DOCKETED	
Docket Number:	26-SPPE-03
Project Title:	Charcot Avenue Backup Generating Facility (CABGF)
TN #:	273213
Document Title:	Charcot Avenue Backup Generating Facility SPPE Application Appendix D - Part VI of XII
Description:	N/A
Filer:	Scott Galati
Organization:	DayZenLLC
Submitter Role:	Applicant Representative
Submission Date:	10/26/2026 12:15:01 PM
Docketed Date:	10/26/2026

APPENDIX D

Caterpillar 3512C Specifications

Carter CAT
6387 Old Washington Road
Elkridge, MD 21075
800-449-9813

INSTALLING CONTRACTOR
PRE-START UP & TESTING SITE
EVALUATION

(*To be completed by installing contractor prior to scheduling Alban technician for startup*)

Project Name: _____ Project Number: _____

Customer Name: _____ Customer Contact: _____

Contact Phone Number: _____ Cell Number: _____

Site Address: _____

Equipment Delivery Date: _____ Startup Date: _____

Parking For:

Technicians Truck: _____

Load Bank: _____

Miscellaneous: _____
_____
_____
_____

Air Permit: Received [ ] Not Received [ ]

Equipment Information

Genset Model / KW _____ Serial Number _____

Generator Serial # _____ Generator Arrangement # _____

Engine Serial # _____ Fuel Type _____

ATS Model # _____ Serial Number: _____

ATS Model # _____ Serial Number: _____

_____
_____
_____

Note: Below is a list of items the contractor must check prior to start-up. This is a Generic List for most installations and some of these items may not pertain to every project, but mark them as NA if it does not apply to your particular project.

Site and Equipment Inspection / Accessibility

	OK	NO	N/A	Comments
Any visible Damage	☐	☐	☐	☐
All equipment easily assessable	☐	☐	☐	☐
Area clean of all debris / dirt / etc.	☐	☐	☐	☐
Security clearance required?	☐	☐	☐	☐
Permanent access to:				
Control panels, switchgear and / or ATS(s)	☐	☐	☐	☐
All filters: air, fuel, oil, water	☐	☐	☐	☐
Piping valves and solenoids	☐	☐	☐	☐
Fuel priming pump	☐	☐	☐	☐
Day tank controls	☐	☐	☐	☐
Day tank fuel fill port	☐	☐	☐	☐
Temporary access for:				
Placing Portable Load bank(s)	☐	☐	☐	☐
Load cables, routing, and connection	☐	☐	☐	☐
Technician truck(s) parking	☐	☐	☐	☐

Comments:

_____
_____
_____
_____
_____
_____

Enclosure Mounting:

	OK	NO	N/A	Comments
Enclosure or fuel base tank is mounted on vibration isolators (spring or rubber)	☐	☐	☐	☐
Vibration isolators are located properly	☐	☐	☐	☐
Mounting pad is level to within 1/8” across generator length and width	☐	☐	☐	☐
Mounting pad is proper thickness for support	☐	☐	☐	☐
Appropriate hold down bolts used for isolators and/or for mounting of enclosure to mounting pad	☐	☐	☐	☐
Flexible connections to genset	☐	☐	☐	☐
Proper free air clearance all around genset	☐	☐	☐	☐
All shipped loose items installed, i.e., exhaust elbow, rain cap, rain shield exterior lighting, air intake / discharge hoods, sound baffles, platforms & stairs, battery racks and batteries	☐	☐	☐	☐
Crankcase vent hoses installed and ran to exterior	☐	☐	☐	☐

Comments:

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Ventilation:

	OK	NO	N/A	Comments
Air louvers in place and clear of shipping braces	☐	☐	☐	☐
No obstructions within 10 feet (free air) of air intake or radiator discharge	☐	☐	☐	☐
Condensate trap properly located and installed	☐	☐	☐	☐
Provisions exist for supplying the proper amount of cooling air, at a maximum temperature of 100°F for engine intake air and to remove the radiated heat from the engine block and from the exhaust system	☐	☐	☐	☐

Refer to the specification sheet within the Submittal for airflow recommendations

All screens on intake and discharge louvers in place				
Sufficient air inlet size for necessary air into room	☐	☐	☐	☐
Louver dampers are powered and operating properly	☐	☐	☐	☐
Louver and fans wired: powered to close, failed to open	☐	☐	☐	☐

Comments:

_____

_____

_____

Generator Mounting:

	OK	NO	N/A	Comments
Genset or fuel base tank is mounted on vibration isolators (spring or rubber)	☐	☐	☐	☐
Vibration isolators are proper location	☐	☐	☐	☐
Vibration isolation shipping blocks & hold-downs removed	☐	☐	☐	☐
Spring Isolators are adjusted for height & deflection	☐	☐	☐	☐
Floor mounting pad is level to within 1/8” across generator length and width	☐	☐	☐	☐
Floor mounting pad is proper thickness for support	☐	☐	☐	☐
Appropriate hold down bolts used for isolators and for mounting of genset to fuel base tank	☐	☐	☐	☐
Flexible connections to genset	☐	☐	☐	☐
Crankcase vent hoses installed and ran to exterior	☐	☐	☐	☐
Proper free air clearance all around genset	☐	☐	☐	☐

Comments:

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Engine Exhaust System:

	OK	NO	N/A	Comments
Silencer properly located and connected	☐	☐	☐	☐
Muffler is properly supported from the enclosure structure or Building structure without the weight bearing on the exhaust flange of the engine	☐	☐	☐	☐
NOTE: It is the contractor's responsibility to install shipped loose mufflers and flex connections				
Exhaust piping is secure, properly supported and piped to the exterior with a rain cap installed	☐	☐	☐	☐
Flexible fittings are installed at the engine to isolate the engine vibration from the exhaust system piping	☐	☐	☐	☐
Only long radius "sweep" elbows are used in the exhaust system and there are no system restrictions.	☐	☐	☐	☐
System must be below the allowable backpressure limit.	☐	☐	☐	☐
Exhaust piping discharge is positioned away from outside "ventilation" air intakes to the building, generator air intakes and radiator inlets	☐	☐	☐	☐
Exhaust piping is positioned away from the generator control panel to protect it from any heat related damage to the electronic circuitry	☐	☐	☐	☐
Exhaust piping includes all necessary expansion joints required to compensate for thermal growth	☐	☐	☐	☐
Exhaust insulation installed	☐	☐	☐	☐

Comments:

_____

_____

Lubrication System:

	OK	NO	N/A	Comments
Shipping plugs removed from crankcase breather	☐	☐	☐	☐
Crankcase breather pipe hoses connected and routed smoothly to discharge to building exterior	☐	☐	☐	☐
Crankcase sump full of oil – verify using dipstick	☐	☐	☐	☐
No visible oil leaks	☐	☐	☐	☐
Oil make-up system installed, filled and operational	☐	☐	☐	☐
Verify oil dipstick is properly seated after crank case check	☐	☐	☐	☐

Comments:

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Diesel Fuel System:

	OK	NO	N/A	Comments
Flexible fuel lines used to all connections on the Generator Set	☐	☐	☐	☐
Fuel day tank plumbed to engine	☐	☐	☐	☐
Fuel day tank plumbed to main tank	☐	☐	☐	☐
Fuel lines are to match the material of the tank, either black iron or steel.	☐	☐	☐	☐
NOTE: Zinc alloy or galvanized pipe should not be used as it will react with the fuel				
Plumbed fuel supply lines are correct size	☐	☐	☐	☐
Fuel return line has been checked from engine to day tank and from day tank to storage tank to ensure that no restrictions exist	☐	☐	☐	☐
IMPORTANT: Restrictions in return line can cause severe damage to engine				
Confirm that there are no stop valves in the return line between the engine and day / main tank	☐	☐	☐	☐
IMPORTANT: If closed during operation, this will restrict flow and cause engine damage				
Fuel lines purged	☐	☐	☐	☐
Fuel tank vent lines installed properly	☐	☐	☐	☐
Fuel tank vent lines are correct height	☐	☐	☐	☐
Day tank pump operational	☐	☐	☐	☐
System pressure test completed	☐	☐	☐	☐
Fuel day tank full of fuel	☐	☐	☐	☐
No visible leaks in fuel day tank	☐	☐	☐	☐
All fuel alarms and monitoring connected	☐	☐	☐	☐
Water separators installed	☐	☐	☐	☐
Sufficient fuel available in main tank	☐	☐	☐	☐

Comments:

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Natural or LP Gas Fuel System:

	OK	NO	N/A	Comments
Gas lines connected	☐	☐	☐	☐
Correct gas pressure regulator installed	☐	☐	☐	☐
What size is incoming gas line	_____			**Inch** _____
How long of a gas line run from Genset to main regulator	_____			**Feet** _____
Flexible connections between engine and piping	☐	☐	☐	☐
Gas meter (is used) connected to high pressure side of regulator	☐	☐	☐	☐
Dirt traps installed upstream of all Gas Regulators	☐	☐	☐	☐

Comments:

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Cooling System:

	OK	NO	N/A	Comments
System full of proper antifreeze solution	☐	☐	☐	☐
Low level gauges installed and connected	☐	☐	☐	☐
Remote radiator pipes plumbed and valves installed	☐	☐	☐	☐
Expansion tanks are installed at the highest point in piping system	☐	☐	☐	☐
System is pressure tested at 15psi for a 24-hour period	☐	☐	☐	☐
No coolant leaks visible anywhere in system	☐	☐	☐	☐
Remote radiator fan motor starter wired	☐	☐	☐	☐
Electric discharge louvers connected	☐	☐	☐	☐
Radiator ducts properly sized	☐	☐	☐	☐
On cooling systems with remote radiators, the piping system has been designed such that no air will be trapped in the lines	☐	☐	☐	☐

Comments:

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DC Electrical System:

	OK	NO	N/A	Comments
Battery racks installed and batteries in place	☐	☐	☐	☐
Battery cables connected	☐	☐	☐	☐
Battery charger installed and connected to power	☐	☐	☐	☐
On batteries that are not sealed, do not energize battery charger until batteries have been filled with acid				
Day tank solenoids installed and connected	☐	☐	☐	☐
Remote annunciator(s) installed and connected	☐	☐	☐	☐
Discrete Input/Output Module(s) (DIO) installed and connected	☐	☐	☐	☐
All DC wiring installed in dedicated conduit	☐	☐	☐	☐
All DC control wiring is stranded type	☐	☐	☐	☐
Engine start wires connected	☐	☐	☐	☐
Additional DC wiring installed as required	☐	☐	☐	☐

Comments:

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AC Electrical System:	OK	NO	N/A	Comments
Transfer switch(s) installed and connected	☐	☐	☐	☐
Power cables from genset connected	☐	☐	☐	☐
Control wiring to genset connected	☐	☐	☐	☐
Power wiring to jacket water heater connected	☐	☐	☐	☐
Do not energize jacket water heater until the engine coolant has been installed				
Power wiring to strip heaters connected	☐	☐	☐	☐
Power wiring to battery charger connected	☐	☐	☐	☐
Power wiring to fuel oil cooler connected	☐	☐	☐	☐
Power wiring to genset enclosure panel board connected	☐	☐	☐	☐
All AC wiring installed in dedicated conduit	☐	☐	☐	☐
All AC control wiring is stranded type	☐	☐	☐	☐
Generator grounding connected to common ground	☐	☐	☐	☐
Generator neutral connected to ground (If system is bonded)	☐	☐	☐	☐
All low voltage power wiring on the load side bus				
Utility power available	☐	☐	☐	☐
All low voltage accessories energized	☐	☐	☐	☐
For voltages above 600 VAC, all cables and connected items to be hi-pot tested	☐	☐	☐	☐

Comments:

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NOTE: ***To prevent damage during transportation, some items are shipped loose and should be mounted, wired, piped, etc. by the installing contractor as part of the unit installation procedure.***

Additional Comments and Notes:

All deficiencies noted above must be completed and/or corrected by the customer prior to start-up so that we can effectively start up and test the product we have supplied. Discrepancies that are out of Alban's scope of supply will require a change order to the existing contract to complete.

Signature	Signature
Printed	Printed
CarterCAT Power Systems	Customer
Date	Date

Generator Set Load Test

Carter CAT

Project #: ______ Project Name: ______ Date: ______

System Model #: ______ System S/N: ______ Site Location: ______

Witnessed By: ______

Engine		Generator		Control Panel/Switchboard					
Brand:	Caterpillar	Brand:	Caterpillar	Brand:	Caterpillar	Type:	Standby	HZ:	60
Model:		Model:		Model:		KW:		F/L Amps:	1.0 pf
S/N:		S/N:		S/N:		Voltage:			0.8 pf

Time	Voltage			Amperage			Hertz	Average KW	% Load	Oil PSI	Water Temp Degrees F	Fuel PSI	Engine Hours	Ambient Temp
	ØA	ØB	ØC	ØA	ØB	ØC								

Service Tech: ______ ______ Certified By: ______

Electric Power Service Manager

Signature: ______ ______

OPERATION AND MAINTENANCE TRAINING

Project #:
Project Name:
Date:

The following personnel were present for and completed Operation and Maintenance Training

Trainee's Signature	Printed Name	Company	Position	Phone

Confirm that the following systems were covered in the training.

	Description	☑ if Training Complete
1.	General Safe Operation Instructions	☐
2.	Identification of Major Genset Components	☐
3.	Major Equipment Identification	☐
4.	General Theory of Operation	☐
5.	Demonstrations of Various Modes	☐
6.	Air Filtration Filter Change Procedure and Interval	☐
7.	Battery Charger	☐
8.	Governor	☐
9.	Engine Cooling System	☐
10.	Radiator System	☐
11.	Silencer Drain	☐
12.	Engine Fuel Filter Change Procedure and Interval	☐
13.	Day Tank	☐
14.	Generator	☐
15.	Voltage Regulator	☐
16.	Circuit Breaker	☐
17.	Emergency Stop Push Button	☐
18.	Manual Fuel Shutdown	☐
19.	Engine Protection Systems (LO, WT, OS, OC)	☐
20.	Engine Lubrication Type	☐
21.	Oil Sump Screen	☐
22.	Oil Filter Change Procedure and Interval	☐
23.	Oil Change Procedure and Interval	☐
24.	S.O.S	☐
25.	Starting System	☐
26.	Jacket Water Heaters	☐
27.	Automatic Transfer Switch	☐
28.	Troubleshooting	☐
29.	Replacement Parts Ordering	☐
30.	SCR / DPF / CEM	☐
31.	DEF (Urea) System	☐
32.	Miscellaneous Items	☐
33.		☐

Technician _____ Date _____

CARTER POWER SYSTEMS

Section Two
PACKAGE TECHNICAL DATA

Caterpillar (3512C)(1500 KW)Package Brochure
Engine Specific Performance Data
Generator Cutsheet
Generator Specific Technical Data
Voltage Regulator
Governor
Control Panel

Cat® 3512C
Diesel Generator Sets



Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.69)
Stroke – mm (in)	190 (7.48)
Displacement – L (in^3)	51.8 (3161)
Compression Ratio	14.7:1
Aspiration	TA
Fuel System	EUI
Governor Type	ADEM™ A3

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Continuous 60 Hz ekW (kVA)	Emissions Performance
1500 (1875)	1500 (1875)	1360 (1700)	1230 (1537)	U.S. EPA Stationary Emergency Use Only (Tier 2)

Features

Cat® Diesel Engine
- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emission standards
- Reliable performance proven in thousands of applications worldwide
- Certified alternative fuels including Hydrotreated Vegetable Oil (HVO), Renewable Diesel (RD) and Hydrotreated Renewable Diesel (HRD) which meet EN 15940 or ASTM D975 can be used or blended with EN 590 diesel

Generator Set Package
- Accepts 100% block load in one step
- Meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators
- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System
- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

Cat Energy Control System (ECS)
- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements
- Graphical touchscreen display
- Easily upgradeable

Warranty
- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing
- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

Standard and Optional Equipment

Engine

Air Cleaner

- ■ Single element
- ❑ Dual element
- ❑ Heavy duty

Muffler

- ❑ Industrial grade (15 dB)

Starting

- ■ Standard batteries
- ❑ Oversized batteries
- ■ Standard electric starter(s)
- ❑ Dual electric starter(s)
- ❑ Air starter(s)
- ■ Jacket water heater

Alternator

Output voltage

- ❑ 380V
- ❑ 440V
- ■ 480V
- ❑ 600V
- ❑ 4160V
- ❑ 6300V
- ❑ 6600V
- ❑ 6900V
- ❑ 12470V
- ❑ 13200V
- ❑ 13800V

Temperature Rise (over 40°C ambient)

- ❑ 150°C
- ❑ 125°C/130°C
- ■ 105°C
- ❑ 80°C

Winding type

- ❑ Random wound
- ■ Form wound

Excitation

- ❑ Internal excitation (IE)
- ■ Permanent magnet (PM)

Attachments

- ■ Anti-condensation heater
- ❑ Stator and bearing temperature monitoring and protection

Power Termination

Type

- ❑ Bus bar
- ■ Circuit breaker
- ❑ 1600A
- ■ 2500A
- ❑ 3000A
- ❑ 2000A
- ❑ 3200A
- ❑ UL
- ■ 3-pole
- ❑ IEC
- ❑ 4-pole
- ❑ Manually operated
- ■ Electrically operated

Trip Unit

- ❑ LSI
- ■ LSIG-P
- ❑ LSI-G

Control System

Controller

- ■ Cat ECS 100
- ❑ Cat ECS 200
- ❑ EMCP 4.4

Attachments

- ■ Local annunciator module
- ❑ Remote annunciator module
- ❑ Expansion I/O module
- ❑ Remote monitoring software

Charging

- ❑ Battery charger – 10A
- ❑ Battery charger – 20A
- ❑ Battery charger – 35A

Battery Charger - 30A

Vibration Isolators

- ■ Spring
- ❑ Seismic rated

Cat Connect

Connectivity

- ■ Ethernet
- ❑ Cellular

Extended Service Options

Terms

- ❑ 2 year (prime)
- ❑ 3 year
- ❑ 5 year
- ❑ 10 year

Coverage

- ❑ Silver
- ❑ Gold
- ❑ Platinum
- ❑ Platinum Plus

Ancillary Equipment

- ❑ Automatic transfer switch (ATS)
- ❑ Paralleling switchgear
- ❑ Paralleling controls

Certifications

- ■ ULC 2200 Listed
- ❑ IBC seismic certification
- ❑ OSHPD pre-approval

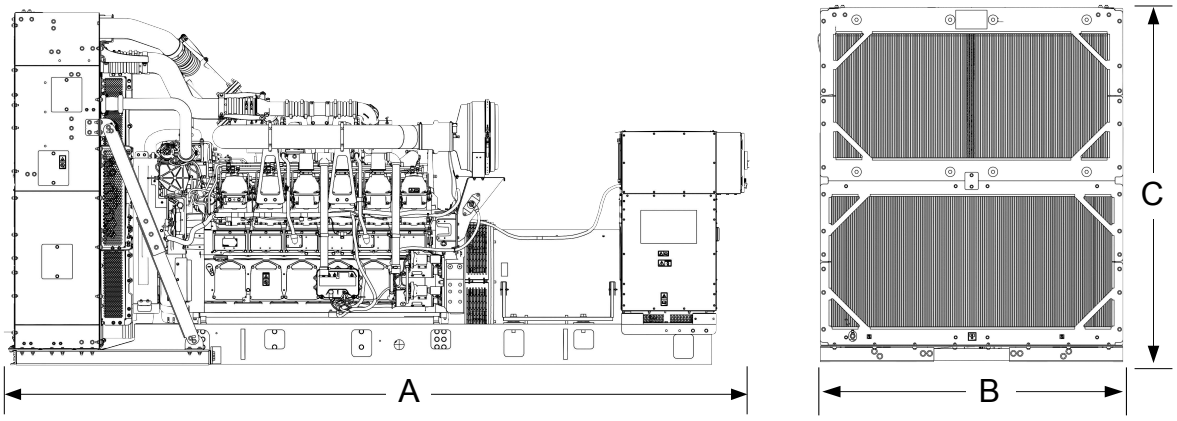
Note: *Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.*

Package Performance

Performance	Standby	
Frequency	60 Hz	
Gen set power rating with fan	1500 ekW	
Gen set power rating with fan @ 0.8 power factor	1875 kVA	
Emissions	EPA ESE (Tier 2)	
Performance number	EM1898-01	
Fuel Consumption		
100% load with fan – L/hr (gal/hr)	383.3	(101.3)
75% load with fan – L/hr (gal/hr)	300.6	(79.4)
50% load with fan – L/hr (gal/hr)	212.7	(56.2)
25% load with fan – L/hr (gal/hr)	124.3	(32.8)
Cooling System		
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)
Radiator air flow – m^3/min (cfm)	1745	(61624)
Engine coolant capacity – L (gal)	156.8	(41.4)
Radiator coolant capacity – L (gal)	128.0	(33.8)
Total coolant capacity – L (gal)	284.8	(75.2)
Inlet Air		
Combustion air inlet flow rate – m^3/min (cfm)	135.8	(4794.6)
Exhaust System		
Exhaust stack gas temperature – °C (°F)	402.6	(756.6)
Exhaust gas flow rate – m^3/min (cfm)	323.0	(11406.4)
Exhaust system backpressure (maximum allowable – kPa (in. water)	6.7	(27.0)
Heat Rejection		
Heat rejection to jacket water – kW (Btu/min)	499	(28363)
Heat rejection to exhaust (total) – kW (Btu/min)	1431	(81392)
Heat rejection to aftercooler – kW (Btu/min)	504	(28646)
Heat rejection to atmosphere from engine – kW (Btu/min)	125	(7084)
Heat rejection from alternator – kW (Btu/min)	74	(4208)
Emissions* (Nominal)		
NOx mg/Nm^3 (g/hp-h)	2303.5	(5.32)
CO mg/Nm^3 (g/hp-h)	230.3	(0.47)
HC mg/Nm^3 (g/hp-h)	50.3	(0.12)
PM mg/Nm^3 (g/hp-h)	12.6	(0.03)
Emissions* (Potential Site Variation)		
NOx mg/Nm^3 (g/hp-h)	2764.3	(6.38)
CO mg/Nm^3 (g/hp-h)	414.5	(0.84)
HC mg/Nm^3 (g/hp-h)	66.9	(0.16)
PM mg/Nm^3 (g/hp-h)	17.7	(0.04)

**mg/Nm^3 levels are corrected to 5% O_2. Contact your local Cat dealer fo*

Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
5618 (221.2)	2279 (89.7)	2652 (104.4)	13 141 (28,971)

Note: *For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.*

Ratings Definitions

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 rated ekW. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Mission Critical
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical rated ekW. Typical peak demand up to 100% of rated ekW for up to 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Prime
Output available with varying load for an unlimited time. Average power output is 70% of the prime rated ekW. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Continuous
Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous rated ekW. Typical peak demand is 100% of continuous rated ekW for 100% of the operating hours.

