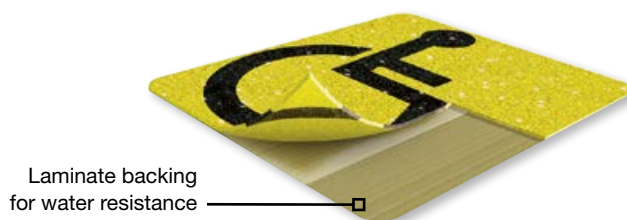
## TIME SAVING

## ► TARABUS LOGO

- Location for person with reduced mobility
- Advertising & Promotion



Almost unlimited possibilities of water-resistant logos



Laminate backing for water resistance



PN: X3059997 - 03/2016

**TARABUS** *Be* CONNECTED!



Follow us on LinkedIn  
tarabus by gerflor



[us.tarabusbygerflor.com](http://us.tarabusbygerflor.com)

## GERFLOR USA

595 Supreme Dr  
Bensenville 60106 IL USA  
Tel: 877 GERFLOR (437 3567)  
Fax: 847 394 3753  
[tarabus@gerflor.com](mailto:tarabus@gerflor.com)  
[tarabusbygerflor.com](http://tarabusbygerflor.com)

**Gerflor**<sup>®</sup>  
theflooringroup

## **RAIN BOOTH INFORMATION**

Constructed as part of a corporate-wide pre-delivery inspection facility, the Forest River 20' x 50' motorized vehicle rain booth utilized by Starcraft and Startrans Bus offers exceptional performance in the area of water leak detection.



The motorized vehicle rain booth adds front wall nozzles to the design of the towable rain booth, simulating the pelting of oncoming rain at highway speeds. Both booths include two 1200 gallon recycling tanks and utilize a 12Horsepower pump with multi-bank filters capable of delivering 40 – 60 p.s.i. That equates to 300 gallons per minute pushed through the spray heads, or the equivalent of a 24 inch-per-hour downpour!

With nozzles directed at the roof, sidewalls, front and undercarriage, nothing goes untouched in our quest for leak elimination. Using both velocity and volume in our test procedure ensures our valuable customers that we are doing the utmost to deliver a leak-free product to them.



Visitors are always welcome to witness the test booths whenever they are in operation.





**3 Year Limited Warranty**  
**on**  
**Undercoating produced by Z Technologies Corporation**  
**for use by**  
**Forest River Bus**

Subject to the terms, conditions and limitations in this Warranty, Z Technologies Corporation (the "Warrantor") hereby warrants to the original owner ("Owner") that the Z Technologies Undercoating used in the construction of Forest River Bus products meets the specifications set forth in Z Technologies' current Product Profile and when applied to Forest River products in the manner set forth in Z Technologies application recommendations, will protect those products from damage by rust for a period of three (3) years from the date of the Owner's purchase.

In the event that refurbishing is required as a result of damage caused by rusting within three (3) years of the Purchase Date, Warrantor's entire liability to Owner, and Owner's sole and exclusive remedy, will be to provide replacement undercoating, to advise Owner on proper refurbishing methods and to reimburse the cost of refurbishing up to the original cost of installing the undercoating on the unit in question. Owner will be responsible for all other costs and expenses in connection with the refurbishing, including transportation. Warrantor will not, under any circumstances, be responsible for special (except as expressly stated in this paragraph), indirect, incidental, consequential or punitive damages.

If corrosion damage appears to have occurred while this Warranty is in effect, Owner shall notify Forest River Bus within 90 days after discovery of same. Forest River Bus will, in turn, notify Z TECH. All claims made under this Warranty must be made to Z Technologies within 36 months after the Purchase Date. This Warranty shall have no effect unless Owner authorizes Z Technologies to inspect the unit on site. Z Technologies will make the final determination as to whether or not repairs are authorized under this Warranty. This Warranty does not apply to claims arising from damage due to: Misuse, alteration or negligence, subsequent or additional coatings applied over or under the undercoating warranted, Dents, scratches, unusual contact, abrasion or fair wear and tear attributed to normal operating conditions. Failure to promptly repair damaged coating. Exposure to fire, heat, chemicals, explosion or any other natural causes.

The limited warranty provided herein is the sole and exclusive warranty with respect to Z Technologies undercoating. Any implied warranty, including any warranty of merchantability or warranty of fitness for a particular purpose, is limited in duration to the stated period of these written warranties. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

No dealer, salesman, representative or other person is authorized to make any warranties with respect to Undercoating, extend the warranty period or otherwise change modify or amend the provisions of this warranty.

This warranty is applicable only to the original Forest River Bus owner and may not be transferred to any other person, firm or entity.

