Walker Engine Power CAT

P.O. Box 2427 Charleston, WV 25329 Phone: (304) 949-1600 Fax: (304) 949-7380

Quote Number: JMP130153

Customer:	Division of Engineering & Facilities	Date:	9/25/2013
Address:	1707 Coonskin Dr Charleston, WV 25311-1099	End User:	Braxton County Armory
Phone:	304-558-2544		
Fax:			

We are pleased to quote you the following equipment:

Caterpillar C9 300kW Diesel Generator, Emergency Standby, 300kW, 375kVA, 208/120 volt, 3 phase, 60 Hertz with a 2000A, 3P Open Transition Automatic Transfer Switches in NEMA 3R enclosure.

Please see attached Bill of Materials.

Price($) **94,500.00**

FOB($)

Jobsite - A boom truck will be provided; if a crane is necessary then offloading is the responsibility of others.

Lead Time

The current factory lead time is 16 weeks after receipt of order and approved submitals, if necessary, this is subject to change at any time. If this does not meet your schedule, please consult Walker Engine Power.

Price quoted is valid for 30 days from quote date.

EXTENDED TERMS:

We have detailed the equipment proposed in the Bill of Material. Please check it to be certain that it meets your requirements. We reserve the right to correct any errors or omissions. Standard warranty of the manufacturer applies. Copies are available from the manufacturer upon request. Contracts, which include penalty or liquidated damage clauses for failure to meet promised shipping dates are not acceptable or binding on Walker, unless accepted and confirmed in writing by an officer of Walker at its headquarters office. There will be a 25% cancellation fee for any orders cancelled, once placed and accepted by Walker. Walker standard and extended terms and conditions are included in the quotation and hereby become part of this quotation. These same terms need to be noted on any purchase order received by Walker in order to process your order. Walker will not be responsible for any labor or material charges by others associated with the start-up and installation of this equipment unless previously agreed upon, in writing by Walker.

Thank You,

Jody Pauley

EXHIBIT A

DEFK14013 - Braxton Co. Armory Generator & Automatic Transfer Switch

PRICING PAGE

CONTRACT ITEM NO.	DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Item No. 3.1.1	**Stationary Emergency/Standby Generator**	1	$ 73,200.00	$ 73,200.00
	Manufacturer Bid: Caterpillar Model No. Bid: C9 300KW			
Item No. 3.1.2	**Automatic Transfer Switch (ATS)**	1	$ 21,300.00	$ 21,300.00
	Manufacturer Bid: Caterpillar Model No. Bid: ATVIMGA32000BRU			
	Unit prices to be inclusive of all freight/delivery costs Failure to use this form may result in disqualification		TOTAL COST:	$ 94,500.00

Bidder / Vendor Information:

Name: Walker Engine Power
Address: 112 Carbide Drive
Belle, WV 25015

Phone: (304) 949-1600
Fax: (304) 949-7380

E-mail Address: jpauley@walker-cat.com

Authorized Signature: [signature] Date: 9/25/13

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Bill Of Materials

Caterpillar/C9 300kW

Standard Specifications:

EPA STATIONARY EMERGENCY
UL 2200 LISTED PACKAGE GEN SET
60HZ 208/120 VOLT
EMCP4.2 COMMON CONTROL PANEL
300 EKW W/FAN
C9 208V 60 HZ PKG GEN 45
STANDARD GOVERNOR
Standard Generator
SOUND ATT ENC-1 BKR-YELLOW
WIDE SKID BASE (SA ENC)
SDW FUEL TNK BS-710G
PANEL MOUNTING - REAR
DUST-PROOF CONTROL PNL (IP52)
GENERATOR RUNNING RELAY
RELAY END BLOCK TERMINAL
ENCLOSURE INT MAINT LIGHT
LOW FUEL LEVEL ALARM
NO FUEL LEVEL SHUTDOWN
FUEL RUPTURE BASIN ALARM
ALARM HORN
Standard radiator
AIR CLEANER
JACKET WATER HEATER 2KW 240VAC
LOW COOLANT LEVEL SENSOR
QTY REMOTE ANNUNCIATORS
SECONDARY COMMUNICATIONS LINK
ENGLISH LANGUAGE OPTION
ANALOG VOLTAGE REGULATOR
PERMANENT MAGNET EXCITATION 03
FUEL LEVEL SWITCH.
FUEL FLEX LINES 06
1200A 3 POLE CIRCUIT BKR (CB1)
SHUNT TRIP 800-1200 AMP
NEUTRAL GND CONNECTION -REAR
CAT BATT W/RACK & CABLES (I)
BATTERY CHARGER 10 AMP
CANOPIED SILENCER
Std lube oil drain & valve
PGS TEST REPORT @ 0.8 PF
2000 Amp ATS NEMA 3R

Walker Engine Power

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Bill Of Materials

Start-up by CAT Technician

Installation and Fuel by Others

DIESEL GENERATOR SET

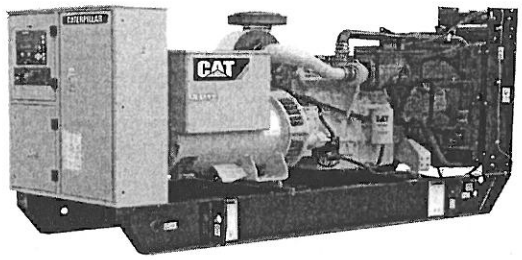

Image shown may not reflect actual package.

STANDBY
300 ekW 375 kVA
60 Hz 1800 rpm 208 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY
- EPA Certified for Stationary Emergency Application (EPA Tier 3 emissions levels)

DESIGN CRITERIA
- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response.

UL 2200 / CSA - Optional
- UL 2200 listed packages
- CSA Certified

Certain restrictions may apply. Consult with your Cat® Dealer.

FULL RANGE OF ATTACHMENTS
- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

SINGLE-SOURCE SUPPLIER
- Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT
- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat® S•O•S℠ program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT® C9 ATAAC DIESEL ENGINE
- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight
- ADEM™A4 electronic engine control

CAT GENERATOR
- Matched to the performance and output characteristics of Cat engines
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- UL 1446 Recognized Class H insulation

CAT EMCP 4 CONTROL PANELS
- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway

SEISMIC CERTIFICATION
- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength. IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007
- Pre-approved by OSHPD and carries an OSP-0084-10 for use in healthcare projects in California

STANDBY 300 ekW 375 kVA

60 Hz 1800 rpm 208 Volts

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	• Air cleaner	
Cooling	• Package mounted radiator	
Exhaust	• Exhaust flange outlet	[ ] Industrial [ ] Residential [✓] Critical Mufflers
Fuel	• Primary fuel filter with integral water separator • Secondary fuel filters • Fuel priming pump	
Generator	• Matched to the performance and output characteristics of Cat engines • Load adjustment module provides engine relief upon load impact and improves laod acceptance and recovery time • IP23 protection	[ ] Oversize and premium generators [✓] Permanent magnet excitation (PMG) [ ] Internal excited (IE) [ ] Anti-condensation space heaters
Power Termination	• Bus bar	[✓] Circuit breakers, UL listed [ ] Circuit breakers, IEC compliant
Control Panel	• EMCP 4 Genset Controller	[✓] EMCP 4.2 [ ] EMCP 4.3 [ ] EMCP 4.4 [✓] Local and remote annuniciator modules [ ] Load share module [ ] Digital I/O module [ ] Remote monitoring software
Mounting	• Rubber vibration isolators	
Starting/Charging	• 24 volt starting motor • Batteries	[✓] Battery chargers [ ] Oversize batteries [✓] Jacket water heater [✓] Heavy duty starting system [✓] Charging alternator
General	• Paint - Caterpillar Yellow except rails and radiators gloss black	The following options are based on regional and product configuration: [ ] Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007 [✓] UL 2200 package [ ] EU Certificate of Conformance (CE) [✓] CSA Certification [ ] EEC Declaration of Conformity [✓] Narrow, wide or skid base [✓] Sound attenuated, weather protective or high ambient weather protective enclosures [ ] Single or dual wall integral fuel tanks [✓] Single or dual wall sub-base fuel tanks [✓] Integral & sub-base UL listed dual wall fuel tanks [✓] Automatic transfer switches (ATS)

STANDBY 300 ekW 375 kVA

60 Hz 1800 rpm 208 Volts

SPECIFICATIONS

CAT GENERATOR

Frame size.....LC5014J
Excitation..... Self Excitation
Pitch..... 0.6667
Number of poles.....4
Number of bearings..... Single bearing
Number of Leads..... 012
Insulation..... UL 1446 Recognized Class H with tropicalization and antiabrasion
- Consult your Caterpillar dealer for available voltages
IP Rating.....Drip Proof IP23
Alignment..... Pilot Shaft
Overspeed capability.....125
Wave form Deviation (Line to Line)..... 2%
Voltage regulator.....Three phase sensing
Voltage regulation.....Less than +/- 1/2% (steady state)

CAT DIESEL ENGINE

C9 ATAAC, I-6, 4-Stroke Water-cooled Diesel
Bore..... 112.00 mm (4.41 in)
Stroke..... 149.00 mm (5.87 in)
Displacement.....8.80 L (537.01 in^3)
Compression Ratio..... 16.1:1
Aspiration..... Air-to-Air Aftercooled
Fuel System..... Hydraulic electronic unit injection
Governor Type..... Caterpillar ADEM control system

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:
- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:
- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- ekW, kVA, kVAR, kW-hr, %kW, PF (4.2 only)

Warning/shutdown with common LED indication of:
- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:
- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32) (4.2 only)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:
- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- Emergency stop pushbutton

Compatible with the following:
- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

STANDBY 300 ekW 375 kVA

60 Hz 1800 rpm 208 Volts

TECHNICAL DATA

Open Generator Set - - 1800 rpm/60 Hz/480 Volts	DM8168	
Tier 3		
Generator Set Package Performance		
Genset Power rating @ 0.8 pf	375 kVA	
Genset Power rating with fan	300 ekW	
Coolant to aftercooler		
Coolant to aftercooler temp max	49 ° C	120 ° F
Fuel Consumption		
100% load with fan	86.1 L/hr	22.7 Gal/hr
75% load with fan	66.7 L/hr	17.6 Gal/hr
50% load with fan	51.3 L/hr	13.6 Gal/hr
Cooling System[1]		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Air flow (max @ rated speed for radiator arrangement)	497 m³/min	17551 cfm
Engine Coolant capacity with radiator/exp. tank	36.0 L	9.5 gal
Engine coolant capacity	22.0 L	5.8 gal
Radiator coolant capacity	14.0 L	3.7 gal
Inlet Air		
Combustion air inlet flow rate	25.8 m³/min	911.1 cfm
Exhaust System		
Exhaust stack gas temperature	499.5 ° C	931.1 ° F
Exhaust gas flow rate	69.7 m³/min	2461.4 cfm
Exhaust flange size (internal diameter)	170 mm	7 in
Exhaust system backpressure (maximum allowable)	5.9 kPa	23.7 in. water
Heat Rejection		
Heat rejection to coolant (total)	121 kW	6881 Btu/min
Heat rejection to exhaust (total)	320 kW	18198 Btu/min
Heat rejection to aftercooler	93 kW	5289 Btu/min
Heat rejection to atmosphere from engine	28 kW	1592 Btu/min
Heat rejection to atmosphere from generator	21.9 kW	1245.5 Btu/min
Alternator[2]		
Motor starting capability @ 30% voltage dip	682 skVA	
Frame	LC5014J	
Temperature Rise	150 ° C	270 ° F
Lube System		
Sump refill with filter	39.0 L	10.3 gal
Emissions (Nominal)[3]		
NOx g/hp-hr	4.12 g/hp-hr	
CO g/hp-hr	.25 g/hp-hr	
HC g/hp-hr	.06 g/hp-hr	
PM g/hp-hr	.033 g/hp-hr	

[1] For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

[2] Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32.

