

April 17 , 2014

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

Dear Mrs. Collins:

Thanks you for the opportunity to submit this bid in response to your Request for Quotation # PTR13059. We are offering the Startrans Senator II .

Should we receive an award for this solicitation, we will provide the material as outlined. The Startrans Senator II 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 are if 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)

04/17/14 09:02:03AM  
West Virginia Purchasing Division



State of West Virginia  
Department of Administration  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

## Solicitation

NUMBER
PTR13059

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
BETH COLLINS 304-558-2306

RFQ COPY

TYPE NAME/ADDRESS HERE

Sonny Merryman, Inc  
PO Box 495  
Rustburg VA 24588

V  
E  
N  
D  
O  
R

DIVISION OF PUBLIC TRANSIT  
KANAWHA VALLEY REGIONAL TRANS

1550 FOURTH AVENUE  
CHARLESTON, WV  
25325 304-343-3840

S  
H  
I  
P  
T  
O

DATE PRINTED
02/21/2014

BID OPENING DATE 04/17/2014

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	EA		557-05		2,612,495.00
	176" WHEELBASE BUSES (18 PASSENGER CUTAWAYS)					
	OPEN END CONTRACT					
	THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF PUBLIC TRANSIT, IS SOLICITING BIDS FOR AN OPEN END CONTRACT TO PROVIDE ONE (1) TO TWENTY (20) 176" - 186" WHEELBASE CUTAWAY BUSES WITH AIR CONDITIONING AND WHEELCHAIR SECUREMENT PER THE ATTACHED DOCUMENTATION.					
	***** THIS IS THE END OF RFQ PTR13059 ***** TOTAL:					2,612,495.00

SIGNATURE

TELEPHONE

DATE

1-800-533-1006

4/17/2014

TITLE

FEIN

Commercial Sales

540806-176

ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

REQUEST FOR QUOTATION  
PTR13059 176-186" Wheelbase Transit Vehicles

Class	Item Description	Unit Price	Estimated	Extended Price
		Per Vehicle	Quantity	
A	Bus	62,958.00	5	314,790.00
B	Bus, child restraint seat, security camera, rear exit	65,568.00	5	327,840.00
C	Bus, child restraint seat, security camera, rear exit, extended body, front lift, passenger armrests	65,908.00	5	329,540.00
D	Bus, child restraint seats, security cameras, a rear exit, extended body with front lift, 3/4 bus paint with expanded graphics	65,683.00	5	328,415.00
E	Bus, child restraint seats, security cameras, a rear exit, extended body with front lift, a VISTA type lift or equal, passenger armrests	66,008.00	5	330,040.00
F	Bus, extended body with front lift, passenger armrests, Full Bus Body Paint, Bike Rack Mounting Preparation	64,998.00	5	324,990.00
G	Bus, passenger armrests, extended body, front lift, full bus paint, bike rack mounting prep, two additional seats	64,998.00	5	324,990.00
H	Bus, extended body, armrests, full bus paint, bike rack mounting prep, overhead luggage, high back seats	66,378.00	5	331,890.00
<b>Total for Bid Evaluation:</b>				<b>2,612,495.00</b>

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: PTR13059**

**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

April 17, 2014

Date

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





State of West Virginia  
Department of Administration  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

## Solicitation

NUMBER

PTR13059

PAGE

1

ADDRESS CORRESPONDENCE TO ATTENTION OF:

BETH COLLINS

304-558-2157

RFQ COPY

TYPE NAME/ADDRESS HERE

V  
E  
N  
D  
O  
R

S  
H  
I  
P  
T  
O

DIVISION OF PUBLIC TRANSIT  
KANAWHA VALLEY REGIONAL TRANS

1550 FOURTH AVENUE

CHARLESTON, WV

25325

304-343-3840

DATE PRINTED

03/21/2014

BID OPENING DATE:

04/17/2014

BID OPENING TIME

1:30PM

LINE	QUANTITY	UOP	CAT. NO	ITEM NUMBER	UNIT PRICE	AMOUNT
ADDENDUM NO. 01						
THIS ADDENDUM IS ISSUED TO MODIFY THE ORIGINAL SOLICITATION PER THE ATTACHED DOCUMENTATION.						
0001	1	EA		557-05		
176" WHEELBASE BUSES (18 PASSENGER CUTAWAYS)						
***** THIS IS THE END OF RFQ PTR13059 ***** TOTAL:						

SIGNATURE

TELEPHONE

1-800-533-1006

DATE

April 17, 2014

TITLE

Commercial Sales

FEIN

540806-176

ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**SOLICITATION NUMBER:** PTR13059

**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 to provide answers to technical questions and approved equals.

The bid date will remain April 17, 2014 at 1:30 PM EST.

**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

## TECHNICAL QUESTIONS/ APPROVED EQUALS ON PTR13059

### TECHNICAL QUESTIONS/APPROVED EQUALS

- 3.9.3 In lieu of Sound Off brand lights, please accept our standard Optronics brand of exterior LED lights, as described in the attached literature.  
**Approved. See Appendix A attached.**
- 3.9.4a In lieu of Gustafson brand lights, please accept our standard Optronics brand of interior LED lights, as described in the attached literature.  
**Approved. See Appendix A attached.**
- 3.13.4b Please accept our standard tread depth of 11" in lieu of 12".  
**Approved. Please note this change on the floorplans submitted for each class this affects.**
- 3.19.9 This section calls for windows on both sides of the rear emergency door, but since the basic bus does not have a rear emergency door, this section should call for a large rear window (a minimum of 30" high and 48" wide) with an emergency egress feature. The optional rear emergency door described in Class B, C, D, and E floor plans should include the twin rear windows feature.  
**Amend specifications to have a rear emergency egress window in the absence of the rear exit door on Classes A, F, G, and H.**
- 3.23 No wool blankets are called for, which were required in the 158" bid. Is this correct?  
**No. WVDPT would like 2 wool blankets in addition to the two Mylar blankets on each unit for emergency purposes.**
- 4.3, 4.4, 4.5, 4.6, and 4.7 This option calls for the addition of a 3rd wheel chair position. In the past the division has received the attached floorplan labeled Front Lift Floorplan. It only has two wheelchair positions but maximizes ambulatory passenger capacity which we believe agencies are looking for and are used to. Would this floorplan be acceptable for the extended Body Length Front Lift Option?  
If the 3rd wheelchair position is required please advise as to the Number of Fixed Ambulatory Passenger Seats and Foldaway Ambulatory seats required or provide sample floorplan.  
**Two wheelchair positions are all that are required for our purposes. Classes D, E, F, and G requested the extended body to accommodate the front lift position and front to back orientation of securement spaces. 4.7 should have the extended length and the side by side orientation of wheelchair securement positions with a rear lift. Please see Appendix B.**

## TECHNICAL QUESTIONS/ APPROVED EQUALS ON PTR13059

### CLARIFICATIONS/ CORRECTIONS

#### THE SPECIFICATIONS READ:

**4.7 Class G (extended body, front lift , full bus paint, armrests, bike rack mounting prep, two additional seats)** Vehicles identified as Class H vehicles must meet the mandatory requirements listed in section 3 and the mandatory requirements of Class A, with the exception that Class G vehicles must have extended body, armrests, full bus paint, bike rack mounting prep, and two additional seats, if possible, as listed below in 4.7.1 through 4.7.6.

**4.6.1** Extended length with front lift option--Increase body length to 301" +/- and mount on 186" wheelbase chassis to accommodate front lift configuration and additional wheelchair position per attached floor plan.

**4.6.2** A flip up armrest for each passenger aisle seat shall be installed. **Vendor should submit product description, warranty information, and product literature with bid, but must submit within 48 hours of request.**

**4.6.3** Full Bus Body Paint-- The vendor shall supply full-bus body paint for each vehicle of this class ordered. **Vendor must supply a sample paint chart within 48 hours of request.** The West Virginia Division of Public Transit will select the colors for each vehicle to be painted.

**4.6.4** Bike rack mounting preparation, including any needed bracing or predrilled holes. The specifics of the type of rack to be mounted will be discussed with the agency during the manufacturing process.

**4.7 Class H (extended body, armrests, full bus paint, bike rack mounting prep, overhead luggage, and high back seats)** Vehicles identified as Class H vehicles must meet the mandatory requirements listed in section 3 and the mandatory requirements of Class A, with the exception that Class I vehicles must have extended body (Class H gets REAR LIFT), armrests, full bus paint, bike rack mounting prep, overhead luggage rack, and high back seats as listed below in 4.7.1 through 4.7.6.

**4.7.1** Extended length --Increase body length to 301" +/- and mount on 186" wheelbase chassis. **Class H gets REAR LIFT**

**4.7.2** A flip up armrest for each passenger aisle seat shall be installed. **Vendor should submit product description, warranty information, and product literature with bid, but must submit within 48 hours of request.**

**4.7.3** Full Bus Body Paint-- The vendor shall supply full-bus body paint for each vehicle of this class ordered. **Vendor must supply a sample paint chart within 48 hours of request.** The West Virginia Division of Public Transit will select the colors for each vehicle to be painted.

## TECHNICAL QUESTIONS/ APPROVED EQUALS ON PTR13059

**4.7.4** Bike rack mounting preparation, including any needed bracing or predrilled holes. The specifics of the type of rack to be mounted will be discussed with the agency during the manufacturing process.

**4.7.5** Interior overhead luggage racks-- **Vendor should submit product description, warranty information, and product literature with bid, but must submit within 48 hours of request.**

**4.7.6** Substitute high back for mid high passenger seats. **Vendor should submit product description, warranty information, and product literature with bid, but must submit within 48 hours of request.**

**PLEASE CORRECT NUMBERING TO READ AS FOLLOWS and delete the additional wheelchair position on 4.7.1, for a total of two wheelchair securement positions:**

- 4.7     Class G (extended body, front lift , full bus paint, armrests, bike rack mounting prep, two additional seats)** Vehicles identified as Class H vehicles must meet the mandatory requirements listed in section 3 and the mandatory requirements of Class A, with the exception that Class G vehicles must have extended body, armrests, full bus paint, bike rack mounting prep, and two additional seats, if possible, as listed below in 4.7.1 through 4.7.6.

**4.7.1** Extended length with front lift option--Increase body length to 301" +/- and mount on 186" wheelbase chassis to accommodate front lift configuration.

**4.7.2** A flip up armrest for each passenger aisle seat shall be installed. **Vendor should submit product description, warranty information, and product literature with bid, but must submit within 48 hours of request.**

**4.7.3** Full Bus Body Paint-- The vendor shall supply full-bus body paint for each vehicle of this class ordered. **Vendor must supply a sample paint chart within 48 hours of request.** The West Virginia Division of Public Transit will select the colors for each vehicle to be painted.

**4.7.4** Bike rack mounting preparation, including any needed bracing or predrilled holes. The specifics of the type of rack to be mounted will be discussed with the agency during the manufacturing process.

- 4.8     Class H (extended body, armrests, full bus paint, bike rack mounting prep, overhead luggage, and high back seats)** Vehicles identified as Class H vehicles must meet the mandatory requirements listed in section 3 and the mandatory requirements of Class A, with the exception that Class I vehicles must have extended body (Class H gets REAR LIFT), armrests, full bus paint, bike rack mounting prep, overhead luggage rack, and high back seats as listed below in 4.7.1 through 4.7.6.

**4.8.1** Extended length --Increase body length to 301" +/- and mount on 186" wheelbase chassis. **Class H gets REAR LIFT**

## TECHNICAL QUESTIONS/ APPROVED EQUALS ON PTR13059

**4.8.2** A flip up armrest for each passenger aisle seat shall be installed. **Vendor should submit product description, warranty information, and product literature with bid, but must submit within 48 hours of request.**

**4.8.3** Full Bus Body Paint-- The vendor shall supply full-bus body paint for each vehicle of this class ordered. **Vendor must supply a sample paint chart within 48 hours of request.** The West Virginia Division of Public Transit will select the colors for each vehicle to be painted.

**4.8.4** Bike rack mounting preparation, including any needed bracing or predrilled holes. The specifics of the type of rack to be mounted will be discussed with the agency during the manufacturing process.

**4.8.5** Interior overhead luggage racks-- **Vendor should submit product description, warranty information, and product literature with bid, but must submit within 48 hours of request.**

**4.8.6** Substitute high back for mid high passenger seats. **Vendor should submit product description, warranty information, and product literature with bid, but must submit within 48 hours of request.**

\*\*\* Are mudflaps required on all wheels? This was section 3.21 in the 158" bid, but is missing in this bid.

**Mudflaps are required for all wheels.**

\*\*\* Previously there was discussion to add a manual engagement switch for the fast idle system. This requirement was not in the specifications. Please advise if this will be a requirement on all classes or not.

**Please see 3.14g, which references the "manual 'high idle on' switch" on the ILIS.**

**Please add wifi capability to all of the Classes.**

**Please find the floorplans that were inadvertently omitted on the original specifications attached at Appendix C.**

**Please find clean bid forms attached under Appendix D.**

**TECHNICAL QUESTIONS/ APPROVED EQUALS ON PTR13059****Appendix A**



# optronics®

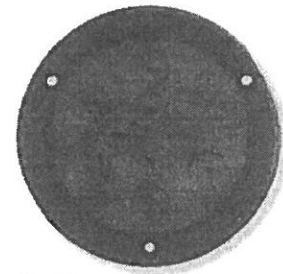
## LED TRUCK & TRAILER LIGHTING

### STL43 REFLEX FLANGE SERIES 4" Round Sealed LED Lights with Reflex Mounting Flange

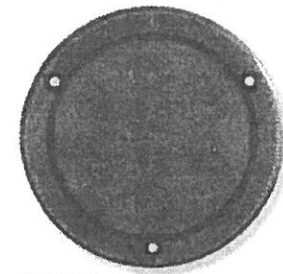
- Sonically sealed, waterproof
- Flange mount for security, theft reduction
- Accepts standard PL-3 connector
- Reflex flange meets SAE A for reflector

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>RED STOP/TURN/TAIL LIGHT - 10 DIODES</b>			
STL43RBX	STL43RBXP	12V, red reflex flange, gasket	10
STL43RBHX	-	12V, red reflex flange, hard wire, gasket	10
<b>YELLOW PARKING/TURN SIGNAL - 10 DIODES</b>			
STL43ABX	STL43ABXP	12V, yellow reflex flange, gasket	10
<b>ACCESSORIES</b>			
A45PB	A45PBP	Pigtail, 3-wire	100
A47PB	A47PBP	Right angle pigtail, 3-wire	100

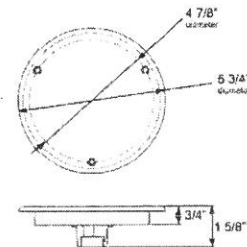
<b>FMVSS</b>	Red S T I; Yellow I 6 P; Reflex A
<b>MATERIALS</b>	Polycarbonate lens and housing
<b>VOLT/AMP</b>	Red: 12.8VDC - .413 Stop/Turn, .026A Tail Yellow: 12.8VDC - .310 Turn, .046A Parking
<b>WT/DIMS</b>	.397 lbs. / 5.75" x 5.75" x 1.625"
<b>WARRANTY</b>	Lifetime LED Warranty



STL43RBX



STL43ABX



HOLE CUT-OUT: 4.5"

800-364-5483 / 918-683-9514  
www.optronicsinc.com

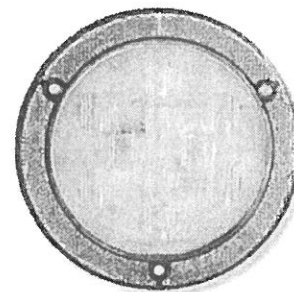


# optronics®

## LED TRUCK & TRAILER LIGHTING

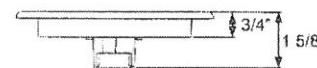
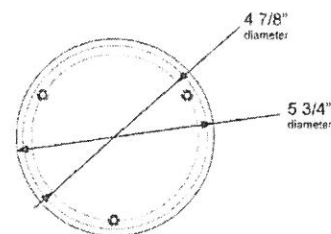
### BUL11CBX 4" Round Sealed Clear DOT LED Back-Up Light

- Sonically sealed, waterproof
- Certified for back-up light function when installed as pair in two-lamp system [SAE (2)R]
- Flange features white reflex



BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>CLEAR BACK-UP LIGHT WITH REFLEX - 10 DIODES</b>			
BUL11CBX	BUL11CBXP	12V	10
<b>ACCESSORIES</b>			
A45CB	A45CBP	Pigtail, 2-wire	100
A49PB	A49PBP	Right angle pigtail, 2-wire	100

FMVSS	(2) R
MATERIALS	Polycarbonate lens and housing
VOLT/AMP	12.8VDC - 0.26A
WT/DIMS	.353 lbs. / 5.75" x 5.75" x 1.625"
WARRANTY	Lifetime LED Warranty



HOLE CUT-OUT: 4.5"

800-364-5483 / 918-683-9514  
www.optronicsinc.com



# optronics®

## LED TRUCK & TRAILER LIGHTING

### MCL66 SERIES Sealed LED Surface Mount Marker/Clearance Lights

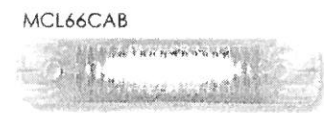
- Sonically sealed, waterproof
- Surface mount, mounts on 3" centers
- Includes both lead and ground wire

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>YELLOW - 6 DIODES</b>			
MCL66AB	MCL66ABP	12V	20
MCL66APG	-	12V, .180 male bullets	20
MCL66A24B	MCL66A24BP	24V	20
MCL66CAB	-	12V, clear lens	20
<b>RED - 6 DIODES</b>			
MCL66RB	MCL66RBP	12V	20
MCL66RPG	-	12V, .180 male bullets	20
MCL66R24B	MCL66R24BP	24V	20
MCL66CRB	-	12V, clear lens	20
<b>ACCESSORIES</b>			
BK66DB	BK66DBP	Armored base, die cast metal	50
A66GB	A66GBP	Mounting gasket, black	100

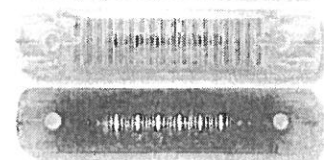
FMVSS	P2
MATERIALS	MCL66 Polycarbonate lens and housing BK66DB Aluminum
VOLT/AMP	12.8VDC - 0.057A
WT/DIMS	MCL66 .088 lbs. / 4" x 1" x 1.125" BK66DB .132 lb. / 4.25" x 1.125" x 1.688"
WARRANTY	Lifetime LED Warranty



MCL66AB



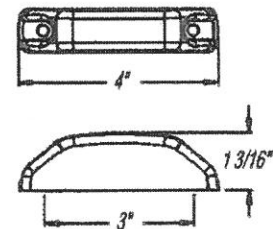
MCL66CAB



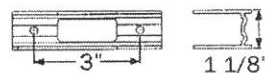
MCL66CRB



MCL66RB



BK66DB



800-364-5483 / 918-683-9514  
www.optronicsinc.com



# optronics®

## LED TRUCK & TRAILER LIGHTING

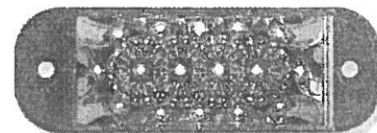
### MCL48 SERIES

### LED Intermediate Side Marker Light with Supplemental Mid-Ship Turn

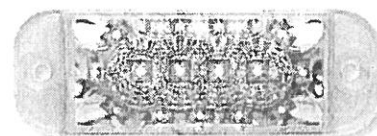
- Sonically sealed, waterproof
- Surface mount, mounts on 4-13/16" centers
- Includes both lead and ground wires

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
YELLOW - 16 DIODES			
MCL48AB	MCL48ABP	Light	20
MCL48CAB	-	Light, clear lens	20
ACCESSORIES			
A48CB	A48CBP	Chrome bezel	50

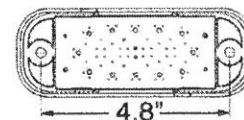
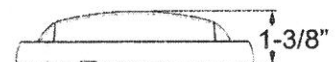
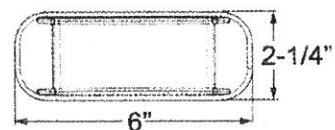
FMVSS	P2
MATERIALS	Polycarbonate lens and housing
VOLT/AMP	12.8VDC - Side marker .074A; Turn signal .248A
WT/DIMS	.221 lbs. / 6" x 2.25" x 1.375"
WARRANTY	Lifetime LED Warranty