Applicable Codes and Standards
AS 1359, ULC 2200 3rd edition, UL 489, UL 869A, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU and facilitates compliance to NFPA 37, NFPA 70, NFPA 99, NFPA 110.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

Data Center Applications
- All ratings Tier III/Tier IV compliant per Uptime Institute requirements.
- All ratings ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

Fuel Rates
Fuel consumption reported in accordance with ISO 3046-1, based on fuel oil of 35º API [16°C (60ºF)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 15ºC (59ºF) and weighing 850 g/liter (7.0936 lbs/U.S. gal.) All fuel consumption values refer to rated engine power.

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The International System of Units (SI) is used in this publication.

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3512 PGJL
LEHE1248-07 (08/23)

PERFORMANCE DATA [EM1898]

AUGUST 25, 2025

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Perf No: EM1898 **Change Level:** 02

General | Heat Rejection | Sound | Emissions | Regulatory | Altitude Derate | Cross Reference | Supplementary Data | Perf Param Ref

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SALES MODEL:	3512C	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,800
MACHINE SALES MODEL:		**HERTZ:**	60
ENGINE POWER (BHP):	2,206	**FAN POWER (HP):**	88.5
GEN POWER WITH FAN (EKW):	1,500.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	14.7	**AFTERCOOLER TYPE:**	ATAAC
RATING LEVEL:	STANDBY	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
PUMP QUANTITY:	1	**INLET MANIFOLD AIR TEMP (F):**	122
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (F):**	210.2
MANIFOLD TYPE:	DRY	**TURBO CONFIGURATION:**	PARALLEL
GOVERNOR TYPE:	ADEM3	**TURBO QUANTITY:**	4
ELECTRONICS TYPE:	ADEM3	**TURBOCHARGER MODEL:**	GTB4708BN-52T-0.96
CAMSHAFT TYPE:	STANDARD	**CERTIFICATION YEAR:**	2006
IGNITION TYPE:	CI	**CRANKCASE BLOWBY RATE (FT3/HR):**	2,203.4
INJECTOR TYPE:	EUI	**FUEL RATE (RATED RPM) NO LOAD (GAL/HR):**	9.8
FUEL INJECTOR:	3920220	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	2,244.1
UNIT INJECTOR TIMING (IN):	64.34		
REF EXH STACK DIAMETER (IN):	10		
MAX OPERATING ALTITUDE (FT):	3,937		

INDUSTRY	SUB INDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET

General Performance Data Top

Note(s)

THIS STANDBY RATING IS FOR A STANDBY ONLY ENGINE ARRANGEMENT. RERATING THE ENGINE TO A PRIME OR CONTINUOUS RATING IS NOT PERMITTED.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
1,500.0	100	2,206	307	0.332	0.326	103.2	101.3	0.488	0.479
1,350.0	90	1,983	276	0.336	0.330	94.0	92.2	0.494	0.484
1,200.0	80	1,768	246	0.343	0.336	85.5	83.8	0.505	0.496
1,125.0	75	1,662	232	0.346	0.339	81.0	79.4	0.510	0.501
1,050.0	70	1,556	217	0.348	0.341	76.4	74.9	0.516	0.506
900.0	60	1,349	188	0.352	0.346	67.0	65.7	0.528	0.518
750.0	50	1,144	159	0.355	0.349	57.3	56.2	0.542	0.532
600.0	40	940	131	0.359	0.352	47.6	46.7	0.563	0.552
450.0	30	736	103	0.368	0.361	38.1	37.4	0.601	0.590
375.0	25	632	88	0.376	0.368	33.5	32.8	0.633	0.621
300.0	20	527	73	0.388	0.380	28.8	28.3	0.681	0.668
150.0	10	312	43	0.443	0.434	19.5	19.1	0.920	0.902

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,500.0	100	2,206	77.5	120.9	1,145.6	74.6	756.6	82	449.8
1,350.0	90	1,983	72.2	116.1	1,102.7	68.8	727.5	77	428.8
1,200.0	80	1,768	66.9	113.2	1,069.1	63.0	713.4	71	409.0
1,125.0	75	1,662	63.4	111.5	1,052.3	59.5	706.7	68	396.6
1,050.0	70	1,556	59.7	109.8	1,035.2	55.8	700.0	64	382.6
900.0	60	1,349	51.1	107.1	1,000.5	47.6	687.3	55	350.3
750.0	50	1,144	40.6	107.5	963.6	38.4	696.7	44	309.9
600.0	40	940	30.0	108.4	921.9	29.4	702.2	33	266.6
450.0	30	736	20.9	107.1	856.0	21.9	685.3	23	224.6
375.0	25	632	16.9	106.2	809.5	18.8	664.9	19	204.3
300.0	20	527	13.3	105.2	754.5	16.0	636.4	15	184.2
150.0	10	312	7.3	103.2	609.7	11.4	540.6	9	148.8

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,500.0	100	2,206	4,794.6	11,406.4	21,167.1	21,899.0	4,610.8	4,188.7
1,350.0	90	1,983	4,598.6	10,640.5	20,285.8	20,952.1	4,406.6	4,013.7
1,200.0	80	1,768	4,378.0	9,981.4	19,285.7	19,892.1	4,183.4	3,822.5
1,125.0	75	1,662	4,246.6	9,595.7	18,674.6	19,249.2	4,045.1	3,700.9
1,050.0	70	1,556	4,098.2	9,181.5	17,984.1	18,526.3	3,892.6	3,565.4
900.0	60	1,349	3,753.0	8,273.8	16,379.2	16,854.4	3,546.8	3,254.6
750.0	50	1,144	3,280.4	7,230.6	14,251.7	14,658.2	3,074.4	2,822.7
600.0	40	940	2,787.5	6,155.4	12,057.0	12,394.7	2,604.7	2,394.2
450.0	30	736	2,363.4	5,134.0	10,186.4	10,456.9	2,204.7	2,032.9
375.0	25	632	2,179.8	4,645.2	9,382.2	9,619.6	2,030.9	1,877.5
300.0	20	527	2,011.4	4,165.1	8,648.1	8,852.3	1,868.3	1,733.0
150.0	10	312	1,730.9	3,244.5	7,428.8	7,566.8	1,594.8	1,494.1

Heat Rejection Data Top

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
1,500.0	100	2,206	28,363	7,084	81,392	37,320	11,956	28,646	93,547	224,476	239,123
1,350.0	90	1,983	26,596	6,665	74,128	33,028	10,882	26,053	84,110	204,315	217,647
1,200.0	80	1,768	24,935	6,360	68,257	30,111	9,897	23,350	74,958	185,825	197,950
1,125.0	75	1,662	24,035	6,215	64,979	28,563	9,376	21,735	70,466	176,039	187,526
1,050.0	70	1,556	23,095	6,074	61,624	26,950	8,845	20,016	66,004	166,069	176,905
900.0	60	1,349	21,108	5,797	54,723	23,576	7,759	16,292	57,205	145,683	155,189
750.0	50	1,144	18,963	5,518	47,678	21,085	6,636	11,959	48,509	124,586	132,716
600.0	40	940	16,710	5,240	40,505	18,108	5,512	7,849	39,882	103,489	110,241
450.0	30	736	14,361	4,818	33,056	14,499	4,416	4,829	31,201	82,917	88,327
375.0	25	632	13,131	4,577	29,249	12,494	3,876	3,681	26,809	72,772	77,520
300.0	20	527	11,848	4,331	25,396	10,418	3,336	2,726	22,353	62,628	66,715
150.0	10	312	9,052	3,821	17,619	5,853	2,253	1,342	13,214	42,301	45,061

Sound Data Top

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	117.0	107.0	122.0	118.0	110.0
1,350.0	90	1,983	116.0	106.0	121.0	117.0	109.0
1,200.0	80	1,768	115.0	105.0	120.0	116.0	108.0
1,125.0	75	1,662	114.0	104.0	119.0	115.0	107.0
1,050.0	70	1,556	114.0	104.0	119.0	115.0	107.0
900.0	60	1,349	112.0	103.0	117.0	113.0	105.0
750.0	50	1,144	111.0	101.0	116.0	112.0	104.0
600.0	40	940	110.0	100.0	115.0	111.0	103.0
450.0	30	736	108.0	99.0	113.0	109.0	101.0
375.0	25	632	108.0	98.0	113.0	109.0	101.0
300.0	20	527	107.0	97.0	112.0	108.0	100.0
150.0	10	312	105.0	95.0	110.0	106.0	98.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	108.0	109.0	109.0	107.0
1,350.0	90	1,983	107.0	108.0	108.0	106.0
1,200.0	80	1,768	106.0	107.0	107.0	105.0
1,125.0	75	1,662	106.0	107.0	107.0	105.0
1,050.0	70	1,556	105.0	106.0	106.0	104.0
900.0	60	1,349	104.0	105.0	105.0	103.0
750.0	50	1,144	103.0	104.0	104.0	102.0
600.0	40	940	101.0	103.0	102.0	101.0
450.0	30	736	100.0	101.0	101.0	99.0
375.0	25	632	99.0	100.0	100.0	98.0
300.0	20	527	98.0	99.0	99.0	97.0
150.0	10	312	96.0	97.0	97.0	95.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	103.0	95.0	111.0	106.0	97.0
1,350.0	90	1,983	102.0	94.0	110.0	104.0	96.0
1,200.0	80	1,768	101.0	93.0	109.0	103.0	95.0
1,125.0	75	1,662	101.0	92.0	109.0	103.0	94.0
1,050.0	70	1,556	100.0	92.0	108.0	102.0	94.0
900.0	60	1,349	99.0	90.0	107.0	101.0	93.0
750.0	50	1,144	98.0	89.0	106.0	100.0	91.0
600.0	40	940	96.0	88.0	104.0	99.0	90.0
450.0	30	736	95.0	86.0	103.0	97.0	89.0
375.0	25	632	94.0	86.0	102.0	96.0	88.0
300.0	20	527	93.0	85.0	101.0	96.0	87.0
150.0	10	312	91.0	83.0	99.0	93.0	85.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	95.0	96.0	96.0	93.0
1,350.0	90	1,983	94.0	95.0	95.0	92.0
1,200.0	80	1,768	93.0	94.0	94.0	91.0
1,125.0	75	1,662	93.0	93.0	93.0	91.0
1,050.0	70	1,556	92.0	93.0	93.0	90.0
900.0	60	1,349	91.0	92.0	92.0	89.0
750.0	50	1,144	90.0	91.0	90.0	88.0
600.0	40	940	88.0	89.0	89.0	86.0
450.0	30	736	87.0	88.0	88.0	85.0
375.0	25	632	86.0	87.0	87.0	84.0

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
300.0	20	527	85.0	86.0	86.0	83.0
150.0	10	312	83.0	84.0	84.0	81.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	97.0	88.0	105.0	99.0	90.0
1,350.0	90	1,983	96.0	87.0	104.0	98.0	89.0
1,200.0	80	1,768	95.0	86.0	103.0	97.0	88.0
1,125.0	75	1,662	94.0	85.0	102.0	96.0	88.0
1,050.0	70	1,556	94.0	85.0	102.0	96.0	87.0
900.0	60	1,349	92.0	84.0	100.0	95.0	86.0
750.0	50	1,144	91.0	83.0	99.0	93.0	85.0
600.0	40	940	90.0	81.0	98.0	92.0	83.0
450.0	30	736	88.0	80.0	96.0	91.0	82.0
375.0	25	632	88.0	79.0	96.0	90.0	81.0
300.0	20	527	87.0	78.0	95.0	89.0	80.0
150.0	10	312	85.0	76.0	93.0	87.0	78.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	89.0	89.0	89.0	86.0
1,350.0	90	1,983	88.0	88.0	88.0	85.0
1,200.0	80	1,768	87.0	87.0	87.0	84.0
1,125.0	75	1,662	86.0	87.0	87.0	84.0
1,050.0	70	1,556	86.0	86.0	86.0	83.0
900.0	60	1,349	84.0	85.0	85.0	82.0
750.0	50	1,144	83.0	84.0	84.0	81.0
600.0	40	940	82.0	83.0	82.0	80.0
450.0	30	736	80.0	81.0	81.0	78.0
375.0	25	632	80.0	80.0	80.0	77.0
300.0	20	527	79.0	79.0	79.0	76.0
150.0	10	312	77.0	77.0	77.0	74.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	104.0	91.0	99.0	100.0	98.0
1,350.0	90	1,983	104.0	91.0	99.0	100.0	98.0
1,200.0	80	1,768	104.0	91.0	99.0	100.0	98.0
1,125.0	75	1,662	104.0	91.0	99.0	100.0	98.0
1,050.0	70	1,556	104.0	91.0	99.0	100.0	98.0
900.0	60	1,349	104.0	91.0	99.0	100.0	98.0
750.0	50	1,144	104.0	91.0	99.0	100.0	98.0
600.0	40	940	104.0	91.0	99.0	100.0	98.0
450.0	30	736	104.0	91.0	99.0	100.0	98.0
375.0	25	632	104.0	91.0	99.0	100.0	98.0
300.0	20	527	104.0	91.0	99.0	100.0	98.0
150.0	10	312	104.0	91.0	99.0	100.0	98.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	99.0	100.0	98.0	102.0
1,350.0	90	1,983	99.0	100.0	98.0	102.0
1,200.0	80	1,768	99.0	100.0	98.0	102.0
1,125.0	75	1,662	99.0	100.0	98.0	102.0

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
1,050.0	70	1,556	99.0	100.0	98.0	102.0
900.0	60	1,349	99.0	100.0	98.0	102.0
750.0	50	1,144	99.0	100.0	98.0	102.0
600.0	40	940	99.0	100.0	98.0	102.0
450.0	30	736	99.0	100.0	98.0	102.0
375.0	25	632	99.0	100.0	98.0	102.0
300.0	20	527	99.0	100.0	98.0	102.0
150.0	10	312	99.0	100.0	98.0	102.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	92.0	80.0	87.0	88.0	86.0
1,350.0	90	1,983	92.0	80.0	87.0	88.0	86.0
1,200.0	80	1,768	92.0	80.0	87.0	88.0	86.0
1,125.0	75	1,662	92.0	80.0	87.0	88.0	86.0
1,050.0	70	1,556	92.0	80.0	87.0	88.0	86.0
900.0	60	1,349	92.0	80.0	87.0	88.0	86.0
750.0	50	1,144	92.0	80.0	87.0	88.0	86.0
600.0	40	940	92.0	80.0	87.0	88.0	86.0
450.0	30	736	92.0	80.0	87.0	88.0	86.0
375.0	25	632	92.0	80.0	87.0	88.0	86.0
300.0	20	527	92.0	80.0	87.0	88.0	86.0
150.0	10	312	92.0	80.0	87.0	88.0	86.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	87.0	88.0	86.0	90.0
1,350.0	90	1,983	87.0	88.0	86.0	90.0
1,200.0	80	1,768	87.0	88.0	86.0	90.0
1,125.0	75	1,662	87.0	88.0	86.0	90.0
1,050.0	70	1,556	87.0	88.0	86.0	90.0
900.0	60	1,349	87.0	88.0	86.0	90.0
750.0	50	1,144	87.0	88.0	86.0	90.0
600.0	40	940	87.0	88.0	86.0	90.0
450.0	30	736	87.0	88.0	86.0	90.0
375.0	25	632	87.0	88.0	86.0	90.0
300.0	20	527	87.0	88.0	86.0	90.0
150.0	10	312	87.0	88.0	86.0	90.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	87.0	74.0	81.0	82.0	80.0
1,350.0	90	1,983	87.0	74.0	81.0	82.0	80.0
1,200.0	80	1,768	87.0	74.0	81.0	82.0	80.0
1,125.0	75	1,662	87.0	74.0	81.0	82.0	80.0
1,050.0	70	1,556	87.0	74.0	81.0	82.0	80.0
900.0	60	1,349	87.0	74.0	81.0	82.0	80.0
750.0	50	1,144	87.0	74.0	81.0	82.0	80.0
600.0	40	940	87.0	74.0	81.0	82.0	80.0
450.0	30	736	87.0	74.0	81.0	82.0	80.0
375.0	25	632	87.0	74.0	81.0	82.0	80.0
300.0	20	527	87.0	74.0	81.0	82.0	80.0
150.0	10	312	87.0	74.0	81.0	82.0	80.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	81.0	83.0	80.0	84.0
1,350.0	90	1,983	81.0	83.0	80.0	84.0
1,200.0	80	1,768	81.0	83.0	80.0	84.0
1,125.0	75	1,662	81.0	83.0	80.0	84.0
1,050.0	70	1,556	81.0	83.0	80.0	84.0
900.0	60	1,349	81.0	83.0	80.0	84.0
750.0	50	1,144	81.0	83.0	80.0	84.0
600.0	40	940	81.0	83.0	80.0	84.0
450.0	30	736	81.0	83.0	80.0	84.0
375.0	25	632	81.0	83.0	80.0	84.0
300.0	20	527	81.0	83.0	80.0	84.0
150.0	10	312	81.0	83.0	80.0	84.0

Emissions Data Top

Units Filter All Units

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	1,500.0 2,206	1,125.0 1,662	750.0 1,144	375.0 632	150.0 312
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	11,615	5,877	3,912	2,972	2,290
TOTAL CO		G/HR	1,019	634	898	1,060	1,024
TOTAL HC		G/HR	257	278	262	207	241
TOTAL CO2		KG/HR	1,063	828	584	342	198
PART MATTER		G/HR	67.7	68.8	104.8	127.8	77.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,303.5	1,458.7	1,352.5	1,792.1	2,400.6
TOTAL CO	(CORR 5% O2)	MG/NM3	230.3	181.4	384.5	802.1	1,284.5
TOTAL HC	(CORR 5% O2)	MG/NM3	50.3	69.9	90.2	128.2	263.2
PART MATTER	(CORR 5% O2)	MG/NM3	12.6	16.3	37.9	76.2	80.1
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	854.8	541.3	501.9	665.0	890.8
TOTAL CO	(CORR 15% O2)	MG/NM3	85.5	67.3	142.7	297.6	476.6
TOTAL HC	(CORR 15% O2)	MG/NM3	18.7	25.9	33.5	47.6	97.7
PART MATTER	(CORR 15% O2)	MG/NM3	4.7	6.0	14.1	28.3	29.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,122	711	659	873	1,169
TOTAL CO	(CORR 5% O2)	PPM	184	145	308	642	1,028
TOTAL HC	(CORR 5% O2)	PPM	94	130	168	239	491
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	416	264	244	324	434
TOTAL CO	(CORR 15% O2)	PPM	68	54	114	238	381
TOTAL HC	(CORR 15% O2)	PPM	35	48	62	89	182
TOTAL NOX (AS NO2)		G/HP-HR	5.32	3.57	3.45	4.73	7.39
TOTAL CO		G/HP-HR	0.47	0.39	0.79	1.69	3.30
TOTAL HC		G/HP-HR	0.12	0.17	0.23	0.33	0.78
PART MATTER		G/HP-HR	0.03	0.04	0.09	0.20	0.25
TOTAL NOX (AS NO2)		G/KW-HR	7.13	4.79	4.62	6.35	9.92
TOTAL CO		G/KW-HR	0.63	0.52	1.06	2.26	4.43
TOTAL HC		G/KW-HR	0.16	0.23	0.31	0.44	1.04
PART MATTER		G/KW-HR	0.04	0.06	0.12	0.27	0.34
TOTAL NOX (AS NO2)		LB/HR	25.61	12.96	8.62	6.55	5.05
TOTAL CO		LB/HR	2.25	1.40	1.98	2.34	2.26
TOTAL HC		LB/HR	0.57	0.61	0.58	0.46	0.53
TOTAL CO2		LB/HR	2,344	1,825	1,289	753	436
PART MATTER		LB/HR	0.15	0.15	0.23	0.28	0.17
OXYGEN IN EXH		%	10.9	12.0	12.7	13.7	15.7
DRY SMOKE OPACITY		%	1.0	1.3	2.9	5.0	3.0
BOSCH SMOKE NUMBER			0.77	0.79	1.02	1.30	1.04

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	1,500.0 2,206	1,125.0 1,662	750.0 1,144	375.0 632	150.0 312
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	13,938	7,053	4,695	3,567	2,748
TOTAL CO		G/HR	1,834	1,142	1,617	1,908	1,843
TOTAL HC		G/HR	341	370	348	276	320
PART MATTER		G/HR	94.8	96.4	146.7	178.9	109.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,764.3	1,750.5	1,623.0	2,150.5	2,880.8
TOTAL CO	(CORR 5% O2)	MG/NM3	414.5	326.5	692.0	1,443.8	2,312.1
TOTAL HC	(CORR 5% O2)	MG/NM3	66.9	93.0	119.9	170.5	350.1
PART MATTER	(CORR 5% O2)	MG/NM3	17.7	22.8	53.1	106.7	112.2