[3] Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

STANDBY 300 ekW 375 kVA

60 Hz 1800 rpm 208 Volts

RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards: AS1359, CSA C22.2 No 100-04, UL142, UL489, UL601, UL869, UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, 72/23/EEC, 98/37/EC, 2004/108/EC

Standby - Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16° C or 60° F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

Additional Ratings may be available for specific customer requirements. Consult your Cat representative for details.

STANDBY 300 ekW 375 kVA

60 Hz 1800 rpm 208 Volts

DIMENSIONS

Package Dimensions	
Length	Information not available at this time.
Width	
Height	

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3728295).

Performance No.: DM8168

Feature Code: C09DE40

Gen. Arr. Number: 2377184

Source: U.S. Sourced

February 28 2013

21364693

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C9 SOUND ATTENUATED ENCLOSURES

Picture shown may not reflect actual package.

These sound attenuated, factory installed enclosures incorporate internally mounted super critical level silencers, designed for safety and aesthetic value on fabricated steel skid bases. Optional UL listed tanks are available. These enclosures are of extremely rugged construction to withstand exposure to the elements of weather, and provides weather protection.

FEATURES

ROBUST/HIGHLY CORROSION RESISTANT CONSTRUCTION

- Approved for use with UL 2200 listed generator set packages
- Environmentally friendly, polyester powder baked paint
- 14 gauge steel
- Zinc plated or stainless steel fasteners
- Internally mounted super critical exhaust silencing system
- Factory installed

EXCELLENT ACCESS

- Large cable entry area for installation ease
- Accommodates optional rear-mounted breaker
- Double doors on both sides
- Vertically hinged doors allow 180° opening rotation
- Lube oil and coolant drains pipes to exterior of enclosure and terminated with drain valves
- Radiator fill cover

SECURITY AND SAFETY

- Lockable access doors with standard key utilization
- Cooling fan and battery charging alternator fully guarded
- Fuel fill, oil fill, coolant and battery can only be reached via lockable access
- Stub-up cover sheets for "rodent proofing"
- Externally mounted emergency stop button
- Insulation has UL 94-HFI flame rating
- Designed for spreader-bar lifting to ensure safety
- Control panel viewing window

OPTIONS

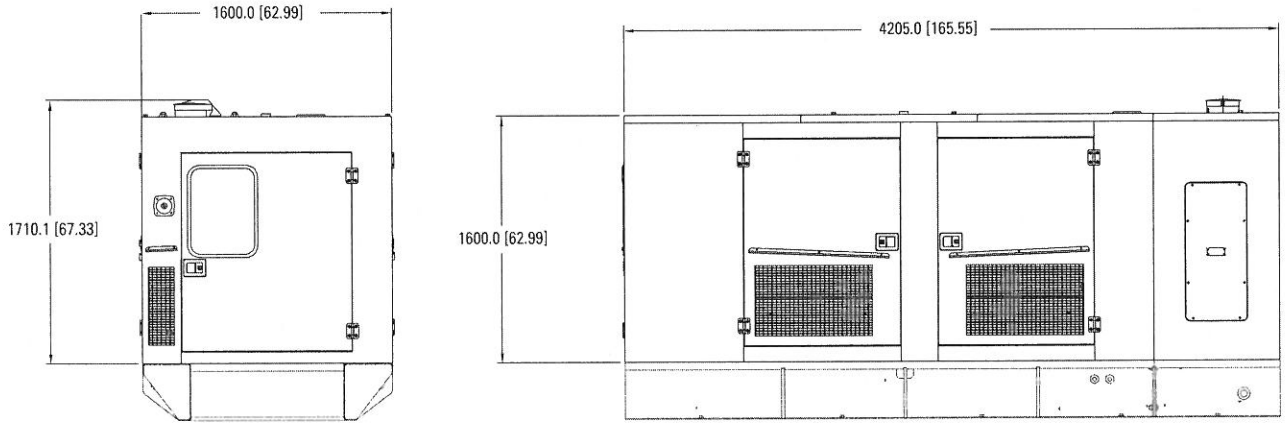
- Yellow or white paint
- Interior lighting system
- Skid base with dragging points
- UL listed integral fuel tank
- UL listed sub-base fuel tank
- Dual breakers (second breaker mounted right hand side)
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007
- Tested and Analyzed in Accordance with: ASCE 7-98, ASCE 7-02, ASCE 7-05, ICC-ES AC-156
- Special Seismic Certification OSHPD Pre-Approval OSP-0084-10
- IBC certifiable for 90 mph wind loading
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength. IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer.

ENCLOSURES

ENCLOSURE OPERATING CHARACTERISTICS

60 Hz Certified SA Enclosure			Ambient Capability*		Airflow Rate		Sound Pressure Levels dBA @ Full Load			Exhaust Back Pressure	
ekW	kVA	PP/SB	°C	°F	m^3/s	CFM	3.3 ft	23.0 ft	49.2 ft	in/H_2O	kPa
300	375	SB	45	113.0	6.0	12,636	83.3	72.0	66.0	9.9	2.46
275	344	PP	43	109.4	6.0	12,636	83.0	71.4	65.4	9.7	2.42
250	313	SB	51	124.0	6.0	12,636	82.7	71.0	65.0	9.4	2.33
225	282	PP	49	120.0	6.0	12,636	82.4	70.5	64.5	8.8	2.20
200	250	SB	51	124.0	6.0	12,636	82.2	70.2	64.2	9.4	2.33
180	225	PP	49	120.0	6.0	12,636	82.2	70.2	64.2	8.8	2.20

*Ambient measured with Cat® Extended Life Coolant



Approximate weight of enclosure package: 3380 kg (7,452 lb)*
Enclosure weight includes: Sound Attenuated enclosure, exhaust system and extended base.

*Dependant on options.

Generator set enclosure also available in white. (Caterpillar yellow is standard color.)

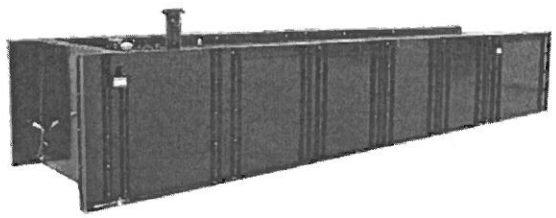


Image shown may not reflect actual product.

C9 SUB-BASE FUEL TANK BASE

Diesel Generator Set 180-300 kW 60 Hz

Dual Wall sub base fuel tanks offer an integrated fuel solution for your Cat® diesel generator set.

FEATURES

- UL listed for United States (UL 142) and Canada (ULC S601)
- Compliant with NFPA 30, 37 & 110 and CSA C282-09 & B139-09 standards.
- Tank design provides capacity for thermal expansion of fuel
- Direct reading fuel level gauge
- Fuel supply dip tube is positioned so as not to pick up fuel sediment
- Fuel return and supply dip tubes are separated by an internal baffle to prevent recirculation of heated return fuel
- Fuel fill – 101.6 mm (4 in), lockable flip top cap
- Primary tank level detection switch in containment basin
- Primary and secondary tanks are leak tested at 20.7 kPa (3 psi) minimum
- Welded steel containment basin (minimum of 110% of primary tank capacity)
- Interior tank surfaces coated with a solvent-based thin-film rust preventative
- Heavy gauge steel gussets suitable for lifting package
- Gloss black polyester alkyd acrylic enamel exterior paint over epoxy based primer
- Primary tanks are equipped with customer connections for remote fuel transfer, return and vent

DESCRIPTION

- Dual wall, secondary containment
- Heavy gauge steel construction
- Rear and right side stub-up access
- Emergency vents on primary and secondary tanks are sized in accordance with NFPA 30
- Leak detection switch
- Compatible with enclosures (weather protective and sound attenuated)
- The sub-base fuel tank mounts below the generator set wide base
- Seismic certification per applicable building codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007, CBC 2010
- Tested and analyzed in accordance with: ASCE 7-98, ASCE 7-02, ASCE 7-05, ICC-ES AC-156
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength. IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer

OPTIONS

- Manual fuel transfer pump
- Low fuel level switch (alarm and shutdown)

C9 FUEL TANK BASE (SUB-BASE) USEABLE CAPACITIES

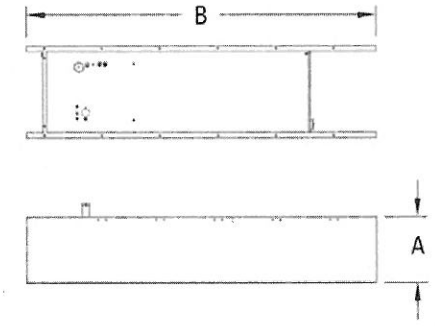
DUAL WALL SUB-BASE – WIDTH 1140 mm (44.9 in)
OPEN SET & WEATHER PROTECTIVE ENCLOSURE

Liter	Gallon	Feature Code	Type	Tank Only						Tank and Package			
				Weight		Height 'A'		Length 'B'		Open PGS Height		Enc. PGS Height*	
				kg	lb	mm	in	mm	in	mm	in	mm	in
2500	660	FTBDW64	STD	1109	2,444	1100	43.3	4205	165.6	2932	115.4	3625	142.7
2690	710	FTBDW65	STD	1128	2,486	1100	43.3	4205	165.6	2932	115.4	3625	142.7
2500	660	FTBDW3W	IBC Cert	1109	2,444	1100	43.3	4205	165.6	2932	115.4	3625	142.7
2690	710	FTBDW3Y	IBC Cert	1128	2,486	1100	43.3	4205	165.6	2932	115.4	3625	142.7

*Enclosure Package Height includes muffler

DUAL WALL SUB-BASE – WIDTH 1140 mm (44.9 in)
SOUND ATTENUATED ENCLOSURE

Liter	Gallon	Feature Code	Type	Tank Only						Tank and Package			
				Weight		Height 'A'		Length 'B'		Open PGS Height		Enc. PGS Height	
				kg	lb	mm	in	mm	in	mm	in	mm	in
3214	660	FTBDW64	STD	1109	2,444	1100	43.3	4205	165.6	NA	NA	3127	123.1
2690	710	FTBDW65	STD	1128	2,486	1100	43.3	4205	165.6	NA	NA	3127	123.1
3214	660	FTBDW3W	IBC Cert	1109	2,444	1100	43.3	4205	165.6	NA	NA	3127	123.1
2690	710	FTBDW3Y	IBC Cert	1128	2,486	1100	43.3	4205	165.6	NA	NA	3127	123.1



The heights listed above do not include lumber used during manufacturing and shipping.
Tanks with full electrical stub-up area include removable end channel.
Tanks with RH/LH stub-up include stub-up area directly below the circuit breaker or power terminal strips.

Dual wall sub-base tanks are UL listed and constructed in accordance with Underwriters Laboratories Standard UL142 "Steel Aboveground Tanks for Flammable and Combustible Liquids" and Canada ULC S601 "Shop Fabricated Steel Above ground Tanks for Flammable and Combustible Liquids."