*Z Technologies, the Originators of Ziebart Protective Coatings*



06/21/2017

MB#

## Z GUARD™ 9902 STAR

A wax based undercoating intended to protect commercial vehicles from corrosion. The wax electrochemically inhibits the rate of corrosion and also, due to the film characteristics, provides a coating resistant to stone impingement and elevated temperatures.

### PHYSICAL PROPERTIES

Appearance	Black Liquid
% NVM by WT.	50
Density	10.43 lb/gal
Viscosity (after reduction with water) per Brookfield RVT #5 Spindle 20RPM	2500
Viscosity per #4 Zahn cup	26 sec.
Mechanical Stability	Excellent
Heat Stability	Excellent
V.O.C.	0.00 lbs/gal
D.O.T. Flammability Rating	>200q F
pH	8.5
Cryptometer/#2 Wedge, ASTM D1212	15
60° Gloss	< 5 matt finish)
Sag (mils)	>15

**Z TECHNOLOGIES CORPORATION**

World Leaders in Corrosion Protection

26500 Capitol Avenue, Redford, Michigan 48239-2597  
Telephone (313) 937-0710 · Fax (313) 937-1470



## Z GUARD 9902 STAR Film Properties

Performance testing reflects coating on unpolished Q panels with four day air-dried films at 3.0 – 4.0 mils dry.

Dry to touch at R.T., ASTM D 1640	10 ± 2 minutes
Dry-to-Handle at R.T., ASTM D 1640	20 ± 5 minutes
Pencil Hardness	6B
Flexibility 180° bend over conical mandral	Pass
Salt Spray, ASTM B 117, 1000 hours	Field, scribe, edge clean; slight blistering
Salt Fog Resistance (463PB-10-01), 240 hours.	Pass (No rust)
◆ 500 F x 16 hours plus 240 hrs salt fog	Pass (No rust)
◆ 325 F x 16 hours plus 16 hours humidity.	Pass (No rust, nor blisters)
Salt Fog Resistance (WSS-M2P178-A), 240 hours.	
◆ 662°F x 1 hour; 1°C water quench; plus 240 hrs salt fog.	Pass (#8-9 corrosion rating or <0.1% surface rust per ASTM D 610-95)
Salt Water Immersion, 5% NaCl, 100° F, 96 Hours	Pass
Detergent Immersion, 100° F, 48 Hours	Pass
Gravelometer, ASTM D 3170, -20° F	Good(8A)
Poultice, GM 998-5470, 20 cycles	Pass
Q.U.V., ASTM G 53, 3000 Hours	Pass
Q.U.V., 100 Hours + Salt Spray, 336 Hours	Pass
Q.C.T., 3000 Hours	Pass
Humidity Resistance, ASTM D 2247, 2000 Hours	Pass
Sag resistance	≥5 mils
Impact (direct & reverse) ASTM D 3281	160/40 inch-lbs.
Adhesion (FLTM B 1 6-1 B) cross Hatch	5A Pass
Scab corrosion resistance, 20 cycles	Pass

### APPLICATION

For ultimate protection, apply films to clean metals at a thickness of at least four (4) mils dry, by any of the following methods:

Airless spray, with a 33:1 1.5 - 3.5 GPM, .013 - .026 tip at 50-75 psi line pressure, 20 - 40 fan

[www.ztechprotection.com](http://www.ztechprotection.com)

**Z TECHNOLOGIES CORPORATION**

World Leaders in Corrosion Protection

26500 Capitol Avenue, Redford, Michigan 48239-2597  
Telephone (313) 937-0710 • Fax (313) 937-1470



**ISO 9001:2008 CERTIFIED**

August 12, 2014

Subject: Z Guard 9902 Water Based Corrosion Preventative

To Whom It May Concern

Z Technologies Product, Z Guard 9902, was tested to the requirements of Specification A-A- 55295 which supersedes Specification MIL PRF 62218 which supersedes Specification TT C 520.

The test results are attached.

Based on the results of testing, Z Guard 9902 meets or exceeds the performance requirements of the specification.

The product Z Guard 9902 is widely utilized in the Commercial Vehicles OEM market and carries a three year corrosion warranty.

Sincerely

Ellis Breskman Ph.D.  
Director of Research & Development  
*Dr. Kurt Ziebart Memorial laboratory*

Z Technologies Corporation  
26500 Capitol Ave.  
Redford, MI 48239 USA  
E Mail [ellisbreskman@ztechprotection.com](mailto:ellisbreskman@ztechprotection.com)  
Desk 313 937 0710 xt 211  
Fax 313 937 1470  
Cell 313 506 2772  
[www.ztechprotection.com](http://www.ztechprotection.com)  
**World Leaders in Corrosion Protection**

**[www.ZTechCoatings.com](http://www.ZTechCoatings.com)**

26500 Capitol Avenue, Redford, Michigan 48239-2597 • Telephone (313) 937-0710 • Fax (313) 937-1470



**ISO 9001:2008 CERTIFIED**

August 12, 2014

Subject: Z Guard 9902 Water Based Corrosion Preventative

To Whom It May Concern

Z Technologies Product, Z Guard 9902, was tested to the requirements of Specification A-A- 55295 which supersedes Specification MIL PRF 62218 which supersedes Specification TT C 520.