MCL48AB



MCL48CAB



800-364-5483 / 918-683-9514  
www.optronicsinc.com



# optronics®

## LED TRUCK & TRAILER LIGHTING

### CBL22 SERIES Sealed LED Triangular Cab/Clearance Light

**PC Rated**

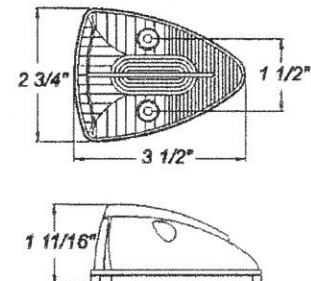
- Sonically sealed, waterproof
- Design includes lead and ground wire
- Mounting gasket included



CBL22AB

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
YELLOW - 15 DIODES			
CBL22AB	CBL22ABP	Cab light	50
CBL22CAB	-	Cab light, clear lens	50

FMVSS	P2 PC
MATERIALS	Polycarbonate lens and housing
VOLT/AMP	12.8VDC - 0.107A
WT/DIMS	.176 lbs. / 3.5" x 2.75" x 1.688"
WARRANTY	Lifetime LED Warranty



800-364-5483 / 918-683-9514  
www.optronicsinc.com





LED TRUCK &amp; TRAILER LIGHTING

**ILL70/71 SERIES****Opti-Brite™ LED Sealed Interior Strip Lights for Surface Mount**

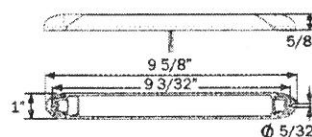
- Low profile, slimline lights – only 1" wide by 5/8" thick
- Hard wired design includes both lead and ground wires
- Select from 9-inch and 16-inch models
- Sealed, waterproof



ILL70CB

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>9" STRIP LIGHT - 9 DIODES</b>			
ILL70CB	ILL70CBP	Strip light	20/10
ILL70CSB	-	Strip light with on/off switch	10
ILL70CBAWN	-	Strip light with wedge base	10
ILL70ABAWN	-	Amber strip light with wedge base	10

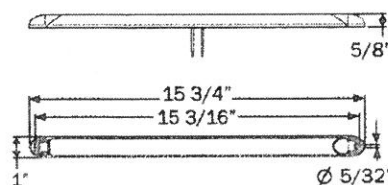
Raw lumen output: 189 lm  
Effective lumen output: 171 lm



ILL71CB

BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>16" STRIP LIGHT - 18 DIODES</b>			
ILL71CB	ILL71CBP	Strip light	20/10
ILL71CSB	-	Strip light with on/off switch	10
ILL71CBAWN	-	Strip light with wedge base	10
ILL71ABAWN	-	Amber strip light with wedge base	10

Raw lumen output: 370 lm  
Effective lumen output: 342 lm



<b>MATERIALS</b>	Polycarbonate lens and housing
<b>VOLT/AMP</b>	ILL70: 12.8VDC - .150A ILL71: 12.8VDC - .300A
<b>WT/DIMS</b>	ILL70: .154 lb. / 9.625" x 1" x .625" ILL71: .187 lb. / 15.75" x 1" x .625"
<b>WARRANTY</b>	Lifetime LED Warranty

800-364-5483 / 918-683-9514  
www.opttronicsinc.com

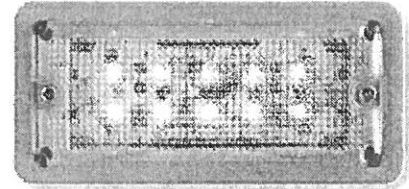


# optronics®

## LED TRUCK & TRAILER LIGHTING

### ILL31CB LED Low Profile Dome Light

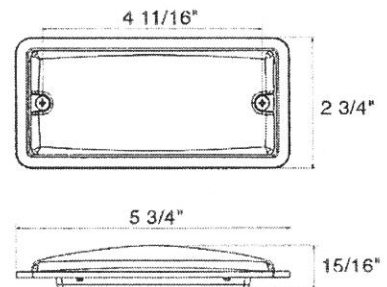
- Low profile dome light for semi-recess mount
- Durable steel housing and replaceable polycarbonate lens
- Hard wired design includes power and ground wires



BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>DOMELIGHT - 10 DIODES</b>			
ILL31CB	ILL31CBP	Dome light, standard LED	10

Raw lumen output: 70 lm  
Effective lumen output: 53 lm

**MATERIALS** Polycarbonate lens, plated steel housing  
**VOLT/AMP** 12.8VDC - .024A  
**WT/DIMS** .243 lb. / 5.375" x 2.75" x .938"  
**WARRANTY** Lifetime LED Warranty



800-364-5483 / 918-683-9514  
www.optronicsinc.com



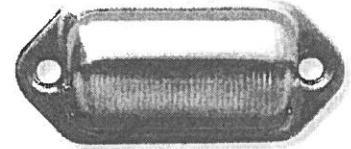




LED TRUCK &amp; TRAILER LIGHTING

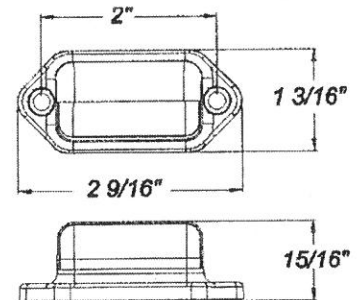
## LPL31 SERIES Mini LED License/Utility Light

- Polished, chrome plated housing
- Surface mount on 2" centers
- Design includes both lead and ground wire
- Two units required to meet DOT requirements for license light



BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>LICENSE LIGHT - 2 DIODES</b>			
LPL31CB	LPL31CBP	License light	20
LPL31CEZB	LPL31CEZBP	License light, .180 molded barrels	20

<b>FMVSS</b>	(2) L
<b>MATERIALS</b>	Polycarbonate lens, chrome plated stainless steel bezel
<b>VOLT/AMP</b>	12.8VDC - 0.027A
<b>WT/DIMS</b>	.066 lb. / 2.563" x 1.188" x .938"
<b>WARRANTY</b>	Lifetime LED Warranty



800-364-5483 / 918-683-9514  
www.optronicsinc.com



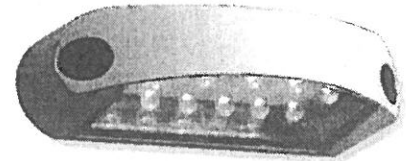


# optronics®

## LED TRUCK & TRAILER LIGHTING

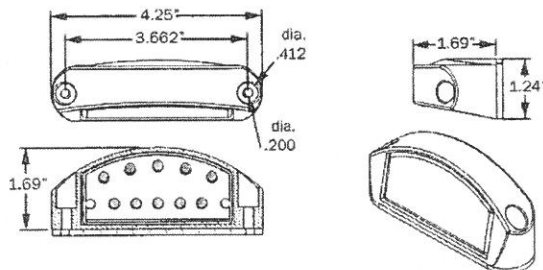
### ILL85 SERIES LED Exterior Step/Area Light

- Illuminate step well or pavement at base of steps or ramps
- Meets ADA lighting standard
- Surface mount, 3.662" mounting centers
- Hard wired design includes both lead and ground wires
- Operating voltage 8-30VDC, for use with 12VDC or 24VDC systems
- Polycarbonate construction with polished chrome finish
- Mounting gasket included



BULK P/N	POLYPACK P/N	DESCRIPTION	QTY
<b>STEP/AREA LIGHT - 10 DIODES</b>			
ILL85CB	ILL85CBP	Step/area light	10

<b>MATERIALS</b>	Polycarbonate lens and housing
<b>VOLT/AMP</b>	12.8VDC - .107A
<b>WT/DIMS</b>	.154 lb. / 4.25" x 1.24" x 1.69"
<b>WARRANTY</b>	Lifetime LED Warranty

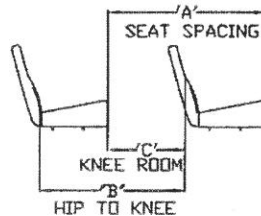
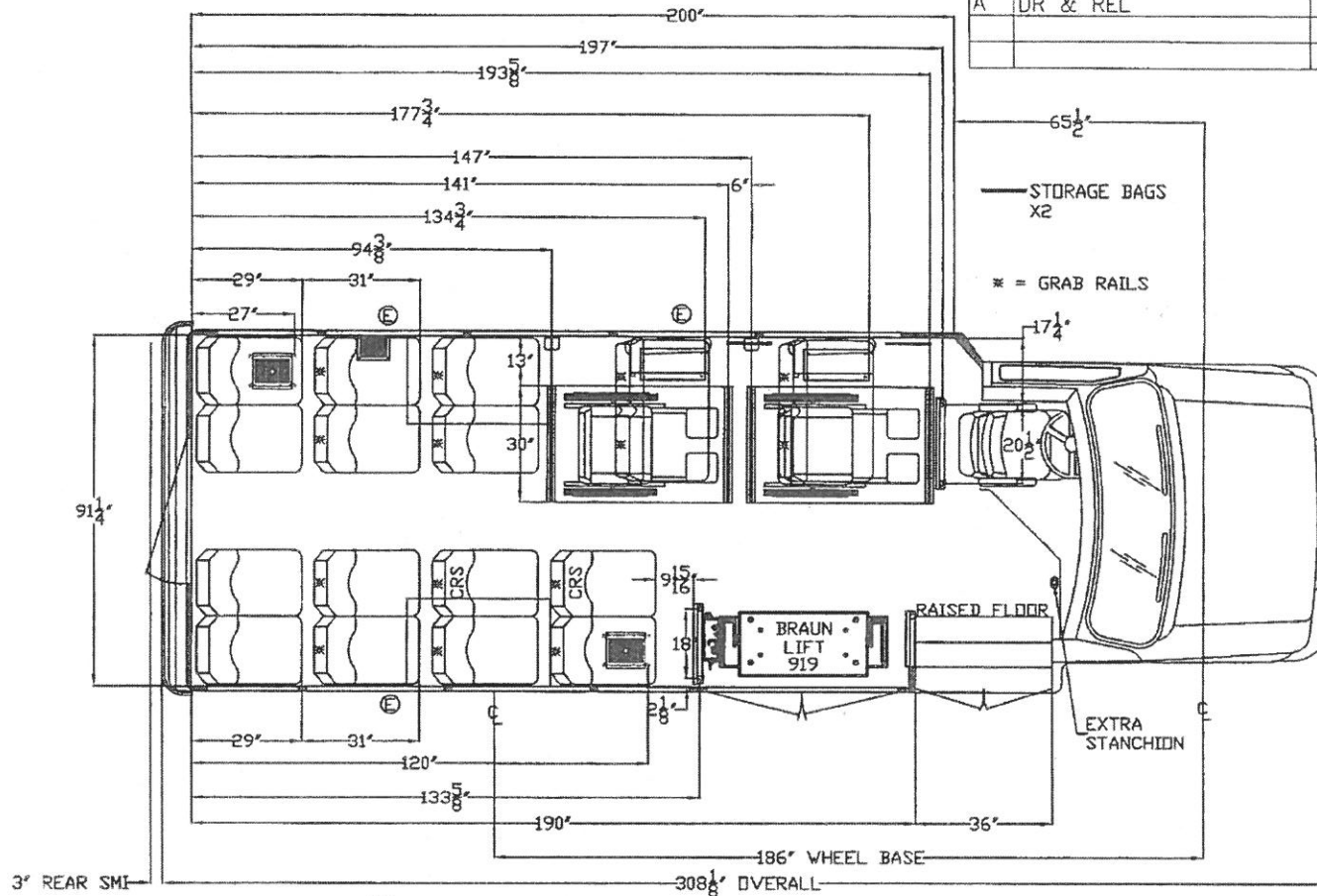


800-364-5483 / 918-683-9514  
www.optronicsinc.com



**TECHNICAL QUESTIONS/ APPROVED EQUALS ON PTR13059****Appendix B**

Rev.	Revision Description	By	Date	ECN / PPCN
A	DR & REL			N/A



SEAT STYLE	SEAT SPACING 'A'	HIP-TO-KNEE 'B'	KNEE ROOM 'C'
MID HI	31"	27-5/8"	9-1/2"

<b>DO NOT SCALE</b>	Drawing Name / Description: FLOOR PLAN, GCII 18P/2WC/186WB/308BDY			Unit Number:		Reference:		GC Part Number:				
	<b>SIZE A</b>	THIS DRAWING AND THE INFORMATION CONTAINED THEREON ARE THE EXCLUSIVE PROPERTY OF GOSHEN COACH (THOR INDUSTRIES, INC.). 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 GOSHEN COACH.		Tolerances: +/- 1/16" +/- 1" Unless Noted Otherwise		Models:		<div style="display: flex; align-items: center;"> <div>           25161 Leer Drive            Elkhart, IN 46514            (574) 970-0063         </div> </div>		Drawing Number:		Revision:
										<b>0125600</b>		<b>A</b>
				Work Instruction Reference:		Scale:	Units:	Drawn:	Date:	File location: FP/2008/GCII/186-308/F-LIFT		
						N/A	INCHES	RRP	04/09/08			



Thor Industries Commercial Bus Division

## WEIGHT ANALYSIS WORKSHEET

## ESTIMATED

F/P NO:	REF NO:	UNIT NO:
0125600	30113	10198
UNIT SERIES NO's:		DATE:
		4/30/12

VEHICLE DESCRIPTION:				MODEL NO:	MODEL YR:	# SEATING POSITIONS
GCII 308" FORD -- 18P/2WC				GCF308-E486	2012	19 (INC. DRIVER SEAT)
CHASSIS DESCRIPTION:	ENGINE:	WHEELBASE:	TIRE SIZE:	FUEL TANK:	FUEL LEVEL:	
Ford E450 186"WB, 6.8L Gas, 14,500 GVWR	6.8L (425CID) EFI V10	186	LT225/75R16E	55 Gal. Rear Tank @ 206"	1/8	

## VEHICLE LOAD DISTRIBUTION

(L)	(K)	(J)	(I)	(H)	(G)	(F)	(E)	(D)	(C)	(B)	(A)	"STREETSIDE"
				300	300	300			300	300	150	PASSENGER & LUGGAGE LOAD
												SEAT WEIGHT
				247	216	185			140	97	45	DISTANCE

2770  
(3)

3148  
(4)

**VEHICLE WEIGHT DATA:**  
(See attached weight ticket)

186  
WHEEL BASE

1948  
(1)

1992  
(2)

(FROM CENTERLINE OF FRONT AXLE)

**FRONT>>>**

(X)	(W)	(V)	(U)	(T)	(S)	(R)	(Q)	(P)	(O)	(N)	(M)	"CURBSIDE"
				300		300	300	300				PASSENGER & LUGGAGE LOAD
												SEAT WEIGHT
				247		216	185	154				DISTANCE (FROM CENTERLINE OF FRONT AXLE)

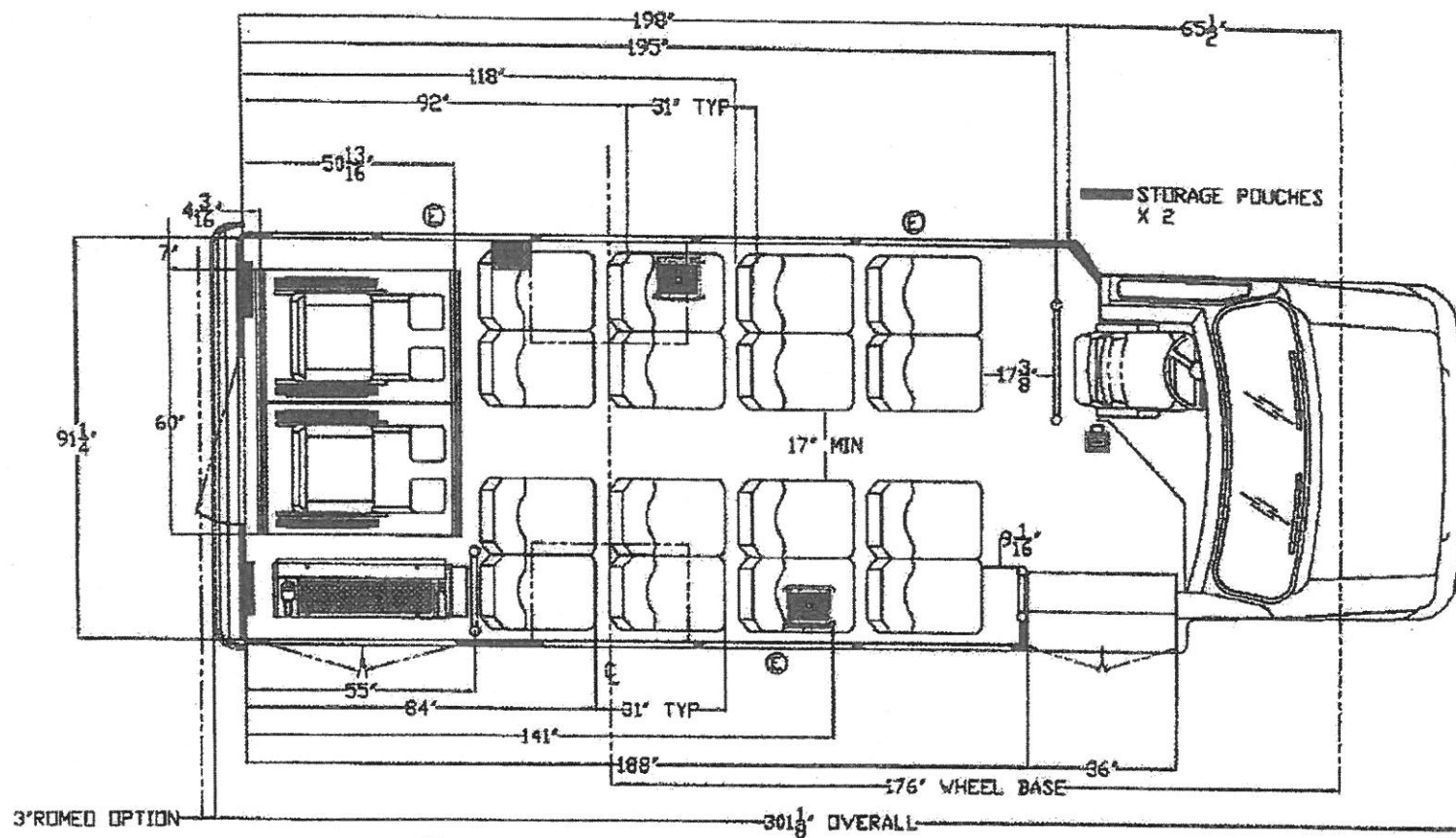
VEHICLE WEIGHT DATA:	FRONT WEIGHTS			REAR WEIGHTS			TOTAL	NOTES:
	LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL		
Actual Completed Weight Of Vehicle	1948	1992	3940	2770	3148	5918	9858	
FUEL LOAD ADJUSTMENT:	-16	-16	-32	163	163	327	295	
VEHICLE CONFIGURATION ADJUSTMENTS:	-15	1	-14	58	73	131	117	
UNLOADED VEHICLE WEIGHT:	1917	1977	3894	2991	3385	6376	10270	
WEIGHT OF THE OCCUPANTS & LUGGAGE:	186	-94	93	1464	1294	2757	2850	
LOADED VEHICLE WEIGHT:	2103	1883	3987	4455	4678	9133	13120	
AVAILABLE EXCESS CARGO CAPACITY:	577	797	1013	485	262	467	1380	
GROSS VEHICLE WEIGHT RATINGS:	2680	2680	5000	4940	4940	9600	14500	
IS THE WEIGHT RATING EXCEEDED?	NO	NO	NO	NO	NO	NO	NO	