Fuel tanks comply with the following United States NFPA Codes:
NFPA 30 – Flammable and Combustible Liquids Code
NFPA 37 – Standard for Installation and Use of Stationary Combustible Engine
NFPA 110 – Standard for Emergency and Standby Power Systems

Fuel tanks comply with the following Canadian Codes:
CSA C282-09 – Emergency Electrical Power Supply for Buildings
CSA B139-09 – Installation Code for Oil-Burning Equipment

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BATTERY CHARGER

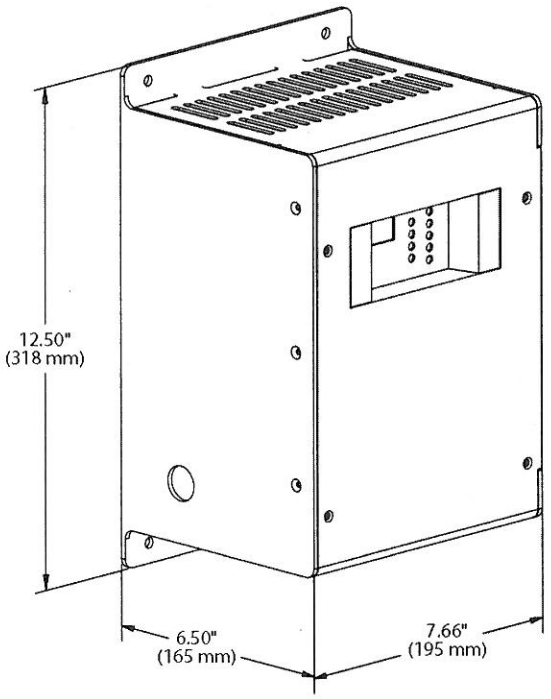


Image Shown may not Reflect Actual Package

UL 10 AMP BATTERY CHARGER

This battery charger offers accurate, automatic charging of lead-acid and nickel cadmium batteries. The output voltage automatically adjusts to changing input, load, battery and ambient conditions. This prevents battery over-charging and consequent loss of battery electrolyte.

Standard features include AC line compensation, precision voltage regulation, current limiting, automatic 2-rate charging, voltmeter and ammeter, temperature compensation and UL Listing.

The user interface is easy to understand with digital metering, NFPA 110 alarms and a battery fault alarm.

SPECIFICATION

Input Supply	110-120 V
	208-240 V
AC and DC Fuses	? input and 2 output)
Output voltage	24V
Frequency	50/60 Hz
Operating temperature	-20°C (-4°F)
	to +60°C (140°F)

Housing constructed of rustproof anodized aluminum.

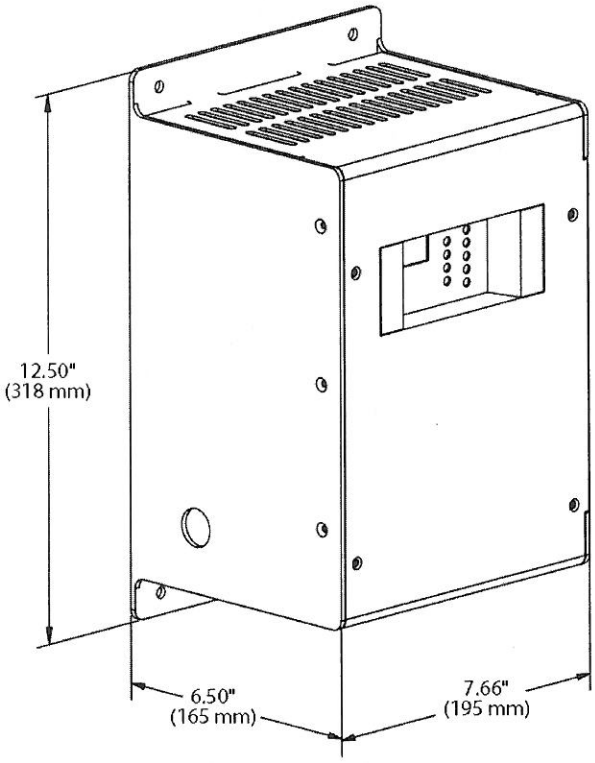
STANDARDS

- C-UL listed to UL 1236
- NFPA 70, NFPA 110
- CSA 22.2 No 107 certified
- UL 1564
- CE DOC to EN 60335
- IBC Seismic Certification

FEATURES

- Electronically current limited at 105% of rated output
- Alarm system
- Digital Display
- Lightning and voltage transient protection
- Protection of connected equipment against load dump protection
- Constant voltage, current limited, 4-rate automatic equalization
- IP 20 housing
- AC isolated from DC
- Temperature Compensation
  - On board temperature sensor with remote port
- Auto AC line compensation
- Output regulated by sensed battery voltage

BATTERY CHARGER



Output		Input	
Amps	Volts	Hz	Volts
10	24	50/60	110-120 208-240

Width	Depth	Height	Weight
195 mm (7.66")	165 mm (6.50")	318 mm (12.50")	10.4 kg (23 lb)

Feature codes		
BTC1024	BTC1028	BTC1035
BTC1025	BTC1032	

NFPA 110 alarm package as follows:

- AC on — Green led (indication)
- AC fail — Red led and form C contact (2A)
- Float mode — LED
- Fast charge — LED
- Temp comp active — LED
- Low battery volts — Red led and Form C contact
- High Battery Volts — Red led and Form C contact
- Charger fail — Red led and Form C contact
- Battery fault — Red led and Form C contact
  - Battery disconnected
  - Battery polarity reversed
  - Mismatched charger battery voltage
  - Open or high resistance charger to battery connection
  - Open battery cell or excessive internal resistance

C9 JACKET WATER HEATER

This is a factory-installed tank-styled jacket water heater for increased cold-starting capability. The system includes a thermostatically controlled heater, hoses and heater disconnect relay. The compact design is ideal for locations that require minimal mounting space.

FEATURES

FACTORY INSTALLED

- Complete with durable silicone hoses
- Vibration and shock tested to extreme limits to guarantee durability
- Automatically disconnected when engine is running via the generator space heater relay
- Supplied with UL recognized components
- Thermostat OFF TEMPERATURE is factory pre-set to 49° C (120° F)
- Molded from Polyphenylene Sulfide (PPS)
- Rust-free, resists corrosion, exceptional tensile strength
- Compatible with all chemicals
- Thermostatically controlled
- All parts are field replaceable
- Incoloy element for longer service life
- Compact design requires minimal mounting space

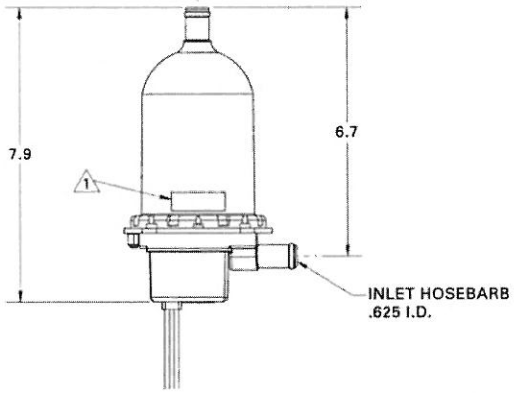
SPECIFICATIONS

Unit Specifications			
	Design Voltage		
	208	220	240
Rating	1.5 kW	1.68 kW	2 kW
Frequency	50/60	50/60	50/60
Phase	1	1	1
Amps	7.22	7.64	8.3
Thermostat Range	37.8°-48.9° C (100°-120° F)	37.8°-48.9° C (100°-120° F)	37.8°-48.9° C (100°-120° F)
Feature Code	JWH0027	JWH0027	JWH0027

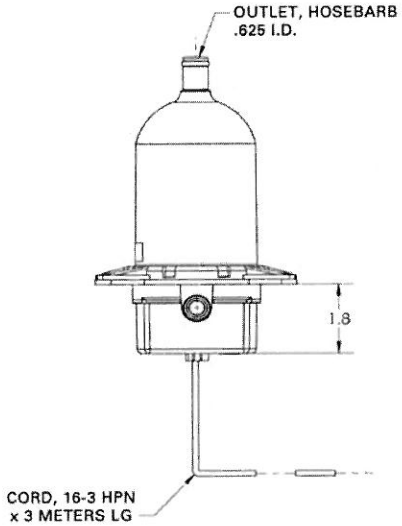
HEATER OPERATION

The heater uses UL compliant components to (UL1030) and has CSA certification, which is to both CSA and UL standards.

A thermostatic controller is included to regulate the output temperature to within safe limits. When the generator set is not running, the heater is automatically connected to the AC supply through a power relay mounted in the control panel. Upon receiving a start signal, the AC supply is automatically disconnected by the power relay and automatically reconnected when the start signal is removed and the engine has stopped.



Note: Never operate heater in air (verify heater is full of coolant).



EMCP 4

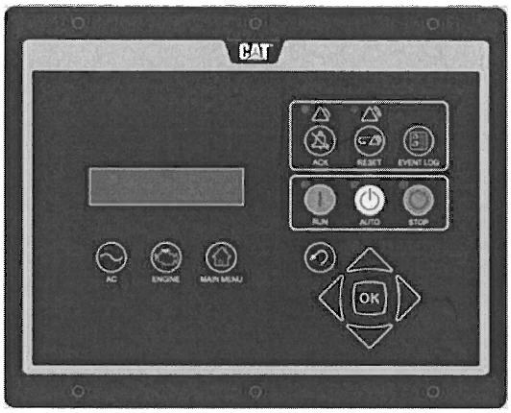


Image shown may not reflect actual package

EMCP 4.2 GENERATOR SET CONTROLLER

Caterpillar is leading the power generation market place with power solutions engineered to deliver unmatched performance, reliability, durability and cost-effectiveness.

FEATURES

GENERAL DESCRIPTION

The Cat® EMCP 4.2 offers fully featured power metering, protective relaying and engine and generator control and monitoring. Engine and generator controls, diagnostics, and operating information are accessible via the control panel keypads; diagnostics from the EMCP 4 optional modules can be viewed and reset through the EMCP 4.2.

FULL RANGE OF ATTACHMENTS

- Wide range of system expansion attachments, designed specifically to work with the EMCP 4.
- Flexible packaging options for easy and cost effective installation.

WORLD WIDE PRODUCT SUPPORT

- Cat dealers provide extensive pre and post sale support.
- Cat dealers have over 1,600 dealer branch stores operating in 200 countries.