GENSET POWER WITH FAN		EKW	1,500.0	1,125.0	750.0	375.0	150.0
ENGINE POWER		BHP	2,206	1,662	1,144	632	312
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,025.7	649.6	602.2	798.0	1,069.0
TOTAL CO	(CORR 15% O2)	MG/NM3	153.8	121.2	256.8	535.8	857.9
TOTAL HC	(CORR 15% O2)	MG/NM3	24.8	34.5	44.5	63.3	129.9
PART MATTER	(CORR 15% O2)	MG/NM3	6.6	8.5	19.7	39.6	41.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,346	853	791	1,047	1,403
TOTAL CO	(CORR 5% O2)	PPM	332	261	554	1,155	1,850
TOTAL HC	(CORR 5% O2)	PPM	125	174	224	318	654
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	500	316	293	389	521
TOTAL CO	(CORR 15% O2)	PPM	123	97	205	429	686
TOTAL HC	(CORR 15% O2)	PPM	46	64	83	118	243
TOTAL NOX (AS NO2)		G/HP-HR	6.38	4.28	4.14	5.68	8.87
TOTAL CO		G/HP-HR	0.84	0.69	1.42	3.04	5.95
TOTAL HC		G/HP-HR	0.16	0.22	0.31	0.44	1.03
PART MATTER		G/HP-HR	0.04	0.06	0.13	0.28	0.35
TOTAL NOX (AS NO2)		G/KW-HR	8.56	5.75	5.55	7.62	11.90
TOTAL CO		G/KW-HR	1.13	0.93	1.91	4.07	7.98
TOTAL HC		G/KW-HR	0.21	0.30	0.41	0.59	1.39
PART MATTER		G/KW-HR	0.06	0.08	0.17	0.38	0.47
TOTAL NOX (AS NO2)		LB/HR	30.73	15.55	10.35	7.86	6.06
TOTAL CO		LB/HR	4.04	2.52	3.56	4.21	4.06
TOTAL HC		LB/HR	0.75	0.82	0.77	0.61	0.71
PART MATTER		LB/HR	0.21	0.21	0.32	0.39	0.24

Regulatory Information Top

EPA EMERGENCY STATIONARY **2011 - ----**

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 6.4 PM: 0.20

Altitude Derate Data Top

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,096	2,206
1,000	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,162	2,074	2,206
2,000	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,176	2,118	2,007	2,206
3,000	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,173	2,135	2,098	2,052	1,919	2,206
4,000	2,201	2,201	2,201	2,201	2,201	2,171	2,132	2,094	2,057	2,021	1,963	1,831	2,201
5,000	2,129	2,129	2,129	2,129	2,129	2,092	2,054	2,017	1,982	1,947	1,875	1,743	2,129
6,000	2,059	2,059	2,059	2,059	2,053	2,015	1,978	1,943	1,909	1,876	1,765	1,677	2,059
7,000	1,992	1,992	1,992	1,992	1,976	1,940	1,904	1,870	1,838	1,787	1,677	1,588	1,992
8,000	1,927	1,927	1,927	1,927	1,902	1,867	1,833	1,800	1,769	1,699	1,610	1,522	1,927
9,000	1,865	1,865	1,865	1,865	1,831	1,797	1,764	1,733	1,699	1,610	1,522	1,412	1,865
10,000	1,805	1,805	1,805	1,795	1,761	1,729	1,697	1,667	1,610	1,522	1,368	1,279	1,805
11,000	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,434	1,324	1,213	1,125	1,522
12,000	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,390	1,279	1,169	1,081	993	1,478
13,000	1,434	1,434	1,434	1,434	1,434	1,434	1,346	1,235	1,147	1,037	971	882	1,434
14,000	1,390	1,390	1,390	1,390	1,390	1,279	1,191	1,103	1,015	927	860	794	1,390
15,000	1,346	1,346	1,346	1,346	1,235	1,147	1,059	971	882	816	772	728	1,346

Cross Reference Top

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4577179	LL1861	5084278	GS656	LS	CT200463	
4577179	LL1861	5157729	PG242	-	LYH00001	

Supplementary Data Top

Type	Classification	Performance Number
SOUND	SOUND PRESSURE	DM8779

Performance Parameter Reference Top

Parameters Reference: DM9600 - 15

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION: Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS: Power +/- 3% Torque +/- 3% Exhaust stack temperature +/- 8% Inlet airflow +/- 5% Intake manifold pressure-gage +/- 10% Exhaust flow +/- 6% Specific fuel consumption +/- 3% Specific fuel consumption (C7-C18) +/- 4% Fuel rate +/- 5% Specific DEF consumption +/- 3% DEF rate +/- 5% Heat rejection +/- 5% Heat rejection exhaust only +/- 10% Heat rejection CEM only +/- 10%
Heat Rejection values based on using treated water.
Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.
On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.
On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed.
These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS: Heat rejection +/- 10% Heat rejection to Atmosphere +/- 50% Heat rejection to Lube Oil +/- 20% Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS: Torque +/- 0.5% Speed +/- 0.2% Fuel flow +/- 1.0% Temperature +/- 2.0 C degrees Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR FOR 3500 ENGINES AND SMALLER SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.
FOR 3600 ENGINES Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL DIESEL Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 Lbs/Gal).
GAS Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.
Standard temperature values versus altitude could be seen on TM2001.
When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.
Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for

atmospheric pressure and temperature conditions outside the values defined, see TM2001.
Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

WET & DRY EXHAUST/EMISSIONS DESCRIPTION: Wet - Total exhaust flow or concentration of total exhaust flow Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded

EMISSIONS DEFINITIONS: Emissions : DM1176

EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500

RATING DEFINITIONS: Agriculture : TM6008
Fire Pump : TM6009
Generator Set : TM6035
Generator (Gas) : TM6041
Industrial Diesel : TM6010
Industrial (Gas) : TM6040
Irrigation : TM5749
Locomotive : TM6037
Marine Auxiliary : TM6036
Marine Prop (Except 3600) : TM5747
Marine Prop (3600 only) : TM5748
MSHA : TM6042
Oil Field (Petroleum) : TM6011
Off-Highway Truck : TM6039
On-Highway Truck : TM6038

SOUND DEFINITIONS: Sound Power : DM8702
Sound Pressure : TM7080

Date Released : 03/12/24

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AIR INTAKE SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH CLEAN ELEMENT	15	IN-H20
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH DIRTY ELEMENT	25	IN-H20
MAXIMUM PRESSURE DROP FROM COMPRESSOR OUTLET TO MANIFOLD INLET (OR MIXER INLET FOR EGR)	4.4	IN-HG
CHARGE AIR FLOW AT RATED SPEED	337.7	LB/MIN
TURBO COMPRESSOR OUTLET TEMPERATURE AT RATED SPEED	451	DEG F
MAXIMUM ALLOWABLE STATIC WEIGHT ON AIR INLET	59.5	LB
MAXIMUM ALLOWABLE STATIC WEIGHT ON AIR INLET (AIR SHUT OFF INCLUDED)	17.6	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON AIR INLET	9.6	LB-FT
MAXIMUM ALLOWABLE STATIC WEIGHT ON TURBO OUTLET CONNECTION	0	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON TURBO OUTLET CONNECTION	0	LB-FT
COOLING SYSTEM		
ENGINE ONLY COOLANT CAPACITY	41.4	GAL
MAXIMUM ALLOWABLE JACKET WATER OUTLET TEMPERATURE	210	DEG F
REGULATOR LOCATION FOR JW (HT) CIRCUIT	OUTLET	
MAXIMUM UNINTERRUPTED FILL RATE	5.0	G/MIN
ENGINE SPEC SYSTEM		
CYLINDER ARRANGEMENT	VEE	
NUMBER OF CYLINDERS	12	
CYLINDER BORE DIAMETER	6.7	IN
PISTON STROKE	7.5	IN
TOTAL CYLINDER DISPLACEMENT	3161	CU IN
STANDARD CRANKSHAFT ROTATION FROM FLYWHEEL END	CCW	
STANDARD CYLINDER FIRING ORDER	1-12-9-4-5-8-11-2-3-10-7-6	
NUMBER 1 CYLINDER LOCATION	RIGHT FRONT	
STROKES/COMBUSTION CYCLE	4	
EXHAUST SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE SYSTEM BACK PRESSURE	27	IN-H20
MANIFOLD TYPE	DRY	
MAXIMUM ALLOWABLE STATIC WEIGHT ON EXHAUST CONNECTION	63.9	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON EXHAUST CONNECTION	31.7	LB-FT
FUEL SYSTEM		

MAXIMUM FUEL FLOW FROM TRANSFER PUMP TO ENGINE	332.9	G/HR
MAXIMUM ALLOWABLE FUEL SUPPLY LINE RESTRICTION	8.9	IN-HG
MAXIMUM ALLOWABLE FUEL TEMPERATURE AT TRANSFER PUMP INLET	151	DEG F
MAXIMUM FUEL FLOW TO RETURN LINE FROM ENGINE	322.3	G/HR
MAXIMUM ALLOWABLE FUEL RETURN LINE RESTRICTION	8.0	IN-HG
NORMAL FUEL PRESSURE IN A CLEAN SYSTEM	60.2	PSI
FUEL SYSTEM TYPE	EUI	
MAXIMUM TRANSFER PUMP PRIMING LIFT WITHOUT PRIMING PUMP	12.1	FT
MAXIMUM HEAT REJECTION TO FUEL	540	BTU/MIN
LUBE SYSTEM		
CRANKCASE VENTILATION TYPE	TO ATM	
MOUNTING SYSTEM		
CENTER OF GRAVITY LOCATION - X DIMENSION - FROM REAR FACE OF BLOCK - (REFERENCE TM7077)	37.4	IN
CENTER OF GRAVITY LOCATION - Y DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	9.8	IN
CENTER OF GRAVITY LOCATION - Z DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	0.0	IN
MASS MOMENT OF INERTIA - X AXIS	8851	LB IN SEC2
MASS MOMENT OF INERTIA - Y AXIS	61955	LB IN SEC2
MASS MOMENT OF INERTIA - Z AXIS	61955	LB IN SEC2
STARTING SYSTEM		
MINIMUM CRANKING SPEED REQUIRED FOR START	120	RPM

Alternator



Image Shown may not Reflect Actual Package.

SR5 — 1600 Frame

Standby Power
50 Hz, 1500 rpm 1440 – 2750 kVA
60 Hz, 1800 rpm 1320 – 2600 ekW

Prime Power
50 Hz, 1500 rpm 1440 – 2500 kVA
60 Hz, 1800 rpm 1320 – 2250 ekW

Continuous Power
50 Hz, 1500 rpm 1440 – 2000 kVA
60 Hz, 1800 rpm 1320 – 2250 ekW

Features

General
- Standards: meets the requirements of NEMA,
- IEC, ISO, IEEE, BS, AS
- Industry leading insulation technology
- Proven mechanical and electrical design
- Reliable and durable construction
- Improved excitation system for high power quality
- Improved motor starting capability
- Radio frequency noise suppression better than industry standards
- Superior construction and testing

Standard
- 3 Phase brushless, salient pole
- NEMA Class H insulation
- Class H Temperature rise at 40°C ambient
- 2/3 Winding pitch
- Low voltage: Random Wound and Internal
- Excitation
- Medium voltage: Form Wound and Permanent Magnet
- Standard voltages:
  60 Hz: 480V, 4160V
  50 Hz: 400V, 3300V
- Busbar connections:
  60 Hz models: NEMA standard hole pattern
  50 Hz models: EC standard hole pattern
- Cat® Digital Voltage Regulator (Cat DVR)

Optional
- PM excitation capability to IE excitation
- Low Voltage: Form Wound
- Space heater kit
- Bearing temperature detectors
- Optional voltages:
  60 Hz: 380V, 440V, 600V, 2400V
  50 Hz: 380V, 415V
- Oversized generators for Class F or Class B temperature rise
- UL Listing
- CSA test and certification

NEMA MG-1 Temperature Rise
(Over 40°C ambient)

	Class A	Class B	Class F	Class H
Standby	85°C	105°C	130°C	150°C
Prime / Continuous	60°C	80°C	105°C	125°C

Alternator

Specifications

Type
Brushless, revolving field solid-state automatic voltage regulator
Construction
One bearing 3 phase, series star connected
Enclosure
Drip proof IP23, guarded
Alignment
Cat pilot shaft, single bearing only
Over-speed capability
60 Hz — 125% of synchronous speed
50 Hz — 150% of synchronous speed
Waveform deviation, line to line, no load
Less than 2%
Paralleling capability
Standard with adjustable voltage droop
Voltage level adjustment
+/- 5%
Voltage regulator
3 Phase sensing with variable Volts-Per Hertz response
Voltage regulation, steady state
+/- 0.5%
Voltage regulation with 3% speed change
+/- 0.5%
Voltage gain
Adjustable to compensate for engine speed droop and line loss
TIF Less than 50
Number of leads 6

Product Support

- Standard Caterpillar warranty
- Optional extended Caterpillar warranty
- Serviceable parts available through Caterpillar Parts System
- Service intervals agree with recommended engine practices

Serviceability

- Stator leads exit top
- Replaceable bearing sleeve(s) for longer life and lower repair cost
- Easy access to serviceable parts
- Improved wire and terminal idenfication ensuring reliable connection

Cable Entry

- Top cable entry on LV package
- Bottom cable entry on MV packages

Main Stator Construction

The 1600 frame generators use Round lamination stator design.

Stator coil pitch, coil distribution designed to produce optimum waveform and minimum total harmonic distortion. Stator slots are insulated by slot liners and coil separators. Slot liners, coil separators, and top sticks provide a minimum of 25 mm (1 in) distance from the coil to ground. The thickness of liners, separators, and phase sheets provides superior protection between phases and ground.

Low voltage stator windings are given a 3000 volt “high pot” test (150% of the NEMA and IEC requirements for 460 volt generators) before the insulation is applied.

The stators are then given a vacuum impregnation treatment of polyester material, followed by an application of epoxy resin. This sealed stator is then given a final 2000 volt “high pot” test.

Rotor Construction

The main rotor is constructed using a precision “wet” layer winding process with epoxy painted on the bare rotor and on each layer. This ensures bonding of all the wire layers together, bonding of the coils to the rotor laminations, and a sealed insulation system. The rotor is put in the oven for curing the epoxy.

The exciter rotor is machine wound and receives a trickle coat of a fungus-resisting resin. Numerically controlled turning and grinding machines produce rotor shafts with close repeatable tolerances. Grade-8 bolts are used wherever joints are subject to induced stresses. A complete coating of red sealer is applied to protect the rotors and shaft from corrosion.

Every production rotor is dynamically balanced in two planes to within 0.0508 mm deflection peak-to-peak amplitude and run at rated speed before assembly into the stator.

Information contained in this publication may be considered confidential. Discretion is recommended when distributing. Materials and specifications are subject to change without notice.

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GENERATOR DATA

OCTOBER 01, 2025

For Help Desk Phone Numbers Click here

Selected Model

Engine: 3512	**Generator Frame:** 1622	**Genset Rating (kW):** 1500.0	**Line Voltage:** 480
Fuel: Diesel	**Generator Arrangement:** 2523932	**Genset Rating (kVA):** 1875.0	**Phase Voltage:** 277
Frequency: 60	**Excitation Type:** Permanent Magnet	**Pwr. Factor:** 0.8	**Rated Current:** 2255.3
Duty: STANDBY	**Connection:** SERIES STAR	**Application:** EPG	**Status:** Current

Version: 20232 /20232 /20232 /660451

Spec Information

Generator Specification

Frame: 1622	**Type:** SR5	**No. of Bearings:** 1
Winding Type: FORM WOUND		**Flywheel:** 21.0
Connection: SERIES STAR		**Housing:** 00
Phases: 3		**No. of Leads:** 6
Poles: 4		**Wires per Lead:** 4
Sync Speed: 1800		**Generator Pitch:** 0.67

Generator Efficiency

Per Unit Load	kW	Efficiency %
0.25	375.0	90.5
0.5	750.0	93.8
0.75	1125.0	94.7
1.0	1500.0	94.7

Reactances	Per Unit	Ohms
SUBTRANSIENT - DIRECT AXIS X''_d	0.1204	0.0148
SUBTRANSIENT - QUADRATURE AXIS X''_q	0.1506	0.0185
TRANSIENT - SATURATED X'_d	0.1986	0.0244
SYNCHRONOUS - DIRECT AXIS X_d	2.0312	0.2496
SYNCHRONOUS - QUADRATURE AXIS X_q	1.2191	0.1498
NEGATIVE SEQUENCE X_2	0.1351	0.0166
ZERO SEQUENCE X_0	0.0285	0.0035

Time Constants	Seconds
OPEN CIRCUIT TRANSIENT - DIRECT AXIS T'_{d0}	1.6600
SHORT CIRCUIT TRANSIENT - DIRECT AXIS T'_d	0.1910
OPEN CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_{d0}	0.0200
SHORT CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_d	0.0120
OPEN CIRCUIT SUBSTRANSIENT - QUADRATURE AXIS T''_{q0}	0.0760
SHORT CIRCUIT SUBSTRANSIENT - QUADRATURE AXIS T''_q	0.0110
EXCITER TIME CONSTANT T_e	0.0940
ARMATURE SHORT CIRCUIT T_a	0.0300

Short Circuit Ratio: 0.57	Stator Resistance = 0.002 Ohms	Field Resistance = 0.427 Ohms

Voltage Regulation

Voltage level adjustment: +/-	5.0%
Voltage regulation, steady state: +/-	0.5%
Voltage regulation with 3% speed change: +/-	0.5%
Waveform deviation line - line, no load: less than	2.0%
Telephone influence factor: less than	50

Generator Excitation

	No Load	Full Load, (rated) pf	
		Series	Parallel
Excitation voltage:	15.33 Volts	50.69 Volts	Volts
Excitation current	1.6 Amps	4.35 Amps	Amps

Selected Model

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Version: 20232 /20232 /20232 /660451

Generator Mechanical Information

Center of Gravity

Dimension X	-897.6 mm	-35.3 IN.
Dimension Y	0.0 mm	0.0 IN.
Dimension Z	0.0 mm	0.0 IN.

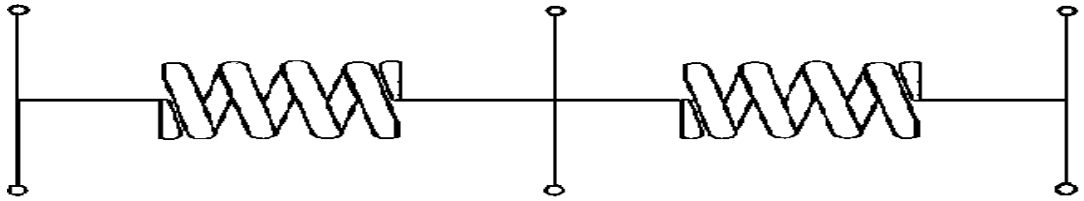
- "X" is measured from driven end of generator and parallel to rotor. Towards engine fan is positive. See General Information for details
- "Y" is measured vertically from rotor center line. Up is positive.
- "Z" is measured to left and right of rotor center line. To the right is positive.

Generator WT = 3480 kg * Rotor WT = 1346 kg * Stator WT = 1697 kg
7,672 LB 2,967 LB 3,741 LB

Rotor Balance = 0.0508 mm deflection PTP

Overspeed Capacity = 125% of synchronous speed

Generator Torsional Data



J1 = Coupling and Fan | **J2 = Rotor** | **J3 = Exciter End**

TOTAL J = J1 + J2 + J3

K1 = Shaft Stiffness between J1 + J2 (Diameter 1)

K2 = Shaft Stiffness between J2 + J3 (Diameter 2)

J1	K1	Min Shaft Dia 1	J2	K2	Min Shaft Dia 2	J3
58.4 LB IN. s^2	245.2 MLB IN./rad	7.8 IN.	283.3 LB IN. s^2	53.2 MLB IN./rad	5.9 IN.	10.3 LB IN. s^2
6.603 N m s^2	27.7 MN m/rad	198.0 mm	32.005 N m s^2	6.01 MN m/rad	151.0 mm	1.161 N m s^2

Total J

352.0 LB IN. s^2

39.769 N m s^2

Selected Model

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Generator Cooling Requirements - Temperature - Insulation Data

Cooling Requirements:

Heat Dissipated: 83.9 kW

Air Flow: 168.0 m^3/min

Temperature Data: (Ambient 40 ^{0}C)

Stator Rise: 105.0 ^{0}C

Rotor Rise: 105.0 ^{0}C

Insulation Class: H

Insulation Reg. as shipped: 100.0 MΩ minimum at 40 ^{0}C

Thermal Limits of Generator

Frequency:	60 Hz
Line to Line Voltage:	480 Volts
B BR 80/40	1750.0 kVA
F BR -105/40	1991.0 kVA
H BR - 125/40	2188.0 kVA
F PR - 130/40	2188.0 kVA
H PR - 150/40	2319.0 kVA

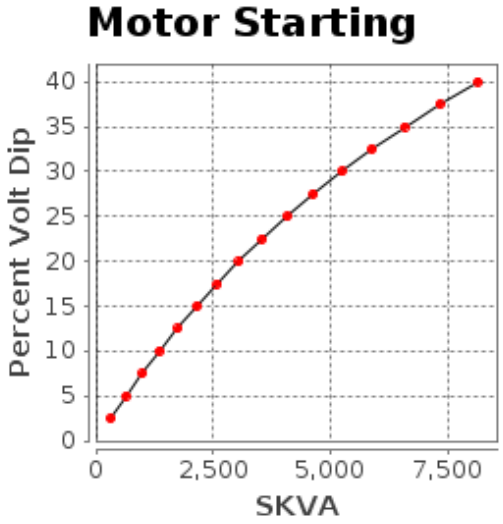
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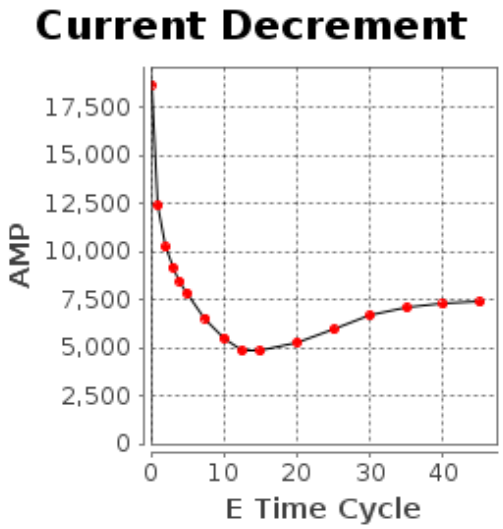
Starting Capability & Current Decrement
Motor Starting Capability (0.4 pf)