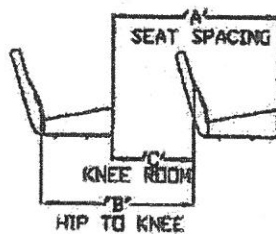
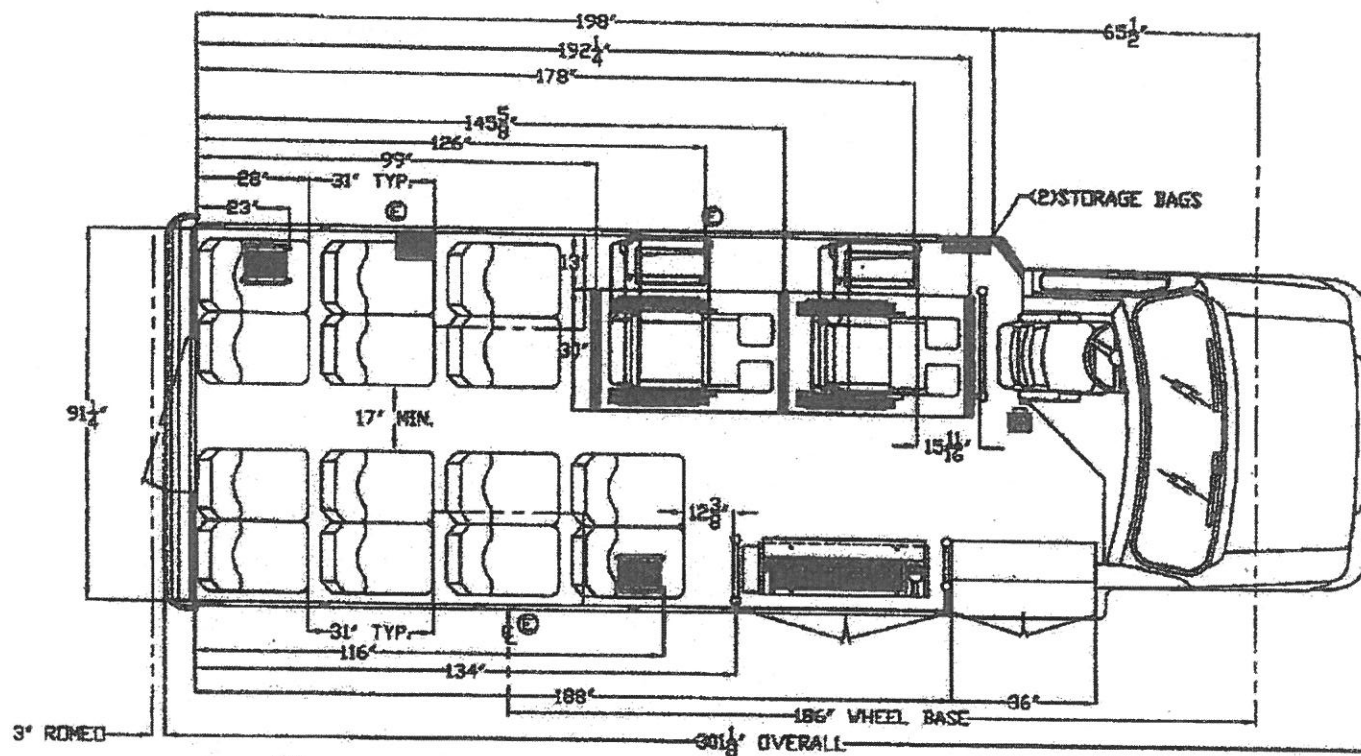
PREPARED BY: Andy Snell

SIGNATURE: *Andy Snell*

DATE: 4/30/12

**TECHNICAL QUESTIONS/ APPROVED EQUALS ON PTR13059****Appendix C**





SEAT STYLE	SEAT SPACING 'A'	HIP-TO-KNEE 'B'	KNEE ROOM 'C'
MID HIGH CRIDD	31"	27"	8 3/4"

**TECHNICAL QUESTIONS/ APPROVED EQUALS ON PTR13059****Appendix D**





State of West Virginia  
Department of Administration  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

## Solicitation

NUMBER	PAGE
PTR13059	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
BETH COLLINS
304-558-2157

RFQ COPY

TYPE NAME/ADDRESS HERE

VENDORE


S  
H  
I  
P  
T  
O

DIVISION OF PUBLIC TRANSIT  
KANAWHA VALLEY REGIONAL TRANSIT  
1550 FOURTH AVENUE  
CHARLESTON, WV  
25325 304-343-3840

DATE PRINTED
04/02/2014

BID OPENING DATE: 04/17/2014

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
ADDENDUM NO.02						
THIS ADDENDUM IS ISSUED TO MODIFY THE ORIGINAL SOLICITATION PER THE ATTACHED DOCUMENTATION.						
0001	1	EA		557-05		
176" WHEELBASE BUSES (18 PASSENGER CUTAWAYS)						
***** THIS IS THE END OF RFQ PTR13059 ***** TOTAL:						
<div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div> <p>SIGNATURE </p> <p>TITLE Commercial Sales</p> </div> <div> <p>FEIN 540806-176</p> </div> <div> <p>TELEPHONE 1-800-533-1006</p> </div> <div> <p>DATE April 17, 2014</p> </div> </div>						

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**SOLICITATION NUMBER:** PTR13059

**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:**

To provide clarification regarding technical questions and answers previously mentioned in Addendum No.01.

Bid date will remain the same as April 17, 2014; at 1:30 PM EST.

**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

**Addendum 2---PTR13059**

Strike "Please add wifi capability to all of the Classes" from the addendum 1.

REQUEST FOR QUOTATION PTR13059  
176-186" Wheelbase Transit Vehicles

REQUIRED BID DOCUMENTATION CHECKLIST

Model Year: 2015 Model: Senator SII

**REQUEST FOR QUOTATION PTR13059**  
**176-186" Wheelbase Transit Vehicles**

Manufacturer: Startrans

**Mandatory Bid Forms-must be submitted with bid**

- ☒ Bid form 1 LOCATION(S) OF THE TECHNICAL SERVICE REPRESENTATIVE(S)
- ☒ Bid form 2 CERTIFICATION FOR AIR POLLUTION
- ☒ Bid form 3 DISADVANTAGED BUSINESS ENTERPRISE VENDORS/ MANUFACTURERS CERTIFICATION
- ☒ Bid form 4 BUY AMERICA CERTIFICATION ROLLING STOCK
- ☒ Bid form 5 FEDERAL MOTOR VEHICLE SAFETY STANDARDS CERTIFICATION
- ☒ Bid form 6 U.S. COMPTROLLER'S DEBARMENT LIST CERTIFICATION
- ☒ Bid form 6A CERTIFICATION OF PRIMARY PARTICIPANT REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS
- ☒ Bid form 7 VENDOR'S CERTIFICATION OF UNDERSTANDING AND ACCEPTANCE
- ☒ Bid form 8 CERTIFICATION OF COMPLIANCE WITH FTA'S BUS TESTING REQUIREMENTS
- ☒ COPY OF RELEVANT BUS TESTING REPORT- 3.5 STURAA TEST- 4 Years;  
3.13.1g Water Testing- details of process; 3.15 Seating Diagram- provide proposed seating diagrams
- ☒ Bid form 9 CERTIFICATION OF RESTRICTIONS ON LOBBYING
- ☒ Pricing page

**Mandatory Documentation-must be submitted within 48 hours of request**

**Section**  
**Referenced**

- x   3.6 Engine: V-10 heavy duty gasoline engine- provide description, warranty, and literature
- x   3.6g High Idle System- provide description, warranty, and literature
- x   3.6h Engine oil cooler - provide description, warranty, and Literature
- x   3.7 Transmission- provide description, warranty, and literature
- x   3.7.d Transmission Cooling System- provide description, warranty, and literature
- x   3.8.1 Heavy Duty Brakes- provide description, warranty, and literature

**REQUEST FOR QUOTATION PTR13059**  
**176-186" Wheelbase Transit Vehicles**

- |                          |   |
|--------------------------|---|
| <u>  x  </u> 3.8.3       | Suspension System- provide description, warranty, and literature  |
| <u>  x  </u> 3.8.4a      | Tire Information- provide description, warranty, and literature   |
| <u>  x  </u> 3.9         | Electrical System- provide description, warranty, and literature  |
| <u>  x  </u> 3.9.1       | Alternator- specify the rectifier, method of installation, provide warranty and literature  |
| <u>  x  </u> 3.9.2       | Batteries- specify type and capacity  |
| <u>  x  </u> 3.9.3 d,e,k | Exterior Lights -LED Lights- provide description, warranty, and literature  |
| <u>  x  </u> 3.9.3       | Exterior lighting products- provide description, warranty, and literature   |
| <u>  x  </u> 3.9.4a      | Interior Lights- provide description/details  |
| <u>  x  </u> 3.9.6a      | Rear Alarm- provide description, warranty, and literature   |
| <u>  x  </u> 3.9.6c      | Backup camera- provide description, warranty, and literature  |
| <u>  x  </u> 3.9.7       | Fuse box panel- provide description/details   |
| <u>  x  </u> 3.10.1a     | Heating System- provide description, warranty and literature  |
| <u>  x  </u> 3.10.1b     | Stepwell Heater- provide description, warranty and literature   |
| <u>  x  </u> 3.10.1c     | Auxiliary Heaters- provide description, warranty and literature   |
| <u>  x  </u> 3.10.2      | A/C Cooling System- provide description, warranty and literature  |
| <u>  x  </u> 3.10.2b     | A/C Compressor- provide description, warranty and literature  |
| <u>  x  </u> 3.10.2c     | A/C Condenser Information- provide description, warranty and Literature   |
| <u>  x  </u> 3.10.2e     | Driver's Evaporator- provide description, warranty and literature   |
| <u>  x  </u> 3.10.2e     | A/C Hose System- provide description, warranty and literature   |
| <u>  x  </u> 3.11        | Roof Hatch- provide description, warranty and literature  |
| <u>  x  </u> 3.12.1      | Control Panel Location- submit details  |
| <u>  x  </u> 3.12.1      | Circulation Fan- provide description, warranty and literature   |
| <u>  x  </u> 3.13.1      | Body Construction- provide description of body construction including materials, methods of joining and assembling components or subassemblies and method of attachment of the body to the chassis, warranty and literature |
| <u>  x  </u> 3.13.2b     | Provide proof that skirt panel seams below floorline will be placed only above wheel wells or adjacent to A/C skirt condenser   |
| <u>  x  </u> 3.13.4e     | Door Operating Mechanism- provide description/ details  |

**REQUEST FOR QUOTATION PTR13059**  
**176-186" Wheelbase Transit Vehicles**

- |                      |   |
|----------------------|---|
| <u>  X  </u> 3.13.5a | Sample of Flooring- provide colors per specifications, warranty and literature  |
| <u>  A  </u> 3.13.5e | Sample of Contrast Flooring- provide color per specifications, warranty and literature  |
| <u>  X  </u> 3.13.6  | Insulation- provide proof of insulation requirement per spec.   |
| <u>  X  </u> 3.13.7a | Bumpers- provide description, warranty and literature   |
| <u>  X  </u> 3.14    | Lift- provide details, model #, warranty and literature. Provide information and literature that lift will meet the NHTSA platform lift requirements.   |
| <u>  X  </u> 3.14g   | Interlock System- provide description, warranty and literature  |
| <u>  X  </u> 3.15a   | Passenger Seats- provide a detailed description, warranty and literature for all proposed seating, including flip up seats, child restraint seat- and ABS Knee Saver backs  |
| <u>  X  </u> 3.15b   | Under Seat Retractor System- provide description, warranty, literature and FMVSS 210 Report Certification   |
| <u>  X  </u> 3.15e   | Child Restraint Seat (ICS)  |
| <u>  X  </u> 3.15i   | Driver's Seat- provide description, warranty and literature   |
| <u>  X  </u> 3.16    | Mobility Aid Securement- provide details of proposed system, warranty, and literature   |
| <u>  X  </u> 3.20a   | Exterior Mirrors- provide description, warranty and literature  |
| <u>  X  </u> 3.21    | Radio/CD Stereo- provide description, provide warranty and literature   |
| <u>  X  </u> 3.24    | Undercoating/Rust proofing- provide description, warranty, literature and application process   |
| <u>  X  </u> 3.25    | Interior and Exterior Color Schemes- provide details of schemes available   |
| <u>  X  </u> 3.25e   | Paint Scheme- provide sample of vinyl chart to be used  |
| <u>  X  </u> 3.27    | Strobe Light- provide description, warranty, and literature; Fixed Route Package- provide description, warranty and literature; PA System- provide description, warranty and literature; Passenger Signaling System- provide description, warranty and literature |
| <u>  X  </u> 4.2     | Extended body-- floor plan  |
| <u>  X  </u> 4.3.2   | VISTA type lift- provide description, warranty and literature   |
| <u>  X  </u> 4.3.3   | Passenger armrests- provide description, warranty and literature  |
| <u>  X  </u> 4.5     | Floor plan  |
| <u>  A  </u> 4.7.4   | Luggage Racks-- provide description, warranty and literature  |
| <u>  A  </u> 5.2     | Items in sections a-l provide proof of compliance   |
| <u>  X  </u> 6.1     | Warranty on completed vehicle   |



**REQUEST FOR QUOTATION PTR13059**  
**176-186" Wheelbase Transit Vehicles**

- X   6.2                      Warranty on Basic Vehicle Structure
- X   6.3 & 7.40f              Warranty Locations- A description of how and by whom warranty service will be provided in four (4) areas of WV to cover both Mechanical and body work. Provide vendor who will do warranty of both chassis and body, including bus body, air conditioning and wheelchair lifts. Four areas of WV include: Northern Panhandle, Eastern Panhandle Central WV and Southern WV
- X   6.4                      Warranty per specs on subsystems and components
- X   7.1                      Complete (2) bids in binder form – (1) Marked for WVDPT
- X   7.36                      Training- submit letter of understanding to the terms in this section
- X   7.40a                      Complete Mechanical Description of Vehicle, its construction and equipment including manufacturer's model, model name and/or number and model year Include Warranty Information
- X   7.40b                      Proposed Floorplans
- X   7.40c                      Curb Weight (empty weight and Gross Vehicle Weight Rating (GVWR) of vehicle
- X   7.40f                      Location of nearest depot which will furnish a complete supply of parts and components for the repair and maintenance of the vehicle to be supplied
- X   7.40g                      Description of the undercoating/rust proofing system, including warranty to be provided.
- X   7.40h                      Location of assembly
- X   7.40i                      List of five users names, addresses and telephone numbers to whom who have been provided similar equipment
- X                            No Debt Affidavit
- X                            Pricing page

**9.6 Delivery Time:** Vendor shall deliver standard orders within 150 working days after orders are received. Vendor shall ship all orders in accordance with the above schedule and shall not hold orders until a minimum delivery quantity is met.

**9.7 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.

**10.0 MISCELLANEOUS:**

**10.1 No Substitutions:** Vendor shall supply only Contract Items submitted in response to the RFQ unless a contract modification is approved in accordance with the provisions contained in this Contract.

**10.2 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.

**10.3 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: Chad Seals  
Telephone Number: 1-800-533-1006 ext 352  
Fax Number: 434-821-8203  
Email Address: chad@sonnymerryman.com

Federal funding for this project is being provided by the Federal Transit Administration through CFDA 20.513 for Sec 5310, CFDA 20.509 for Sec 5311 and CFDA 20.526 for Sec 5339 to cover 80% of the project cost.

**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 PTR13059  
176-186" Wheelbase Transit Vehicles

---

85

**BID FORM #1: LOCATION(S) OF THE TECHNICAL SERVICE REPRESENTATIVE(S)  
MANDATORY BID FORM-MUST BE SUBMITTED WITH BID**

Location(s) of the Technical Service Representative(s) and parts distribution center(s) closest to the State of West Virginia.

REQUEST FOR QUOTATION PTR13059  
176-186" Wheelbase Transit Vehicles

86

Name: Brady Childress  
Address: 5420 Wards Road  
Evington VA 24550  
Telephone: 434-821-1000

Name: Gerald Layne  
Address: 5420 Wards Road  
Evington VA 24550  
Telephone: 434-821-1000

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Telephone: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Telephone: \_\_\_\_\_

**BID FORM #2: CERTIFICATION FOR AIR POLLUTION  
MANDATORY BID FORM-MUST BE SUBMITTED WITH BID**

Pursuant to Section 8.4 of Part 1 of the Procurement, the Vendor certifies that the vehicles proposed:



ARE or

\_\_\_\_ ARE NOT (specify one)

in compliance with the regulations in 40 CFR Part 85, 40 CFR Part 86, 40 CFR Part 600 and the air pollution criteria established by the Environmental Protection Agency of the United States Government.

REQUEST FOR QUOTATION PTR13059  
176-186" Wheelbase Transit Vehicles

---

87

4/17/14

Date



Authorized Signature

Commercial Sales

Title

Sonny Merryman, Inc

Company Name



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

October 31, 2013

Starcraft Bus  
2367 Century Drive  
Goshen, IN 46528

Attn: David Wright, President  
Jerry Cavanah, General Manager  
Joe Geoglien, DBELO

Re: TVM DBE Goal Concurrence – Fiscal Year 2014

Dear Mr. Wright:

This letter is to inform you that the Federal Transit Administration's (FTA) Office of Civil Rights has received the Starcraft Bus's Disadvantaged Business Enterprise (DBE) goal and methodology for FY 2014 for the period of October 1, 2013–September 30, 2014. 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 2014 DBE goal and determined that it is compliant with DOT's DBE regulations. You are now eligible to bid on FTA funded transit contracts. This letter or a copy of the TVM listing on FTA's website is documentation that may be used to demonstrate your compliance with DBE requirements when bidding on future contracts.

FTA reserves the right to remove/suspend this concurrence if your DBE program or FY 2014 DBE goal is not implemented in good faith. In accordance with this good faith requirement, you must submit your DBE Uniform Report in the DOORS system by December 1, 2013. This report should reflect all FTA funded contracting activity for the second period of FY 2013 (i.e., from April 1 to September 30).

Please also be mindful that your FY 2015 DBE goal methodology must be submitted to FTA by August 1, 2014. Therefore, you should publish your goal on or before June 17, 2014. Thank you for your cooperation. If you have any questions regarding this approval, please contact Britney Berry at (202) 366-1065 or via e-mail [britney.berry@dot.gov](mailto:britney.berry@dot.gov).

Sincerely,

Dawn Sweet  
Acting Title VI/DBE Team Leader  
Office of Civil Rights

REQUEST FOR QUOTATION PTR13059  
176-186" Wheelbase Transit Vehicles

---

88

**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.

☒ 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.

4/17/14  
Date

  
Authorized Signature

Commercial Sales  
Title

Sunny Merryman Inc.  
Company Name

REQUEST FOR QUOTATION PTR13059  
176-186" Wheelbase Transit Vehicles

---

89

**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 section 165(b)(3), of the Surface Transportation Assistance Act of 1982, as amended, and the applicable regulations of 49 CFR 661.11:

4/17/14

Date

Authorized Signature

Sonny Merryman, Inc

Company Name

Chad Seals

Name

Chad Seals

Commercial

Title

**Certificate for Non-Compliance**

The bidder or offeror hereby certifies that it cannot comply with the requirements of section 165(b)(3) of the Surface Transportation Assistance Act of 1982, as amended, but may qualify for an exception to the requirement consistent with section 165(b)(2) or (b)(4) of the Surface Transportation Assistance Act, as amended, and the applicable regulations in 49 CFR 661.7.

Date

Authorized Signature

Company Name

Name

Title



REQUEST FOR QUOTATION PTR13059  
176-186" Wheelbase Transit Vehicles

---

90

**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.

4/17/14

Date

  
Authorized Signature

Chad Seals

Commercial

Title

Sonny Merryman, Inc

Company Name

REQUEST FOR QUOTATION PTR13059  
176-186" Wheelbase Transit Vehicles

---

91

**BID FORM #6—U.S. COMPTROLLER'S DEBARMENT LIST CERTIFICATION**  
**MANDATORY BID FORM-MUST BE SUBMITTED WITH BID**

\_\_\_\_\_ hereby certifies that it

\_\_\_\_\_ IS or



IS NOT (specify one)

included on the U.S. Comptroller General's Consolidated List of Persons or Firms Currently Debarred for Violations of Various Public Contracts Incorporating Labor Standards Provisions.