FEATURES

- A 33 x 132 pixel, 3.8 inch, graphical display denotes text alarm/event descriptions, set points, engine and generator monitoring, and is visible in all lighting conditions.
- Textual display with support for 28 languages, including character languages such as Arabic, Chinese, and Japanese.
- Advanced engine monitoring is available on systems with an electronic engine control module.
- Integration with the Cat Digital Voltage Regulator (CDVR) provides enhanced system performance.
- Fully featured power metering, protective relaying, engine and generator parameter viewing, and expanded AC metering are all integrated into this controller.
- Real-time clock allows for date and time stamping of diagnostics and events in the control's logs as well as service maintenance reminders based on engine operating hours or calendar days.
- Up to 40 diagnostic events are stored in the non-volatile memory.
- Ability to view and reset diagnostics on EMCP 4 optional modules via the control panel removes the need for a separate service tool for troubleshooting.
- Set points and software stored in non-volatile memory, preventing loss during a power outage.
- Reduced power mode offers a low power state to minimize battery power requirements.
- Three levels of security allow for configurable operator privileges.
- Selectable units
  - Temperature: °C or °F
  - Pressure: psi, kPa, bar
  - Fuel Consumption: Gal/hr or Liter/hr

STANDARDS

- UL Recognized
- CSA C22.2 No.100,14, 94
- Complies with all necessary standards for CE Certification
  98/37/EC Machinery Directive
  – BS EN 60204-1 Safety of Machinery
  89/336/EEC EMC Directive
  – BS EN 50081-1 Emissions Standard
  – BS EN 50082-2 Immunity Standard
  73/23/EEC Low Voltage Directive
  – EN 50178 LVD Standard
- IEC529, IEC60034-5, IEC61131-3
- MIL STND 461

STANDARD FEATURES

Generator Monitoring	• Voltage (L-L, L-N) • Current (Phase) • Average Volt, Amp, Frequency • kW, kVAr, kVA (Average, Phase, %) • Power Factor (Average, Phase) • kW-hr, kVAr-hr (total) • Excitation voltage and current (with CDVR) • Generator stator and bearing temp (with optional module)
Generator Protection	• Generator phase sequence • Over/Under voltage (27/59) • Over/Under frequency (81 O/U) • Reverse Power (kW) (32) • Reverse Reactive Power (kVAr) (32RV) • Overcurrent (50/51)
Engine Monitoring	• Coolant temperature • Oil pressure • Engine speed (RPM) • Battery voltage • Run hours • Crank attempt and successful start counter • Enhanced engine monitoring (with electronic engines)
Engine Protection	• Control switch not in auto (alarm) • High coolant temp (alarm and shutdown) • Low coolant temp (alarm) • Low coolant level (alarm) • High engine oil temp (alarm and shutdown) • Low, high, and weak battery voltage • Overspeed • Overcrank
Control	• Run / Auto / Stop control • Speed and voltage adjust • Local and remote emergency stop • Remote start/stop • Cycle crank
Inputs & Outputs	• Two dedicated digital inputs • Six programmable digital inputs • Six programmable form A dry contacts • Two programmable form C dry contacts • Two digital outputs
Communications	• Primary and accessory CAN data links • RS-485 annunciator data link • Modbus RTU (RS-485 Half duplex)
Language Support	Arabic, Bulgarian, Chinese, Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Icelandic, Italian, Latvian, Lithuanian, Japanese, Norwegian, Polish, Portuguese, Romanian, Russian, Slovak, Slovene, Spanish, Swedish, Turkish
Environmental	• Control module operating temperature: -40°C to 70°C • Display operating temperature: -20°C to 70°C • Humidity: 100% condensing 30°C to 60°C • Storage temperature: -40°C to 85°C • Vibration: Random profile, 24-1000 Hz, 4.3G rms

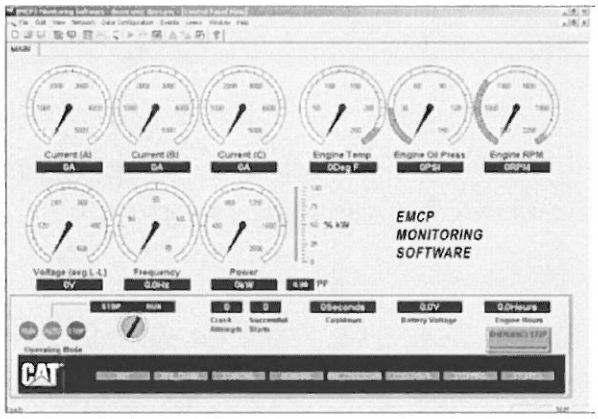
OPTIONAL MODULES

CAN ANNUNCIATOR

The EMCP 4 CAN Annunciator serves to display genset system alarm conditions and status indications. The annunciator has been designed for use on the accessory communication network and may be used in either local (package mounted) or remote (up to 800 feet) application. A maximum of three annunciators may be used with a single EMCP 4.2.

RS-485 ANNUNCIATOR

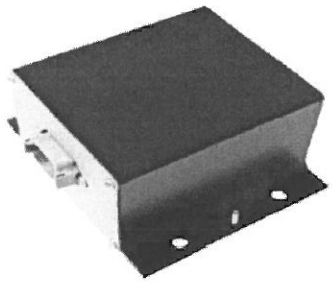
The EMCP 4 RS-485 Annunciator serves to display genset system alarm conditions and status indications. The annunciator has been designed for use on the long distance annunciator datalink and is used for remote (up to 4000 feet) application.



REMOTE MONITORING SOFTWARE

The EMCP 4 remote monitoring software package is a PC based program which allows the user to monitor and control a generator set, and is capable of running on a Windows based operating system. The remote monitoring software allows the user to configure data monitoring and data acquisition processes for monitoring, graphing, and logging of genset data.

OPTIONAL MODULES



DIGITAL INPUT/OUTPUT MODULE

The Digital Input/Output (DI/O) module serves to provide expandable Input and Output capability of the EMCP 4 and is capable of reading 12 digital inputs and setting 8 relay outputs. The DI/O module has been designed for use on the accessory Communication Network and may be used in either local (package mounted) or remote (up to 800 feet) application. A maximum of four DI/O modules may be used with a single EMCP 4.2.

RTD MODULE

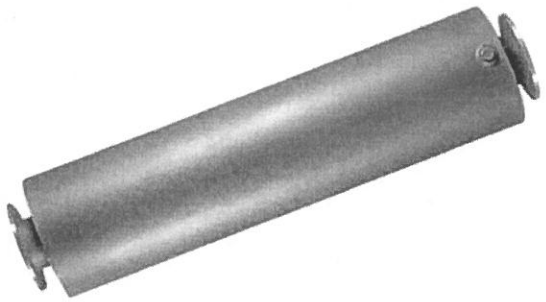
The RTD module serves to provide expandable generator temperature monitoring capability of the EMCP 4 and is capable of reading up to eight type 2-wire, 3-wire and 4-wire RTD inputs. The RTD Module has been designed for use on the Accessory Communication Network and may be used in either local (package mounted) or remote (up to 800 feet) application. A maximum of one RTD Module may be used with a single EMCP 4.2.

THERMOCOUPLE MODULE

The thermocouple module serves to provide expandable engine and generator temperature monitoring capability of the EMCP 4 and is capable of reading up to twenty Type J or K thermocouple inputs. The thermocouple module has been designed for use on the accessory communication Network and may be used in either local (package mounted) or remote (up to 800 feet) application. A maximum of one thermocouple modules may be used with a single EMCP 4.2 on each datalink.

LEHE0138-00 (03-10)

CATERPILLAR®



Exhaust Silencer

For Generator Set
270 – 900 kVA 50 Hz
223 – 800 kW 60 Hz

Note: Pictures shown may not reflect actual package.

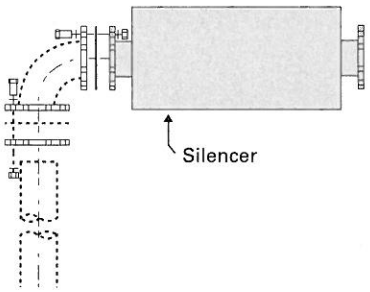
Some generator sets come standard with industrial grade silencers. (Shipped loose.) Optional silencers, mounting kits, and through-wall installation kits are available to meet site specific conditions. Kits include most hardware. See price list.

Customer provides exhaust piping and silencer mounting. Silencer mounting kit cannot be used with engine-mounted silencer.

STANDARD EXHAUST SILENCER

INDUSTRIAL EXHAUST SILENCER

An industrial silencer offers a moderate muffling of engine exhaust noise suitable for an application where exhaust noise would not be a major concern. (Shipped loose.) A typical attenuation level of 10 dB(A) is produced.

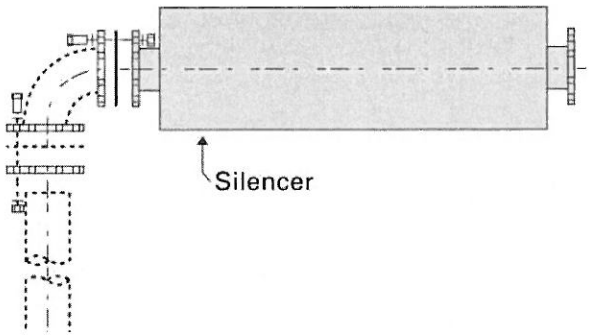


Standard on some units. See price list.

OPTIONAL EXHAUST SILENCERS

CRITICAL SILENCER

A critical silencer provides a higher level of engine exhaust noise reduction. A typical attenuation level of 25 dB(A). (Shipped loose.)



① Muffler AS

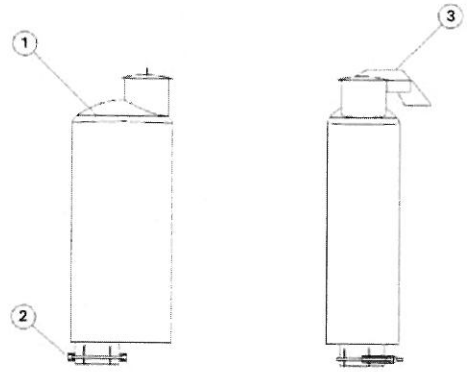
Picture shown is a typical "end in/end out" silencer (flange joint). Also available with some units are "side in/end out" silencers. See price list.

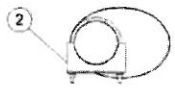
OPTIONAL EXHAUST SILENCERS

Note: Pictures shown may not reflect actual package.

ENGINE MOUNTED SILENCER

An engine mounted silencer provides an industrial level silencer. This option cannot be used with the mounting kits or through-wall kits.





① Muffler AS
② U-clamp
③ Rain Cap AS

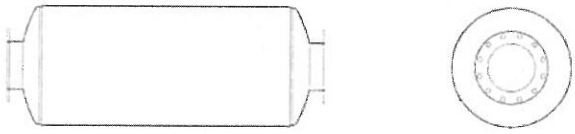
SUPER CRITICAL SILENCER – DOUBLE

Super critical grade silencer (35 dB(A)) and hardware for the C9, C15, 3406, 3456 with flange joint. (Shipped loose.)

Muffler AS
Gasket
Muffler AS
U-clamp
Bolts
Nuts
Washer-hard

SUPER CRITICAL SILENCER – SINGLE

Super critical grade silencer [35 dB(A)] and hardware for the C18, C27 with flange joint. (Shipped loose.)



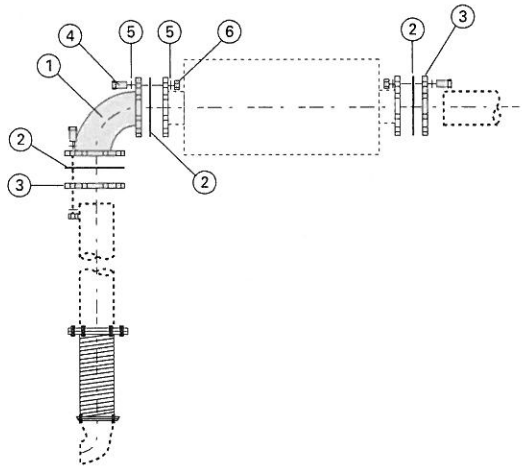
Note: Some groups use a split-cuff connection instead of the flange connections shown.

OPTIONAL EXHAUST SILENCER KITS

Note: Pictures shown may not reflect actual package.

MOUNTING KIT

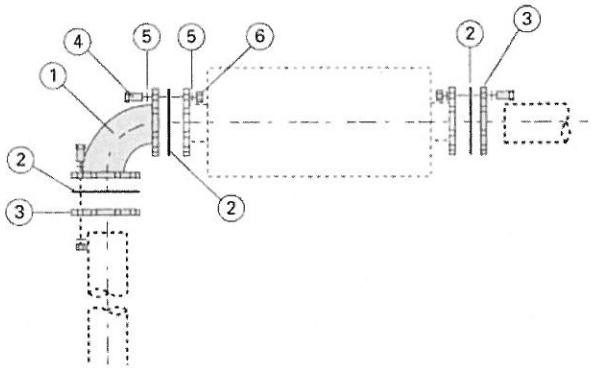
(Shipped loose.)