The test results are attached.

Based on the results of testing, Z Guard 9902 meets or exceeds the performance requirements of the specification.

The product Z Guard 9902 is widely utilized in the Commercial Vehicles OEM market and carries a three year corrosion warranty.

Sincerely

Ellis Breskman Ph.D.  
Director of Research & Development  
*Dr. Kurt Ziebart Memorial laboratory*

Z Technologies Corporation  
26500 Capitol Ave.  
Redford, MI 48239 USA  
E Mail [ellisbreskman@ztechprotection.com](mailto:ellisbreskman@ztechprotection.com)  
Desk 313 937 0710 xt 211  
Fax 313 937 1470  
Cell 313 506 2772  
[www.ztechprotection.com](http://www.ztechprotection.com)  
**World Leaders in Corrosion Protection**

**[www.ZTechCoatings.com](http://www.ZTechCoatings.com)**

26500 Capitol Avenue, Redford, Michigan 48239-2597 • Telephone (313) 937-0710 • Fax (313) 937-1470



Supplier		Part Name	
Z Technologies Corporation			
Name Of Laboratory		Z-Guard ® 9902	
Dr. Kurt Ziebart Memorial Laboratories			
Material Specification			
Spec. No.#	Com. Item Description A-A-59295		Superseding MIL - PRF - 62218B June 3, 1996; which supersedes TT C 520B
2	Type I Motor Vehicles and Trailers		Originally issued Sept. 9, 1998
NSN 8030-01-127-3683			
	REQUIREMENTS:	RESULTS	OK NOT OK
3.1	INGREDIENTS		
3.1	Non Volatiles dispersed in petroleum solvent	water based	X
3.1.1	no highly toxic ingredients	comply	X
3.1.1.1	No benzene or HAPS	comply	X
3.1.1.2	No halogenated hydrocarbons	comply	X
3.2	CHEMICAL AND PHYSICAL CHARACTERISTICS		
3.2.1.2	Non Volatiles (weight) not less than 52% ± 5%	61%	X
3.2.1.3	Wt per liter to not vary by more than 5% ASTM D1475	comply	X
3.2.1.4	Sulfated Ash content Each batch shall be within 10% of established value ASTM D95	comply	X
3.2.2	Water Content shall be less than 1% ASTM D95	water based coating	X
3.2.3	Lead Content less than 0.015% ASTM D3335	< 0.006%	X
3.2.4	Flash Point not less than 100F ASTM D93	>240 F	X
3.2.5	Condition in Container: no settling, lumps, skins, or separation of the solvent	comply	X
3.2.6.2	Color: Color Brown or Black: no fluorescent pigments or dyes	black	X
3.3	PERFORMANCE PROPERTIES		
3.3.1	Sag Sag resistance ≥ 10 wet mils (250μ)	23 mils	X
3.3.2.2	Creep: (1) expose 2 std cold rolled steel panels to 24 Hrs of ASTM 117 Salt Spray. (2) Clamp the panels together so that they overlap by 1/2 inch (3) apply the coating with a spatula to the joint (4) allow the test panels to stand in a vertical orientation for 7 days at room temp. (5) examine for creep of coating: no more than 0.25 inches allowed	creep 0.1 inches pass	X
3.3.3	Copper Corrosion. The compound shall not be corrosive to copper when tested to ASTM D130. Test duration 3 hours. Test Temperature 100C. Copper strip classification value shall not exceed 1-b (slight tarnish, dark orange)	1-b Pass	X
3.3.4	Fire Resistance: Expose the coating to a flame for 20 seconds. The coating shall not support combustion for more than 15 seconds after the flame is removed per ASTM D1310	flame out in 5 seconds: Pass	X
3.3.5	Detergent Resistance. Immerse the dry coating into a solution of 2.5 grams sodium lauryl sulfate or equivalent per liter of water at 50C (122F) for 10 minutes. The coating must remain intact and continuous.	Slightly affected	X
3.3.6	Chip Resistance. ASTM D3170 rating of 3A or better	4A Pass	X
3.3.7	Solvent Vapor Wash Resistance. Place fresh wet film into non air circulation oven at 121C for 15 minutes. After 15 min cool at room temp, no evidence of sag, channeling, or removal from surface	no evidence of sag channeling or removal	X
3.3.8	Condition to Touch. After 7 days at room temp, the coating shall be dry to touch	dry to touch: Pass	X
3.3.9	Environmental. Testing shall conform to SAE J1959	Pass	X
3.3.9.1	Low Temperature Stability. Expose the films to temperature of -20F for 16 hours. Film shall remain homogenous.	no effect: Pass	X
3.3.9.2	Low Temperature Sprayability. Coating applies at temperatures 4C (40F) or above.	OK: pass	X
3.3.9.3	Low Temperature Flexibility. Coating shall be flexible at temperatures -20F and above	Pass	X
3.3.9.4	High Temperature Sprayability. The coating shall spray well 100F or below	Pass	X
3.3.9.5	High Temperature Flow Resistance. Expose dry film to 300F for 2 hours: No sag allowed.	No Sag: Pass	X
3.3.9.6	Salt Fog. Apply coating to corroded surface. Expose to 1000 hours per SAE J1959. Rating must be 2 or better.	ASTM Rating of 6: Pass	X
3.3.9.7	Salt Water Immersion: Immerse dry film for 21 days in solution of 27.6 grams of NaCl, 2.4 grams CaCl2 in one liter of water. Adjust pH to 7.8 - 8.2 with sodium carbonate. See SAE J1959. The compound shall inhibit corrosion.	Pass	X
3.3.9.8	Cyclic Environmental conditions. Test to SAE J1959 section 3.12. The coating shall inhibit corrosion.	SAE J2334 Cyclic: Pass	X
4	REGULATORY REQUIREMENTS	Material is recoverable	X
4.1	Attempt to utilize Recovered Material		
5	QUALITY ASSURANCE PROVISIONS	certified to ISO 9001	X
5.1	Contractor Required to perform all examinations and tests		
5.2	Same product as sold to the commercial market	same product	X