4/17/14

Date



Authorized Signature

Chad Seals

Commercial

Title

Sonny Merryman, Inc

Company Name

**BID FORM #6-A: CERTIFICATION OF PRIMARY PARTICIPANT REGARDING  
DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS  
MANDATORY BID FORM-MUST BE SUBMITTED WITH BID**

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.
5. 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.



Signature and Title of Authorized Official

**BID FORM #7: VENDOR'S CERTIFICATION OF  
UNDERSTANDING AND ACCEPTANCE  
MANDATORY BID FORM-MUST BE SUBMITTED WITH BID**

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.

4/17/14

Date



Authorized Signature

Chad Seals

Commercial

Title

Sonny Merryman, Inc

Company Name

**SPECIFICATION COMPLIANCE**

NOTE: Please check if what is offered is 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.**



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 PTR13059  
176-186" Wheelbase Transit Vehicles

BID FORM #8: CERTIFICATION OF COMPLIANCE  
WITH FTA'S BUS TESTING REQUIREMENTS  
MANDATORY BID FORM-MUST BE SUBMITTED WITH BID

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 2 CFR Part 1200.

4/17/14

Date

Authorized Signature

Chad Seals

Commercial

Title

Sonny Merryman, Inc

Company Name

**REQUEST FOR QUOTATION PTR13059  
176-186" Wheelbase Transit Vehicles**

**BID FORM #9: CERTIFICATION OF RESTRICTIONS ON LOBBYING  
MANDATORY BID FORM-MUST BE SUBMITTED WITH BID**

The undersigned (Vendor, Contractor) certifies, to the best of his or her knowledge and belief, that:

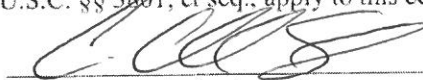
- a. No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influence or attempt to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress regarding 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.
- b. 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
- c. The undersigned understands that the language of this certification shall be included in the award documents for all subawards 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.

4/17/14

Date



Authorized Signature

Commercial Sales

Title

**SEATING DIAGRAMS**

RFQ No. PTR13059STATE OF WEST VIRGINIA  
Purchasing Division**PURCHASING AFFIDAVIT**

**MANDATE:** 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 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, IncAuthorized Signature:  Date: 4/17/14State of VirginiaCounty of Campbell, to-wit:Taken, subscribed, and sworn to before me this 17 day of April, 2014.My Commission Expires April 30, 2016AFFIX SEAL HERE  
OF

NOTARY PUBLIC

Vicki M. Austreht

#110524

Purchasing Affidavit (Revised 07/01/2012)

**CERTIFICATION AND SIGNATURE PAGE**

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Sonny Merryman, Inc

(Company)



(Authorized Signature)

Chad Seals

Commercial Sales

(Representative Name, Title)

434-821-1000

434-821-8203

(Phone Number)

(Fax Number)

4/17/14

(Date)





*Virginia's Bus Company*

## **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**

610 Woodlake 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)**

## STARTRANS COMMERCIAL 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, 2367 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 for the Senator II, 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 for the Senator II.

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 fading 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  
Forest River Manufacturing, LLC  
CUSTOMER SERVICE DEPT.  
2408 Century Drive  
Goshen, IN 46528  
Phone: 800.348.7440  
Fax: 574.642.3816

# ***SENATOR SERIES II STANDARD BUILD SPECS***

## ***2011***

### **STEEL FLOOR**

The steel sub frame parts are welded together in a welding fixture. It is constructed from the following material.

12-gauge cross members are welded to four 3/16" long sills which are 4 1/4" wide x 1" high. These cross members are a modified "C" shape 1 1/2" wide x 3" high with an anti-rust coating on the inside of the formed cross member.

14-gauge steel floor support tubes 1" x 2" are welded between the cross members to form a grid that ties the steel sub frame together.

1/8" x 2" x 2" steel perimeter angle side rails provide the welding surface for the sidewall attachment.

12-gauge seat track 1 5/8" wide x 7/8" high are welded every 6" to a 14-gauge steel strip that is 3 1/2" wide and welded to the cross members.

A 10-gauge wheel chair lift support (paratransit model) is welded to the cross members under the wheel chair lift area. The support is designed as a secure point for the lift so it becomes an integral part of the steel sub frame.

Rear wheel wells are constructed of 12-gauge steel and designed with flanges that are welded under the lip of the cross members to create a watertight seal and fastened at the wall side.

The steel sub frame is painted after assembly to assure protection from rust and corrosion.

### **UNISTRUT CHANNEL SEAT TRACK**

All seating is secured in a 1 5/8" wide Unistrut channel seat track. A 3 1/2" wide 14-gauge steel plate is welded to the steel sub frame. The Unistrut channel is then welded to this plate.

### **OPTIONAL FLAT FLOOR**

The floor structure is identical except for the following changes.

The cross members are raised 5 1/2" and are supported by 1/4" x 2" bar stock "V" style brackets that are welded to the bottom of the cross member and the top of the long sill.

Wheel wells are a flat 14-gauge galvaneal steel plate is welded to the sub frame to complete the wheel well area.

### **FLOOR DECK**

The finished sub floor is 3/4" thick Fiberglass reinforced plywood. This material is described as follows: The inner core of the FRP panel is made of Northern Fir Lauch B/C plywood that has been plugged and filled. The maximum number of filler plugs per 4' x 8' sheet to be no more than twenty (20). This material is sandwiched between a 17 oz. woven rope fiberglass mat that is impregnated with fiberglass resin, the face side of the material to have 20 mil. Gel coat with the back side covered with co-extruded melinex film.

The FRP panels are then installed on the top of the steel sub frame with grade five (5) floor bolts. Construction adhesive is utilized as well along the top of all floor members that intersect the floor decking material as an additional securement method. A minimum of six (6) bolts per crossmember is standard.

# ***SENATOR SERIES II STANDARD BUILD SPECS***

## ***2011***

### **OPTIONAL W/C FLANGED L TRACK**

L track is mounted in 9 3/4" pieces and bolted through the floor with 5/16" grade 8 torx bolts. End caps are installed at each end for a finished look.

### **SIDEWALLS**

The sidewall structure consists of a welded steel cage, then foam filled and pressure laminated to form a sidewall envelope. It is constructed in the following manner.

16-gauge, 1" x 1" steel tube, 1" x 2" tube, along with 1" x 2" roll formed wall studs are utilized to create a steel grid work that is a part of the total steel structure that surrounds the passenger compartment. Select models (vehicles with optional shoulder harness seat belts) have one 14 ga steel plate 3-1/2" wide located 1" above the window line for the wheel chair shoulder harness support and two additional 1" x 2" vertical steel wall bows located at the wheel chair door location.

The exterior is .024" galvanized steel pre-painted white with an underlayment of 5/32" luan.

The interior is 5/32" luan covered with Filon (chiller glass).

The foam filled steel cage is placed in the center and all layers are adhered using polyurethane hot melt adhesive.

The entire assembly is pressure laminated in a roller system to completely bond the laminated envelope.

### **REAR WALL**

The rear wall structure consists of a welded steel cage, then foam filled and pressure laminated to form an envelope. It is constructed in the following manner.

1" x 1" 16-gauge steel tubing with 1" square 16-gauge roof bows are designed to create a steel grid work that is a part of the total steel structure that surrounds the passenger compartment.

The exterior is .024" galvanized steel pre-painted white with an underlayment of 5/32" luan.

The interior is 5/32" luan covered with Filon (chiller glass).

The foam filled steel cage is placed in the center and all layers are adhered using polyurethane hot melt adhesive.

The entire assembly is pressure laminated in a roller system to completely bond the laminated envelope.

### **ROOF**

The roof structure consists of a steel cage construction utilizing a formed and capped roof bow.

It is constructed in the following manner. Roof bows are located on approx. 24" centers and constructed of 1 1/2" x 1 1/2" 14-gauge hat section with the cap section being 16 gauge. For all roof assemblies that receive a roof hatch, 1/4" steel 4" x 4" corner gussets are added to each corner of the opening for additional support.



## ***SENATOR SERIES II STANDARD BUILD SPECS***

### ***2011***

The roof also consists of (3) 3/16" steel roll bars placed at the front, center, and rear of the roof. These roll bars are married along the side then welded to a roof bow at each of the three locations.

A one piece fiberglass radius panel (Symalite-long glass fiber-reinforced polypropylene composite sheet) then covers the roof.

A layer of Astro-foil insulation is placed between the inner and outer steel roof structure.

#### **FRONT & REAR CAPS**

##### **Front cap**

The front cap is a one-piece fiberglass design and constructed in the following manner.

The exterior is a gelcoated surface at 18 to 22 mil thickness.

The total thickness of resin and fiberglass will be skin coated at a thickness of 140 to 150 mils. The fiberglass content of this layer will be 30 -32 %.

Reinforcements are then installed and glassed in.

##### **Rear cap**

The rear cap is a three-piece design made from TPO plastic, which is pre-painted white, UV protected, and mechanically fastened to the rear wall.

Two vertical parts, one roadside and one curbside, with an upper horizontal part that overlaps each of the verticals create a natural water shed.

Reinforcements are secured in place behind the pieces with high quality adhesive.

#### **WINDOWS**

##### **Driver's Window (meets FMVSS 205 & 217)**

At the driver's position, one window is provided by the OEM. This window rolls down manually.

##### **Curbside Transition Window (meets FMVSS 205 & 217)**

The curbside transition window is located in front of the entry door. The window's size is 40" high x 13 1/2" at widest point (12" at the bottom). The top 1/3 is angled to fit the contour of the cab. The total square inches of viewing area is 425. It has a tempered safety glass rating of AS-2 with a 31% tint.

##### **Passenger Side Windows – Non-Egress (meets FMVSS 205 & 217)**

The number of windows depends on the model of the bus. The window size is 36" high x 36" wide. It is a "T-slider" ventilation type which is designed for the top 7" to open by sliding towards the rear. The window is maintained in the closed position by mechanical latches. The total square inches of viewing area is 1296. It has a tempered safety glass rating of AS-3 with a 31% tint.

##### **Passenger Side Windows – Egress (meets FMVSS 205 & 217)**

The number of windows will depend on the model of the bus. They are identical to the non-egress in construction, but are designed to be opened in an emergency situation by releasing two clearly marked red release latches located on each side of the window. There will be operating instructions located at and on each egress window.



# ***SENATOR SERIES II STANDARD BUILD SPECS***

## ***2011***

### **Rear Egress Window (meets FMVSS 205 & 217)**

There is one rear egress window. The window is designed to be opened in an emergency situation by releasing two clearly marked red release latches located on each side of the window. There will be operating instructions located at and on each egress window. The window's size is 22" high x 58" wide. The total square inches of viewing area is 1,276. It has a tempered safety glass rating of AS-3 and 31% tint.

### **Window Seals**

The windows are sealed between the body and window frame with ½" ribbed rectangle closed cell rubber seal.

## **ASSEMBLY**

The bus body is assembled in the following manner.

The entry door steel portal frame is welded and bolted to the chassis so this assembly becomes an integral part of the OEM chassis.

The steel floor sub frame assembly is then mounted on the OEM chassis utilizing by bolting to the OEM frame with 12mm x 1.75 class 9.8 bolts and nuts supplied by the chassis manufacturer utilizing the OEM rubber mount suspension system. This allows the body to be mounted the same as the OEM cab which reduces any stress where the two are connected and helps isolate road vibrations from the body.

After the complete steel floor assembly is installed, all steel parts are repainted.

The floor deck is next. A closed-cell rubber seal is applied to the edge of the plywood floors, so when the sidewall is set this seal will close any gap between the floor and sidewall, creating a weather proof passenger compartment.

The front fiberglass cap is secured to the OEM chassis utilizing mechanical fasteners and a butyl rubber seal between the chassis and the flange on the front cap to create a weather proof seal.

The side walls are then installed, securing them to the steel sub frame and portal frame with mechanical fasteners as well as welding.

The rear wall follows and is attached to the rear cross member and the sidewalls, utilizing mechanical fasteners.

The roof is then installed and welded to the front cap, sidewalls and rear wall.

The entry door frame and steps are installed and attached to the portal frame utilizing mechanical fasteners and butyl rubber seal. The double-out doors are then installed to complete the main body structure.

After the body is assembled a liquid sealer is applied to the seams at the floor line and rear wall. This sealing is in addition to sealing the interior after the final trim pieces are applied.

This completes the laminated body structure, having a minimum of body seams, no exposed fasteners, resistant to impact, "body shock" (OEM rubber mounting system), oxidation finish, and non-corrosive. This body structure fully meets FMVSS 220 & 221 requirements.

The remaining components are not an integral part of the body structure, but are designed for weather protection and/or cosmetic components. The rear cap facia is then set over the rear wall and along with the galvanized steel side skirts, rubber wheel well moldings, transition panel and the steel bumper anti ride, installed with mechanical fasteners and sealed with a butyl rubber seal

## ***SENATOR SERIES II STANDARD BUILD SPECS***

### ***2011***

(interior) or an automotive caulk (exterior). In addition, the skirts and wheel well moldings are fastened to the horizontal steel tubes in the sidewalls and the anti ride into the steel sub frame.

After all the above components are installed, an aluminum trim, secured by mechanical fasteners, is placed over the body seams. This trim is covered with a vinyl insert and sealed with an automotive caulk to assure the body is completely weather proof.

## **DOORS**

### **DRIVER'S DOOR**

The driver's door is OEM and has a keyed lock and manual window.

### **PASSENGER ENTRY DOOR**

#### **Entry Door Portal Frame**

The entry door portal frame is a 1 ½" x 1 ½" 14-gauge tubular frame that is welded at the bus sub frame and the chassis cab floor. It is fastened with mechanical fasteners at the curbside "A" pillar. The purpose of this frame is to support the entry doorframe.

#### **Entry Door Step Well Frame**

The step well frame consists of 14-gauge galvaneal steel formed to create a perimeter frame, step well, and the finished opening for the double-out entry doors. The step well is a 3-step entry. This frame is powder coated White.

#### **Double-Out Entry Doors**

The standard entry door is a manually opened double door design with a clear opening of 32" wide x 83" high. The opener is a "pistol grip door closer" with an over-center positive lock A&M Systems, Inc. Aluma-Clear™ Door Specifications:

Full clear span, full view glass

Glass panel is 1/8", AS-2 green tint;

Fully black anodized 6063-T6 aluminum extruded door frame

Extrusion has a minimum wall thickness of .090"

All frame assembly joints use Key-Lok™ design for added joint rigidity

All attaching hardware is zinc plated or stainless steel for corrosion control

Lower pivot point is glass-filled injection molded design

Upper Torque Arm drive is zinc plated and easily replaced if required

Both door panels are identical and can be used in either forward or aft position

Door panels are light weight, typically less than 30 lbs. each

Padding shall be affixed to the top edge of the exit / entrance door opening. Padding shall be at least 3 inches wide and 1 inch thick and shall extend the full width of the door opening.

### **WHEEL CHAIR DOORS (paratransit model)**

The double-out wheel chair door is constructed in the following manner.

## ***SENATOR SERIES II STANDARD BUILD SPECS***

### ***2011***

The door leaf consists of an interior frame assembled from 1 3/8" x 3/4" substrate with a 1.85 lb density foam sandwiched between an inner and outer skin of .040 smooth aluminum. These items are laminated together to form a one-piece solid door.

The front leaf utilizes a 3-point dead bolt latch system, while the rear leaf is a 2-point.

Each leaf has an upper 36" high x 14 1/2" wide window. It has a total square inch viewing area of 522 and a tempered safety glass rating of AS-3 with a 31% tint.

There are 3 rubber seals, a 1/4" "D" style, a 1/2" "D" style, and a 1/2" ribbed seal, which complete the assembly for a weather tight fit.

The outer perimeter frame is constructed from extruded aluminum and incorporates the hinges that have .120 steel hinge pins. The hinges are then mechanically fastened to the door leaves.

A header plate, installed at the top of the assembly, allows for two, top mounted, steel check-style, zinc plated hold open devices with 30 lb. springs.

The entire assembly is then inserted into the wheel chair door frame. This frame consists of 14-gauge galvaneal steel, powder coated white, and formed to create a perimeter frame and lift platform support.

## **EXTERIOR FEATURES**

### **FRONT BUMPER**

The chassis manufacturer provides the standard front bumper.

### **REAR BUMPER**

The rear bumper is a 14-gauge formed bumper. It is powder coated black. The bumper is supported by two 3/16" steel formed bumper brackets that are bolted to the steel bumper and then bolted to the chassis frame.

### **EXTERIOR MIRRORS**

There are two Rosco brand exterior mirrors. The mounting brackets include a driver's side wing mount and a passenger side fender mount quad design. The mirrors and mounting brackets will have a black finish with a 2-in-1 mirror head. The upper flat glass measures 6 3/4" wide x 9 3/4" high with the lower convex measuring 6" wide x 3 1/2" high.

### **MUD FLAPS**

There are two mud flaps behind the rear wheels. The mud flaps are constructed of 1/4" black thermoset plastic and are fastened to a steel support that is a part of the steel sub frame.

### **FUEL FILL**

# ***SENATOR SERIES II STANDARD BUILD SPECS***

## ***2011***

A fiberglass fuel fill is recessed into the body on the driver's side so the OEM fuel fill pipe and fuel cap does not protrude beyond the body sides.

### **DRIVE SHAFT GUARDS**

A drive shaft guard is installed on each section of the drive shaft. These guards are 1/4" x 2" aluminum. They are welded to the chassis steel sub frame.

### **HEAT SHIELD**

A heat shield is installed over the exhaust pipe and muffler. This shield is constructed from 20 gauge galvalume and fastened to the bottom of the sub frame cross members with mechanical fasteners.

### **UNDERCOATING**

The entire underside of the bus is undercoated with a premium haps free petroleum coating except the areas directly above the chassis exhaust pipe, muffler and tailpipe. (12" from exhaust pipe and 2" from fuel tank) The undercoating meets all MIL specs C-62218A.

### **SKIRTS, WHEEL WELL MOLDINGS, TRANSITION PANEL, & ANTI RIDE**

The side skirts are .024 pre-painted galvanized steel formed with a 90-degree break on the lower edge providing a mounting point for the skirt brackets.

The wheel well moldings are extruded black rubber.

The transition panel is a fiberglass component constructed in the following manner. The exterior is a gelcoated surface at 18 to 22 mil thickness. The total thickness of resin and fiberglass will be coated at a thickness of 140 to 150 mils. The fiberglass content of this layer will be 30 - 32 %.

The anti ride is fabricated from 1/8" aluminum, painted or powder coated black, and mechanically fastened to the rear bumper.

### **INTERIOR FEATURES**

#### **CAB LINER**

The upper cab area consists of a 1" x 2" 14-gauge steel frame welded cage which ties the vehicle cab body to the passenger cab body.

It is then welded to the front leading edge of the roof as well as mechanically fastened to the cab roof perimeter.

Padded vinyl covers, which match the color of the cab area, are installed above the driver in the front portion of the vehicle, around the entry door frame, and above the entry door.

#### **HEADLINER AND WALL COVERING**

The headliner and wall covering panel material is made Filon (chiller glass). It is mechanically fastened to the ceiling and laminated to the interior of the side walls.

## ***SENATOR SERIES II STANDARD BUILD SPECS***

### ***2011***

1/4" luan wrapped in vinyl will be used at the roof to sidewall intersection point to provide access to wiring within the roof envelope.

This panel is securely fastened into place by way of extruded aluminum "snap" channels secured into place with mechanical fasteners.

#### **HOSE COVERS**

The rear a/c drain hoses are routed between the rear wall and the rear cap fascia.

#### **BODY SEAM TRIM**

After all the above components are installed, an aluminum trim, secured by mechanical fasteners, is placed over the body seams. This trim is covered with a vinyl insert.

#### **FINISHED FLOOR**

The standard floor covering is black, 1/8" thick, transit type smooth rubber with 3/16" ribbed rubber in the entry way and the aisle. The entry steps have a white step nosing covering the leading edge of the step riser.

#### **ROTOCAST TRIM PANELS**

A rotocast trim panel is installed at the floor to sidewall seam. Over the wheel wells, there is a molded piece of the same material, which follows the wheel well contour.

The "B" pillar and curbside transition window also utilize a rotocast panel to cover the unfinished areas of the OEM chassis.

#### **ENTRY DOOR TRIM**

The areas surrounding the entry door frame are trimmed with padded vinyl which matches the interior color scheme.