SKVA	Percent Volt Dip
313	2.5
643	5.0
991	7.5
1,358	10.0
1,746	12.5
2,157	15.0
2,593	17.5
3,056	20.0
3,549	22.5
4,075	25.0
4,637	27.5
5,239	30.0
5,886	32.5
6,583	35.0
7,335	37.5
8,150	40.0



Current Decrement Data

E Time Cycle	AMP
0.0	18,665
1.0	12,379
2.0	10,221
3.0	9,168
4.0	8,433
5.0	7,817
7.5	6,532
10.0	5,504
12.5	4,828
15.0	4,806
20.0	5,276
25.0	5,939
30.0	6,669
35.0	7,073
40.0	7,252
45.0	7,352



Instantaneous 3 Phase Fault Current: 18665 Amps **Instantaneous Line - Line Fault Current:** 15235 Amps

Instantaneous Line - Neutral Fault Current: 23750 Amps

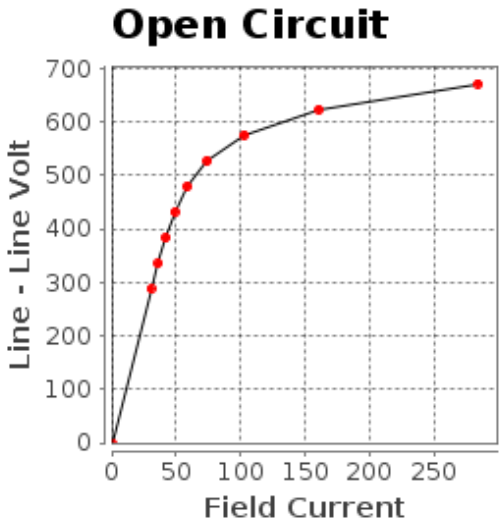
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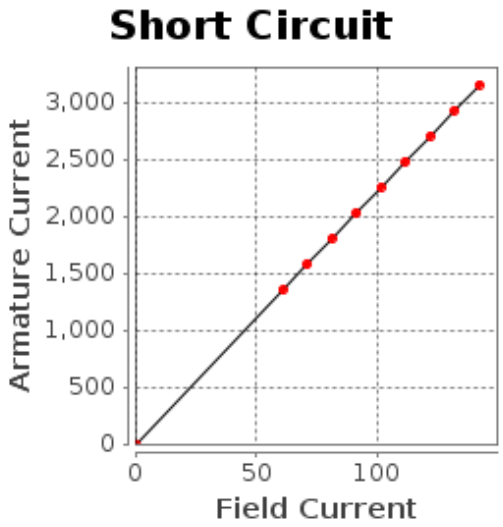
Generator Output Characteristic Curves
Open Circuit Curve

Field Current	Line - Line Volt
0.0	0
30.5	288
35.9	336
41.9	384
49.0	432
58.7	480
74.3	528
103.0	576
160.8	624
284.2	672



Short Circuit Curve

Field Current	Armature Current
0.0	0
60.9	1,353
71.0	1,579
81.2	1,804
91.3	2,030
101.5	2,255
111.6	2,481
121.8	2,706
131.9	2,932
142.1	3,157



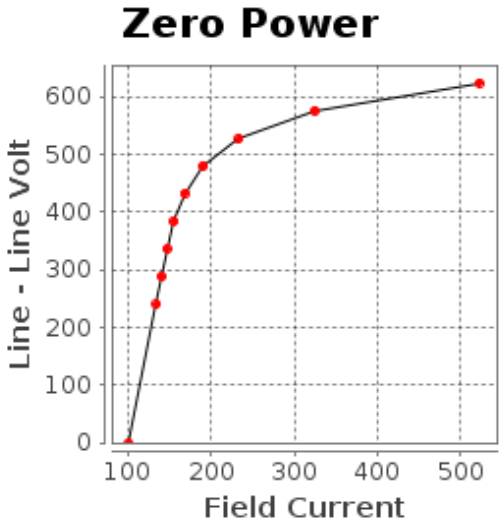
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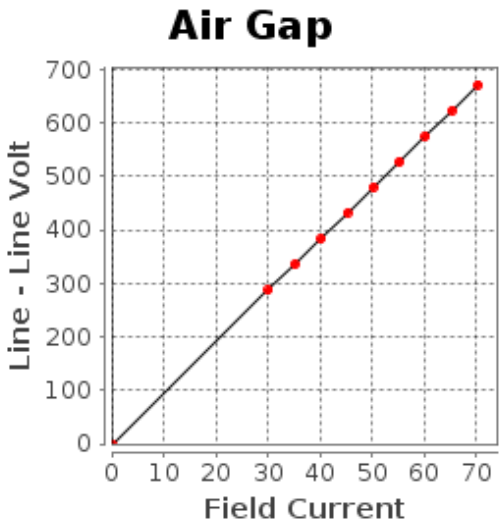
Generator Output Characteristic Curves
Zero Power Factor Curve

Field Current	Line - Line Volt
101.5	0
134.5	240
140.3	288
146.9	336
155.4	384
168.1	432
190.3	480
233.7	528
324.5	576
521.7	624



Air Gap Curve

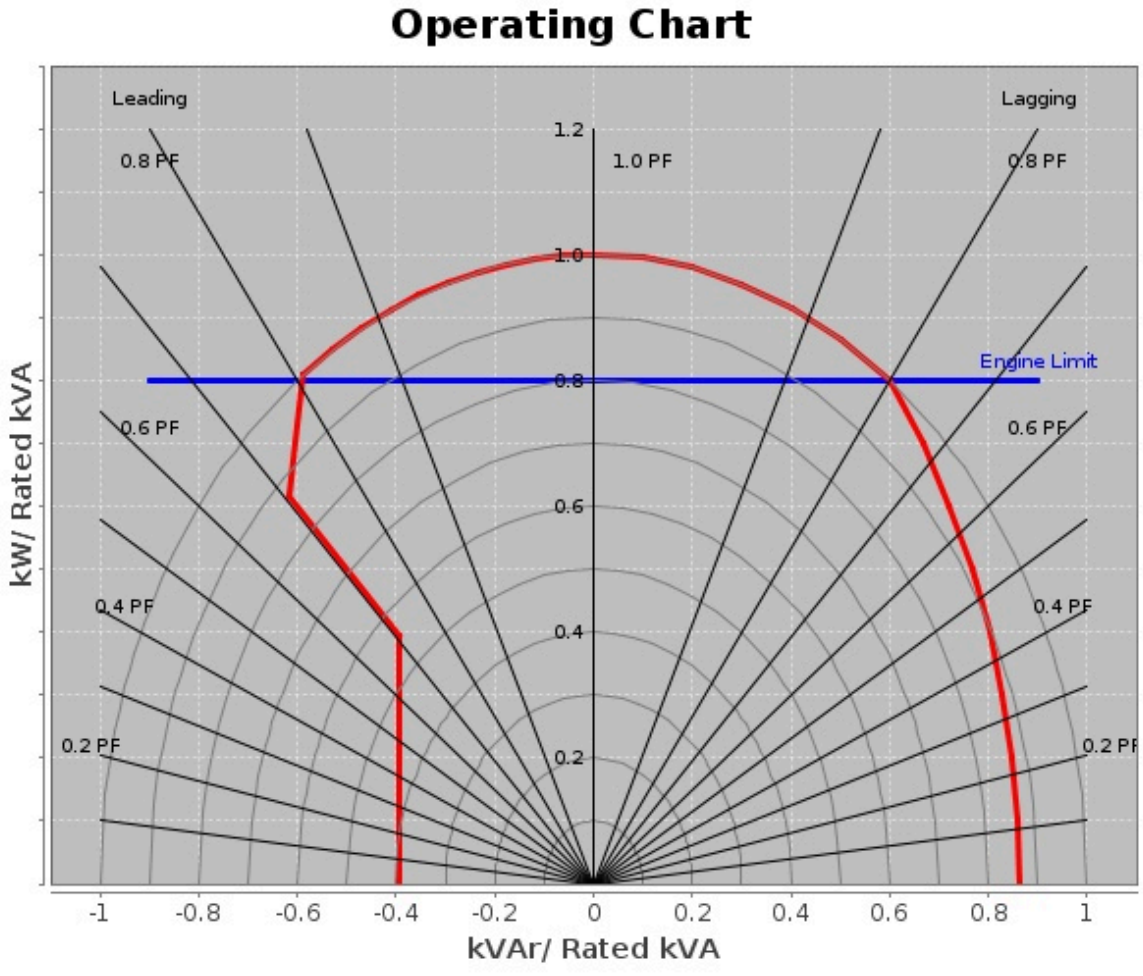
Field Current	Line - Line Volt
0.0	0
30.1	288
35.1	336
40.2	384
45.2	432
50.2	480
55.2	528
60.2	576
65.3	624
70.3	672



Selected Model

Engine: 3512 **Generator Frame:** 1622 **Genset Rating (kW):** 1500.0 **Line Voltage:** 480
Fuel: Diesel **Generator Arrangement:** 2523932 **Genset Rating (kVA):** 1875.0 **Phase Voltage:** 277
Frequency: 60 **Excitation Type:** Permanent Magnet **Pwr. Factor:** 0.8 **Rated Current:** 2255.3
Duty: STANDBY **Connection:** SERIES STAR **Application:** EPG **Status:** Current
Version: 20232 /20232 /20232 /660451

Reactive Capability Curve



Selected Model

Engine: 3512	**Generator Frame:** 1622	**Genset Rating (kW):** 1500.0	**Line Voltage:** 480
Fuel: Diesel	**Generator Arrangement:** 2523932	**Genset Rating (kVA):** 1875.0	**Phase Voltage:** 277
Frequency: 60	**Excitation Type:** Permanent Magnet	**Pwr. Factor:** 0.8	**Rated Current:** 2255.3
Duty: STANDBY	**Connection:** SERIES STAR	**Application:** EPG	**Status:** Current

Version: 20232 /20232 /20232 /660451

General Information

DM7825 Caterpillar SR5 Generators (50 Hz, 60 Hz)
Data for 1400, 1600, 1700, 1800 and 1900 frames Caterpillar SR5 generators built by Leroy Somer - USA and Leroy Somer □ France.

Refer to DM7821 for explanation of all generator data in Technical Marketing Information (TMI) except generator efficiency for which the explanation is given below.

GENERATOR EFFICIENCY
Generator efficiency is the percentage of engine flywheel (or other prime mover) power that is converted into electrical output. The generator efficiency shown is calculated by the summation of all losses method, and is determined in accordance with the IEC Standard 60034. The efficiency considers only the generator. There is no consideration of engine or parasitic losses here.

Refer to DM7829 for low and medium voltage protective setting values a nd limits.

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Cat® Energy Control System 100



Image shown may not reflect actual configuration.

Cat® Energy Control System (ECS) 100

The Cat ECS 100 generator set controller uses system graphic icons and labels that allow for simple, comprehensive generator set operation. The easy-to-use 203 mm (8”) color LED touchscreen display features scroll navigation. Generator set and remote-mount options are available.

FEATURES

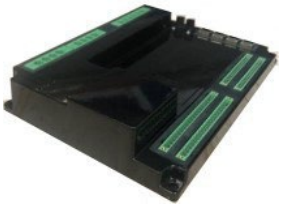
- Island mode – single unit operation
- High visibility graphical touchscreen display with alarm/event descriptions, set points, engine and generator monitoring
- Meets UL 2200, 3rd Edition requirements including UL 6200
- Local annunciation to meet NFPA 110 (subject to local authority having jurisdiction approval)
- Ethernet Modbus TCP for external communications
- Intuitive navigation for display of power metering, protection, engine and generator parameters and tuning
- Lockout security provision to assure platform integrity with three programable security levels
- Support of up to four (4) remote HMI’s (sold separately)
- Multi-language support.
- Compatible with Cat Connect Product Link™ devices
- IVR or CDVR voltage regulation compatibility
- Emergency Override

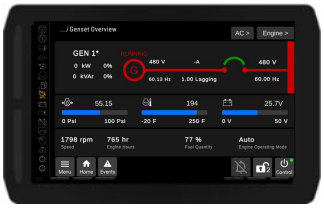
Advanced Functionality

- Automatic mains failure with utility voltage sensing capability (open transition) and remote breaker or contactor control/monitoring
- Engine remote start integrity monitoring
- Single genset transient load relief (TLR)
- Basic programmable logic control (PLC) function
- Embedded webserver
- EPA Tier 4 integration
- Real (kW) load histograms
- Status event log
- Supports Dynamic Gas Blending™ (DGB™)

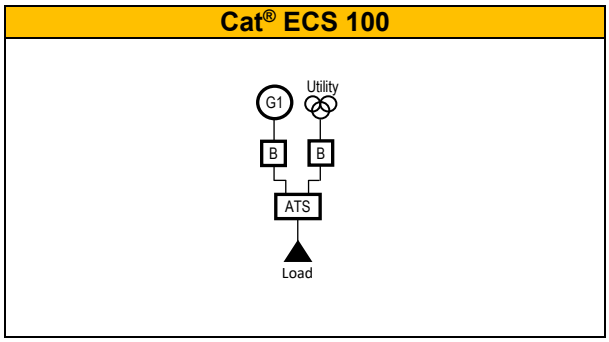
Control Module and Display

The Cat A6L3 is the base module controller utilizing the high-resolution display for the human machine interface (HMI).





Typical(1) Single Line Diagram (SLD)



(1) - More single line diagrams (SLD’s) are available to meet application requirements. Contact your local Cat dealer for more information.

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Cat® Energy Control System 100

Standard Features

Controls	• Auto / Start / Stop • Emergency stop • Engine cooldown timer • Engine cycle crank • Programmable cycle timer • Speed and voltage adjust
Generator Set Monitoring	• Generator AC voltage monitoring (+/- 0.25% controller lifetime accuracy) • Utility/Bus AC voltage monitoring (+/- 0.25% controller lifetime accuracy) • 3 phase/4 wire (L-L&L-N) sensing • Current sensing (3 phase/6 wire) (+/- 0.1% up to 100% of rated current controller accuracy) • Generator AC current (per phase & avg) • Generator frequency • Power metering (kW, kVA, kVAr, pf) • kW-hr (export), kVAr-hr (import and export), total and trip • Generator stator and bearing temp (with optional RTD module) • kW load histogram
Generator Protection	• Generator phase sequence (47G) • Over/Under voltage (27/59) • Over/Under frequency (81 O/U) • Overcurrent timed & inverse (50/51) • Overcurrent (Thermal Damage Curve) (51) • Reverse power real (kW) (32) • Reverse power reactive (kVAr) (32RV) • Current balance (46) • Overload (49)
Engine Monitoring	• Engine oil pressure (kPa or psi) • Engine oil temperature (°C or °F) • Engine coolant temperature (°C or °F) • Engine speed (RPM) • Battery voltage • Crank attempt and successful start counter • Run hour meter • Real time clock
Engine Protection	• Control switch not in auto (alarm) • Low oil pressure • High coolant temperature (alarm and shutdown) • Low coolant temp (alarm) • Low coolant level (alarm and shutdown) • High engine oil temp (alarm and shutdown) • Low/High/Weak battery voltage • Fail to start • Overspeed • Overcrank • Low gas pressure (alarm and shutdown)

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Standard Features *(continued)*

Digital Inputs	• Emergency Stop • Remote Start • 16 programmable inputs (4 used for functional safety)[2]
Digital Outputs	• 12 programmable outputs (4 used for functional safety)[2]
Analog Outputs	• 2 analog outputs
PWM Outputs	• 3 Total (1 used for IVR - standard)
Analog Inputs	• 3 programmable inputs (0-5V, 0.5-4.5V, 1-5V, or resistive)[2]
Communication	• Primary & accessory CAN data link • Remote annunciator data link up to 1219 m (4000 ft) • Cat® Data Link (CDL) - with optional PLE702 • Ethernet (Modbus TCP/IP) - 100 baseT • USB- touchscreen display • Four 4-wire ports for internal and customer use • Two 2-wire ports for internal device network
Environmental	• HMI (front touchscreen) IP66 • A6L3 Controller Operating Temp. -40°C to + 70°C • Control module box: - Ingress protection IP23 - Health Care Access and Information (HCAI) ground and roof seismic certification
Languages	• Chinese | Danish | English | French | German | Italian | Japanese | • Portuguese | Russian | Spanish | additional languages on request |

[2] - Generator set configuration may affect available features.

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Enhanced Control Features

Advanced overcurrent protection
The Cat ECS 100 provides advanced overcurrent protection of the generator set system via programmable Definite Time and Inverse Time curves.
For the Inverse time curve the following four selections are available:
- Normally Inverse
- Very Inverse
- Extremely Inverse
- Thermal Damage Curve - the Thermal Damage curve may be more closely aligned to specific generators.

Arc Flash Maintenance mode
The Cat ECS 100 Programmable Arc Flash Energy Reducing Maintenance Mode feature provides a method to reduce clearing time via two functions that work together to meet the 2023 edition of NFPA 70, Section 240.87 (Arc Energy Reduction).
- A means to accept an energy-reducing maintenance switch and provide means to connect a local status indicator.
- An instantaneous overcurrent setting that can be set below the available arcing current.

Integrated programmable logic controller (PLC)
This feature set of the Cat ECS 100 allows the user to create custom logic functions in similar fashion to that of the capability of a PLC controller. These logic functions allow for increased capability of the Cat ECS 100 through interaction and control of internal signals within the control software as well as the programmable inputs/outputs of the device.

Programmable kW relay
The Cat ECS 100 includes three programmable kW relay outputs configured based on the % kW of the generator set. The configurable set points of the kW relay include: trigger condition, percentage threshold, hysteresis percentage and trip activation & deactivation delay time. These output functions may also be used to trigger events, recordable within the event log and included in the remote monitoring of the generator set.

Real-time clock
The 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.

Diagnostic System and Status Event Logs
Up to 40 unique diagnostic events (e.g., warnings, shutdowns, etc.) are stored in the non-volatile memory. It also allows for the creation of a status event log. This log holds the last 500 control events such as Engine Control Switch Position, Remote Initiate, Load Shed, etc. Events are stored in a "first in, first out" strategy.

Programmable cycle timer
The programmable cycle timer (PCT) feature allows for programming of seven independent times, when tasks (called PCT outputs), will be activated or deactivated automatically during the week. This is useful for exercising generator sets, or cases where two or more generators are required to automatically share the duty of supplying a load throughout the week. Using the PCT, each generator set can be programmed to start and stop at pre-set times. The PCT can handle a seven-day sequence with seven independent starts happening one or more times each week. Each of the seven timers has the following set points: activation day of the week,
activation start time, active time and includes three (3) independent activation outputs.

Real (kW) load histogram
The Cat ECS 100 is equipped with a real (kW) load histogram. This feature keeps track of the amount of time the generator percent kW is within certain predefined ranges. The ranges monitored are in 10% steps (0 to <10%, 10% to <20%, …, 90% to 100%).

HMI Webserver
The Cat ECS 100 HMIs include an embedded web server. The embedded web server allows the operator to operate a virtual HMI with the same control and permissions as the host HMI (local or remote, if applicable) over an Ethernet connection to a local and/or remote station. Custom screen creation is also available. Each HMI webserver is independent.

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Dimensions

Package-Mounted or Ship Loose (with harness)

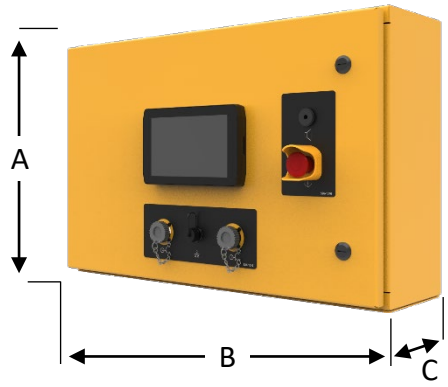


Image shown may not reflect actual configuration.

Dimensions				
Control Box Dimensions	A	B	C[3]	Weight
Units	mm (in)	mm (in)	mm (in)	kg (lbs)
Cat ECS 100	515 (20.28)	794 (31.27)	273 (10.73)	43 (95)

[3] - Dimension including E-Stop button is 263 mm (10.35 in).

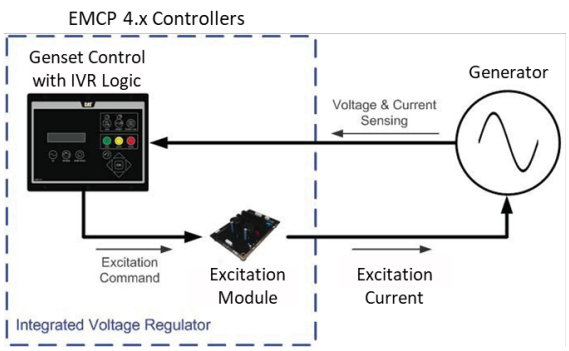
Worldwide Product Support
Cat dealers have over 1,800 dealer branch stores operating in 200 countries and offer extensive post-sale support including maintenance and repair agreements

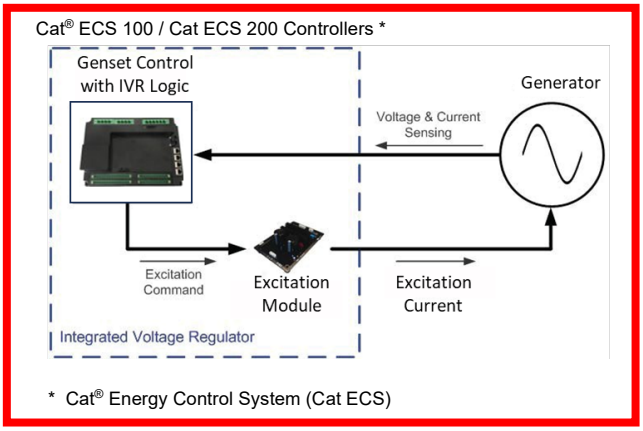
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INTEGRATED VOLTAGE REGULATOR





INTEGRATED VOLTAGE REGULATOR

The Integrated Voltage Regulator (IVR) is designed to provide robust, precise closed-loop control of the generator voltage, optimized transient performance and industry leading feature specification.
Caterpillar is leading the power generation marketplace with power solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

When used with an Excitation Module, EMCP 4.3/4.4 and IVR-compatible EMCP 4.1/4.2 (B), and Cat ECS 100 / Cat ECS 200 controllers offers:

- Automatic Voltage Regulation (AVR)
- Programmable stability settings
- Soft start control with an adjustable time setting in AVR control mode
- Dual Slope, Configurable Under Frequency (Volts/Hz) regulation
- Three-phase or single-phase generator voltage (RMS) sensing/regulation in AVR mode
- Setpoint adjustment from the EMCP / Cat ECS display or Cat ET Service Tool
- IVR Operating Status and Voltage Bias Overview screens to provide an enhanced level of user interface
- Integrated Voltage Regulator event monitoring

EMCP 4.3/4.4 and IVR-compatible EMCP 4.2 (B), and Cat ECS 100 / Cat ECS 200 controllers also offer:

- Power Factor Regulation (PF)
- Reactive Droop compensation
- Line drop compensation

WORLDWIDE PRODUCT SUPPORT

- Worldwide parts availability through the Cat dealer network
- Over 1,800 dealer branch stores operating in 200 countries
- The best product support record in the industry
- Cat dealers provide extensive post sale support including maintenance and repair agreements

COMPLETE SYSTEM INTEGRATION

Fully designed and factory tested to work seamlessly with Cat generators using Self Excitation (SE), Internal Excitation (IE) or Permanent Magnet (PMG) excitation systems and EMCP and Cat ECS controls.