The above test results were obtained from validation testing to CID A-A-59295 Type II.

Ellis Breskman PhD Technical Officer

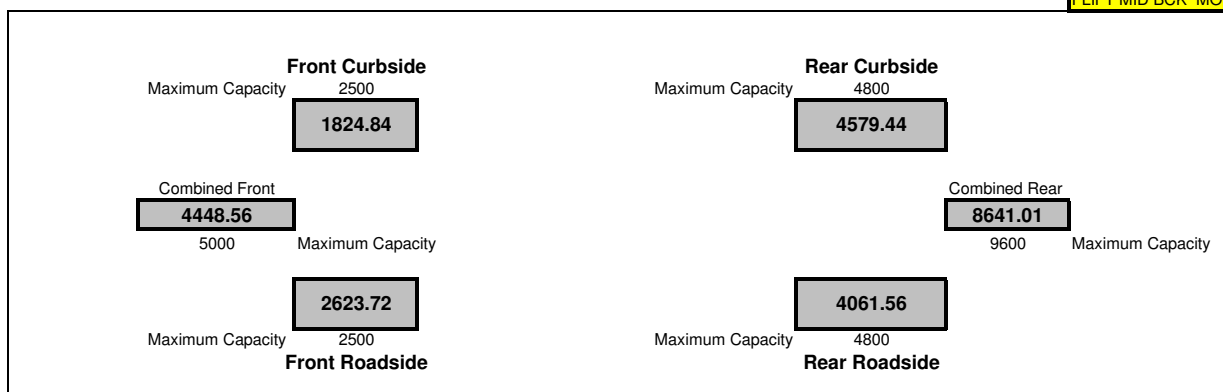
Date:

MAY 12, 2014

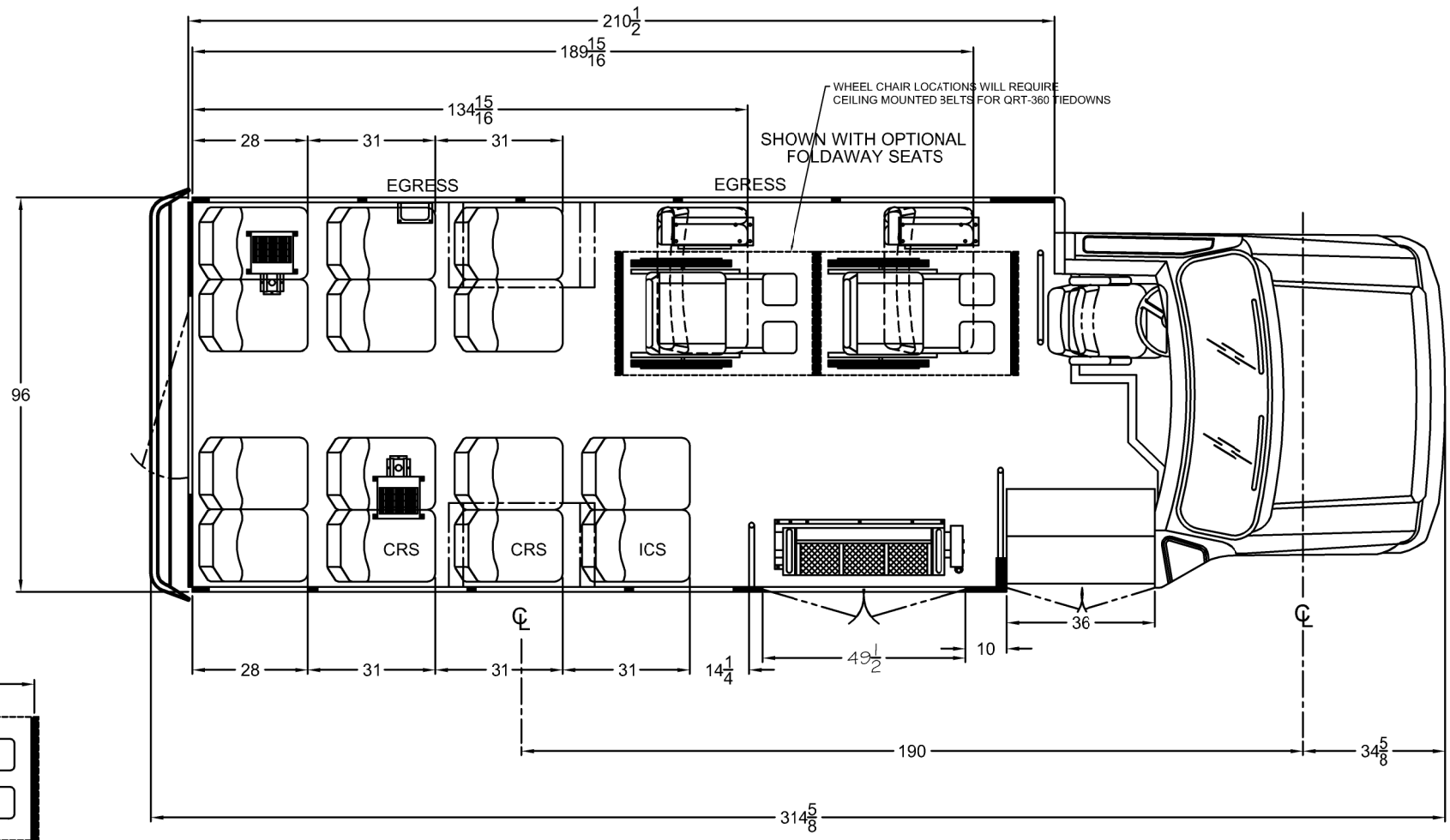
### WEIGHT ANALYSIS

	INPUT AREAS-					FUEL LOAD ADJ. DATA (F.L.A.)					
	VEHICLE DESCRIPTION:		CHASSIS	UNIT #	MODEL:	FUEL TYPE:	FUEL CAP.	FUEL WGT PER GAL.			
	14 2 WC 2 DBL FOLDS 190 199-11 US		E-450			GAS	55	6.1			
	WHEELBASE	PER IN. VALUE CALC.		AXLE WEIGHTS			FUEL AMT.	WGT OF FUEL	FUEL ADJ. AMT.		
	190	0.53		LEFT FRONT	RIGHT FRONT		0.13	335.5	-41.94		
AXLE CAPACITIES			4106	2158	1948		FUEL TANK CENTER		DEALER		
FRONT	REAR	TOTAL		LEFT REAR	RIGHT REAR		217				
5000	9600	14500	6072	2893	3179						
<b>LEFT (ROADSIDE)</b>						<b>RIGHT (CURBSIDE)</b>					
	DISTANCE (IN.)	WEIGHT (LBS.)	% REAR AXLE	FRONT	REAR	DISTANCE (IN.)	WEIGHT (LBS.)	% REAR AXLE	FRONT	REAR	
DRIVER	48	150	25.26%	112.11	37.89	162	-55	85.26%	-8.11	-46.89	MID DB
DBL FOLD	85	-85	44.74%	-46.97	-38.03	193	-55	101.58%	0.87	-55.87	MID DB
DBL FOLD	117	-85	61.58%	-32.66	-52.34	224	-55	117.89%	9.84	-64.84	MID DB
DBL FOLD	149	-85	78.42%	-18.34	-66.66	255	-55	134.21%	18.82	-73.82	MID DB
MID DB CRS	191	-57	100.53%	0.30	-57.30			0.00%	0.00	0.00	
MID DB CRS	223	-57	117.37%	9.90	-66.90	159	378	83.68%	61.67	316.33	HI BCK DBL ICS OH LUGGAGE
MID DB CRS	255	-57	134.21%	19.50	-76.50	191	369	100.53%	-1.94	370.94	HI BCK DBL CRS OH LUGGAGE
DBL FOLD	101	385	53.16%	180.34	204.66	223	369	117.37%	-64.09	433.09	HI BCK DBL CRS OH LUGGAGE
DBL FOLD	147	385	77.37%	87.13	297.87	255	367	134.21%	-125.55	492.55	HI BCK DBL OH LUGGAGE
HI BCK DBL OH LUGGAGE	131	372	68.95%	115.52	256.48			0.00%	0.00	0.00	
HI BCK DBL OH LUGGAGE	131	377	68.95%	117.07	259.93	190	-62.5	100.00%	0.00	-62.50	MORRYDE
HI BCK DBL OH LUGGAGE	222	377	116.84%	-63.49	440.49	275	-20	144.74%	8.95	-28.95	ROMEO RIM
			0.00%	0.00	0.00	179.5	-50	94.47%	-2.76	-47.24	3/4 PLYWOOD
			0.00%	0.00	0.00			0.00%	0.00	0.00	