#### **STANCHIONS, MODESTY PANELS, & ASSIST HANDRAILS**

There are two 1 1/4" OD stainless steel stanchion poles constructed in the following manner.

Behind the driver's seat, a vertical stanchion will run from floor to ceiling connecting with a horizontal stanchion secured to the wall. All fittings and fasteners are stainless steel. The fasteners are a clad type with no exposed threads.

Behind the entry door, a vertical stanchion will run from floor to ceiling connecting with a horizontal stanchion secured to the wall. In addition, a modesty panel is attached to this assembly. All fittings and fasteners will be stainless steel. The fasteners are clad type with no exposed threads. The modesty panel is constructed from a 3/4" substrate and covered with a gray laminate finish. It is rectangular in shape and covered with a color-coordinated plastic edge around the entire perimeter.

An entry assist hand rail, constructed from the same materials, is attached to the entry door vertical stanchion for safety and to assist entering and exiting the bus.

# ***SENATOR SERIES II STANDARD BUILD SPECS***

## ***2011***

### **INTERIOR MIRROR**

A 2 ½" x 9" fully adjustable mirror located in the top center portion of the windshield shall be supplied by the chassis manufacturer. In addition, a 6 1/2" x 9 1/2" convex mirror with a full range adjustment is located above the driver's area, on the interior front cab liner for viewing the passenger area.

### **WALL TRACK**

The Unistrut channel is torx bolted every 6" to a 1" x 2" 14-gauge steel tube that is part of the interior side wall structure.

The seat frames are bolted to the seat channel with two 7/16" grade 8 bolts, threaded into two 1 ¼" x 7/16" hardened channel nuts.

This installation meets FMVSS 207 & 210 requirements.

### **DRIVER'S SEAT**

The driver seat pedestal is mounted in the holes provided by the OEM. The seat is a high back recliner with a right hand arm rest. This seat meets FMVSS 207 & 210 requirements.

### **ELECTRICAL**

#### **WIRING**

All wiring added by the final stage manufacturer meets one of the following standards.

- SAE Specification J1128-SXL high temperature wire (8 to 14-gauge)

- SAE Specification J1128-GXL high temperature wire (8 to 14-gauge)

- SAE Specification J1128-SGX high temperature wire (Battery cable)

In addition to the above specifications, all wiring is color-coded, number and function designated every 12" to enable identification and circuit trace ability.

#### **INSTALLATION & SECUREMENT**

All wiring under the body or hood is protected with high temperature (minimum 125 degree) nylon convoluted tubing and is secured by one of the following methods.

- High temperature heavy gauge wire ties.

- Vinyl coated P clamps.

In addition to the above requirements, all wiring is routed no closer than ¾" from any sharp edge or a minimum of 4" away from any heat source.

No wiring will be routed through the wheel well unless protected by a metal shield and convoluted tubing.

A minimum of 1 ½" clearance is maintained between any wiring and the engine to compensate for engine roll.

No wiring will be secured to brake or fuel lines.

# ***SENATOR SERIES II STANDARD BUILD SPECS***

## ***2011***

### **CONNECTORS**

All wiring is connected in the under-body or under-hood areas by weather pack connectors. Where it is not possible to install a sealable insulated electrical connector in these locations, the insulated connector is protected by heat shrink tubing with a glued seal inside.

The remaining wiring located inside the bus is connected by one of the following connectors.

- Standard insulated eyelet.
- Standard insulated butt connector.
- Standard insulated quick disconnect.
- Standard insulated ring connector.

### **GAUGE OF WIRE**

All wiring is sized to carry the electrical load required for length of bus.

### **LIGHTING**

#### **EXTERIOR LIGHTING**

The following lights are installed and meet FMVSS 108 requirements. (Lamps, reflective devices and/or associated equipment)

##### **Identification lamps**

Three amber rectangular lights centered and recessed in the front cap

Three red rectangular lights centered and recessed in the rear cap

##### **Clearance lamps**

Two amber rectangular lights located and recessed at each outer edge of the front cap

Two red rectangular lights located and recessed at each outer edge of the rear cap

##### **Side Marker Lights**

Two red rectangular lights located one on each side of the side wall just in front of the rear cap in line with the rear clearance lights

##### **Stop/Tail lamps, Turn signal lamps, and Backup lamps**

Three 4" round light assemblies located and recessed in each side of the rear cap

##### **License Plate Light**

One chrome plated license plate light recessed in the rear cap on the driver's side

(In addition to the light, there will be space provided for the license plate in the recess.)

The chassis manufacturer supplies the headlights, chassis front turn lights, and the hazard flashers. The chassis system is then tied into the bus system by the final stage manufacturer

#### **INTERIOR LIGHTING**

##### **Driver's Courtesy Lights**

A driver's courtesy light is installed just above the driver's left shoulder. Opening the driver's door or turning the headlight switch counter-clockwise activates the light.



# ***SENATOR SERIES II STANDARD BUILD SPECS***

## ***2011***

### **Step Well Entry Lights**

Two step well lights are provided, one on each side of the entry step well. These lights activate when the double-out entry doors are opened.

### **Overhead Courtesy Lights**

Six overhead courtesy lights are installed in the headliner of the bus to provide lighting for safe passenger movement. Turning on the switch in the driver's console or opening the double-out entry door activates the lighting.

### **Dash Instrumentation Lighting**

Dash instrumentation lighting is provided by the chassis manufacturer and activated by the headlight switch.

## **DRIVER'S CONTROL PANEL**

### **MASTER DISTRIBUTION PANEL**

A master distribution panel is installed in a lockable storage compartment located over the driver's door. The function of this panel is to supply all power to the bus except those functions related to the OEM chassis. A #2 cable that is connected to a solenoid that powers this panel. These circuits will be protected by automatic circuit breakers. The solenoid is activated when the ignition is turned on.

In addition to the power supplied by the ignition hot solenoid circuit, there are six circuits in the panel that are battery hot and protected by in-line fuses. These circuits are for the radio and electric door operator options.



# ***SENATOR SERIES II STANDARD BUILD SPECS***

## ***2011***

### **ELECTRONIC SWITCH PANEL CONTROL**

A switch panel is located within easy access of the driver to control all the functions necessary to operate the bus except the OEM chassis functions. Any electrical devices requiring a switch will be provided as needed.

### **MISCELLANEOUS**

### **EXTERIOR FINISH**

The standard exterior finish is a bright white, which matches the OEM chassis white. Optional paint packages are painted with a Dupont paint.

### **WARRANTY**

The finished product has a general warranty of 12 months/12,000 miles and a structural body warranty of 5 year/75,000 miles.

# STARTRANS

A SUPREME CORPORATION COMPANY



# STARTRANS SENATOR AND

## DESIGN, DURABILITY, AND ATTENTION TO DETAIL.

The durable Startrans Senator and Senator SII offer seating capacity up to 25 passengers. They also feature a spacious aisle, large luggage racks, and plenty of headroom for passenger safety and comfort.

And these are just some of the features and benefits of Startrans buses. As a longtime leader in the medium-duty transit bus industry, StarTrans is backed by Supreme Corporation's commitment to excellence. That's why design, durability, and attention to our customers' wants and needs are at the forefront of how we do business.

If you need buses that perform well, look great, and deliver on promises, look to Startrans. It's the clear choice for your service needs.



*Rear Luggage Compartment*



*The Senator mode  
with optional double  
door chassis and  
in-body entry door.*

# SENATOR SHUTTLE



Overhead storage compartment



Optional mid-back passenger seats with aisle grab handles



Driver's area with optional co-pilot seat



A few of the many styles of seating and fabric available

## FEATURES

**SUBFLOOR** – 12-gauge steel superstructure fully welded with floor-level Z-rails, incorporated with chassis-rubber ride capabilities.

**FLOORING** – 3/4" FRP, undercoated. Floor covered with 1/8" transit rubber. Aluminum heat shield over chassis catalytic converter and muffler.

**WINDOWS** – 36" x 36" T-Slider windows, 31% tinted. Clamp ring-style radius windows. Egress windows installed to meet FMVSS 217 requirements. Operator's curbside window AS-2 rated

**ENTRY** – Spacious entry (32" x 83" clear opening) with doors that operate manually. The 14-gauge steel door frames are fully welded and powder-coated to enhance durability. The door panels are glazed and tempered glass. White step nosing and lighted stepwell standard. Entrance grab rail (left side).

**LIGHTING** – Each bus comes standard with six passenger courtesy lights.

**OPTIONAL A/C & HEAT** – A/C systems ranging in size from 30,000 BTU to 88,000 BTU. Rear heat 40,000 BTU to 65,000 BTU.

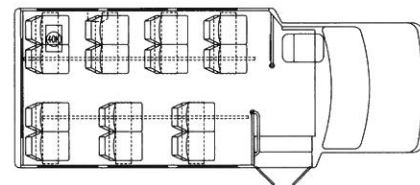
**OPTIONAL PARATRANSIT** – Wheelchair accessibility with a wide range of securement systems and seating arrangements.

**OPTIONAL LUGGAGE** – Luggage can be stored in over-seat, floor-to-ceiling, rear compartment, or custom-designed areas.

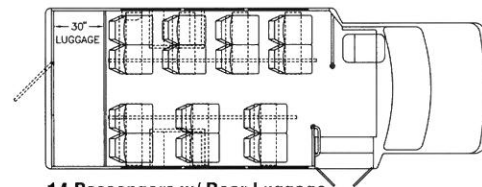
**OPTIONAL SEATING** – Forward-facing, perimeter-style, and track seating are all available. Your choice of vinyl and cloth fabric in a wide range of colors.

**OPTIONAL VIDEO PACKAGE** – LCD TV, Flip Monitors, DVD Player

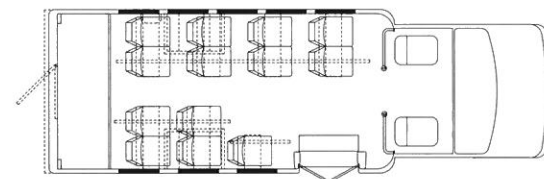
- Mud flaps (front and rear)
- 12-month/12,000-mile with five-year/ 75,000-mile warranty of body structure
- Ford or Chevy chassis



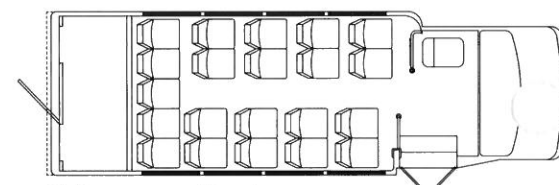
14 Passengers



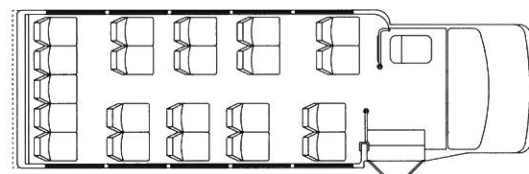
14 Passengers w/ Rear Luggage



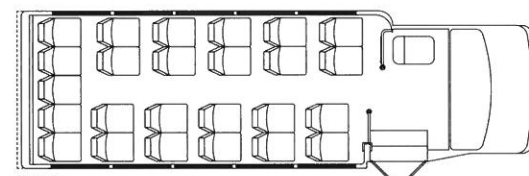
13 Passengers + Co-Pilot w/ Rear Luggage



21 Passengers w/ Rear Luggage



21 Passengers



25 Passengers

Due to Supreme Corporation's commitment to product quality, specifications and options are subject to change in the interest of product improvement and market changes.

Floorplans shown are only a few of the designs available.



2592 East Kercher Road • Goshen, IN 46528  
574-642-4730 • 877-258-1391 • FAX 574-642-4108  
[www.StarTransBus.com](http://www.StarTransBus.com)



## Startrans Bus References

### Southeast Tennessee Human Resource Agency

Contact: Mary Cookston 423.949.2191

312 Resource Road

Dunlap, TN 37327-0909

[mcookston@sethra.us](mailto:mcookston@sethra.us)

### Upper Cumberland Human Resource Agency

Riley Sparks 931.528.1127

3111 Enterprise Drive

Cookeville, TN 38501

[ucartsup@yahoo.com](mailto:ucartsup@yahoo.com)

### Southwest Human Resource Agency

Diana Turner 731.989.5111

PO Box 264

1527 White Ave.

Henderson, TN 38340-0264

[dturner@swhra.org](mailto:dturner@swhra.org)

### New Jersey Transit

Irene Felcon 973.491.7354

One Penn Plaza East

Newark, NJ 07105

[ifelcon@njtransit.com](mailto:ifelcon@njtransit.com)



## **References**

- 1) VDRPT – Neil Sherman (Transit Engineer) (804) 786-1154
- 2) VRTA – Mark McGreger (President/CEO) (877) 777-2708
- 3) RADAR – Curtis Andrews (President/CEO) (540) 343-1721
- 4) City of Danville – Mark Adleman (Transit Manager) (434) 799-5110
- 5) Radford Transit – Josh Baker (Transit Manager) (540) 961-8363

## SM-E07



## **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.

SONNY MERRYMAN  
UNIT #QUOTE

# STATE OF WEST VIRGINIA-CLASS A

## NOTES:

- 24"x34" TOP T-SLIDER WINDOWS
- EMERGENCY WINDOWS  
ROADSIDE: 2nd  
CURBSIDE: 3rd
- FLANGED L-TRACK
- OH HANDRAILS  
ROADSIDE: 123"

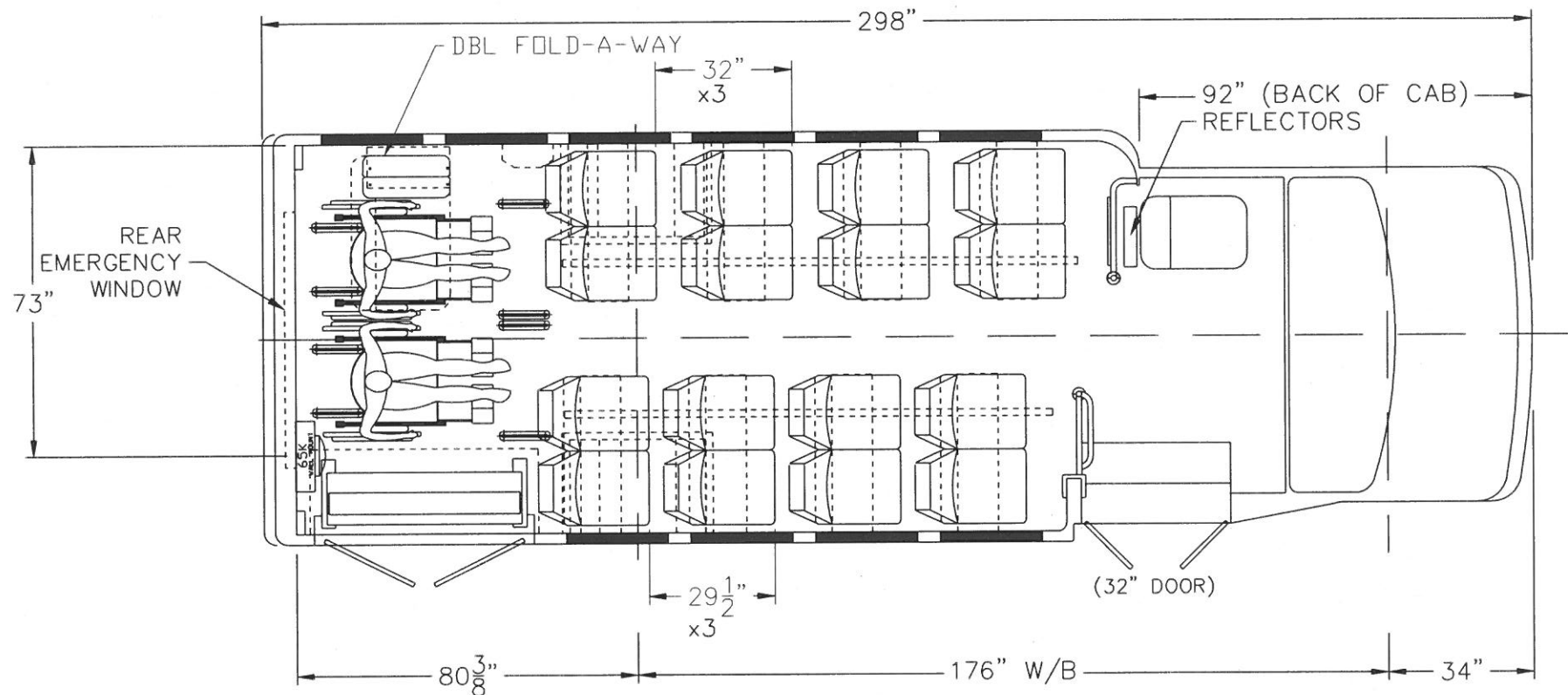
**PRELIMINARY**  
NON-PRODUCTION PRINT  
FOR R&D USE ONLY

4/7/14

CUSTOMER APPROVAL

APPROVED BY: \_\_\_\_\_

APPROVED DATE: \_\_\_\_\_



PASSENGER CAP: 19

FORD 14,500 GVWR

THIS DRAWING AND THE INFORMATION THEREON ARE THE EXCLUSIVE PROPERTY OF STARCRAFT 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

WOOD

OTHER

± 1/8"

± 1/16"

± 1"

± 1/2"

TITLE:

DATE: 04/07/14

NAME: RGD

DWG. No.