Caterpillar: Confidential Green

INTEGRATED VOLTAGE REGULATOR FEATURE SPECIFICATION

	EMCP 4.1	EMCP 4.2(B)	EMCP 4.3	EMCP 4.4	Cat® ECS 100 / Cat ECS 200
					
SPECIFICATIONS					
No Load to Full Load Regulation	±0.5%	±0.25%	±0.25%	±0.25%	±0.25%
Configurable Volts / Hz Characteristic	•	•	•	•	•
Configurable Knee Frequency	•	•	•	•	•
Regulator ResponseTime	10 ms	10 ms	5 ms	5 ms	5 ms
Single and Three Phase Sensing	•	•	•	•	•
Voltage Adjustment Range	± 30%	± 30%	± 30%	± 30%	± 100%
CONTROL					
Characteristic	•	•	•	•	•
Excitation Enable I Disable Selection	•	•	•	•	•
Line Loss (I^2R) Compensation	–	•	•	•	•
Reactive Droop Compensation	–	•	•	•	•
Power Factor Control Mode	–	•	•	•	•
PROTECTION I ALARMS					
Generator Overvoltage	•	•	•	•	•
Generator Under voltage	•	•	•	•	•
Over Excitation	•	•	•	•	•
Loss of Sensing	•	•	•	•	•
Generator Reverse VARs	–	•	•	•	•
Event Log	•	•	•	•	•
METERING					
AC Metering	•	•	•	•	•
Power Metering	–	•	•	•	•
Excitation Command Percentage	•	•	•	•	•
Operating Mode Status Indication	•	•	•	•	•
VOLTAGE ADJUSTMENT					
Display Voltage Bias	•	•	•	•	•
Digital Input (Raise I Lower) Voltage Bias[1]	•	•	•	•	•
Potentiometer Voltage Bias[1]	•	•	•	•	•
Analog Voltage Bias -Voltage Range[1]	0V to SV	0V to SV	-10V to +10V	-10V to +10V	-10V to +10V
Analog Voltage Bias - Current Range[1]	-	-	0mA to 20mA	0mA to 20mA	0mA to 20mA
Analog Voltage Bias - PWM Range[1]	-	-	0% to 100%	0% to 100%	0% to 100%
SCADA (Modbus) Voltage Bias	-	•	•	•	•

[1]Requires an available input on the EMCP 4.

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EXAMPLE SCREENS – Cat ECS 100 / Cat ECS 200

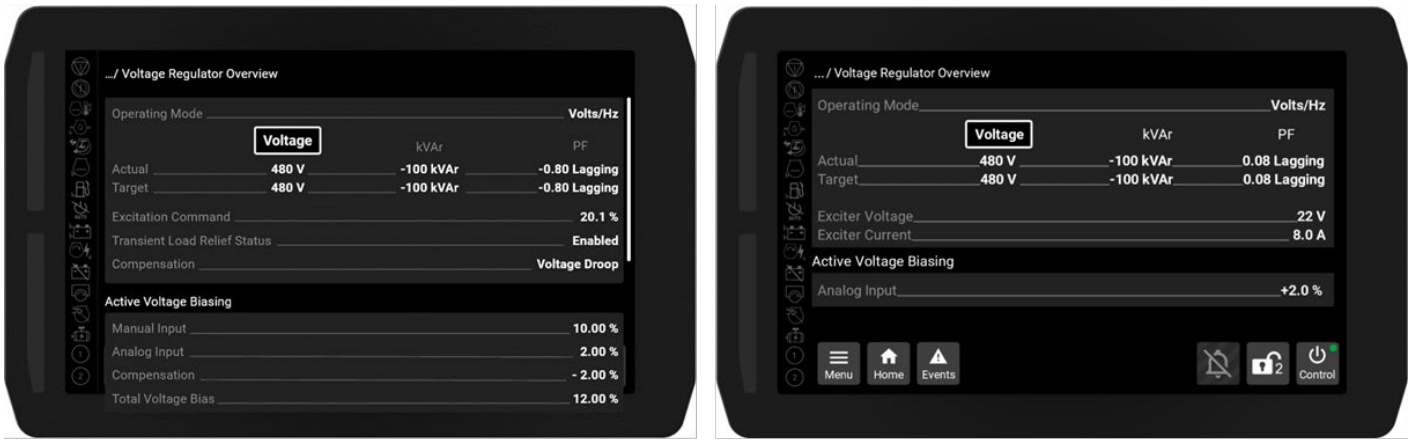


Figure 7: Cat ECS 100 / Cat ECS 200 IVR Overview

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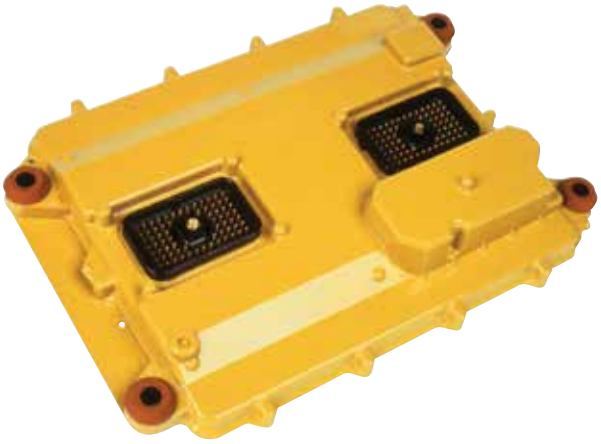


Image shown may not reflect actual configuration

ADEM™ III Engine Controller

The ADEM™ III controller is the main Electronic Control Module (ECM) used on select diesel engines.

The ADEM III control is designed to control/ interface electronic unit injector (EUI) equipped engines. The ADEM III controller is composed of the ADEM III ECM, control software, sensors, actuators, fuel injectors, and interface to the generator system.

The prime benefit of an ADEM III engine system is to better control and maintain the particulate emissions, both steady state and transient, while improving engine performance over the Mechanical Unit Injector (MUI) engines.

Features

Reliable and Durable
- All ADEM III controllers are designed to survive the harshest environments.
- Environmentally sealed, die-cast aluminum housing isolates and protects electronic components from moisture and dirt contamination.
- Rigorous vibration testing ensures product reliability and durability.
- Accuracy maintained from -40°C to 85°C
- Electrical noise immunity to 100 volts/meter
- Internal circuits are designed to withstand shorts to +battery and –battery.

Simple Servicing
- Each ADEM III system works in combination with the Cat® ET service tool software to keep the engine operating at peak performance.
- Displays measured parameters
- Retrieves active and logged event code documenting abnormal system operation
- Performs calibrations and diagnostic tests
- Supports flash programming of new software into the ADEM III ECM

Self Diagnostics
- Each ADEM III ECM has a full compliment of diagnostics. The ECM can detect faults in the electrical system and report those faults to the service technician for quick repair.
- Self-diagnostic capability pinpoints operational problems in need of attention.

Advanced Features
- Enhanced performance from fuel injection timing and limiting
- Adjustable monitoring of vital engine parameters
- Programmable speed acceleration ramp rate
- Data link interfaces

Options

The ECM is housed in an environmentally sealed casting. All wiring connections to the ECM are made using two sealed connectors: a single seventy-pin connector and a single one hundred twenty-pin connector.

Engine Speed Governing
Desired engine speed is calculated by the ECM and held within ±0.2 Hz for isochronous and droop mode. The ECM accounts for droop that is requested. The proper amount of fuel is sent to the injectors due to these calculations. The ECM also employs cooldown/shutdown strategies, acceleration delays on startup, acceleration ramp times and speed reference

Fuel Limiting
Warm and cold fuel-air ratio control limits are controlled by the ECM. Electronic monitoring system derates, torque limit, and cranking limit, programmable torque scaling, and cold cylinder cutout mode are standard features.

Fuel Injection Timing
Master timing for injection is controlled by the ECM control. Temperature dependencies are accounted for in the fuel injection calculations.

Electronic Monitoring
Electronic monitoring of vital engine parameters can be programmed. Warning, derate, and shutdown event conditions may be customized by the user.

Information Management
The ECM stores information to assist with electronic troubleshooting. Active and logged diagnostic codes, active events, logged events, fuel consumption, engine hours, and instantaneous totals aid service technicians when diagnosing electronic faults and scheduling preventive maintenance.

Calibrations
Engine performance is optimized through injection timing. Auto/manual sensor calibrations are standard features.

On-board System Tests
Engine performance is optimized through injection timing. Auto/manual sensor calibrations are standard features.

Data Link Interfaces
The ADEM III communicates with the EMCP 4 via a dedicated communication network.

Electronic Sensing
The following sensing is available on the ADEM III: oil pressure, fuel pressure, fuel temperature, atmospheric pressure, air inlet temperature, turbo outlet pressure, engine coolant temperature, engine speed, throttle, position, exhaust temperature, oil filter pressure differential, fuel filter pressure differential, air filter pressure differential and crankcase pressure.

Specifications

Impervious to:
- Salt spray, fuel, oil and oil additives, coolant, spray cleaners, chlorinated solvents, hydrogen sulfide and methane gas, and dust

Input and Output Protection
- All inputs and outputs are protected against short circuits to +battery and –battery

Input Voltage Range (24 VDC nominal)
- All inputs and outputs are protected against

Mounting
- Engine mounted

Reverse Polarity Protected

Shock – Withstands 20 g

Temperature Range
- Operating: -40°C to 85°C (-40°F to 185°F)
- Storage: -50°C to 120°C (-58°F to 248°F)

Vibration
- Withstands 8.0 g @ 24 to 2 kHz

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CARTER POWER SYSTEMS

Section Three
ACCESSORIES CUTSHEETS

Circuit Breaker
Vibration Isolators
Generator Space Heater
Discrete I/O Module
Customer Interface Module
Remote Annunciator and Alarm Modules
Safety Indication and/or Shutdown
Batteries
Battery Charger
Best Battery Selector
Jacket Water Heater
Warranty

CIRCUIT BREAKERS



Picture shown may not reflect actual configuration

Molded Case and Insulated Case Circuit Breakers:

C27-C175 North America built packages (50/60Hz)

L-Frame
400A (UL)

P-Frame
800-1200A (UL)

R-Frame
1600-3000A (UL)

NS-Frame
1600-3200A (IEC)

NW-Frame
1200-5000A (UL), 1600-5000A (IEC)

Features

- Moisture and fungus protection
- Clear indication of breaker status
- Reinforced insulation
- Shunt trip
- Auxiliary contacts
- Load side extension bars
- Maintenance-free operation
- Exceptional characteristics under short-circuit conditions
- Adjustable trip settings

NS-Frame

- Federal Specification W-C-375B/GEN
- NEMA AB1
- UTE, VDE, BS, CEI, UNE

Conformity with International Standards

Circuit Breakers have been designed to comply with the international standard IEC 60947-2 as well as these other major standards:

L-Frame
UL 489
CSA 22.2 No 5
Federal Specification W-C-375B/GEN
NEMA AB1
NMX J-266
CCC
CE Marking

P-Frame & R-Frame
UL 489
IEC Standard 60947-2
CSA 22.2 No 5-02
Federal Specification W-C-375B/GEN
NEMA AB1
NMX J-266
UTE, VDE, BS, CEI, UNE

NW-Frame
UL 489
NEMA AB1
CSA 22.2 No. 5096
NMX J-266-ANCE
ANSI C37.13, C37.16, C37.17, C37.50
UL 1066 (cULus Listed)
NEMA SG3

Standard Features

Standards

- UL-CSA
  - L-Frame
  - P-Frame
  - R-Frame
  - NW-Frame
- IEC
  - NS-Frame

Shunt trip

- The shunt trip provides a means of tripping the circuit breaker electronically
- Shunt trip ratings
- Voltage: 24VDC
- Coil Burden (Holding/Inrush): 4.5/200 VA
- Power Consumption: 4.5 VA

Auxiliary contacts

The auxiliary contacts provide a means of remote circuit breaker position indication and consists of (1) Form C Contact (1 Normally open and 1 Normally closed contact) with the following current ratings:
6A @ 240-480 VAC, 50/60Hz

Trip units

All circuit breakers come equipped with True RMS Current Sensing.
The trip units for each of the circuit breaker ratings sample the current waveform to provide true RMS protection through the 15th harmonic. This true RMS sensing gives accurate values for the magnitude of a nonsinusoidal waveform. Therefore, the heating effects of harmonically distorted waveforms are accurately evaluated.
The trip system comes equipped with a set of current transformers (CT's) to sense current, a trip unit to evaluate the current, and a tripping solenoid to trip the circuit breaker.
Additionally, each trip unit comes equipped with Active Thermal Imaging which is active 20 minutes before and after tripping.

Customer cable connections

Connections include bus for installation flexibility.

Optional Features

Electrically-operated Circuit Breakers

Circuit breakers that are electrically-operated come with a two-step stored energy mechanism and come standard with a motor assembly. Motor assemblies provide on and off control from remote locations.
These assemblies contain a spring-charging motor, a shunt trip, and shunt close.
Motor Assembly Voltage Rating: 24-30VDC

Undervoltage trip

Undervoltage trip option trips the circuit breaker when the voltage drops to a value between 35% and 70% of the control voltage.
An attempt to close the circuit breaker when the UV is not energized produces no movement in the main contacts.
Closing is allowed when the supply voltage of the UV trip reaches 85% of the rated voltage.

- Voltage Rating: 24-30VAC/VDC
- Operating Threshold:
  - Opening: 0.35 to 0.7Vn
  - Closing: 0.85 Vn
- Power Consumption: 4.5VA
- Circuit Breaker Response Time at Vn: 50ms +/- 10

Circuit Breakers Table (Continued)

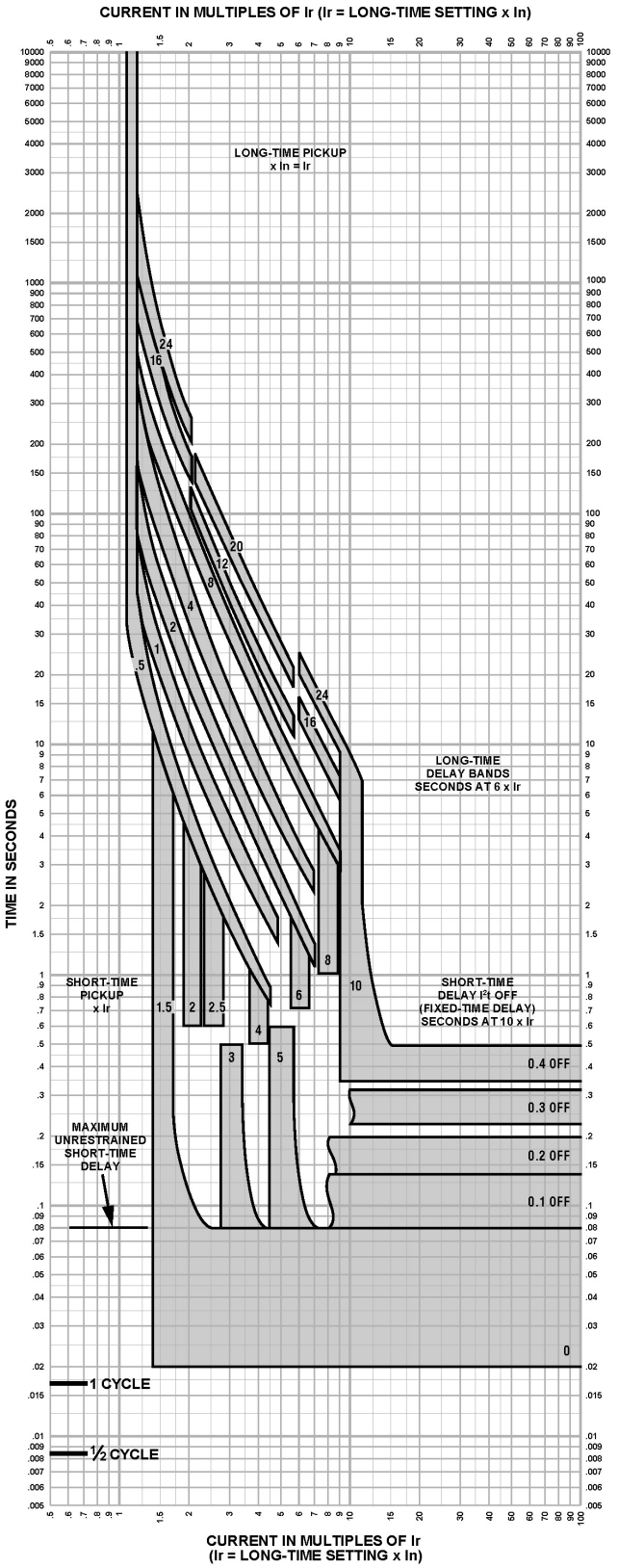
Cat® Part Number	Frame and Rating (Amps)	IEC/UL	No. Poles	Operation	Trip Unit	Circuit Breaker Characteristics	Options	Instantaneous Override (kA RMS) +/- 10%
2449893	2500ANW-Frame ICCB	UL	3P	EO	6.0P LSIG-P	Table 8	4 Aux Contact, Shunt Trip, Modbus	65

Circuit Breakers Characteristics (Continued)

Model		NW-Frame
Number of Poles		3 & 4
Rated Current (Amps)		2500-5000A (UL)
Voltage Rating (VAC)		600UL
Interrupt Rating (UL/CSA) (60Hz) - kA RMS	**240V**	100
	480V	100
	600V	85

Table 8

P, R, NS-Frame Long-Short Trip Curve and NW-Frame Long-Short Trip Curve



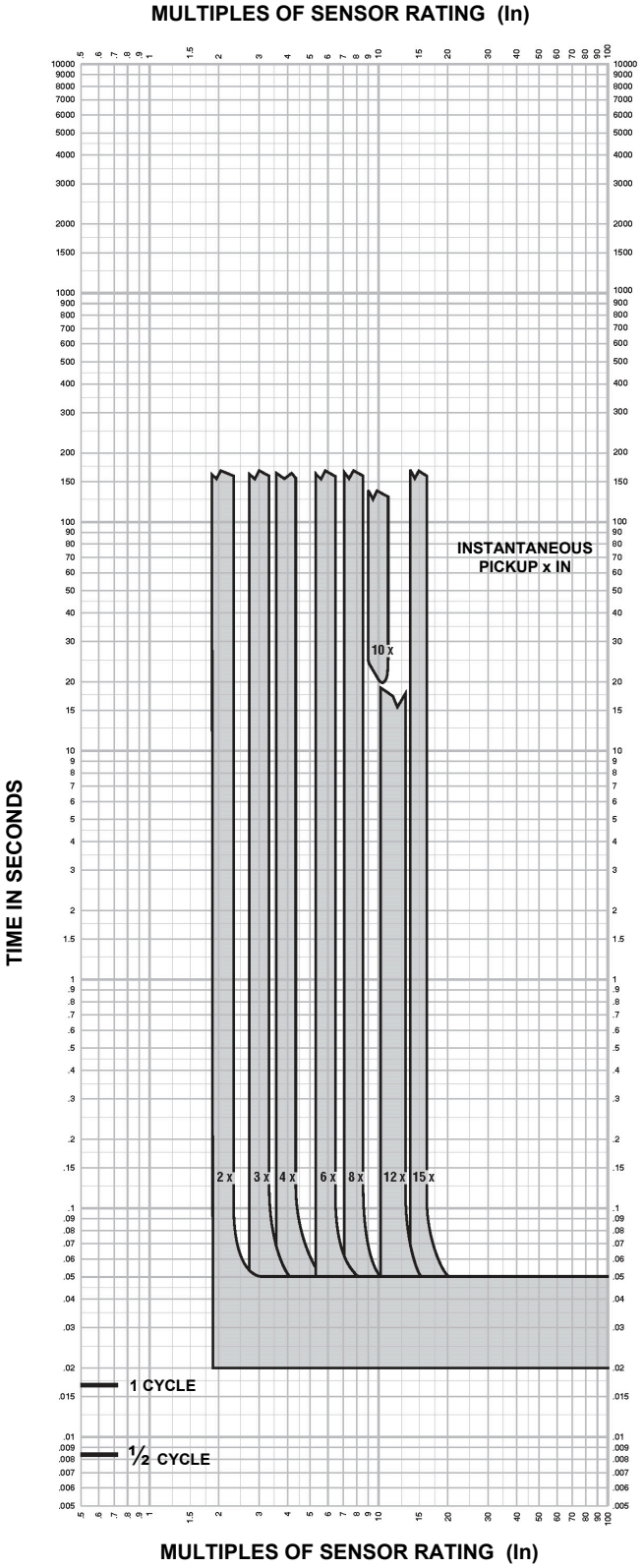
Long-time Pickup and Delay Short-time Pickup and I²t OFF Delay

The time-current curve information is to be used for application and coordination purposes only. Curves apply from -30°C to +60°C ambient temperature.