MORRYDE	190	-62.5	100.00%	0.00	-62.50			0.00%	0.00	0.00	
ROMEO RIM	275	-20	144.74%	8.95	-28.95			0.00%	0.00	0.00	
3/4 PLYWOOD	179.5	-50	94.47%	-2.76	-47.24			0.00%	0.00	0.00	
			0.00%	0.00	0.00			0.00%	0.00	0.00	
			0.00%	0.00	0.00			0.00%	0.00	0.00	
			0.00%	0.00	0.00			0.00%	0.00	0.00	
			0.00%	0.00	0.00			0.00%	0.00	0.00	
			0.00%	0.00	0.00			0.00%	0.00	0.00	
			0.00%	0.00	0.00			0.00%	0.00	0.00	
			0.00%	0.00	0.00			0.00%	0.00	0.00	
TOTAL PASSENGER LOAD				486.58	1000.92				-102.31	1232.81	2618.00
AXLE WEIGHTS				2158.00	2893.00				1948.00	3179.00	10178.00
				FRONT	REAR	LEFT/RIGHT TOTALS	LEFT/RIGHT %'S				
			LEFT	2623.72	4061.56	6685.28	0.511				
			RIGHT	1824.84	4579.44	6404.28	0.489				
FRT / REAR TOTALS				4448.56	8641.01	13089.56					
AXLE CAPACITIES				5000	9600	14500					
AVAILABLE CAPACITIES				551.44	958.99	1410.44					

ACTUAL LOOKS FROM 2015ST  
FLIFT MID BCK MORRYDE 3/4 MARINE ROMEO RIM







## DEALER APPROVAL

☐ APPROVED

## CUSTOMER SIGNATURE

NOTE: SHOWN WITH MID HI FREEDMAN SEATS

E-450 14,500 GVWR

THIS FLOOR PLAN IS FOR ILLUSTRATION PURPOSES ONLY.

A WEIGHT ANALYSIS HAS NOT YET BEEN PERFORMED.

FINAL APPROVAL WITH A WEIGHT ANALYSIS IS REQUIRED UPON RECEIPT OF A

COMPLETED ORDER WITH ALL OPTIONS SHOWN.

OPTIONAL EQUIPMENT MAY BE SHOWN.

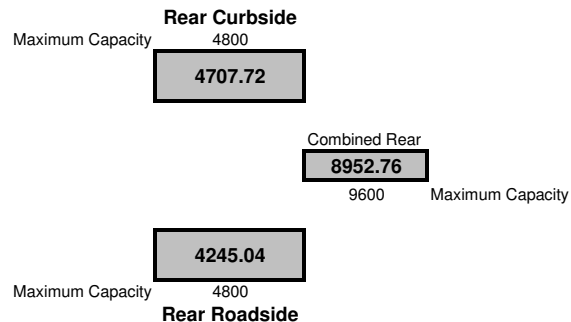
THE SALES ORDER PLACED DICTATES ACTUAL OPTION CONTENT.

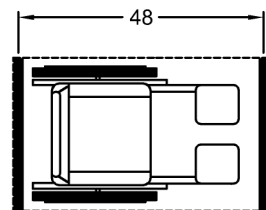
THIS DRAWING AND THE INFORMATION THEREON ARE THE EXCLUSIVE PROPERTY OF STARTRANS BUS, A DIVISION OF FOREST RIVER. IT SHALL NOT BE COPIED OR DUPLICATED IN ANY MANNER, NOR SHALL IT BE SUBMITTED TO OUTSIDE PARTIES FOR EXAMINATION WITHOUT OUR WRITTEN CONSENT. IT IS LOANED FOR USE WITH REFERENCE TO WORK UNDER CONTRACT WITH, OR PROPOSALS SUBMITTED TO STARTRANS BUS, A DIVISION OF FOREST RIVER.