SM-E07

SHEET 1 OF 1

**STARTRANS** a division of Forest River, Inc.  
FLOOR PLAN, 24' 16" + 2 PASSENGERS  
OR 2 W/C, REAR LIFT.  
SENATOR PARATRANSIT

NOTES:

- 24"x34" TOP T-SLIDER WINDOWS
- EMERGENCY WINDOWS  
ROADSIDE: 2nd & 4th  
CURBSIDE: 2nd & 4th
- FLANGED L-TRACK
- OH HANDRAILS  
ROADSIDE: 123"

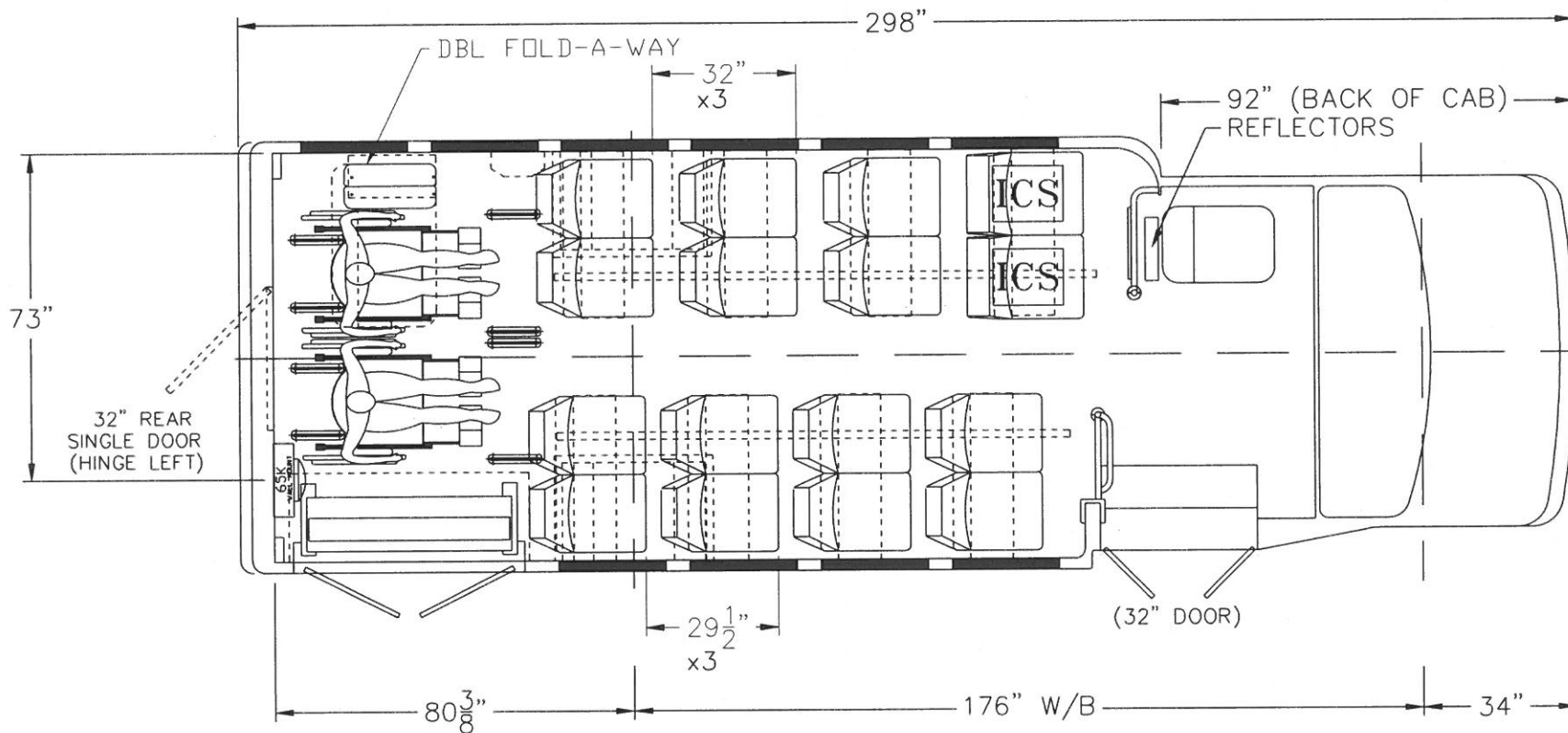
**PRELIMINARY**  
NON-PRODUCTION PRINT  
FOR R&D USE ONLY

4/7/14

CUSTOMER APPROVAL

APPROVED BY: \_\_\_\_\_

APPROVED DATE: \_\_\_\_\_



PASSENGER CAP: 19

FORD 14,500 GVWR

THIS DRAWING AND THE INFORMATION THEREON ARE THE EXCLUSIVE PROPERTY OF STARCRAFT 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.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

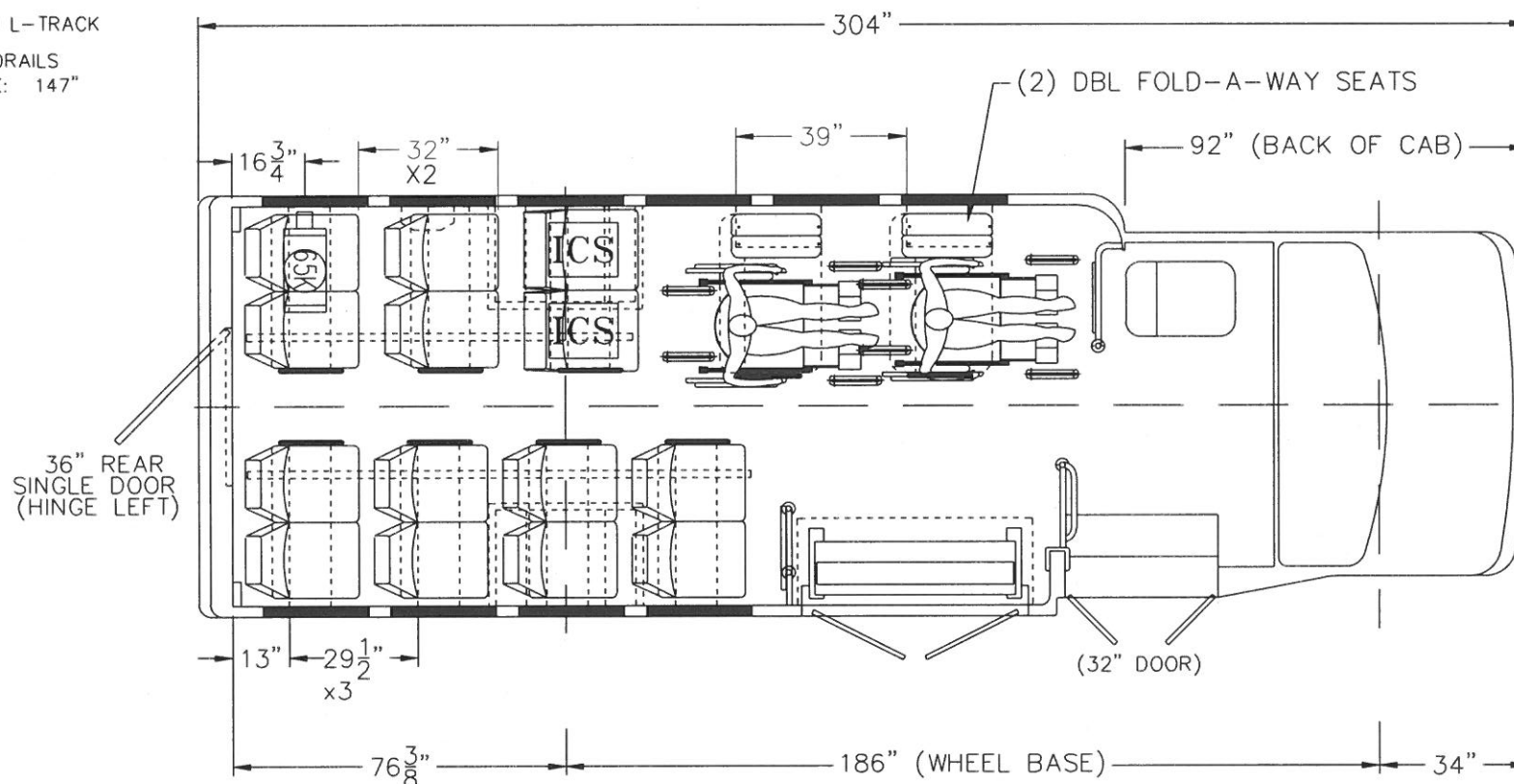
West Virginia St. Bid- CLASS C

APPROVED BY: \_\_\_\_\_

APPROVED DATE: \_\_\_\_\_

**PRELIMINARY**  
NON-PRODUCTION PRINT  
FOR R&D USE ONLY  
4/7/14


- 24"x34" TOP T-SLIDER WINDOWS (12" FILLER)
- EMERGENCY WINDOWS  
ROADSIDE: 2nd & 4th  
CURBSIDE: 1st & 3rd
- FLANGED L-TRACK
- OH HANDRAILS  
ROADSIDE: 147"



PASSENGER CAP: 18

FORD 14,500 GVWR

THIS DRAWING AND THE INFORMATION THEREON ARE THE EXCLUSIVE PROPERTY OF STARCRAFT 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.

						TOLERANCE UNLESS OTHERWISE SPECIFIED	 <b>STARTRANS</b> a division of Forest River, Inc. FLOOR PLAN, 24' 14" + 4 PASSENGERS OR 2 W/C, FRONT LIFT STD FLOOR		
						WOOD	OTHER	TITLE:	
						+ 1/8"	+ 1/16"	DATE: 04/07/14	
REV.	DESCRIPTION OF CHANGE	BY	CHK	DATE	ECN No.	+ 1"	+ 1/2"	NAME: RGD	DWG. No. SM-E07-03 SHEET 1 OF 1

SONNY MERRYMAN

# West Virginia St. Bid- CLASS D

CUSTOMER APPROVAL

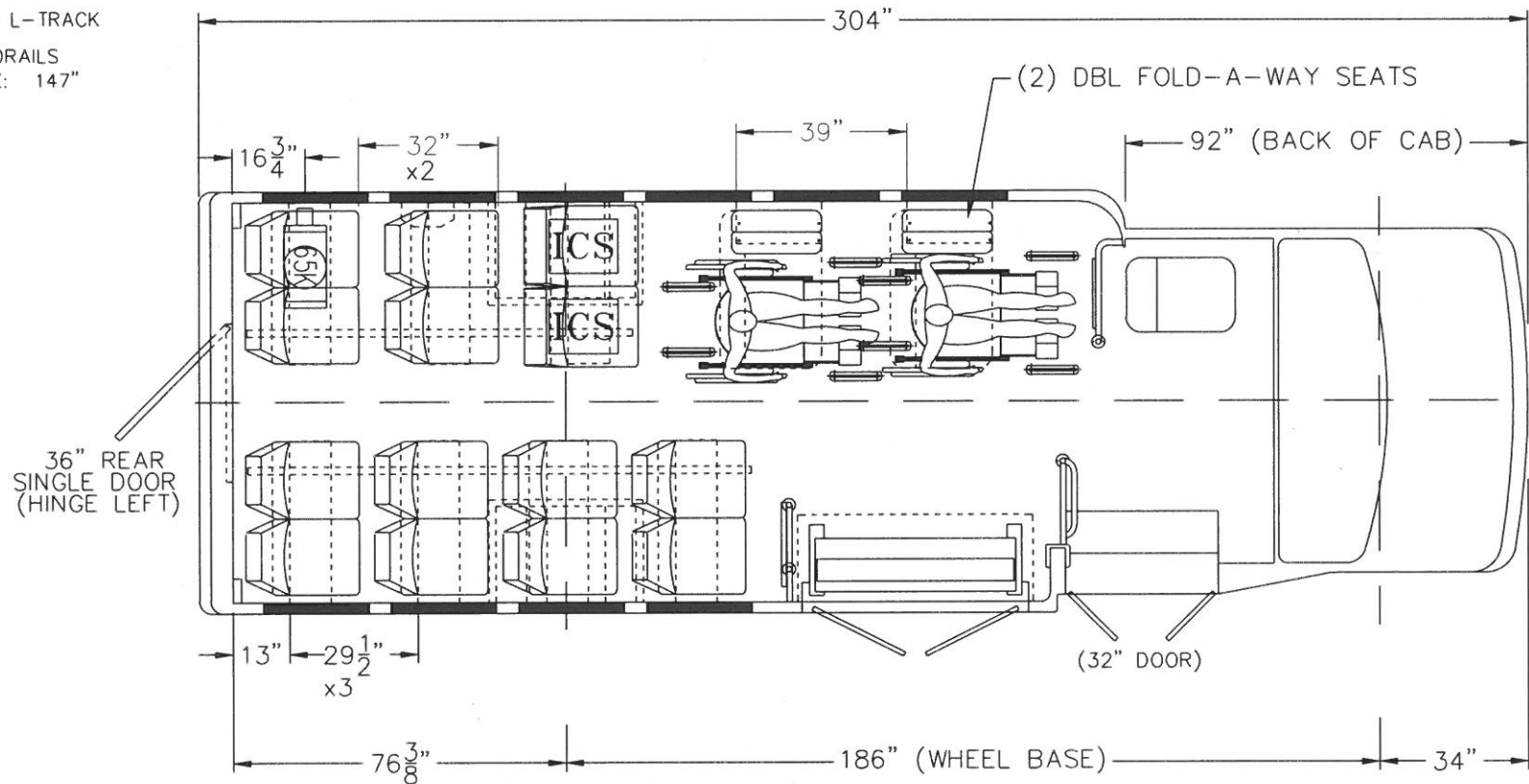
APPROVED BY: \_\_\_\_\_

APPROVED DATE: \_\_\_\_\_

**NOTES:**

- 24"x34" TOP T-SLIDER WINDOWS (12" FILLER)
- EMERGENCY WINDOWS  
ROADSIDE: 2nd & 4th  
CURBSIDE: 1st & 3rd
- FLANGED L-TRACK
- OH HANDRAILS  
ROADSIDE: 147"

**PRELIMINARY**  
NON-PRODUCTION PRINT  
FOR R&D USE ONLY  
4/7/14



PASSENGER CAP: 18

FORD 14,500 GVWR

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

WOOD

OTHER

± 1/8"

± 1/16"

± 1"

± 1/2"

**STARTRANS** a division of Forest River, Inc.  
TITLE: FLOOR PLAN, 24' 14" + 4 PASSENGERS OR 2 W/C, FRONT LIFT STD FLOOR  
DATE: 04/07/14  
NAME: RGD  
DWG. No. SM-E07-04  
SHEET 1 OF 1

SONNY MERRYMAN

# West Virginia St. Bid- CLASS E

CUSTOMER APPROVAL

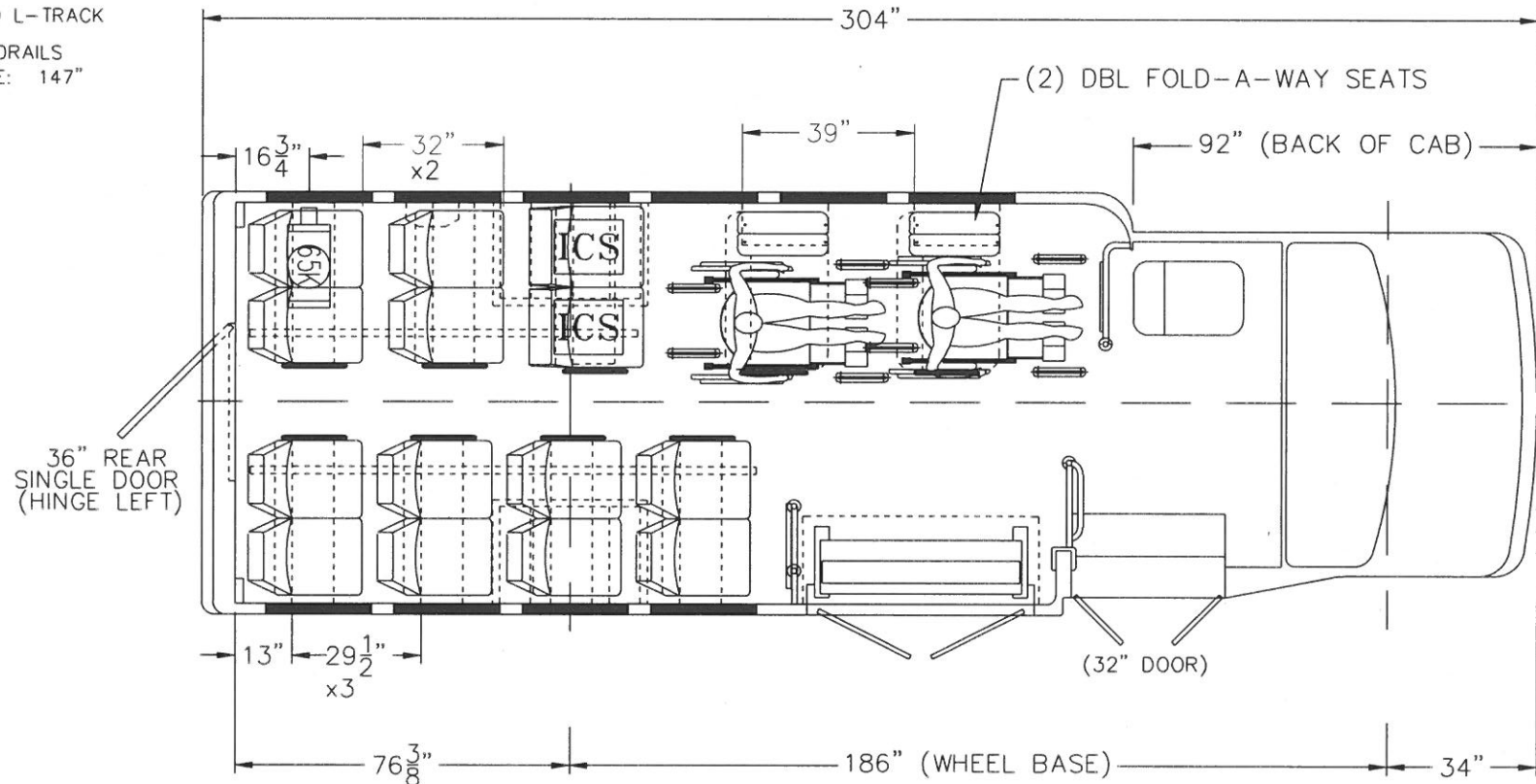
APPROVED BY: \_\_\_\_\_

APPROVED DATE: \_\_\_\_\_

NOTES:

- 24"x34" TOP T-SLIDER WINDOWS (12" FILLER)
- EMERGENCY WINDOWS  
ROADSIDE: 2nd & 4th  
CURBSIDE: 1st & 3rd
- FLANGED L-TRACK
- OH HANDRAILS  
ROADSIDE: 147"

**PRELIMINARY**  
NON-PRODUCTION PRINT  
FOR R&D USE ONLY  
4/15/14



PASSENGER CAP: 18

FORD 14,500 GVWR

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

WOOD

OTHER

± 1/8"

± 1/16"

± 1"

± 1/2"

**STARTRANS** a division of Forest River, Inc.

TITLE: FLOOR PLAN, 24' 14" + 4 PASSENGERS  
OR 2 W/C, FRONT LIFT STD FLOOR

DATE: 04/07/14

NAME: RGD

DWG. No. SM-E07-05

SHEET 1 OF 1

SONNY MERRYMAN

# West Virginia St. Bid- CLASS F

CUSTOMER APPROVAL

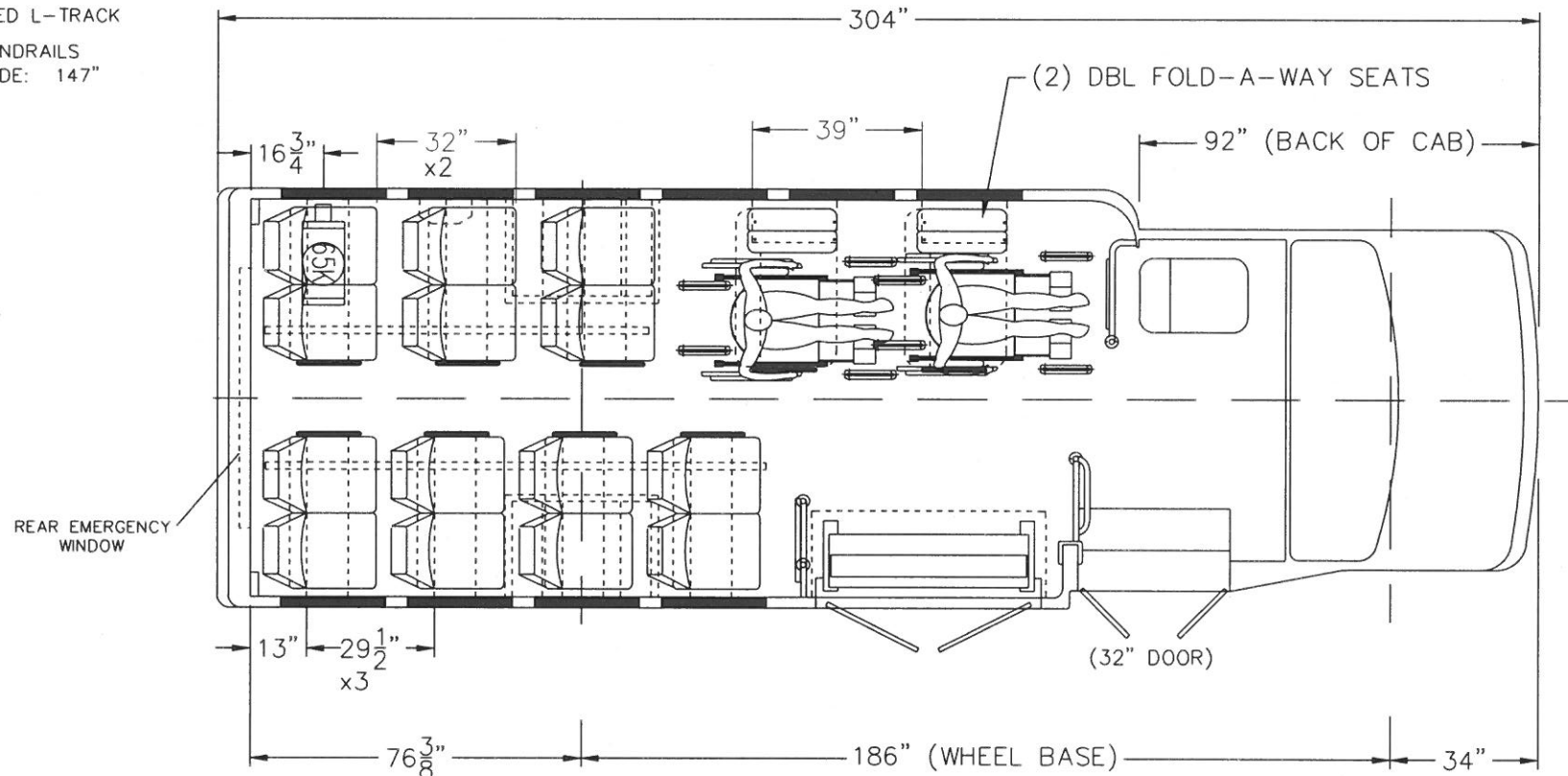
APPROVED BY: \_\_\_\_\_

APPROVED DATE: \_\_\_\_\_

## NOTES:

- 24"x34" TOP T-SLIDER WINDOWS (12" FILLER)
- EMERGENCY WINDOWS  
ROADSIDE: 2nd & 4th  
CURBSIDE: 1st & 3rd
- FLANGED L-TRACK
- OH HANDRAILS  
ROADSIDE: 147"