① 90° Elbow
② Gasket
③ Flange
④ UNC Bolt
⑤ Hard Washer
⑥ UNC Nut

90 DEG ELBOW KIT

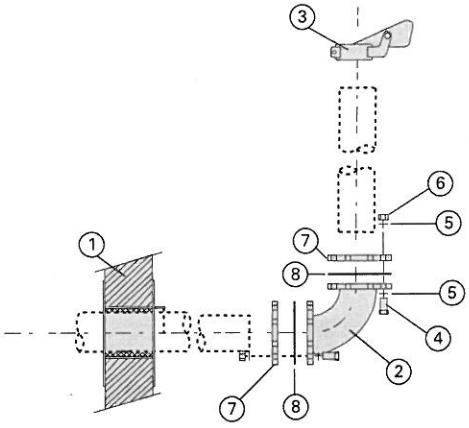
Elbow Kit cannot be used with engine-mounted silencer. (Shipped loose.)



① 90° Elbow AS
② Gasket
③ Flange
④ Bolts
⑤ UNC nut
⑥ Hard washer

THROUGH-WALL INSTALLATION KIT

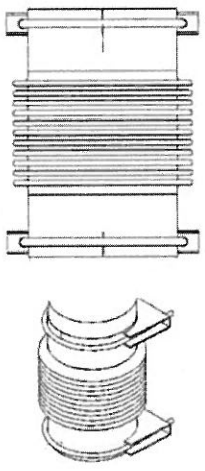
Through-wall installation kit cannot be used with engine-mounted silencer. (Shipped loose.)



① Sleeve Kit
② 90° Elbow
③ Rain Cap
④ UNC Bolt
⑤ Hard Washer
⑥ UNC Nut
⑦ Flange
⑧ Gasket

EXHAUST FLEX

(Shipped loose.)



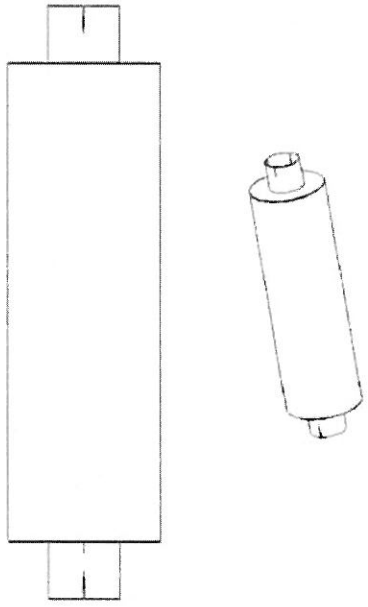
Pipe-flex
U-clamp

Some groups use a flange connection instead of the split-cuff connection shown. See price list.

SPLIT-CUFF JOINT

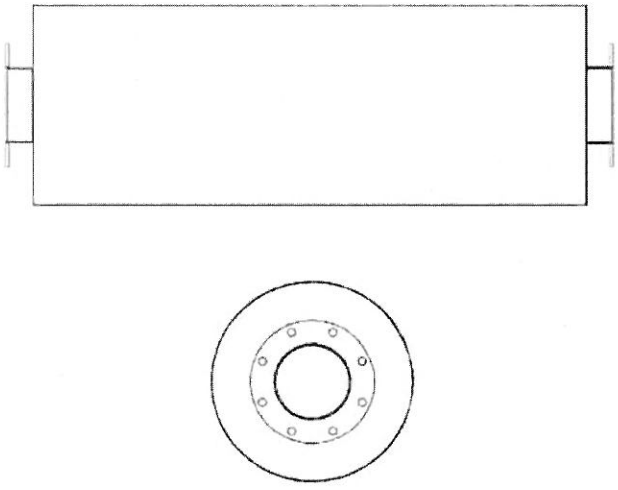
Note: Pictures shown may not reflect actual package.

Image shown is an example of a split-cuff that requires U-clamps.

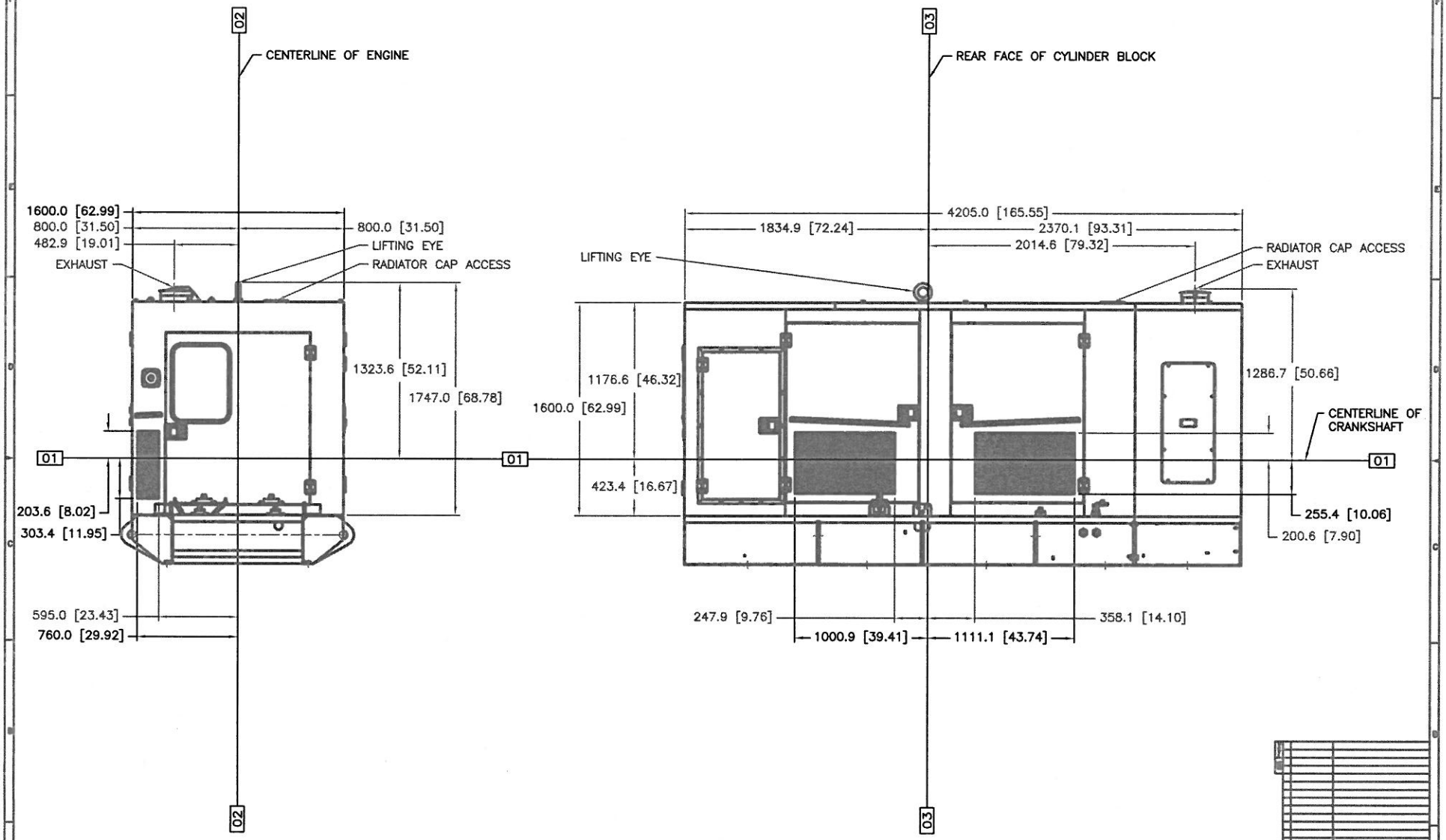


FLANGE JOINT

Image shown is an example of a flange joint that requires bolts, washers, nuts, and gaskets.



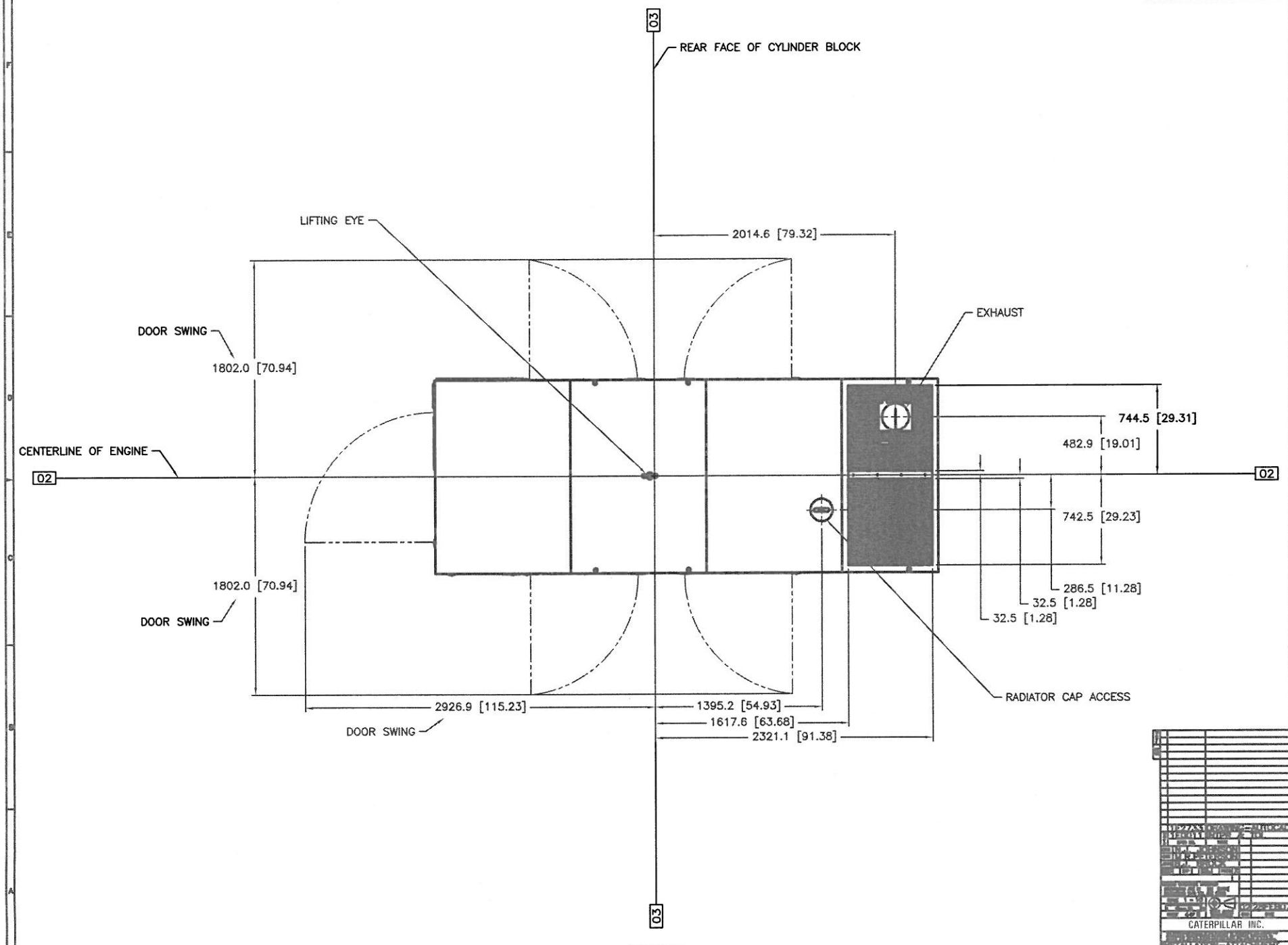
See price list for the type of connection: "Flange" or "Split-cuff".