Notes:

1. There is a thermal-imaging effect that can act to shorten the long-time delay. The thermalimaging effect comes into play if a current above the long-time delay pickup value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately 20 minutes is required between overloads to completely reset thermal-imaging.
2. The end of the curve is determined by the interrupting rating of the circuit breaker.
3. With zone-selective interlocking on, short-time delay utilized and no restraining signal, the maximum unrestrained short-time delay time band applies regardless of the setting.
4. Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.
5. For a withstand circuit breaker, instantaneous can be turned OFF. See Page 22 for instantaneous trip curve. See tables on pages 03-18 for instantaneous override values..
6. Overload indicator illuminates at 100%.

P, R, NS-Frame Instant Curve and NW-Frame Instant Trip Curve



Instantaneous Pickup 2x–15x and OFF

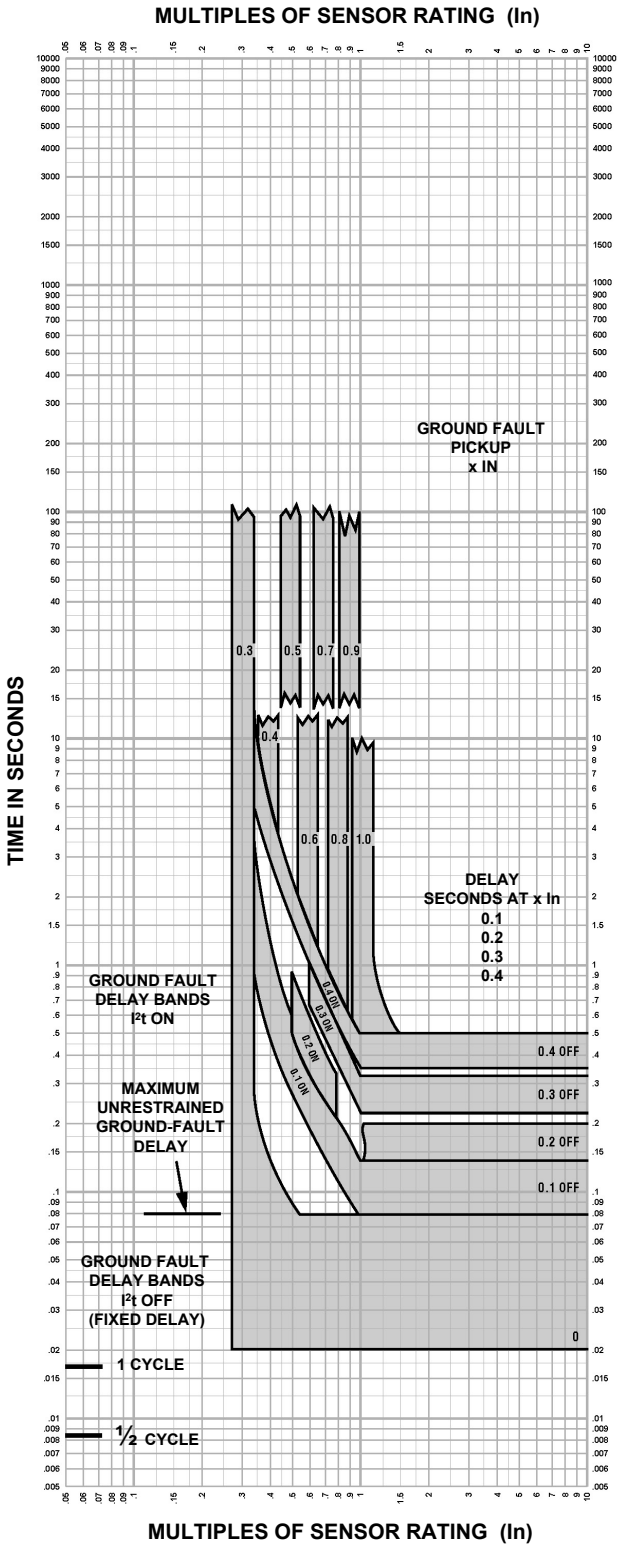
The time-current curve information is to be used for application and coordination purposes only.

Curves apply from -30° to +60°C ambient temperature.

Notes:

1. The end of the curve is determined by the interrupting rating of the circuit breaker.
2. Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.
3. The instantaneous region of the trip curve shows maximum total clearing times. Actual clearing times in this region can vary depending on the circuit breaker mechanism design and other factors. The actual clearing time can be considerably faster than indicated. Contact your local Sales Office for additional information.
4. For a withstand circuit breaker, instantaneous can be turned OFF. See tables on pages 03-18 for instantaneous override values.
5. See page 22 for long-time pickup, long-time delay, short-time pickup, and short time delay trip curves.

P, R, NS-Frame Gound Curve and NW-Frame Ground Fault Trip Curve



Ground-fault I^2t OFF and ON In ≤ 400 A

The time-current curve information is to be used for application and coordination purposes only.

Curves apply from -30°C to +60°C ambient temperature.

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Picture shown may not reflect actual configuration

Seismically Restrained Vibration Isolators

GENERAL DESCRIPTION

This series of isolator combines the open spring mountings within a rugged welded steel housing. The housing is designed to limit equipment motion in all directions due to seismic loads. An external adjusting bolt allows for full levelling capability of the equipment.

Features and Benefits

- Housings are welded steel construction
- Isolator weight – Standard Capacity (22 kg [48.5 lb]) & High Capacity (40 kg [88.2 lb])
- Mounts are strategically placed under the factory designed base to support the generator, engine, and radiator
- Installation spacer between the upper and lower housings ensures accurate installation height
- Springs are not welded to cups or housings
- Neoprene spring cups are used under each spring, eliminating metal-to-metal contact
- The lower housing incorporates an oversized base plate that spreads the anchor bolts over a wider area
- Mounts are designed to be anchored to a concrete or steel base
- Pre-drilled holes in the housing base are easily accessible and simplify installation
- All zinc-electroplated hardware provides superior corrosion resistance
- Shipped loose for customer installation
- Facilitates seismic certification
- Side loading capability of isolators is matched to the package certification level
- Anchoring details are site specific and are dependent on many factors such as generator set size, weight, and concrete strength. Seismic certification requires that the anchoring system used is reviewed and approved by a Professional Engineer.

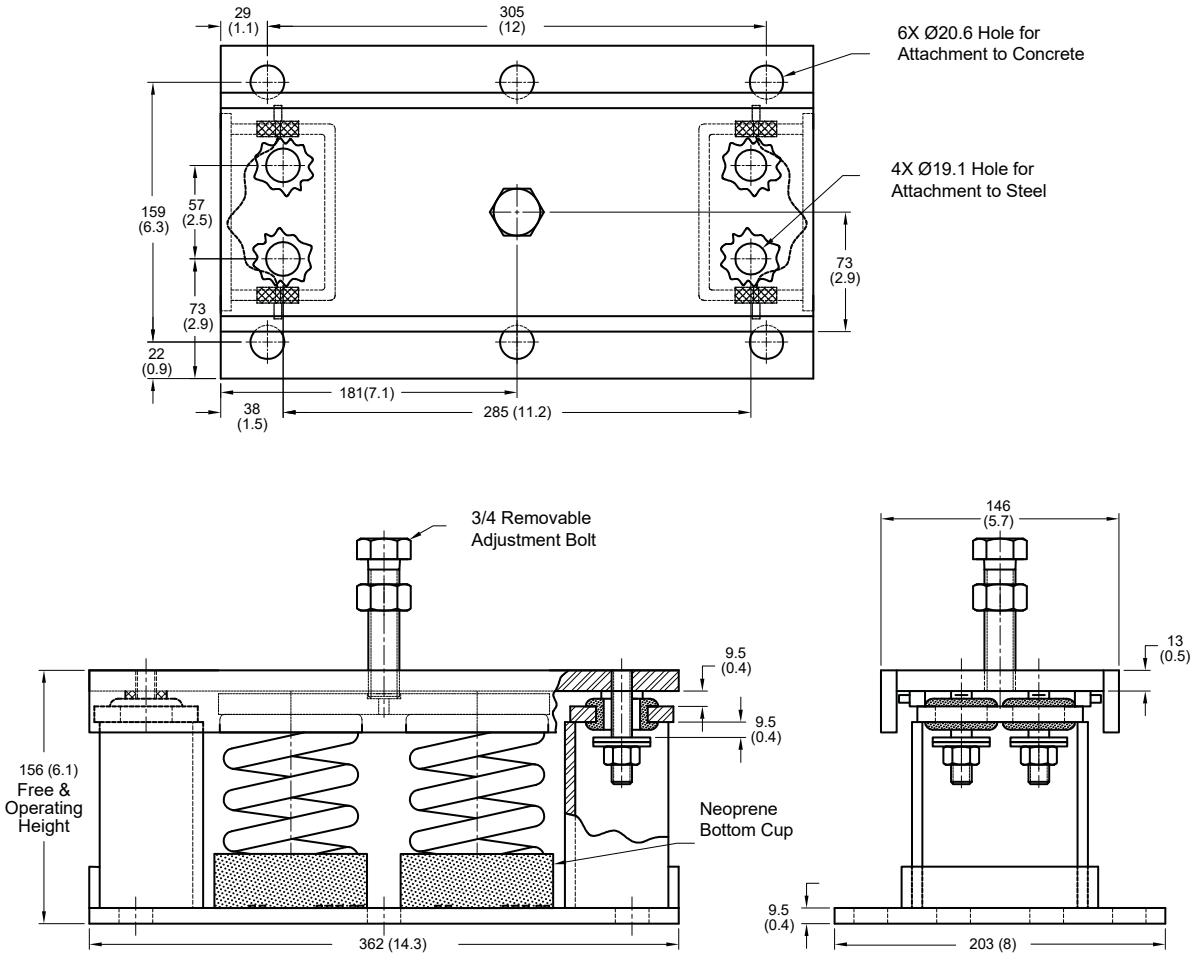
High Capacity Isolators - Isolator Data

	Part Number	Rated Capacity kg (lb)*	Rated Deflection mm (in)	Spring Rate kg/cm (lb/in)	Solid Load kg (lb)	Springs Color Code
Qty 6	616-5719	2336 (5150)	28.2 (1.11)	325 (4626)	3508 (7734)	White/Dark Purple
Qty 6	627-5582	2712 (5980)	28.2 (1.11)	377 (5364)	4068 (8968)	White/Dark Green
	627-5583	2948 (6500)	26.4 (1.04)	439 (6250)	4423 (9750)	White/Gray

*value per isolator

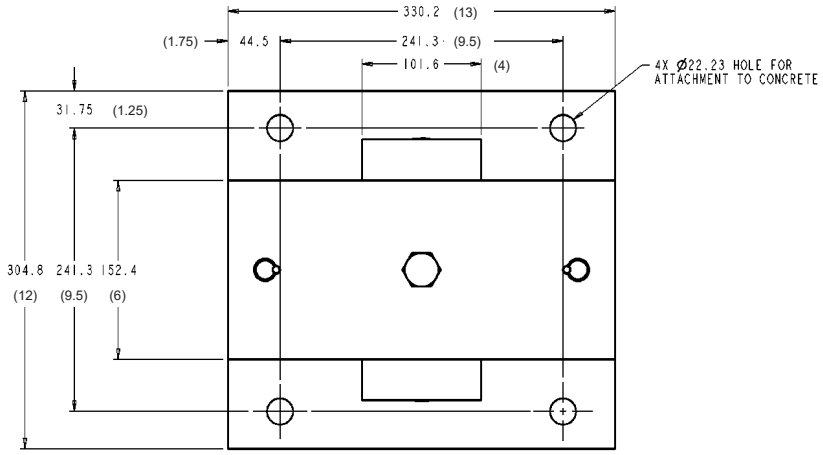
Standard Capacity - Isolator Drawing

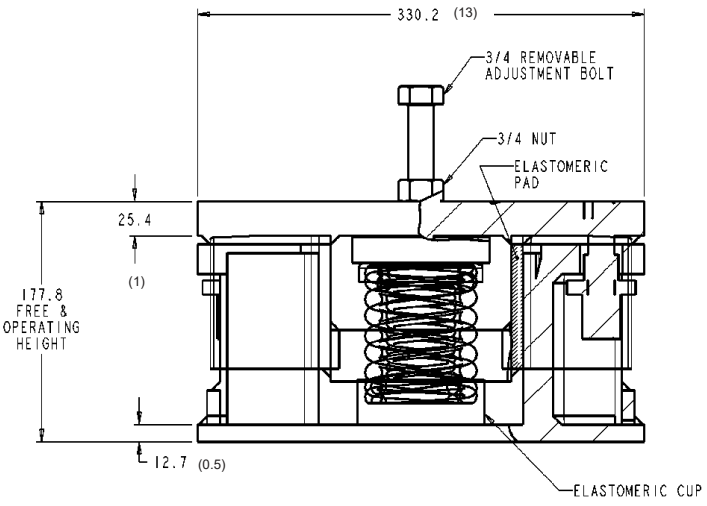
Dimensions mm (in)

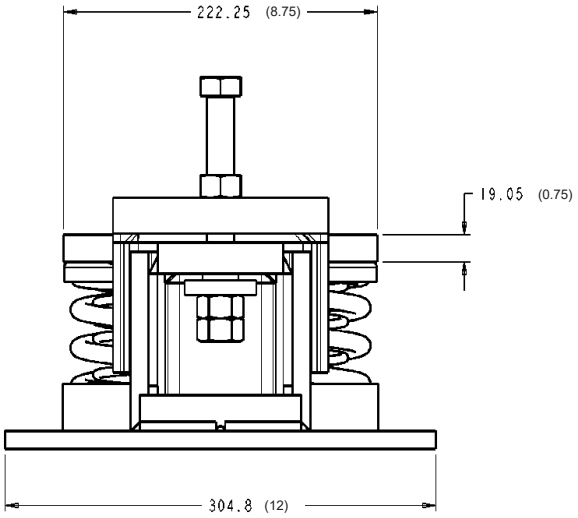


High Capacity - Isolator Drawing

Dimensions mm (in)







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Picture shown may not reflect actual configuration

Generator Space Heater

for 1200, 1400*, 1600 and 1800 Frames

*only with 3512C

GENERAL DESCRIPTION

Humidity is a natural enemy of generators and all electrical equipment.

Space heaters are designed to protect generator windings from abnormally high humidity conditions when the generator is idle. The heater maintains the air around the windings at a suitable temperature to prevent winding corrosion due to condensation.

Generator space heaters use electrical resistance and are located within the generator stator housing.

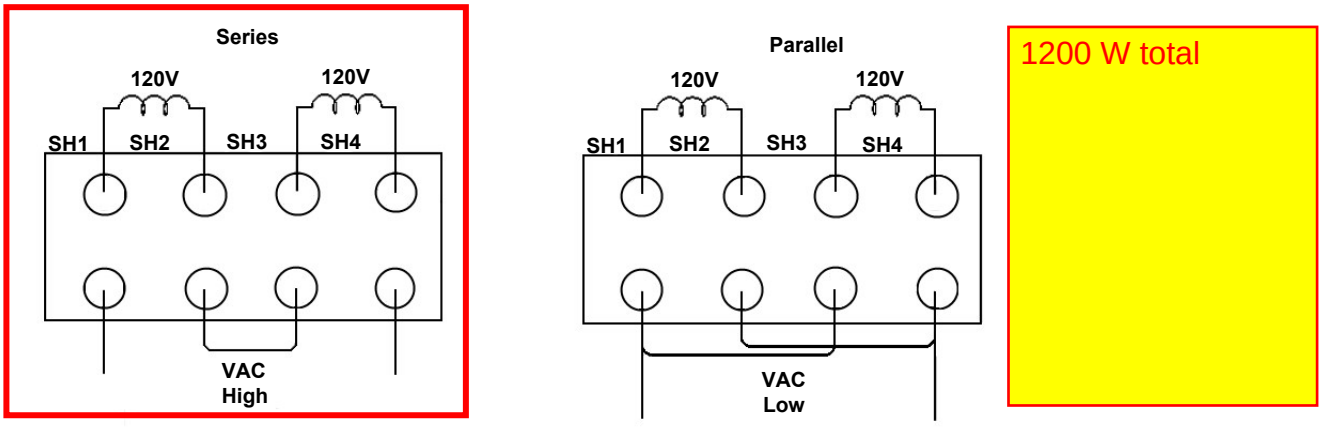
Space heaters are particularly recommended for generator sets located in a low ambient and/or high humidity environment. As a further benefit, space heaters provide an excellent method of drying out a generator after long transit or storage.

Because space heaters are required only during non-operative periods, they require availability of a power source separate from the generator set itself.

When the generator set is not running the heater automatically connects 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.

The generator space heater uses two heating elements.
Heater element electrical data: Voltage - 120V, Power - 600W.

Space Heaters Connection Diagram



240V
220V

60Hz
50Hz

120V
110V

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Cat® Batteries



Cat® Batteries—Greater Starting Power—Lower Maintenance—Longer Life

Cat Premium High Output (PHO) batteries are used in all Cat Machines and Engine Gen-Sets. They are designed to meet stringent Caterpillar design specifications, which provide industry leading cold cranking amps (CCA) capability and maximum vibration resistance.

Maintenance Free Accessible or low maintenance designs are available in wet and dry configurations.

General Service Line batteries are available in Maintenance Free Accessible or low maintenance designs. Wide selections of BCI group sizes are available for automotive, light truck, bus, industrial, agricultural, marine, recreational and valve regulated (VRLA-AGM & Gel) applications.

Cat® Batteries

World's Toughest Batteries



Premium High Output—Maximum Vibration Resistance

- Vibration Resistance...five times the Industry Standard
- Exclusive "flat top" BCI group 4D & 8D batteries are Maintenance Free Accessible and have the industries highest cold cranking amps (CCA)
- Popular BCI group 31 Maintenance Free Accessible batteries with industry leading cold cranking amps...up to 1000 (CCA), for electric power, machine or on-highway truck and bus applications. Deep cycle models are available for truck, marine or recreational usage

Specifications for Cat Premium High Output Batteries-Available Worldwide

Qty 8 per gen

BCI Group Size	Part No.	CCA ≈	RC Mins †	Volts	Amp Hr. Capacity @ 20 Hrs.	Construction Notes	Accessiblity - Fluid Level Check Hours	BCI Overall Dimensions Length In (mm)	Width In (mm)	Height In (mm)	Nominal Weight Wet Lb (kg)	Dry Lb (kg)	Nominal Acid to Fill Qt (liter)
8D	153-5720	1500	465	12	210	C/MFA	A - 1000	20.5 (520)	10.8 (275)	9.8 (248)	132 (59.9)	-	-
8D	101-4000	1400	400	12	190	LAC+	A - 1000	20.8 (527)	11.0 (278)	9.8 (248)	132 (59.9)	86 (39.0)	18.0 (17.0)
4D	153-5710	1400	425	12	200	C/MFA	A - 1000	20.5 (520)	8.6 (218)	9.8 (248)	119 (54.0)	-	-
4D	9X-9730	1300	400	12	190	LAC+	A - 1000	20.8 (527)	8.6 (218)	9.8 (248)	120 (54.0)	81 (36.8)	14.8 (14.0)
4D	153-5700	1125	305	12	145	C/MFA	A - 1000	20.5 (520)	8.6 (218)	9.8 (248)	101 (45.8)	-	-
4D	9X-9720	1000	275	12	140	LAC+	A - 1000	20.8 (527)	8.6 (218)	9.8 (248)	102 (45.8)	59 (26.8)	15.9 (15.0)
31	175-4390	1000	180	12	90	C/MFA/S	A - 1000	12.9 (329)	6.8 (172)	9.3 (236)	60 (27.2)	-	-
31	175-4370	825	190	12	100	C/MFA/S**	A - 1000	12.9 (329)	6.8 (172)	9.3 (236)	61 (27.2)	-	-
31	175-4360	710	185	12	100	C/MFA/S***	A - 1000	12.9 (329)	6.8 (172)	9.3 (236)	62 (28.1)	-	-
31/30H	115-2422	1000	170	12	90	C/MFA	A - 1000	12.9 (329)	6.8 (172)	9.5 (241)	63 (28.6)	-	-
31/30H	115-2421	950	170	12	90	C/MFA+	A - 1000	12.9 (329)	6.8 (172)	9.5 (241)	64 (29.1)	44 (20.0)	6.6 (6.2)
31/30H	9X-3404(1)	950	165	12	95/100	C/MF	NA	13.0 (331)	6.8 (172)	9.5 (241)	58 (26.3)	-	-
31/30H	3T-5760	750	165	12	95/100	C/MF	AV - 1000	13.0 (331)	6.8 (172)	9.5 (241)	56 (25.4)	-	-
65	230-6368	880	140	12	70	C/MF	NA	11.9 (304)	7.5 (191)	7.5 (191)	46 (20.9)	-	-
24	153-5656	650	110	12	52	C/MF	NA	11.0 (279)	6.9 (174)	9.0 (229)	39 (17.7)	-	-

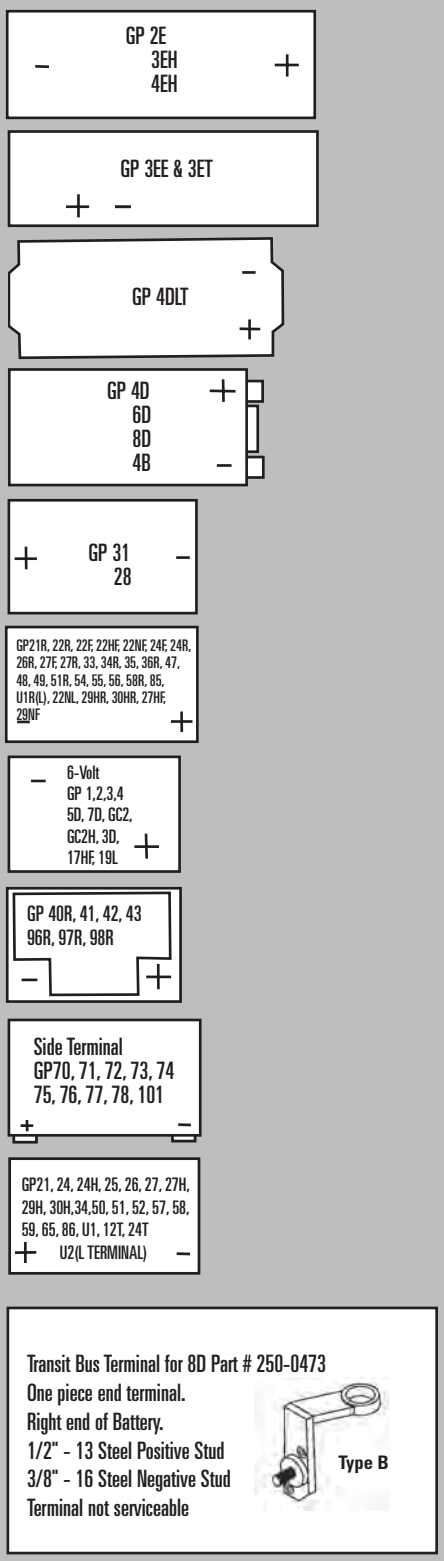
Construction Notes:
Batteries use SAE taper post design and are shipped wet except as:

- LAC = Low Maintenance - Hybrid Construction
- C = Calcium Lead Alloy Grid Design
- MF = Maintenance Free Non-Accessible
- MFA = Maintenance Free Accessible
- A = Accessible
- NA = Non-Accessible
- AV = Accessibly Varies - Accessibility varies depending on supplier used. If it has caps, it is accessible and fluid levels should be checked.
- S = Stud Terminals
- + = Shipped Dry Only
- * = Side Terminals Only
- ** = Starting and Deep Cycle Battery
- *** = Deep Cycle and Starting Battery
- ≈ = Cold Cranking Amps for 30 seconds at 0° F (-18° C)
- † = Reserve Capacity Minutes minimum of 25 amp output at 80° F (27°C)
- SDT = Dual, Top mounted Terminals - Stud and SAE Post. Marine Deep Cycle/ Starting Battery
- 1 = Available in EAME and China only

Rugged Design–Built Tough–Reliable Starting

- Positive and negative plates are anchored to container bottom and locked at the top of cell element for maximum vibration resistance.
- Heavy-duty forged terminal post bushings provide maximum strength and resistance to acid seepage.
- Hefty full-frame grids, no sharp edges, optimum acid/paste combination provides better charge acceptance after deep discharge.
- Manifold vented cover with built-in Flame Arrestor…a safety feature that directs corrosive gases away from the battery and hold-downs.
- Thick, robust container resists rugged treatment typical of heavy-duty commercial use. Embossed part number & descriptors for easy serviceability.