**PRELIMINARY**  
NON-PRODUCTION PRINT  
FOR R&D USE ONLY  
4/15/14



PASSENGER CAP: 18

FORD 14,500 GVWR

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

WOOD

OTHER

± 1/8"

± 1/16"

± 1"

± 1/2"

**STARTRANS** a division of Forest River, Inc.

TITLE: FLOOR PLAN, 24' 14" + 4 PASSENGERS  
OR 2 W/C. FRONT LIFT STD FLOOR  
WITH BIKE RACK

DATE: 04/15/14

NAME: RGD

DWG. No. SM-E07-06

SHEET 1 OF 1



SONNY MERRYMAN

# West Virginia St. Bid- CLASS G

CUSTOMER APPROVAL

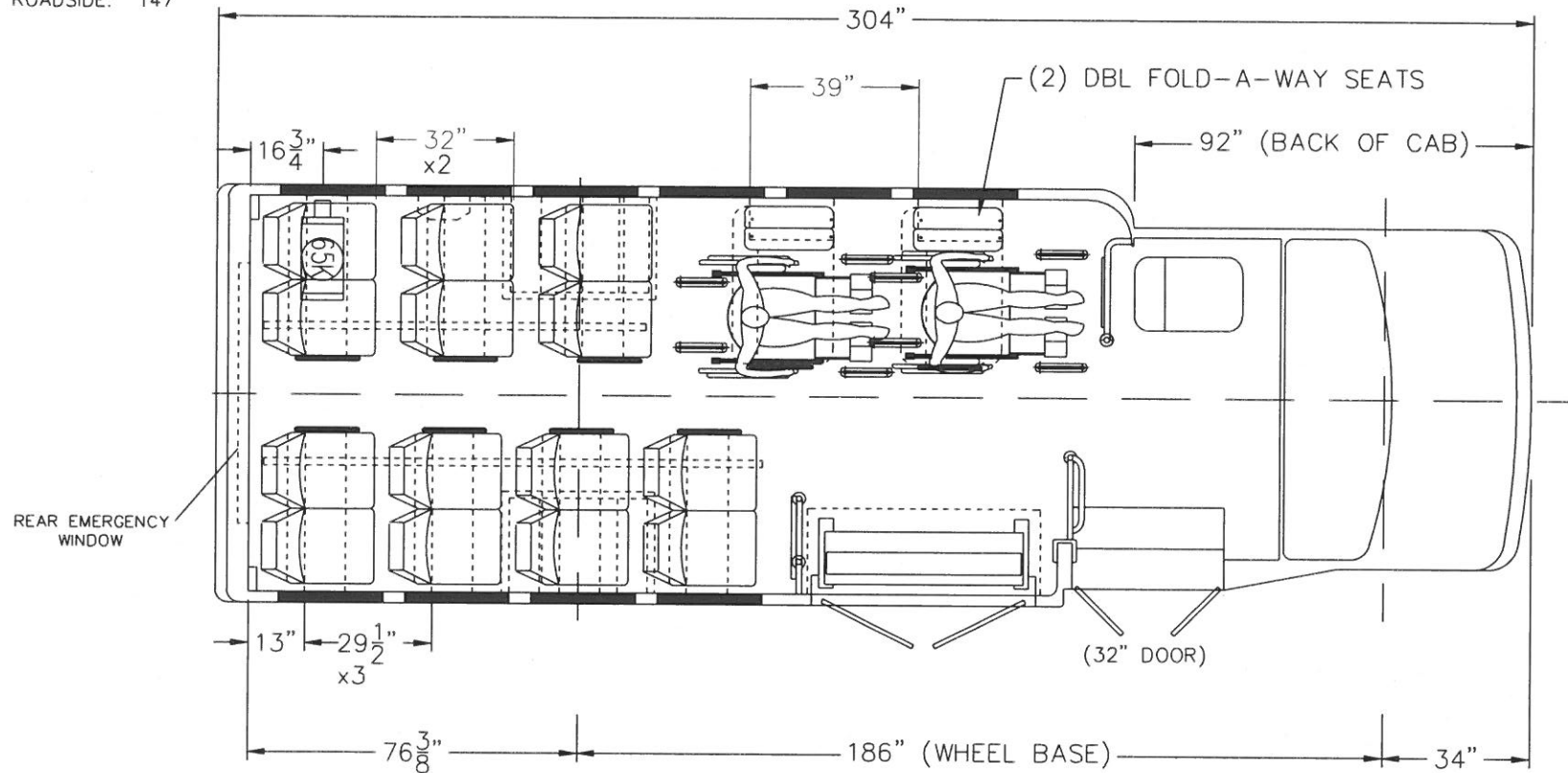
APPROVED BY: \_\_\_\_\_

APPROVED DATE: \_\_\_\_\_

## NOTES:

- 24"x34" TOP T-SLIDER WINDOWS (12" FILLER)
- EMERGENCY WINDOWS  
ROADSIDE: 2nd & 4th  
CURBSIDE: 1st & 3rd
- FLANGED L-TRACK
- OH HANDRAILS  
ROADSIDE: 147"

**PRELIMINARY**  
NON-PRODUCTION PRINT  
FOR R&D USE ONLY  
4/15/14



PASSENGER CAP: 18

FORD 14,500 GVWR

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.	DESCRIPTION OF CHANGE	BY	CHK	DATE	ECN No.
LET					

TOLERANCE UNLESS OTHERWISE SPECIFIED

WOOD	OTHER
± 1/8"	± 1/16"
± 1"	± 1/2"

<b>STARTRANS</b> a division of Forest River, Inc.	
TITLE:	FLOOR PLAN, 24' 14" + 4 PASSENGERS OR 2 W/C FRONT LIFT STD FLOOR WITH BIKE RACK
DATE: 04/15/14	
NAME: RGD	DWG. No. SM-E07-06
	SHEET 1 OF 1



SONNY MERRYMAN  
UNIT #QUOTE

## STATE OF WEST VIRGINIA-CLASS H

NOTES:

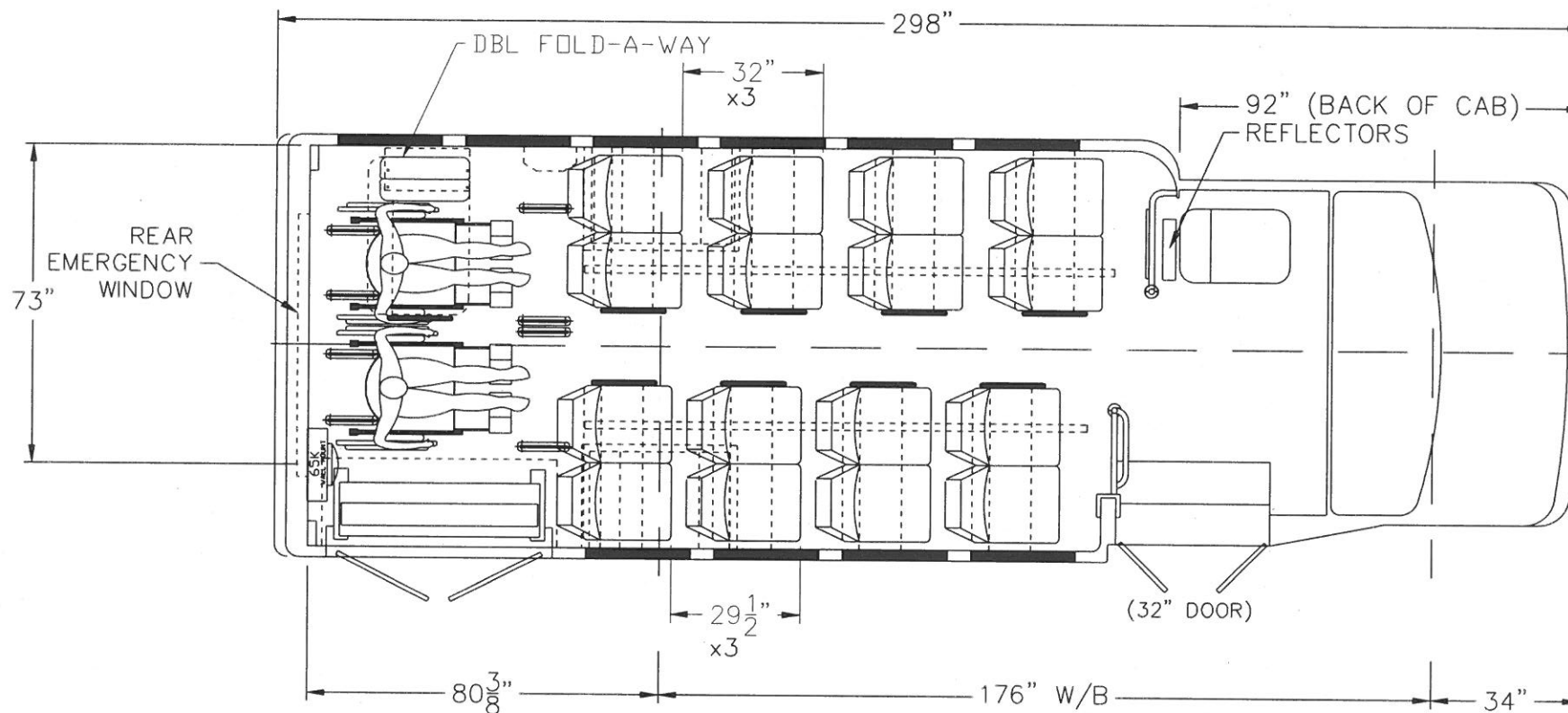
- 24"x34" TOP T-SLIDER WINDOWS
- EMERGENCY WINDOWS  
ROADSIDE: 2nd  
CURBSIDE: 3rd
- FLANGED L-TRACK
- OH HANDRAILS  
ROADSIDE: 123"

**PRELIMINARY**  
NON-PRODUCTION PRINT  
FOR R&D USE ONLY  
4/15/14

CUSTOMER APPROVAL

APPROVED BY: \_\_\_\_\_


APPROVED DATE: \_\_\_\_\_



PASSENGER CAP: 19

FORD 14,500 GVWR

THIS DRAWING AND THE INFORMATION THEREON ARE THE EXCLUSIVE PROPERTY OF STARCRAFT 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.

						TOLERANCE UNLESS OTHERWISE SPECIFIED		 <b>STARTRANS</b> a division of Forest River, Inc.	
						WOOD	OTHER	TITLE: FLOOR PLAN, 24' 16" + 2 PASSENGERS OR 2 W/C, REAR LIFT, OH LUGGAGE SENATOR PARATRANSIT	
						± 1/8"	± 1/16"	DATE: 04/15/14	
REV	DESCRIPTION OF CHANGE					BY	CHK	DATE	ECN No.
LET									
						± 1"	± 1/2"	NAME: RGD	DWG. No. SM-E07-08
									SHEET 1 OF 1

**PARTIAL**  
**STURAA TEST**  
**7 YEAR**  
**200,000 MILE BUS**  
**from**  
**SUPREME CORPORATION**  
**MODEL SENATOR S II**

**MARCH 2005**

**PTI-BT-R0502**

**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 Rt. 220 N. (814) 695-3404  
Duncansville, PA 16835



U.S. Department  
of Transportation  
**Federal Transit  
Administration**

400 Seventh St., S.W.  
Washington, D.C. 20590

February 5, 2004

Samuel K. Craig  
Vice President of Sales and Marketing  
Startrans Bus Division  
Supreme Corporation  
16500 CR 38  
P.O. Box 463  
Goshen, IN 46528

Dear Mr. Craig:

This is in response to your letter dated April 10, 2003, in which you requested assistance from the Federal Transit Administration (FTA) concerning the applicability of the Bus Testing Regulation (49 CFR Part 665) to the Senator II bus model manufactured by the Startrans Bus Division of Supreme Corporation. Your letter states that:

- Startrans has tested its Senator bus model on a Ford E450 chassis in the 7-year, 200,000-mile service life category (Report No. 2013-12-00).
- Startrans is proposing to build a new unit to be called the Senator II, which will be built on the Ford E350 and E450 chassis.
- The principal difference between the Senator and the Senator II is that the Senator has a fiberglass body and the Senator II has a steel body.
- Supreme Corporation believes that [the Senator] is very similar [to the Senator II] in dimensional layout, and the weight distribution and center of gravity of the Senator II are expected to be "better" based on your analysis.

You have asked FTA to determine what additional tests will be required for the Senator II.

FTA has reviewed your request and accompanying documentation and has determined that **partial testing** will be required for the Senator II, specifically, the **structural durability** and **reliability tests**. This determination is based on the following conclusions drawn from the (incomplete) information submitted by Supreme Corporation or contained in our files:

- Startrans tested its Senator bus model on a Ford E450 chassis in the 7-year, 200,000-mile service life category (Report No. 2013-12-00). Therefore the Senator bus model is eligible for partial testing procedures.

- The body of the tested Senator model bus consisted of a framework of steel tubing sheathed in fiberglass panels, with the fiberglass panels attached to the tubes using automotive-grade double-sided tape.
- The body of the proposed Senator II model bus would consist of a framework of steel tubing sheathed in steel panels, with the steel panels fastened to the tubes with rivets.
- Startrans stated that its second-unit body is designed to withstand all structural requirements without the exterior skin, and that the exterior skin is not a structural member.
- FTA's technical support consultant, Booz-Allen & Hamilton, made several attempts to obtain structural drawings of the buses to evaluate whether Startrans made major changes to the structure to accomplish the change from fiberglass skin to steel skin. To date, we have not received any drawings depicting the structural changes involved in the change from fiberglass skin to steel skin. Without these drawings, we are not able to evaluate whether major structural changes were necessary to accommodate the change to the steel skin, nor are we able to say definitively that we would not expect to obtain significantly different data from repeating the specified tests. In order to resolve this open matter, we have made a determination based on the information that Startrans has made available to us.

Should you make any other changes to the vehicle, additional testing may be required. In addition, if Startrans provides the requested information, we would be willing to re-evaluate this determination. If you require any further assistance with this or other matters concerning bus testing, please feel free to contact me at the address above, or by e-mail ([marcel.belanger@fta.dot.gov](mailto:marcel.belanger@fta.dot.gov)), fax (202-366-3765), or telephone (202-366-0725).

Sincerely,



Marcel Belanger  
Bus Testing Program Manager  
Office of Technology, TRI-20

## TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY .....	3
ABBREVIATIONS .....	4
BUS CHECK-IN .....	5
2. RELIABILITY - DOCUMENTATION OF BREAKDOWN AND REPAIR TIMES DURING TESTING .....	15
5. STRUCTURAL INTEGRITY	
5.7 STRUCTURAL DURABILITY TEST .....	18

## **EXECUTIVE SUMMARY**

Supreme Corporation submitted a model Senator SII, diesel-powered 17 seat (including the driver) 24-foot bus, for a partial STURAA test in the 7 yr/200,000 mile category. The Federal Transit Administration determined that the following tests would be performed: 2. Reliability and 5.7 Structural Durability Test. Testing started on January 7, 2005 and was completed on March 4, 2005. The Check-In section of the report provides a description of the bus and specifies its major components.

The partial test which involved the Structural Durability Test also provides the information for the Reliability results. The Structural Durability Test was started on January 13, 2005 and was completed on March 3, 2005.

The interior of the bus is configured with seating for 17 passengers including the driver and two wheelchair positions. Free floor space will accommodate 11 standing passengers resulting in a potential capacity of 28 persons and two wheelchair positions. At 150 lbs per person and 600 lbs per wheelchair position, this load results in a measured gross vehicle weight of 15,560 lbs. In order to avoid exceeding the GAWR (9,450 lbs) of the rear axle, ballast for eight standing passengers and one wheelchair position was eliminated. This reduction from full capacity resulted in an adjusted measured gross vehicle weight of 13,840 lbs and was used for all dynamic testing. The SLW segment was performed at 13,440 lbs. Note: one wheelchair position was eliminated in order to avoid exceeding the GAWR (9,450 lbs) of the rear axle, and the final segment was performed at a CW of 10,250 lbs. Durability driving resulted in unscheduled maintenance and failures that involved a variety of subsystems. A description of failures and a complete and detailed listing of scheduled and unscheduled maintenance are provided in the Maintainability section of this report.

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 Class 1 or Class 2 failures. Of the four reported failures, one was a Class 3 and three were Class 4.

## 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 Supreme Corporation, model Senator SII. The test bus is built on a Ford E-450 Super Duty chassis. The bus has an OEM driver's and passenger door rear of the front axle and a passenger door just aft of the cab passenger door equipped with a Braun Model L917FIB hydraulic platform handicap lift. Power is provided by a diesel-fueled, Ford Motor Co. model 6.0 L Power Stroke engine coupled to a Ford Motor Co. model 4R100 transmission.

The measured curb weight is 3,960 lbs for the front axle and 6,290 lbs for the rear axle. These combined weights provide a total measured curb weight of 10,250 lbs. There are 17 seats including the driver, two wheelchair positions and room for 11 standing passengers bringing the total passenger capacity to 28 and 2 wheelchairs. Gross load is  $150 \text{ lb} \times 28 = 4,200 \text{ lbs}$   $= 1,200 \text{ lbs}$  (2 wheelchairs)  $= 5,400 \text{ lbs}$ . At full capacity, the measured gross vehicle weight is 15,660 lbs. In order to avoid exceeding the GAWR (9,450 lbs) of the rear axle, ballast for eight standing passengers and one wheelchair position was eliminated. This reduction from full capacity resulted in an adjusted measured gross vehicle weight of 13,840 lbs and was used for all dynamic testing.



## VEHICLE DATA FORM

Bus Number: 0502	Arrival Date: 1-7-05
Bus Manufacturer: Supreme Corporation	Vehicle Identification Number (VIN): 1FDXE45P44HA74490
Model Number: Senator S II	Date: 1-7-05
Personnel: S.C., T.S. & M.H.	

WEIGHT: Values in parenthesis indicate the adjusted weights necessary to avoid exceeding the GAWR. These values were used for all dynamic testing.