MODEL	TYPE	PRICING AR
C9	R	DK-2547 CHG 05
		DK-2549 CHG 06
		DK-2551 CHG 05
		DK-2553 CHG 05

CATERPILLAR INC.

280-2234

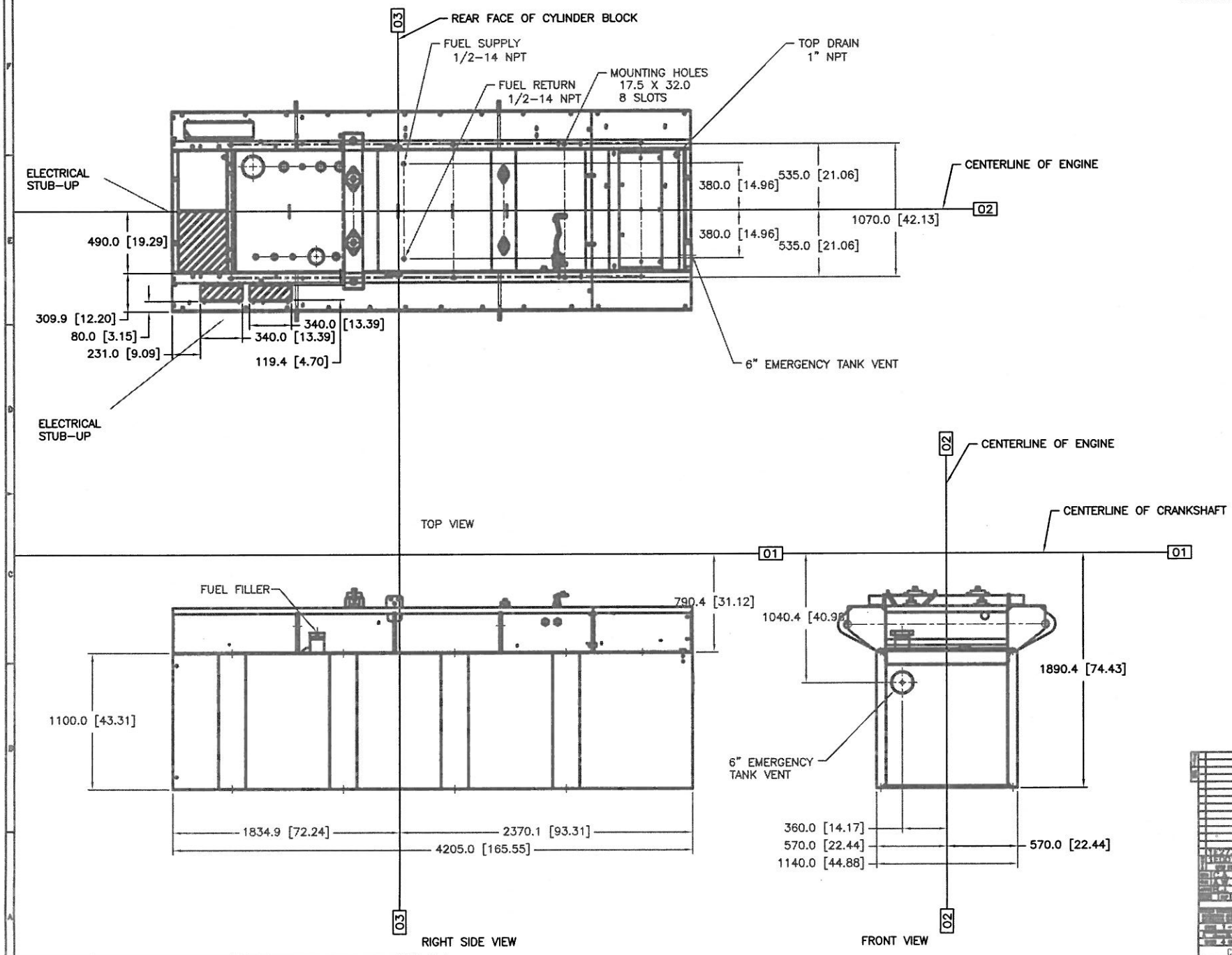


TOP VIEW

DK-2547 SHOWN

CATERPILLAR INC.

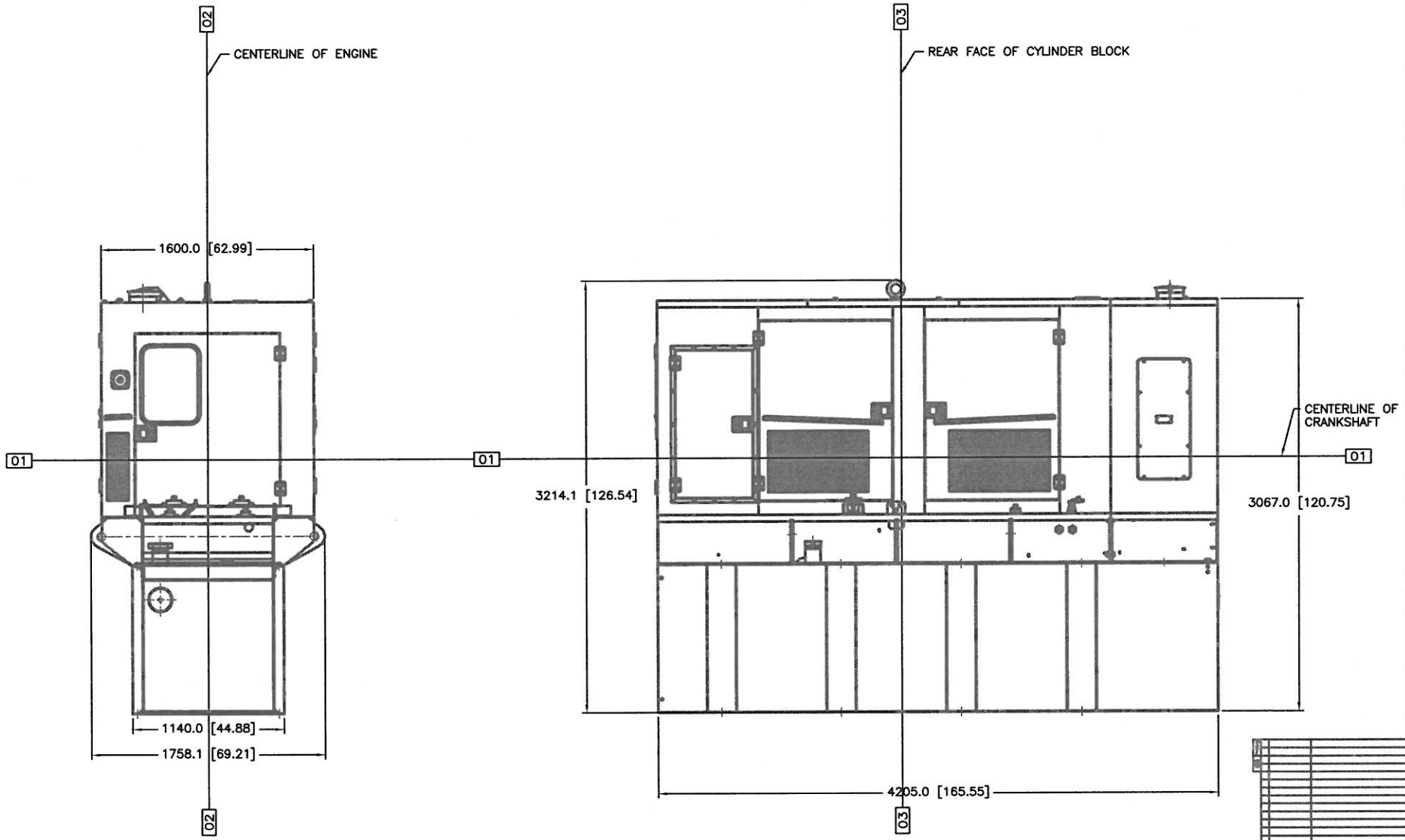
280-2234



MODEL	TYPE	PRICING AR	GALLONS	LITERS
C9	R	DK-3869 CHG 01 DK-3895 CHG 01	710	2690

DK-3869 SHOWN

CATERPILLAR INC.



REAR VIEW

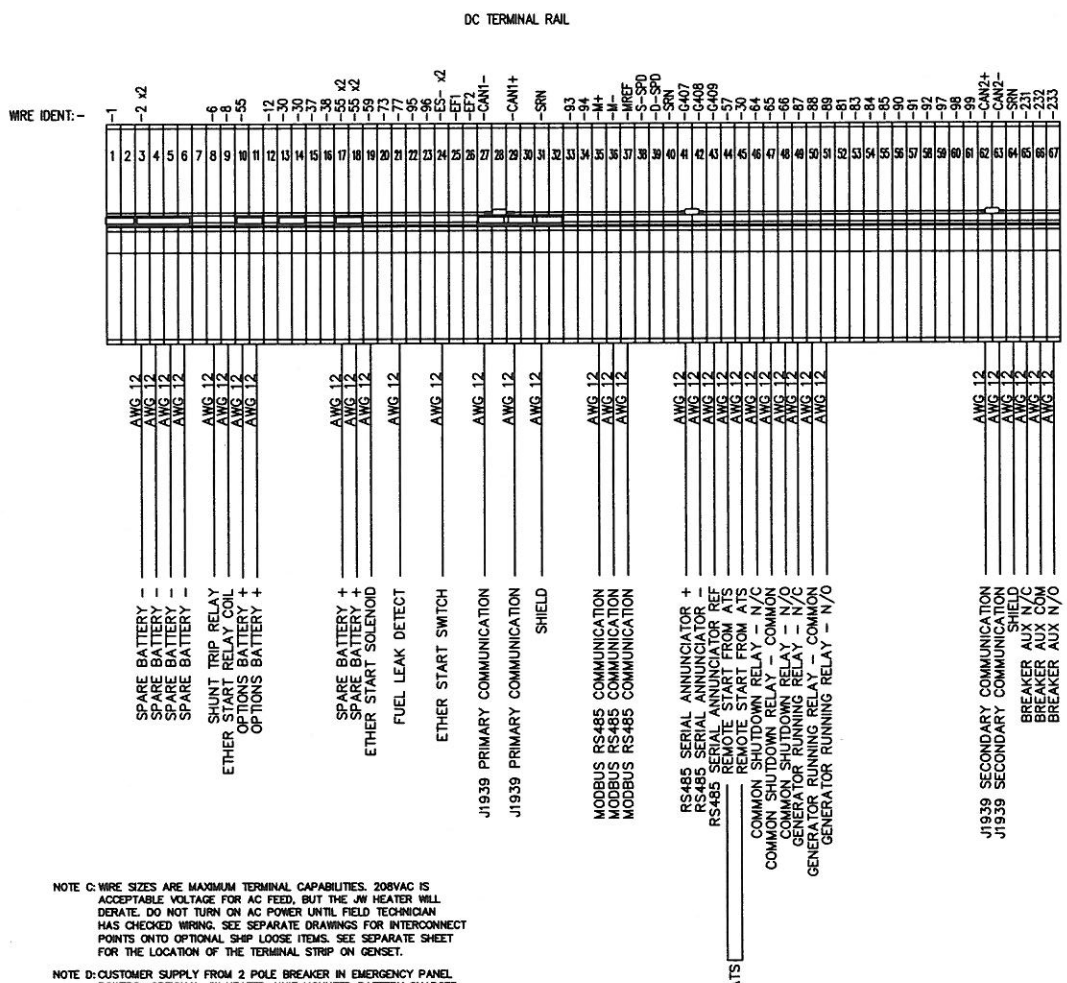
RIGHT SIDE VIEW

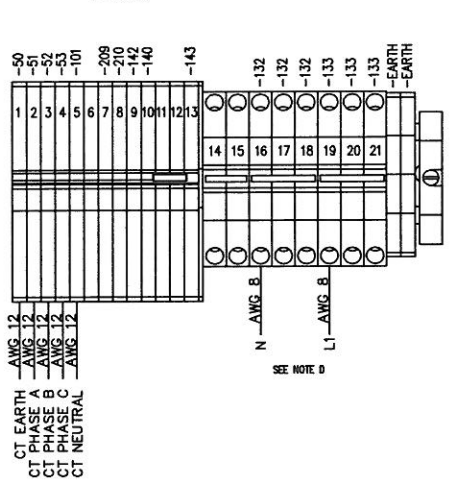
MODEL	TYPE	PRICING AR
C9	R	DK-2547 CHG 05
		DK-2549 CHG 06
		DK-2551 CHG 05
		DK-2553 CHG 05