BCI Terminal Locations



Transit Bus Terminal for 8D Part # 250-0473
One piece end terminal.
Right end of Battery.
1/2" - 13 Steel Positive Stud
3/8" - 16 Steel Negative Stud
Terminal not serviceable

Cat Premium High Output Batteries — Built Tough to Exceed Demanding Performance Test Requirements:

- **100 hour Vibration Testing – Five Times the Industry Standard**

  Battery must be able to withstand vibration forces without suffering mechanical damage, loss of capacity, loss of electrolyte or without developing internal/external leaks

  Battery must pass a high rate discharge test after the vibration testing

- **Five 72-hour Deep Discharge/Recharge Test Cycles**

  Battery must recover to 25 charging amps within 20 minutes and meet Industry Electrical Performance Standards

- **30 Day Complete Discharge Test**

  Battery must recover to 25 charging amps within 60 minutes and meet Industry Electrical Performance Standards after recharging

- **SAE J2185 Life Cycle Test**

  Battery subject to deeper discharge and charge cycles at extreme temperatures not normally encountered in starting a machine or vehicle

- **Cold Soak Test**

  Battery cold soaked at sub-freezing temperatures and then tested by starting an equally cold engine



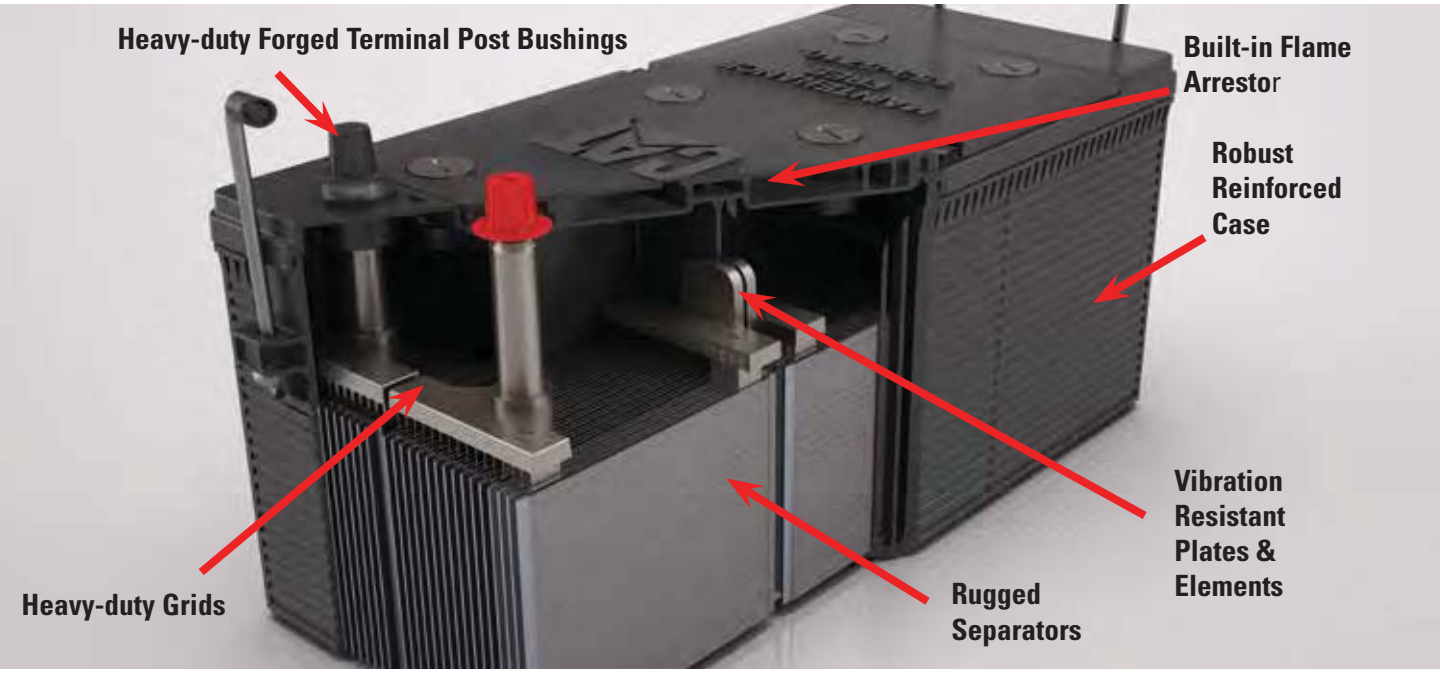
Battery Accessories

Group 31 - Charging Posts for Stud Terminals - Part # 4C-5637
Screw-in Charging Posts for Side Terminals - Part # 4C-5638
Wing Nut - Part # 2B-9498 for Part #'s 175-4390/175-4370/175-4360/8C-3628
Wing Nut - Part # 3B-0723 for Part #'s 8C-3638 and 8C-3639
Booster Cable 12' (3.66 m) - Part # 4C-4911
Booster Cable 20' (6.00 m) - Part # 4C-4933
Heavy Duty Commercial Fast Charger (110V) - Part # 4C-4921
Heavy Duty Commercial Fast Charger (220V) - Part # 4C-4910

Note: Ratings and Part Numbers are subject to change without notice.

Recycle all scrap batteries.
We accept lead-acid batteries for recycling.

Cat® Batteries



Robust Components = Long Life + Reliable Starts

- Heavy-duty forged terminal post bushings provide maximum strength and resistance to acid seepage that causes corrosion and black posts. Thicker internal terminal posts provide lower electrical resistance and higher cold cranking amp output.
- Rugged micro porous polyethylene envelope separators protect against “shorts” and vibration damage. Deep Cycle batteries utilize double insulated Glass mat separators for longer cycling life.
- Maintenance Free Accessible batteries utilize calcium lead alloy on both positive and negative plates that reduces gassing and water consumption. Automotive batteries have Silver (Ag) Calcium Alloy Grids for resistance to high underhood temperatures.
- Heavy-duty, full frame battery grids with no sharp edges. An optimum acid/paste combination provides better charge acceptance after a deep discharge.
- Positive and Negative plates are anchored to the container bottom and the cell element is locked at the top for maximum vibration resistance. Straps are thicker, heavier and cast (not welded) into the plates.
- Manifold vented cover with built-in Flame Arrestor…a safety feature that directs corrosive gases away from the battery and hold-downs.
- Robust reinforced case provides extra strength in all temperature extremes. Brickwork design on sides reduces chance of punctures and case flexing. Embossed part number and descriptors for easy serviceability.

CAT DEALERS DEFINE WORLD-CLASS PRODUCT SUPPORT.

We offer you the right parts and service solutions, when and where you need them.

The Cat Dealer network of highly trained experts keeps your entire fleet up and running to maximize your equipment investment.



PEHJ0073-03
www.cat.com

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MSM

High Frequency Battery Charger / Rectifier



46LE C62.41 USCG

The MSM is a Smart High Frequency Switch Mode battery charger specifically developed for Marine and Engine Starting applications. MSM series incorporates Power Factor Correction (PFC) Circuitry with a wide input voltage range in order to accommodate many marine charging applications.

The MSM has an Integrated Battery Charge Divider / Isolator which provides connections for charging up to three independent batteries simultaneously with a three-stage charge cycle. MSM's filtered output is suitable to charge different types of batteries for Marine/Industrial applications. This series is equipped with an LCD display for ease of navigation through the configurations menu. The LCD also displays Input AC voltage, Output DC Voltage & Current, and Alarm Status. The front of the unit provides three status LED indicators for the overall status of the system.

The MSM charger is built in a robust, non-corrosive enclosure that withstands harsh environments, meeting stringent safety and regulatory standards. MSM chargers can be used inside engine rooms as this series is ignition protected 33 CFR 183.410 compliant.

Standard Features

- Smart Microprocessor Controlled High Frequency Charging Technology
- Single Phase AC Input 102-264VAC, 45-65Hz
- Complete Isolation from AC to DC
- LCD Digital Voltmeter & Ammeter
- Current Limit Protection
- Filtered Output for VRLA (Gel-Cell & AGM) Batteries
- Battery Isolator (Charge Divider allows for charging up to three Batteries Simultaneously)
- Input & Output Fuses (Output Fuses Accessible)
- On/Off Switch
- AC Voltage Metering
- Conformal Coated Circuit Boards
- Internal or External Temp. Compensation w/Disable Option
- Audible Charger Failure Alarm with LED Indicator and Form "C" Dry Relay Contacts
- IP22/NEMA Type 2 (with dripshield)
- 33 CFR 183.410 - Ignition Protection
- Corrosion Resistant
- Meets ABS & USCG Requirements
- CE Certified
- 2-Year Warranty

Optional Accessories

11Y	External Temperature Probe 100 feet
11W	External Temperature Probe 24 Feet
57Y	Modbus (Ethernet) TCP/IP
551	VFD Display
57B	5 Isolated Output Terminals
18W	Water Tight Connectors
19P	AC Cord (9.84ft) 14 AWG NEMA 5-15P
35F	External Termination Box (5 Outputs)
35G	Expanded Cable Entry Box
---	EAB-JBOX: Provides Low/High Voltage and Ground Fault alarm contacts (ordered separately)

Specifications subject to change without notice

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106 Bradrock Drive, Des Plaines, IL 60018
Tel: 847.299.1188 Fax: 847.299.3061
sales@lamarchemfg.com
www.lamarchemfg.com

P25-DSMSM-1
ECN 23600
08/24

Model Number	AC Input 100% (load)		DC Output		Case No.	Net Weight*	
	Volts (Nominal)	Amps	Volts (Nominal)	Amps		lbs	kgs
MSM-10-12V-U1	120	1.5	12	10	201	5	2.3
	240	0.8					
MSM-20-12V-U1	120	3.1	12	20	201	5	2.3
	240	1.6					
MSM-30-12V-U1	120	4.6	12	30	203	11	5.0
	240	2.4					
MSM-40-12V-U1	120	6.0	12	40	203	11	5.0
	240	3.2					
MSM-60-12V-U1	120	9.2	12	60	205	18	8.2
	240	4.8					
MSM-80-12V-U1	120	12.0	12	80	205	18	8.2
	240	6.4					

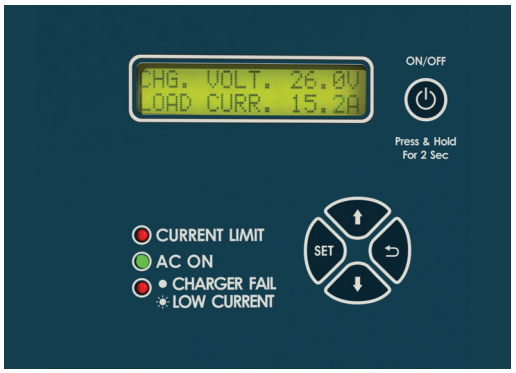
*Weight does not include shipping packaging

Model Number	AC Input 100% (load)		DC Output		Case No.	Net Weight*	
	Volts (Nominal)	Amps	Volts (Nominal)	Amps		lbs	kgs
MSM-10-24V-U1	120	2.6	24	10	201	5	2.3
	240	1.4					
MSM-20-24V-U1	120	5.2	24	20	203	11	5.0
	240	2.7					
MSM-25-24V-U1	120	6.5	24	25	203	11	5.0
	240	3.1					
MSM-30-24V-U1	120	7.8	24	30	203	11	5.0
	240	3.8					
MSM-35-24V-U1	120	9.1	24	35	203	11	5.0
	240	4.4					
MSM-50-24V-U1	120	13	24	50	205	18	8.2
	240	6.3					
MSM-65-24V-U1	120	16.9	24	65	205	18	8.2
	240	8.2					
MSM-100-24V-U1	120	26.0	24	100	207	32.6	14.8
	240	12.6					

Charger Specifications

- **AC Input**
  Wide AC Input Range 102 - 264VAC
  Single Phase 45 - 65 Hz
- **DC Output**
  10 - 80A / 12V
  10 - 100A / 24V
- **Power Factor**
  0.99
- **Load Regulation**
  <±0.5%
- **Input Protection**
  Fuse with Surge and Transient Protection
  AC Over Voltage Protection
- **Output Protection**
  Current Limit Protection
  Fuse with Surge Protection
  Reverse Current Polarity
  Thermal Protection
  Short Circuit Protection
- **LED Indicators**
  Current Limit
  AC ON
  Charger Fail
  Low Current
- **Alarm Contacts**
  Charger Failure
- **LCD Digital Display**
  AC Input Voltmeter
  DC Output Voltmeter and Ammeter (2%)
- **Environmental**
  Operating: -20° to 50°C (-4° to 122°F)
  Storage: -40° to 85°C (-40° to 185°F)
  Relative Humidity: 0 to 95% non condensing
- **Adjustable Voltage Range**
  10.4 to 14.1 (12V)
  20.8V to 28.2V (24V)
- **Mounting**
  Wall mount
- **Cable Entry**
  Bottom
- **Finish**
  Powder coated aluminum enclosure (corrosion resistant)
- **Standards**
  UL 1236, ABS & USCG Requirements
  EN 60335-1 (Electrical Safety)
  IEC 60335-2-29 (Electrical Safety)
  IEC 60068-2-6 (Sinusoidal Vibration)
  EN 55011 (Radiated EMI)
  IEC 1000-4-2 (Electrostatic Discharge)
  IEC 1000-4-4 (Electrical Fast Transient)
  33 CFR 183.410 (Ignition Protection)

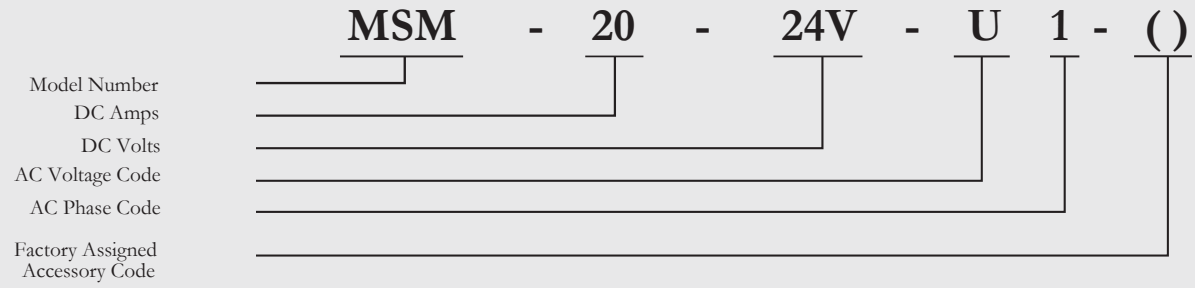
LCD Display



Case Specifications

Case No.	Overall Dimensions					
	Width		Depth		Height	
	in	mm	in	mm	in	mm
201	9.63	244	6.16	156	14.20	360
203	9.63	244	6.16	156	18.30	464
205	9.63	244	9.85	250	18.30	464
207	15.38	391	11.67	297	20.42	519

Model Number Nomenclature



AC Voltage Code
U1 - 102-264 VAC

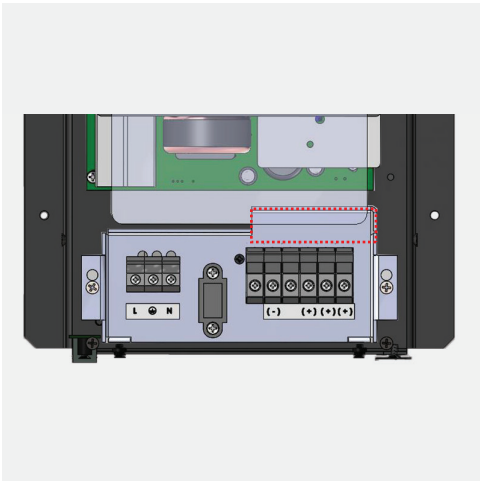
AC Phase Code
1 - Single Phase

OPTIONAL ACCESSORIES



Termination Box

The optional termination box provides external space for managing the cables of multiple output/battery connections to the MSM battery charger. The termination box provides an easy carefree solution for installations that require additional space for connecting thicker cabling and multiple outputs.



Expanded Cable Entry Box

The optional Expanded Cable Entry Box provides an extra 0.70 inches of space for input/output connections. This makes connecting to the MSM battery charger easier for installations with multiple outputs or thicker cabling.



MODBUS Ethernet TCP/IP

Optional Modbus Ethernet allows for remote monitoring of the battery charger. This allows for easier servicing and maintenance of the battery charger by receiving alerts and battery charger data points remotely.



Water Tight Connectors

The optional watertight connectors offer robust protection against moisture, water, and dust. By forming a secure seal around cable connections, these connectors significantly reduce the risk of electrical faults, corrosion, and damage caused by environmental elements.



EAB-JBOX Alarm Box

The optional external alarm box is connected to the battery charger and includes one form "C" contact each for High DC Voltage, Low DC Voltage and Ground Fault (Positive or Negative) in addition to the charger fail alarm that is integrated into the MSM battery charger by default.

ARBS

Automatic Redundant Battery Selector Diode Isolator



Model Shown: ARBS-1600-50

The La Marche ARBS is a solid state device that controls redundant power in engine starting switchgear applications. Our product is designed with high powered diodes to select the higher voltage of the two isolated DC power sources.

The ARBS selects power from the best available battery while isolating the alternate battery bank. The special heat sink diode assembly is manufactured to handle high output requirements with safety margin to spare. This Automatic Redundant Battery Selector is also known in the market as Best Battery Selector, Diode Isolator, and Automatic Battery Selector.

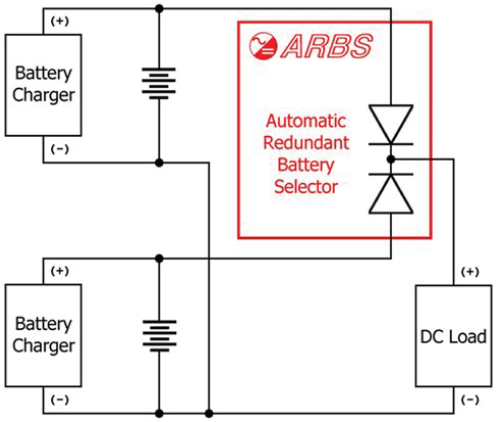
The diodes in the ARBS allows the current to flow from the DC power source to the load. The ARBS is sized based on the maximum load inrush current

Standard Features

- Fully Automatic
- Convection Cooled
- Isolation From One Battery to Another
- Diodes Designed to Carry 100% of the Starter/Load
- Surge Protection
- Two Diodes, Common Cathode
- Finish - ANSI - 61 gray paint
- 1 Year Warranty

Optional Feature

65F Alternator Battery Recharge Option*
(Charge Divider and Control Circuit for connecting Single Alternator to two Batteries)
*Case size subject to change, please consult factory



Model Number	Nominal Voltage	Rated DC Inrush Current per NFPA 110	Continuous DC Rated Current	Dimensions W x D x H	Approx. Weight (lbs)	Case No.	Mounting
ARBS-500-50	(max: 300VDC)	500A	50A @ +50C	12.8" x 10" x 17.12" 326 x 254 x 435mm	36	2	Wall
ARBS-500-100	(max: 300VDC)	500A	100A @ +50C	15.4" x 11" x 23.75" 391 x 279 x 603mm	57	3	Wall/Floor
ARBS-500-200	(max: 300VDC)	500A	200A @ +50C	25.58" x 13.93" x 28" 650 x 354 x 711mm	CF	4	Wall/Floor/Rack
ARBS-1000-50	(max: 300VDC)	1000A	50A @ +50C	14.25"x 10.62" x 19.87" 362 x 270 x 505mm	50	7	Wall/Floor
ARBS-1000-100	(max: 300VDC)	1000A	100A @ +50C	25.58" x 13.93" x 28" 650 x 354 x 711mm	120	4	Wall/Floor/Rack
ARBS-1000-200	(max: 300VDC)	1000A	200A @ +50C	27.24" x 15.25" x 32.5" 691 x 387 x 826mm	180	8A	Floor
ARBS-1600-50	(max: 300VDC)	1600A	50A @ +50C	14.25"x 10.62" x 19.87" 362 x 270 x 505mm	46	7	Wall/Floor
ARBS-2600-85	(max: 300VDC)	2600A	85A @ +50C	25.58" x 13.93" x 28" 650 x 354 x 711mm	115	4	Wall/Floor/Rack
ARBS-3000-85	(max: 300VDC)	3000A	85A @ +50C	25.58" x 13.93" x 28" 650 x 354 x 711mm	115	4	Wall/Floor/Rack
ARBS-4800-150	(max: 300VDC)	4800A	150 @ +50C	25.58" x 13.93" x 28" 650 x 354 x 711mm	124	4	Wall/Floor/Rack

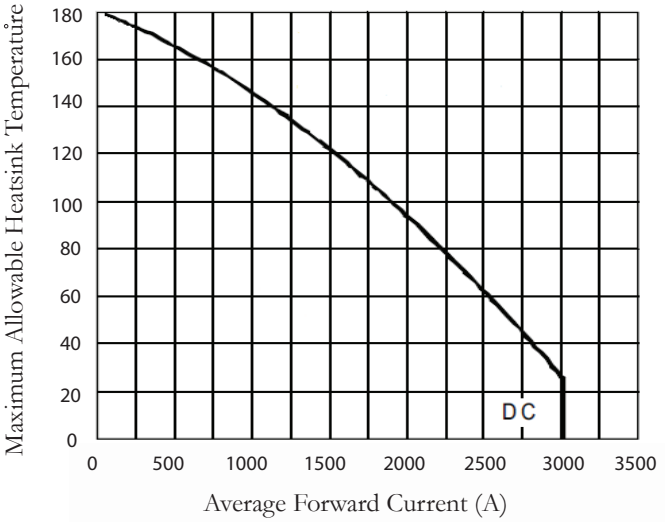
Note: Models Available with Common Positive Arrangement.