REV. LET.	DESCRIPTION OF CHANGE	BY	CHK	DATE	ECN No.	TOLERANCE UNLESS OTHERWISE SPECIFIED		FOREST RIVER BUS	
						WOOD	OTHER	DATE: 07/27/18	TITLE:
						$\pm 1/8"$	$\pm 1/16"$	NAME: JPC	14 PASS. 2 W/C 190" WB 26' E-450 WIDE BODY
						$\pm 1^\circ$	$\pm 1/2^\circ$	DWG. No.	14 2 WC 2 DB FOLDS 190 199-10 USA

7/31/2018 16 2 WC 176 190-29 EST USA

Actual Weights from order 46118B
Equipted with Mid High seats





THIS DRAWING AND THE INFORMATION THEREON ARE THE EXCLUSIVE PROPERTY OF STARTRANS BUS, A DIVISION OF FOREST RIVER. IT SHALL NOT BE COPIED OR DUPLICATED IN ANY MANNER, NOR SHALL IT BE SUBMITTED TO OUTSIDE PARTIES FOR EXAMINATION WITHOUT OUR WRITTEN CONCENT. IT IS LOANED FOR USE WITH REFERENCE TO WORK UNDER CONTRACT WITH, OR PROPOSALS SUBMITTED TO STARTRANS BUS, A DIVISION OF FOREST RIVER.												TOLERANCE UNLESS OTHERWISE SPECIFIED		FOREST RIVER BUS		
												WOOD	OTHER	DATE: 07/27/18	TITLE:	16 2 WC PASSENGER 25' E-450 WIDE BODY
												+ 1/8"	+ 1/16"	NAME: JPC		
	REV.	DESCRIPTION OF CHANGE							BY	CHK	DATE	ECN No.	+ 1°	+ 1/2°	DWG No. 16 2 WC 176 190-29 USA	

## **IMPORTANT CONTACT INFORMATION**

**Mailing Address: P.O. Box 495, Rustburg, VA 24588**

**Shipping: 5120 Wards Road, Evington, VA 24550**

**• MAIN OFFICE:**

**TOLL FREE: (800) 533-1006**

(434) 821-1000

FAX: (434) 821-8203

WEB: [www.sonnymerryman.com](http://www.sonnymerryman.com)

**• SERVICE DEPARTMENT:**

**TOLL FREE (800) 533-1006**

FAX: (434) 821-2131

Brady Childress, Director Customer Support

Ext. 332, [brady@sonnymerryman.com](mailto:brady@sonnymerryman.com)

Pam Lawhorn, Service Administrator

Ext. 341, [pam@sonnymerryman.com](mailto:pam@sonnymerryman.com)

Tim George, Service Team Leader

Ext. 353, [tim@sonnymerryman.com](mailto:tim@sonnymerryman.com)

**•WARRANTY:**

Patty Webb, Warranty Administrator

Ext. 323, [patty@sonnymerryman.com](mailto:patty@sonnymerryman.com)

**• PARTS:**

**TOLL FREE: (800) 386-7278**

FAX: (434) 821-2621

Gerald Layne, Parts Team Leader

Ext. 318, [gerald@sonnymerryman.com](mailto:gerald@sonnymerryman.com)

**• BUSINESS:**

June Wooten, Accounts Payable

Ext. 327, [june@sonnymerryman.com](mailto:june@sonnymerryman.com)

**Hampton Roads Sales & Service Center**

1221 Fleetway Drive

Chesapeake, VA 23320

**TOLL FREE: (866) 481-7211**

(757) 361-9070, FAX (757) 361-9072

Reggie Lewis, Customer Support Manager

[reggie@sonnymerryman.com](mailto:reggie@sonnymerryman.com)

**Northern Virginia Sales & Service Center**

10149 Piper Lane

Bristow, VA 20136

**TOLL FREE: (866) 470-0305**

(703) 331-5516 –(703) 331-5517

FAX (703) 331-5518

Ken Lewis, Customer Support Manager

[Kenlewis@sonnymerryman.com](mailto:Kenlewis@sonnymerryman.com)