### Individual Wheel Reactions:

Weights (lb)	Front Axle		Middle Axle		Rear Axle	
	Right	Left	Right	Left	Right	Left
CW	2,020	1,940	N/A	N/A	3,410	2,880
SLW	2,150 (2,130)	2,250 (2,200)	N/A	N/A	5,050 (4,280)	4,650 (4,830)
GVW	2,140 (2,120)	2,310 (2,450)	N/A	N/A	5,790 (4,810)	5,320 (4,460)

### Total Weight Details:

Weight (lb)	CW	SLW	GVW	GAWR
Front Axle	3,960	4,400 (4,570)	4,450 (4,570)	4,600
Middle Axle	N/A	N/A	N/A	N/A
Rear Axle	6,290	9,700 (9,110)	11,110 (9,270)	9,450
Total	10,250	14,100 (13,440)	15,560 (13,840)	GVWR: 14,050

### Dimensions:

Length (ft/in)	24 / 2.5
Width (in)	98.0
Height (in)	114.0
Front Overhang (in)	29.5
Rear Overhang (in)	85.0
Wheel Base (in)	176.0
Wheel Track (in)	Front: 68.4
	Rear: 77.5

Bus Number: 0502	Date: 1-7-05
------------------	--------------

**CLEARANCES:**

Lowest Point Outside Front Axle	Location: Steering stabilizer	Clearance(in): 11.1
Lowest Point Outside Rear Axle	Location: Exhaust pipe	Clearance(in): 14.2
Lowest Point between Axles	Location: Body @ step well	Clearance(in): 9.0
Ground Clearance at the center (in)	11.0	
Front Approach Angle (deg)	25.5	
Rear Approach Angle (deg)	10.5	
Ramp Clearance Angle (deg)	7.9	
Aisle Width (in)	19.5	
Inside Standing Height at Center Aisle (in)	81.3	

**BODY DETAILS:**

DOT DETAILS:

Body Structural Type	Integral		
Frame Material	Steel		
Body Material	Steel & fiberglass		
Floor Material	Plywood		
Roof Material	Fiberglass / composite		
Windows Type	<input type="checkbox"/> Fixed	<input checked="" type="checkbox"/> Movable	
Window Mfg./Model No.	HEHR / AS3 DOT 269		
Number of Doors	<u>1</u> Front	<u>1</u> Rear	
Mfr. / Model No.	Supreme Corp. / NA		
Dimension of Each Door (in)	Front- 31.8 x 83.0 Driver-31.8 x 54.4	Handicap - 47.1 x 70.4 Emergency - 32.1 x 57.9	
Passenger Seat Type	<input type="checkbox"/> Cantilever	<input checked="" type="checkbox"/> Pedestal	<input type="checkbox"/> Other (explain)
Mfr. / Model No.	Freedman Seating Corp. / Featherweight Mid-Hi		
Driver Seat Type	<input type="checkbox"/> Air	<input type="checkbox"/> Spring	<input checked="" type="checkbox"/> Other (explain)
Mfr. / Model No.	Ford Motor Co. / OEM		
Number of Seats (including Driver)	17 + 2 wheelchair positions		

Bus Number: 0502	Date: 1-7-05
------------------	--------------

**BODY DETAILS (Contd.)**

Free Floor Space (ft <sup>2</sup> )	16.8
Height of Each Step at Normal Position (in)	Front 1. 10.3 2. 8.4 3. 8.6 4. N/A
	Middle 1. N/A 2. N/A 3. N/A 4. N/A
	Rear 1. N/A 2. N/A 3. N/A 4. N/A
Step Elevation Change - Kneeling (in)	N/A

**ENGINE**

Type	<input checked="" type="checkbox"/> C.I.	<input type="checkbox"/> Alternate Fuel	
	<input type="checkbox"/> S.I.	<input type="checkbox"/> Other (explain)	
Mfr. / Model No.	Ford Motor Co. / 6.0 L Power Stroke		
Location	<input checked="" type="checkbox"/> Front	<input type="checkbox"/> Rear	<input type="checkbox"/> Other (explain)
Fuel Type	<input type="checkbox"/> Gasoline	<input type="checkbox"/> CNG	<input type="checkbox"/> Methanol
	<input checked="" 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. / 6.0 L Power Stroke		
Carburetor Mfr. / Model No.	N/A		
Fuel Pump Mfr. / Model No.	Ford Motor Co. / 6.0 L Power Stroke		
Alternator (Generator) Mfr. / Model No.	Ford/Motorcraft / 3GLF		
Maximum Rated Output (Volts / Amps)	12 / 130		
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 / 484720		

Bus Number: 0502	Date: 1-7-05
------------------	--------------

#### TRANSMISSION

Transmission Type	<input type="checkbox"/> Manual	<input checked="" type="checkbox"/> Automatic	
Mfr. / Model No.	Ford Motor Co. / 4R100		
Control Type	<input checked="" type="checkbox"/> Mechanical	<input type="checkbox"/> Electrical	<input type="checkbox"/> Other
Torque Converter Mfr. / Model No.	Ford Motor Co. / 4R100		
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 type="checkbox"/> Air	<input checked="" type="checkbox"/> Spring	<input type="checkbox"/> Other
No. of Shock Absorbers	2		
Mfr. / Model No.	Motorcraft / 1C24-18045-AA		
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
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 Corp. / 10.75 HD		
Axle Ratio (if driven)	4.10		
Suspension Type	<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Spring	<input type="checkbox"/> Other
No. of Shock Absorbers	2		
Mfr. / Model No.	Motorcraft / XC25-18080-EA		

Bus Number: 0502	Date: 1-7-05
------------------	--------------

#### WHEELS & TIRES

Front	Wheel Mfr./ Model No.	Accuride / 16 x 6
	Tire Mfr./ Model No.	Michelin / LTX LT225/75R 16
Rear	Wheel Mfr./ Model No.	Accuride / 16 x 6
	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.	Ford Motor Co. / 13.03		
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.	Ford Motor Co. / 12.9		
Retarder Type	N/A		
Mfr. / Model No.	N/A		

#### HVAC

HVAC

Heating System Type	<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Water	<input type="checkbox"/> Other
Capacity (Btu/hr)	18,000 - 65,000		
Mfr. / Model No.	Ford OEM 7 Pro-Air / 18,000 OEM & 65,000		
Air Conditioner	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Location	Dash & rear ceiling		
Capacity (Btu/hr)	18,000 & 68,000		
A/C Compressor Mfr. / Model No.	Seltac / TM16		

#### STEERING

Steering Gear Box Type	Hydraulic gear
Mfr. / Model No.	Power Ford / XR-50 HD
Steering Wheel Diameter	15.5
Number of turns (lock to lock)	4.0

Bus Number: 0502	Date: 1-7-05
------------------	--------------

#### OTHERS

Wheel Chair Ramps	Location: N/A	Type: N/A
Wheel Chair Lifts	Location: Right rear	Type: Hydraulic platform
Mfr. / Model No.	Braun Corp. / L917FIB	
Emergency Exit	Location: Windows Doors	Number: 3 2

#### CAPACITIES

Fuel Tank Capacity (units)	55 gals
Engine Crankcase Capacity (gallons)	3.75
Transmission Capacity (gallons)	2.375
Differential Capacity (pints)	8.25
Cooling System Capacity (quarts)	6.9
Power Steering Fluid Capacity (gallons)	Not available

**VEHICLE DATA FORM**

Bus Number: 0502	Date: 1-7-05
------------------	--------------

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

[illegible]

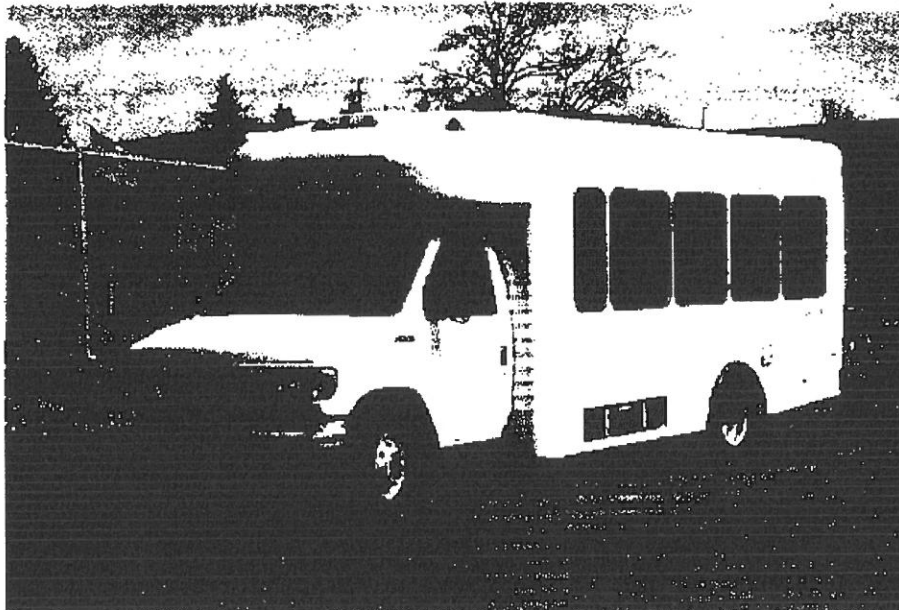
**COMPONENT/SUBSYSTEM INSPECTION FORM**

Bus Number: 0502	Date: 1-7-05
------------------	--------------

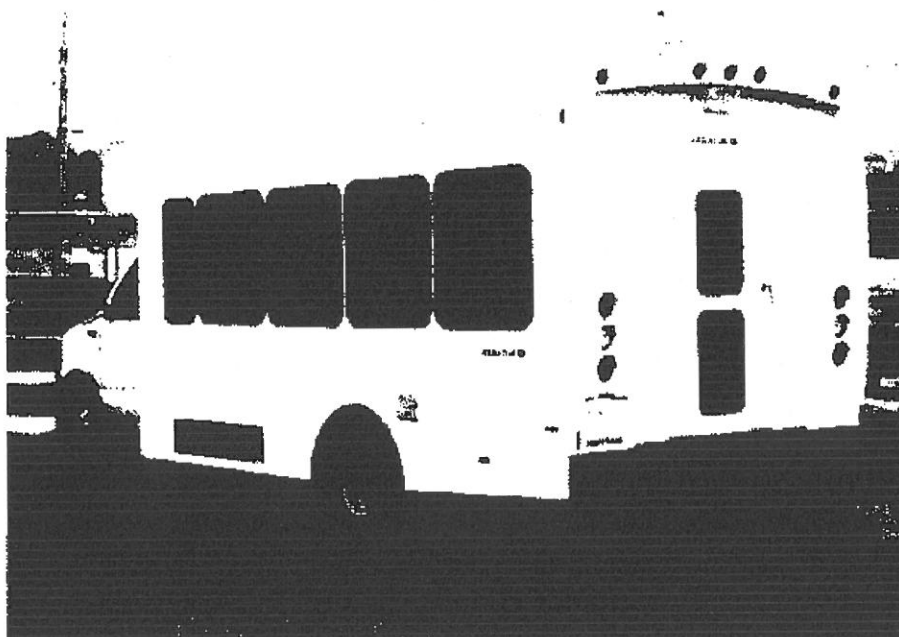
Subsystem	Checked	Comments
Air Conditioning Heating and Ventilation	✓	
Body and Sheet Metal	✓	
Frame	✓	
Steering	✓	
Suspension	✓	
Interior/Seating	✓	
Axles	✓	
Brakes	✓	
Tires/Wheels	✓	
Exhaust	✓	
Fuel System	✓	Diesel
Power Plant	✓	
Accessories	✓	
Lift System	✓	
Interior Fasteners	✓	
Batteries	✓	



## CHECK - IN



## SUPREME CORPORATION'S MODEL SENATOR SII



## **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 Unscheduled Repair List is also attached to provide a reference for the repairs that are included in the Reliability Data Forms.

The classification of repairs according to subsystem is intended to emphasize those systems which had persistent minor or more serious problems. There was no Class 1 or 2 failures. The one Class 3 failure was the result of a failed alternator. This and the remaining three Class 4 failures are available for review in the Unscheduled Maintenance List, located in Section 5.7 Structural Durability.

# RELIABILITY DATA FORMS

Bus Number: 0502	Date: 3/3/05
Personnel: Bob Relfsteck	

Subsystems	Failure Type				Man Hours	Down Time
	Class 4 Bad Order	Class 3 Bus Change	Class 2 Road Call	Class 1 Physical Safety		
Exhaust System	Mileage	Mileage	Mileage	Mileage		
	5,894				0.50	0.50
	6,622				1.00	1.00
Electrical		4,177			2.50	2.50
Wheel/Tires	6,622				0.50	0.50

## **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 January 13, 2005 and was conducted until March 3, 2005. The first 3,000 miles were performed at a GVW of 13,840 lbs. The ballast for standing passengers was reduced from 11 to 8 and one handicap position was eliminated. The GVW segment was completed on January 27, 2005. The next 1,500 mile SLW segment was performed at 13,440 lbs and was completed on February 10, 2005. Note: one wheelchair position was eliminated to avoid exceeding the GAWR (9,450 lbs) of the rear axle. The final 3,000 mile segment was performed at a CW of 10,250 lbs and completed on March 3, 2005.

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.

**SUPREME - TEST BUS #0502**  
**MILEAGE DRIVEN/RECORDED FROM DRIVERS' LOGS**

DATE	TOTAL DURABILITY TRACK	TOTAL OTHER MILES	TOTAL
01/10/05 TO 01/16/05	146.00	67.00	213.00
01/17/05 TO 01/23/05	1011.00	144.00	1155.00
01/24/05 TO 01/30/05	843.00	933.00	1776.00
01/31/05 TO 02/06/05	685.00	348.00	1033.00
02/07/05 TO 02/13/05	461.00	126.00	587.00
02/14/05 TO 02/20/05	885.00	245.00	1130.00
02/21/05 TO 02/27/05	810.00	37.00	847.00
02/28/05 TO 03/06/05	159.00	600.00	759.00
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
Shift 2	7:40 am	C
	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
Shift 3	1:50 pm	B
	2:00 pm	D
	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

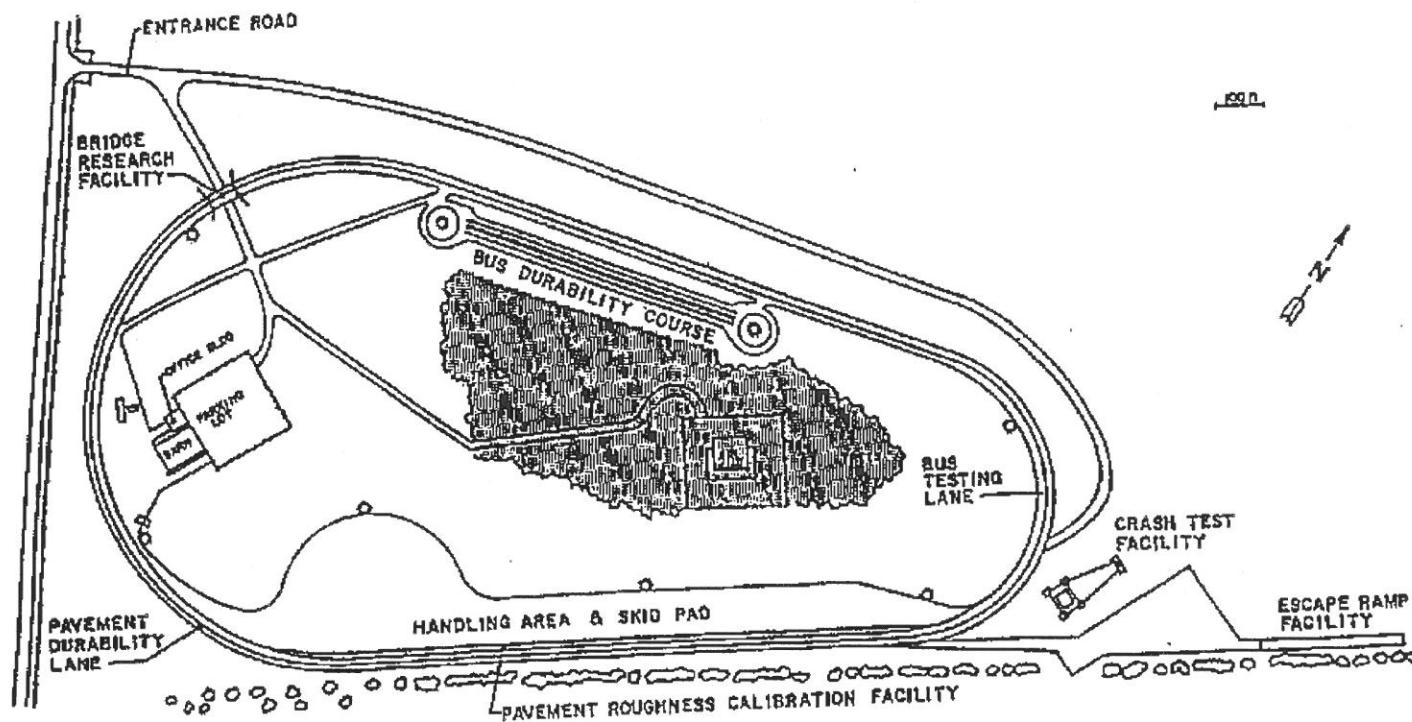
B—Break

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”**



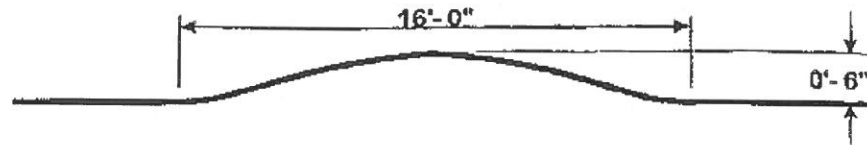
**BUS TESTING AND RESEARCH TEST TRACK  
UNIVERSITY PARK, PA**



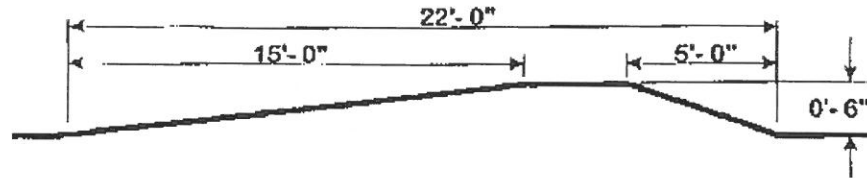
## Vehicle Durability Test Track

The Pennsylvania Transportation Institute  
Penn State

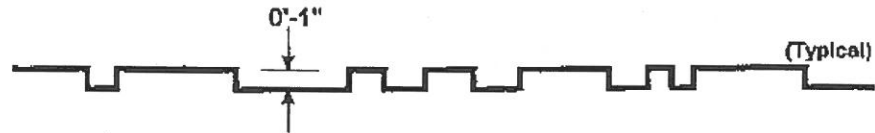
Staggered  
Bumps  
(10 mph)



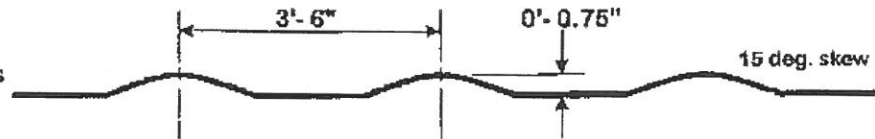
Railroad  
Crossing  
(8 mph)



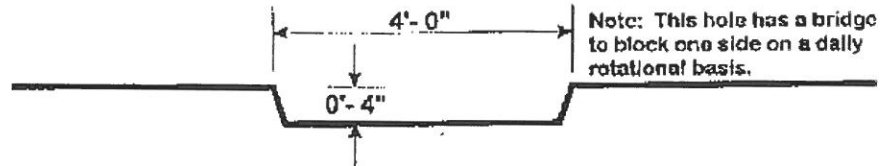
1" Random  
Chuck Holes  
(20 mph)



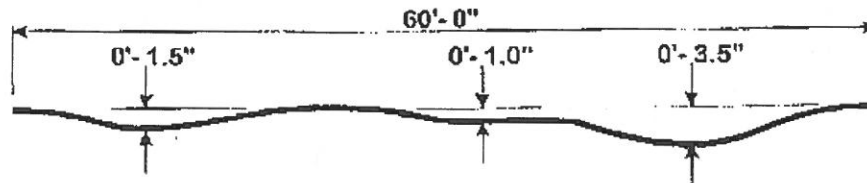
Chatter Bumps  
(20 mph)



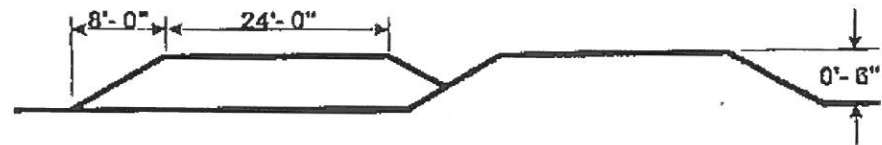
4" Chuck Hole  
(5 mph)



High Crown  
Intersection  
(20 mph)



Frame Twist  
(10 mph)



## Durability Element Profiles

The Pennsylvania Transportation Institute  
Penn State

(Page 1 of 1)  
**UNSCHEDULED MAINTENANCE**  
 Supreme 0502

DATE	TEST MILES	SERVICE	ACTIVITY	DOWN TIME	HOURS
02/07/05	4,177	The engine won't crank, battery will not take charge and charging system is below 12 volts.	Battery and alternator replaced.	2.50	2.50
02/21/05	5,894	The tail pipe is loose.	One broken tail pipe hanger replaced.	0.50	0.50
02/25/05	6,622	The right front tire is leaking air.	Right front tire leak located and hole plugged.	0.50	0.50
02/25/05	6,622	The tail pipe is loose.	Two broken tail pipe hangers replaced.	1.00	1.00