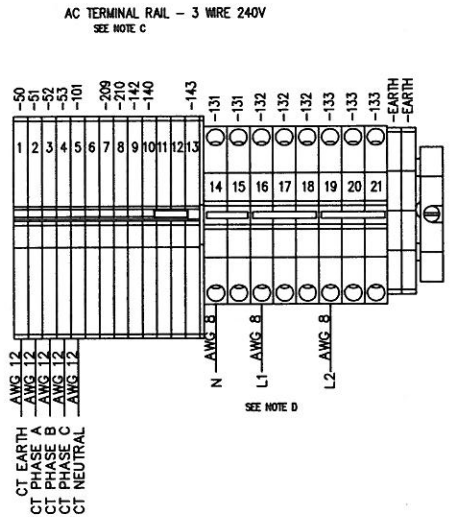
CATERPILLAR INC.

280-2234

METRIC 372-8295







NOTE C: WIRE SIZES ARE MAXIMUM TERMINAL CAPABILITIES. 208VAC IS ACCEPTABLE VOLTAGE FOR AC FEED, BUT THE JW HEATER WILL DERATE. DO NOT TURN ON AC POWER UNTIL FIELD TECHNICIAN HAS CHECKED WIRING. SEE SEPARATE DRAWINGS FOR INTERCONNECT POINTS ONTO OPTIONAL SHIP LOOSE ITEMS. SEE SEPARATE SHEET FOR THE LOCATION OF THE TERMINAL STRIP ON GENSET.

NOTE D: CUSTOMER SUPPLY FROM 2 POLE BREAKER IN EMERGENCY PANEL POWERS: OPTIONAL JW HEATER, UNIT MOUNTED BATTERY CHARGER AND GENERATOR SPACE HEATER.

CATERPILLAR: CONFIDENTIAL YELLOW

1E0198W LETTERS
1E0013Y CONFIDENTIALITY
1E2733 DRAWING - AUTOCAD
1E0011 INTPR & TOL

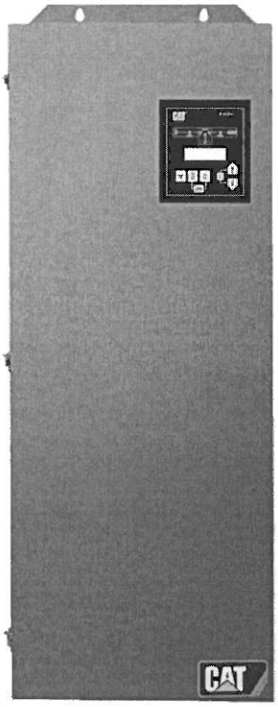
	SPEC NO.	NAME
DRN	J GOLDSWORTHY	
CHK	EDCI	
APPD	C GALLAGHER	
CODE IDENT	EXP	PROD X

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN mm
DIMENSIONS N/A TOL N/A BASIC

SCALE NONE
SHEET 3 OF 3
THIRD ANGLE PROJECTION
CHG 01 DATE 24MAR11

CATERPILLAR INC.

DIAGRAM-WIRING
(EMCP4.1/4.2 WITH A4:E4)
372-8295 VER - DOC TYP DWG CONTROL W995 D



CAT® ATC MOLDED CASE CIRCUIT BREAKER AND MOLDED CASE SWITCH AUTOMATIC TRANSFER SWITCH

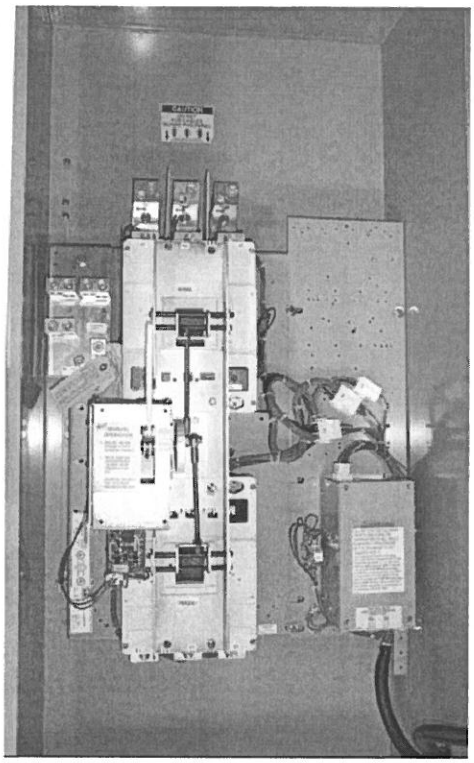
Cat® transfer switches are designed for a variety of standby power applications. They provide flexibility, reliability and value in a compact package. The open transition breaker-based Automatic Transfer Switch (ATS) will provide fully functioning transfer in applications where a momentary loss of power is acceptable on re-transfer from emergency to normal power supply. The Cat Open Transition MCCB & MCS types of ATS also permits periodic testing of the emergency source without interrupting power to the loads and are available from 30 to 1000 amperes.

FEATURES

- ATC-100, ATC-300+ or ATC-800 microprocessor-based controller
- Voltage and frequency sensing
- Multiple field programmable time delays
- Switch position indication
- Source availability indication
- Safe manual transfer under load
- Source 1 and Source 2 auxiliary contacts
- Programmable plant exerciser
- System test pushbutton
- Load Shed from emergency (ATC-800 only)
- Mimic diagram
- Mechanical (cable) and electrical interlocking to prevent paralleling of sources
- Safe manual operation under full load with permanently affixed operating handle
- Ambient temperature range: -40C to 40C (-40F to 104F)
- Operating temperature range: -20C to 70C (-4F to 158F)
- Operating humidity: up to 90%
- Relative humidity (non-condensing)
- Frequency sensing on Source 1 and 2
- True RMS three phase voltage sensing on Source 1, Source 2 and load.

AUTOMATIC TRANSFER SWITCH

OPTIONS
- Suitable for service entrance
- Integral overcurrent protection
- 2- or 4-position test switch
- Multi meter options available
- Selectable Automatic or Non-Automatic operation
- Space heaters (recommended for use in NEMA 3R enclosures
- Load sequencing contacts
- Surge suppression
- Remote communications
- Controller availability: ATC-100, ATC-300+, or ATC-800
- Field selectable, multi ratio, control voltage transformer 50/60 Hz
- Communications for the ATC-300+ Controller via RS-232 or Modbus through an integrated RS-485 port



OPTIONAL DELAYED TRANSITION INCLUDES:
- Time Delay Neutral
- Pre-Transfer Signal with 1 N.O. and 1 N.C. contacts

RATINGS
- 30-1000A 2, 3, or 4 Pole
- 120 – 600 Vac 50/60 Hz
- 100,000 amps withstand/closing/ interrupting at 480 Vac
- 100% rated
- UL 1008 listed
- CSA C22.2 No. 178 certified
- IBC 2006,CBC 2007 and OSHPD

CONTROLS AND WIRING

All control relays and industrial-grade relays are totally encapsulated to minimize exposure to dust and dirt. Lugs are 90°C rated and all control wire is #16 AWG, type XLPE with a 125°C temperature rating.

ENCLOSURE

Durable powder-coated steel NEMA 1, NEMA 3R and NEMA 12 are available with ATC-100 and ATC-300+ controllers. NEMA 4 is only available with the ATC-800 controller. The enclosures are Seismic Qualified (BOCA, CBC, IBC, UBC). The hinges have removable hinge pins to facilitate door removal for easy wall mounting or service and are supplied with pad-lockable latches.

TESTING STANDARDS

UL 991 UL standards for safety tests for safety-related controls employing solid-state devices	IEC 1000-5 Surge withstand tests
UL 1008 Dielectric test (endurance, withstand, etc.)	NEMA® ICS 109.21 Impulse withstand test
IEEE® 472 (ANSI C37.90A) Ringing wave immunity/voltage surge test	CSA® conformance C22.2 No. 178-1978 (reaffirmed 1992)
EN55022 (CISPR11): Conducted and radiated emissions	UL 869A Reference Std for Service Equipment
EN61000-4-2 Class B Level 4 ESD immunity test	UL 50/508 Enclosures
EN61000-4-3 (ENV50140) radiated RF, electromagnetic field immunity test	NEMA ICS 1 General standards for industrial control system
EN61000-4-4 Electrical fast transient/burst immunity test	NEMA ICS 2 Standards for industrial control devices, controllers, and assemblies
EN61000-4-5 IEEE C62.41: Surge immunity test	NEMA ICS 6 Enclosures for industrial controls and systems
EN61000-4-6 (ENV50141) Conducted immunity test	NEMA ICS 10-1993 AC automatic transfer switches
EN61000-4-11 Voltage dips and interruption immunity	ANSI C33.76 Enclosures
FCC Part 15 Conducted/radiated emissions (Class A)	NEC® 517, 700, 701, and 702 National Electrical Code
CISPR 11 Conducted/radiated emissions (Class A)	NFPA® 70 National Fire Protection Agency
IEC 1000-2 Electrostatic discharge test	NFPA 99 Health care facilities
IEC 1000-3 Radiated susceptibility tests	NFPA 101 Life safety code
IEC 1000-4 Fast transient tests	NFPA 110 Emergency and standby power systems
	EGSA 100S Standard for transfer switches
	CSA C22.2 No. 178-1978 Canadian Standards Association

UL 1008 Withstand and Close-On Ratings (kA)

Switch Rating Ampere	UL 1008 3-Cycle "Any Breaker" Rating			Rating When Used with Upstream Fuse		
	240V (kA)	480V (kA)	600V (kA)	Maximum Fuse Rating	Fuse Type	600V (kA)
30-100	100	65	25	200	J,T	200
150	100	65	25	400	J,T	200
225	100	65	25	400	J,T	200
240	100	65	25	400	J,T	200
300	100	65	25	400	J,T	200
400	100	65	25	600	J,T	200
600	100	65*	25	1200	J,T	200
800	65	50*	25	1600	L	200
1000	65	50*	25	1600	L	200