## **Service Locations**

- **Mathney Motor Truck Company**  
**4125 1<sup>st</sup> Ave.**  
**Nitro, WV 25143**  
**(304)769-5860**
- **Matheny Motor Truck Company**  
**50 Matheny Lane**  
**Mineral Wells, WV 26150**  
**(304)485-4418**
- **Sonny Merryman Inc.**  
**10149 Piper Lane**  
**Bristow, VA 20136**  
**(703)331-5516**
- **Sonny Merryman Inc.**  
**5120 Wards Road**  
**Lynchburg, VA 24550**  
**1-800-533-1006**
- **Nearest Ford dealer that is truck certified (E450)**

## REFERENCES

---

### Washington Metropolitan Area Transit Authority

Don Scruggs, Assistant Director MetroAccess (301) 562-5371

Washington Metropolitan Area Transit Authority

Department of Access Services

6505 Belcrest Road, Room 413

Hyattsville, MD 20782

[DScruggs@WMATA.com](mailto:DScruggs@WMATA.com)

Business to date: Over \$40,000,000/ Over 1000 units

### Virginia Department of Rail and Public Transportation

Neil Sherman, Specialized Transportation Program Manager (804) 786-1154

Virginia Department of Rail and Public Transportation

600 East Main Street, Suite 2102

Richmond, VA 23219

[Neil.sherman@drpt.virginia.gov](mailto:Neil.sherman@drpt.virginia.gov)

Business to date: Over \$70,000,000/ Over 1,500 units

### Greater Richmond Transit Authority

Gerald Brink, Director of Maintenance (804) 358-3871

Greater Richmond Transit

301 East Belt Boulevard

Richmond, VA 23224

[gbrink@ridegrtc.com](mailto:gbrink@ridegrtc.com)

Business to date: Over \$5,000,000/ Over 100 units

**REQUEST FOR QUOTATION**  
**EXHIBIT A PRICING PAGE**  
**176" - 190" Wheelbase Cutway Vehicle**

**VENDOR NAME:**

**MANUFACTURER/MAKE/MODEL:**

CLASS	VEHICLE DESCRIPTION	UNIT PRICE PER VEHICLE	ESTIMATED QUANTITY	EXTENDED PRICE
A	176" Vehicle, Eight (8) Fixed Double Seats, Two (2) Wheelchair Positions with One (1) Fold Up Seat (Double), Rear Curbside Lift Location, Vinyl Logo and Stripes	\$ 82,164.00	5	\$ 410,820.00
B	176" Vehicle, Eight (8) Fixed Double Seats, Two (2) Wheelchair Positions with One (1) Fold Up Seat (Double), Rear Curbside Lift Location, Full Bus Body Paint or 3/4 Bus Body Paint with Expanded Graphics	\$ 85,391.00	5	\$ 426,955.00
C	Vehicle, Seven (7) Fixed Double Seats, Two (2) Wheelchair Positons with Two (2) Fold Up Seats (Double), Extended Wheelbase to 190", Front Wheel Chair Lift Location, Vinyl Logo and Stripes	\$ 82,942.00	5	\$ 414,710.00
D	Vehicle, Seven (7) Fixed Double Seats, Two (2) Wheelchair Positons with Two (2) Fold Up Seats (Double), Extended Wheelbase to 190", Front Wheel Chair Lift Location, Full Bus Body Paint or 3/4 Bus Body Paint with Expanded Graphics	\$ 87,170.00	5	\$ 435,850.00
E	Vehicle, Seven (7) Fixed Double Seats, Two (2) Wheelchair Positons with Two (2) Fold Up Seats (Double), Extended Wheelbase to 190", Front Wheel Chair Lift Location, Vinyl Logo and Stripes, Overhead Luggage Racks, High Back Seats	\$ 83,081.00	5	\$ 415,405.00
F	Vehicle, Seven (7) Fixed Double Seats, Two (2) Wheelchair Positons with Two (2) Fold Up Seats (Double), Extended Wheelbase to 190", Front Wheel Chair Lift Location, Full Bus Body Paint or 3/4 Bus Body Paint with Expanded Graphics Overhead Luggage Racks, High Back Seats	\$ 86,309.00	5	\$ 431,545.00
<b>TOTAL BID FOR EVALUATION</b>				<b>\$ 2,535,285.00</b>

**\*Complete form provided. The DPT may purchase more or less as needed.**

**Note: These are only estimated quantities and do not reflect any guarantee of purchase.**

**Please do not alter pricing page.**



**REQUEST FOR QUOTATION**  
**EXHIBIT A PRICING PAGE**  
**176" - 190" Wheelbase Cutway Vehicle**

**VENDOR NAME:**  
**MANUFACTURER/MAKE/MODEL:**

**REQUEST FOR QUOTATION**  
**EXHIBIT A PRICING PAGE**  
**176" - 190" Wheelbase Cutway Vehicle**

**VENDOR NAME:**  
**MANUFACTURER/MAKE/MODEL:**