*NOTE: 4 pole units rated 35kA

MOLDED CASE CIRCUIT BREAKER DIMENSIONS AND WEIGHTS 40–1000A

Rating Ampere	Breaker Type	Poles	Switch Type	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Weight Lbs
Distribution Panels (240/120V Single Phase, ATC-300 only) Nema 1, 3R & 12							
225	FD	2	BOTH	53 (1346)	26 (660)	17 (432)	304
300	KD		Non Service Entrance	64 (1626)	26 (660)	17 (432)	405
			Service Entrance	64 (1626)	26 (660)	17 (432)	405
400	LD		Non Service Entrance	77 (1956)	26 (660)	18 (457)	505
			Service Entrance	77 (1956)	26 (660)	18 (457)	505
Automatic Transfer Switches (AG: 240/120 Single Phase, 280/120, ATC-100 & ATC-300) Nema 1, 3R & 12							
30-100	FD	2	Non Service Entrance	36 (914)	20 (509)	11.5 (292)	150
		3	Non Service Entrance	36 (914)	20 (509)	11.5 (292)	150
		2	Service Entrance	36 (914)	20 (509)	11.5 (292)	150
		3	Service Entrance	36 (914)	20 (509)	11.5 (292)	150
		4	BOTH	36 (914)	20 (509)	11.5 (292)	150
150-225	FD	2	Non Service Entrance	36 (914)	20 (509)	11.5 (292)	150
		3	Non Service Entrance	36 (914)	20 (509)	11.5 (292)	150
		2	Service Entrance	36 (914)	20 (509)	11.5 (292)	150
		3	Service Entrance	36 (914)	20 (509)	11.5 (292)	150
		4	BOTH	36 (914)	20 (509)	11.5 (292)	150
400-600	LD	2	Non Service Entrance	64 (1626)	26 (660)	17 (432)	445
		3	Non Service Entrance	64 (1626)	26 (660)	17 (432)	475
		2	Service Entrance	64 (1626)	26 (660)	17 (432)	445
		3	Service Entrance	64 (1626)	26 (660)	17 (432)	475
		4	BOTH	64 (1626)	26 (660)	17 (432)	475
600-800	MD	2	Non Service Entrance	77 (1956)	26 (660)	18 (457)	480
		3	Non Service Entrance	77 (1956)	26 (660)	18 (457)	510
		2	Service Entrance	77 (1956)	26 (660)	18 (457)	570
		3	Service Entrance	77 (1956)	26 (660)	18 (457)	570
Automatic Switches & Non-Automatic Transfer Switches Nema 1, 3R & 12							
30-100	FD	2	Non Service Entrance	48 (1219)	21 (533)	15 (381)	227
		3	Non Service Entrance	48 (1219)	21 (533)	15 (381)	232
		2	Service Entrance	48 (1219)	21 (533)	15 (381)	227
		3	Service Entrance	48 (1219)	21 (533)	15 (381)	232
		4	BOTH	48 (1219)	21 (533)	15 (381)	240
150	FD	2	Non Service Entrance	48 (1219)	21 (533)	15 (381)	227
		3	Non Service Entrance	48 (1219)	21 (533)	15 (381)	232
		2	Service Entrance	48 (1219)	21 (533)	15 (381)	227
		3	Service Entrance	48 (1219)	21 (533)	15 (381)	232
		4	BOTH	48 (1219)	21 (533)	15 (381)	240
150-225	KD	2	Non Service Entrance	48 (1219)	21 (533)	17 (432)	305
		3	Non Service Entrance	48 (1219)	21 (533)	17 (432)	305
		2	Service Entrance	48 (1219)	21 (533)	17 (432)	305
		3	Service Entrance	48 (1219)	21 (533)	17 (432)	305
		4	BOTH	48 (1219)	21 (533)	17 (432)	315
300	KD	2	Non Service Entrance	56 (1422)	21 (533)	17 (432)	295
		3	Non Service Entrance	56 (1422)	21 (533)	17 (432)	305
		2	Service Entrance	56 (1422)	21 (533)	17 (432)	295
		3	Service Entrance	56 (1422)	21 (533)	17 (432)	305
		4	BOTH	56 (1422)	21 (533)	17 (432)	315
400	LD	2	Non Service Entrance	53 (1346)	26 (660)	17 (432)	395
		3	Non Service Entrance	53 (1346)	26 (660)	17 (432)	425
		2	Service Entrance	53 (1346)	26 (660)	17 (432)	395
		3	Service Entrance	53 (1346)	26 (660)	17 (432)	425
		4	BOTH	53 (1346)	26 (660)	17 (432)	455
400-600	LD	2	Non Service Entrance	64 (1626)	26 (660)	17 (432)	395
		3	Non Service Entrance	64 (1626)	26 (660)	17 (432)	425
		2	Service Entrance	64 (1626)	26 (660)	17 (432)	395
		3	Service Entrance	64 (1626)	26 (660)	17 (432)	425
		4	BOTH	64 (1626)	26 (660)	17 (432)	425
600-800	MD	2	Non Service Entrance	77 (1956)	26 (660)	18 (457)	480
		3	Non Service Entrance	77 (1956)	26 (660)	18 (457)	510
		2	Service Entrance	77 (1956)	26 (660)	18 (457)	570
		3	Service Entrance	77 (1956)	26 (660)	18 (457)	570
600-1000	NB	2	Non Service Entrance	77 (1956)	26 (660)	18 (457)	540
		3	Non Service Entrance	77 (1956)	26 (660)	18 (457)	570
		2	Service Entrance	77 (1956)	26 (660)	18 (457)	540
		3	Service Entrance	77 (1956)	26 (660)	18 (457)	570
		4	BOTH	77 (1956)	26 (660)	18 (457)	600

All dimensions and weights are approximate and subject to change without notice and are not for construction use.

MOLDED CASE CIRCUIT BREAKER STANDARD TERMINAL** DATA FOR POWER CABLE CONNECTIONS FOR NEMA 1, 3R AND 12

Ampere Rating	Breaker Frame	Terminals	Line Side (Normal and Standby Source)	Load Connection	Neutral Connection
30-100	RTHMFDA	Default	(1) #14-1/0 CU/AL	(1) #14-1/0 CU/AL	(3) #14-1/0 CU/AL
150	RTHMFDA	Default	(1) #6-300 CU/AL	(1) #6-300 CU/AL	(3) #4-300 CU/AL
200	RTHMFDA	Default	(1) #6-300 CU/AL	(1) #6-300 CU/AL	(3) #4-300 CU/AL
30-100	FD	Default	(1) #14-1/0 CU/AL	(1) #14-1/0 CU/AL	(3) #14-1/0 CU/AL
150-225	FD	Default	(1) #6-300 CU/AL	(1) #6-300 CU/AL	(3) #4-300 CU/AL
30,100,150,225	KD	Default	(1) #3-350 CU/AL	(1) #6-350 CU/AL	(3) #4-350 CU/AL
	KD	Special	(1) #3-350 CU (2) 3/0-250 CU/AL (2) 3/0-250 CU (1) 250-500 CU/AL (1) 250-500 CU (1) 2/0-250 & (1) 2/0-500 CU/AL	(1) 3/0-250 & 250-500 CU/AL (2) 3/0-250 CU/AL (2) 3/0-250 CU	(3) 3/0-250 & 250-500 CU/AL None
	Open Enclosure*		Bus Provision	Bus Provision	
400	LD	Default	(1) 4/0-600 CU/AL	(2) #1-500 CU/AL	(6) 250-350 CU/AL
400	LD	Special	(2) 3/0-350 CU/AL (2) 250-350 CU (2) 400-500 CU/AL	(2) 500-750 CU/AL (3) 3/0-300 CU (2) 2/0-500 CU (3) 3/0-400 CU/AL	(12) 4/0-500 CU/AL (9) 500-750 CU/AL None
	Open Enclosure*		Bus Provision	Bus Provision	
600	LD	Default	(2) 3/0-350 CU/AL		
600	LD	Special	(1) 4/0-600 CU/AL (2) 250-350 CU (2) 400-500 CU/AL		
	Open Enclosure*		Bus Provision	Bus Provision	
600	MD	Default	(2) #1-500 CU/AL	(2) #1-500 CU/AL	(6) 4/0-500 CU/AL
600	MD	Special	(3) 3/0-400 CU/AL (2) 500-750 CU/AL (3) 3/0-300 CU (2) 2/0-500 CU	(3) 3/0-400 CU/AL (2) 500-750 CU/AL (3) 3/0-300 CU (2) 2/0-500 CU	(12) 4/0-500 CU/AL (9) 500-750 CU/AL None
	Open Enclosure*		Bus Provision	Bus Provision	
800	MD	Default	(3) 3/0-400 CU/AL	(3) 3/0-400 CU/AL	
800	MD	Special	(2) 500-750 CU/AL (3) 3/0-300 CU (2) 2/0-500 CU (2) #1-500 CU/AL	(2) 500-750 CU/AL (3) 3/0-300 CU (2) 2/0-500 CU (2) #1-500 CU/AL	
	Open Enclosure*		Bus Provision	Bus Provision	
600	NB	Default	(3) 3/0-400 CU/AL	(3) 3/0-400 CU/AL	(12) 4/0-500 CU/AL
600	NB	Special	(4) 4/0-500 CU/AL (3) 3/0-500 CU (2) #1-500 CU/AL (4) 3/0-400 CU (3) 500-750 CU/AL	(4) 4/0-500 CU/AL (3) 3/0-500 CU (2) #1-500 CU/AL (4) 3/0-400 CU (3) 500-750 CU/AL	(9) 500-750 CU/AL None
	Open Enclosure*		Bus Provision	Bus Provision	
800-1200	NB	Default	(4) 4/0-500 CU/AL	(4) 4/0-500 CU/AL	
800-1200	NB	Special	(3) 3/0-400 CU/AL (3) 3/0-500 CU (2) #1-500 CU/AL (4) 3/0-400 CU (3) 500-750 CU/AL	(3) 3/0-400 CU/AL (3) 3/0-500 CU (2) #1-500 CU/AL (4) 3/0-400 CU (3) 500-750 CU/AL	
	Open Enclosure*		Bus Provision	Bus Provision	

***When an open enclosure is ordered an optional bus provision is available as an option on the line side and/or load connection**
****Standard Terminals – ( ) indicate the quantity of supplied terminals per pole.**

Rev. 07/12

State of West Virginia

000042

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**
____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% resident vendor preference for the reason checked:**
____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% resident vendor preference for the reason checked:**
____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. **Application is made for 5% resident vendor preference for the reason checked:**
____ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.**
____ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Walker Engine Power Signed: Rodney Carter

Date: 9-25-2013 Title: Power Systems General Mgr

000041

RFQ No. DEFK14013

STATE 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 exceed 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: Cecil I. Walker Machinery

Authorized Signature: Rodney Cantley Date: 9/25/2013

State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 25 day of September, 2013.

My Commission expires February 22, 2018.

AFFIX SEAL HERE

NOTARY PUBLIC Tabatha N. Beane

Official Seal
Notary Public
State of West Virginia
Tabatha N. Beane
500 Pinewood Drive
Beckley, WV 25801
My commission expires February 22, 2018

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.

Walker Engine Power
(Company)

Rodney Canterbury
(Authorized Signature)

Power System General Manager
(Representative Name, Title)

(304)-949-1600 (304)-949-7380
(Phone Number) (Fax Number)

9/25/2013
(Date)

000004

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DEFK14013

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

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

Addendum Numbers Received:
(Check the box next to each addendum received)

[✓]	Addendum No. 1	[ ]	Addendum No. 6
[ ]	Addendum No. 2	[ ]	Addendum No. 7
[ ]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that 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.

Walker Engine Power
Company

Authorized Signature

9/25/13
Date

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