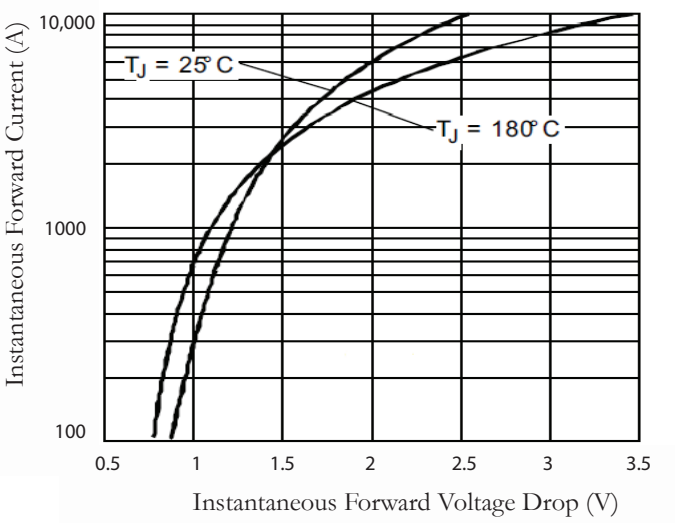
Specifications subject to change without notice

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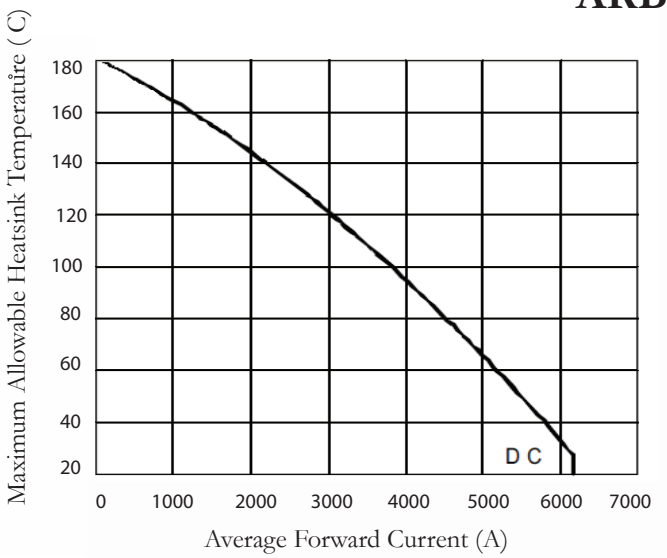
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ECN 23016
09/21

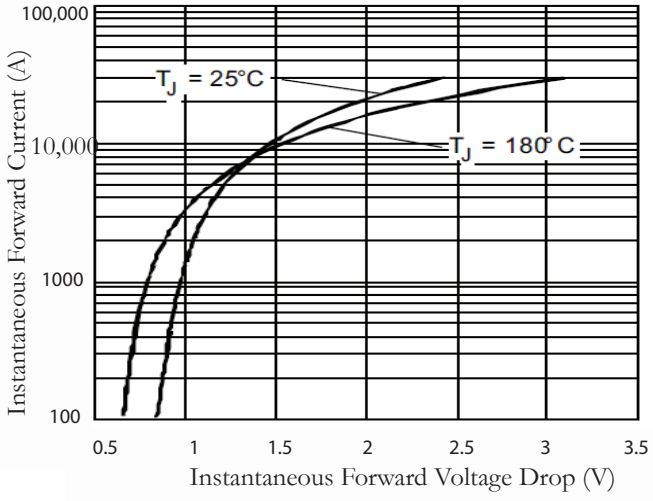
ARBS-1600



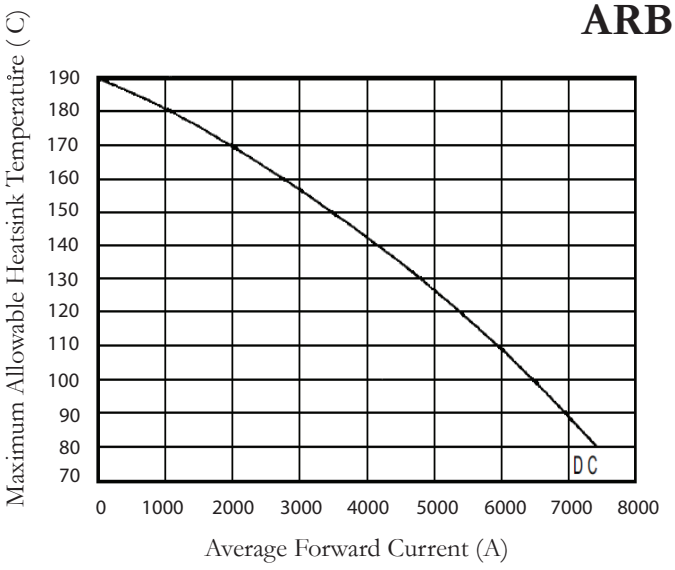


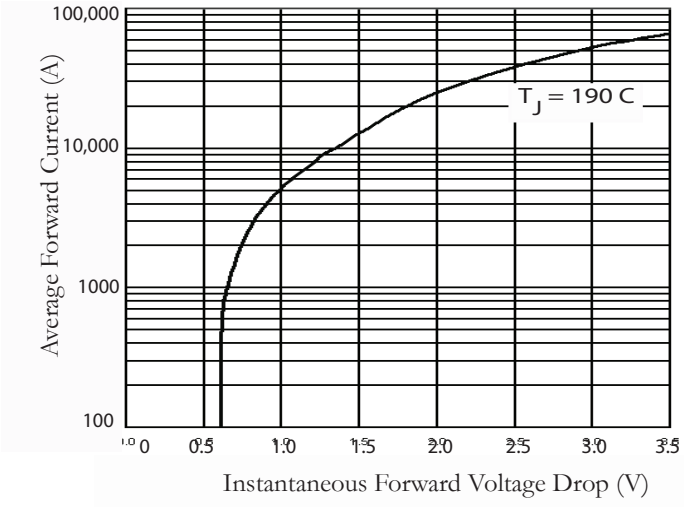
ARBS-3000

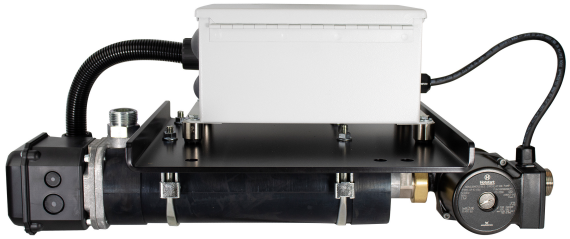




ARBS-4800







Picture shown may not reflect actual configuration

JACKET WATER HEATER With Pump

Diesel Gensets: 3512, 3516 and C175-16
Gas Gensets: G3412, G3512 and G3516

Caterpillar offers a factory-installed jacket water heater for improved cold-starting capability.

The Jacket Water Heater is a complete coolant preheater with thermostat, pump and all required controls. Forced circulation of the coolant delivers uniform heating throughout the entire engine, reduces wear from cold spots and offers a significant reduction in electrical consumption.

The Jacket Water Heater operates automatically when provided contacts are supplied with a 24 Volt DC signal from the engine.

FEATURES

- Factory Installed
- Complete with hoses, thermostat and pump
- Base frame mounting minimizes engine induced vibration
- Automatically disconnected when engine is running via the generator jacket water heater relay
- Supplied with UL recognized components
- Standard thermostat is factory preset to 54°C (130°F)
  - o Optional High Temperature thermostat is available with factory preset to 71°C (160°F)

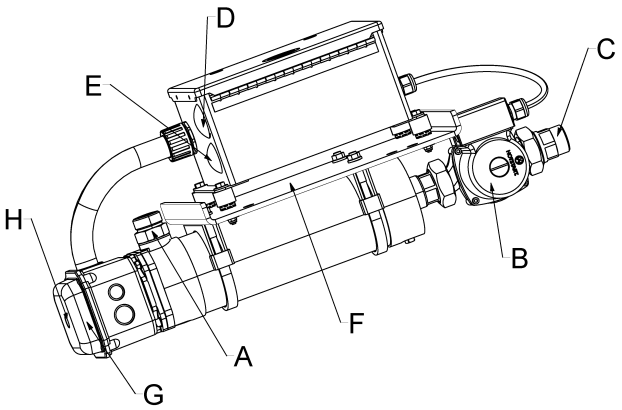
HEATER DESIGN DESCRIPTION

The jacket water heater package is designed to efficiently pre-heat the engine by heating and circulating the engine's coolant.
This design results in the following benefits

- Increase life of heater hoses, engine seals, and heating elements.
- Improve heat transfer efficiency from elements to engine coolant.
- More uniform engine temperature distribution.
- Application of a thermostat with a reduced thermal differential.
- Lower customer utility costs and increased heater reliability.
- Heater thermostat's setpoint is preset from the factory.

HEATER OPERATION/WIRING

A 38 L/pm (10 gpm) pump is located at the heater inlet to push the coolant through the heater.
A fixed thermostat is located inside Element enclosure box, near the outlet of the heater and responds to the temperature of the coolant inside the tank. The figure below shows the general heater design.



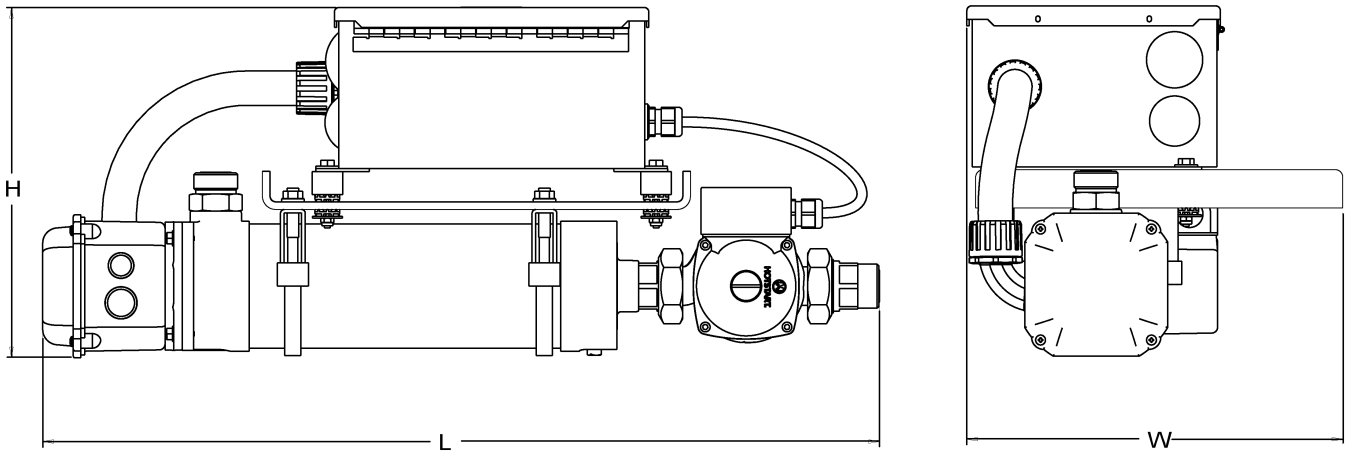
A. Discharge port
B. Pump/motor
C. Suction Port
D. Power Wiring Entrance
E. Control Wiring Entrance
F. Mounting base
G. Element assembly
H. Thermostat

SPECIFICATIONS

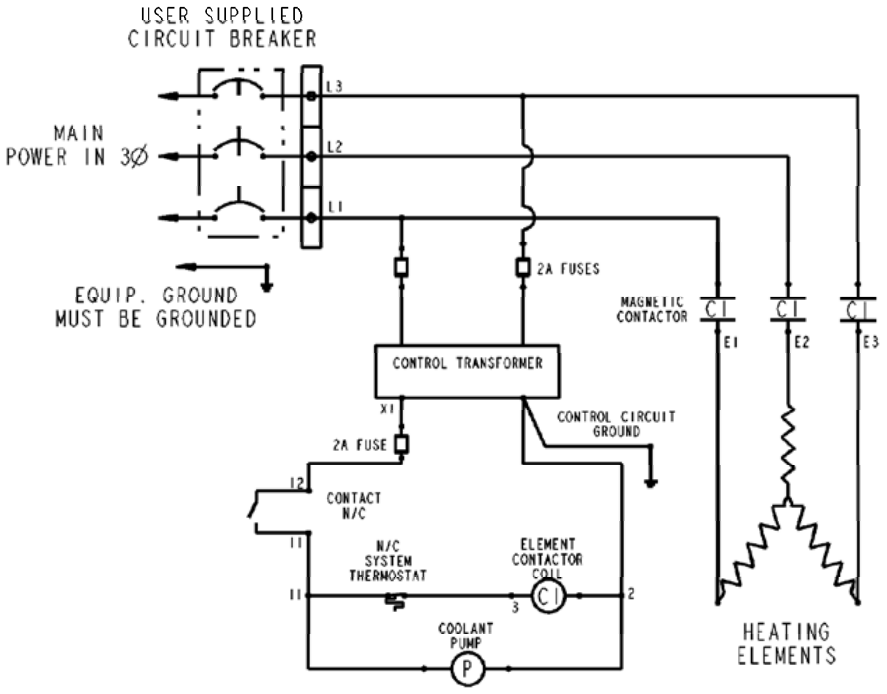
Voltage (VAC)	480	400*	240	220	208
Fixed Thermostat (Standard)	38°C - 54°C (100°F - 130°F)				
Power (with Standard Thermostat)	9 kW / 12 kW	9 kW / 12 kW	9 kW / 12 kW	9 kW	9 kW / 10.5 kW
Amperage (with Standard Thermostat)	10.8 A / 14.4 A	13.0 A / 17.4 A	37.5 A / 50.0 A	40.9 A	43.3 A / 50.5 A
Fixed Thermostat (High Temperature)	60°C - 71°C (140°F - 160°F)				
Power (with High Temperature Thermostat)	9 kW / 12 kW	9 kW	9 kW / 12 kW	9 kW / 12 kW	9 kW / 10.5 kW
Amperage (with High Temperature Thermostat)	10.8 A / 14.4 A	13.0 A	37.5 A / 50.0 A	40.9 A / 54.5 A	43.3 A / 50.5 A
Frequency	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
Phase	Three Phase		Single Phase		
Flow Rate	38 LPM (10 GPM)				
Pump Power	97 W	95 W	97 W	95 W	97 W
Length (L)	695 mm (27.4")				
Width (W)	312 mm (12.3")				
Height (H)	291 mm (11.4")				
Weight	24.0 kg (52.8 lbs)	24.2 kg (53.4 lbs)	21.5 kg (47.5 lbs)	21.4 kg (47.2 lbs)	24.2 kg (53.4 lbs)

*Only available with diesel gensets

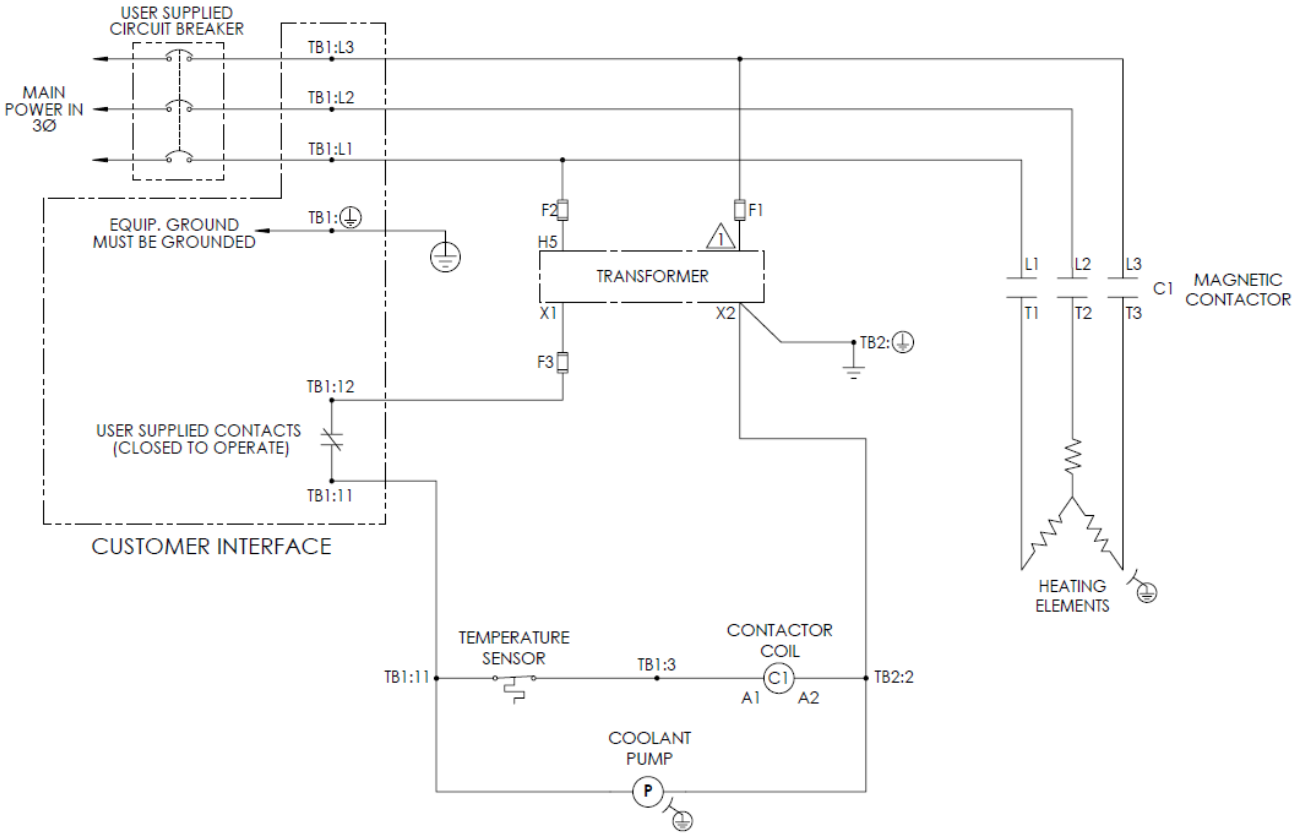
GENERAL DRAWING



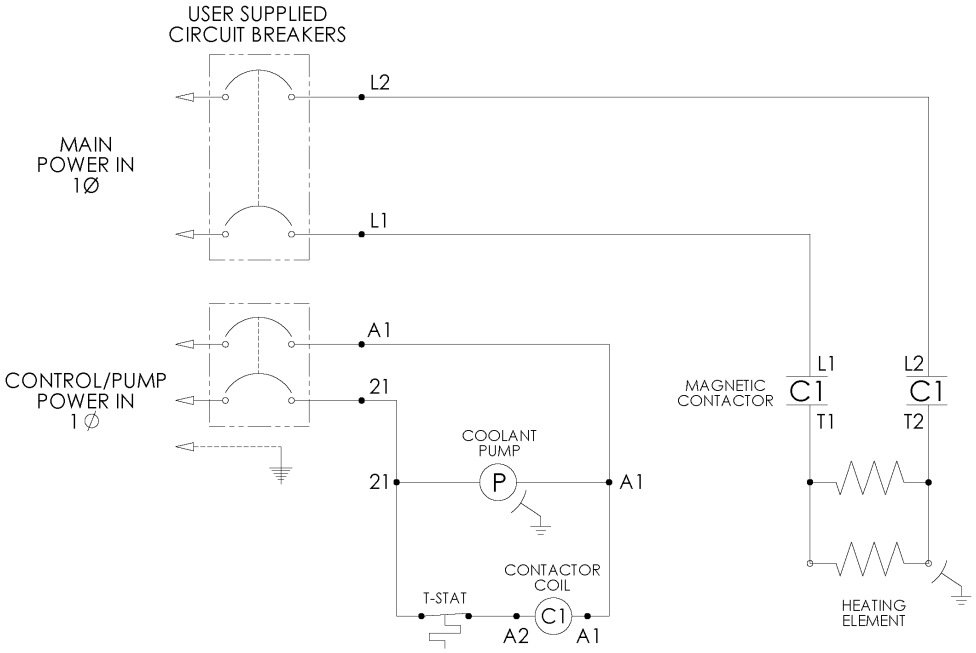
Wiring Diagram - 480 V Three Phase JWH (9 kW and 12 kW Heating Systems)



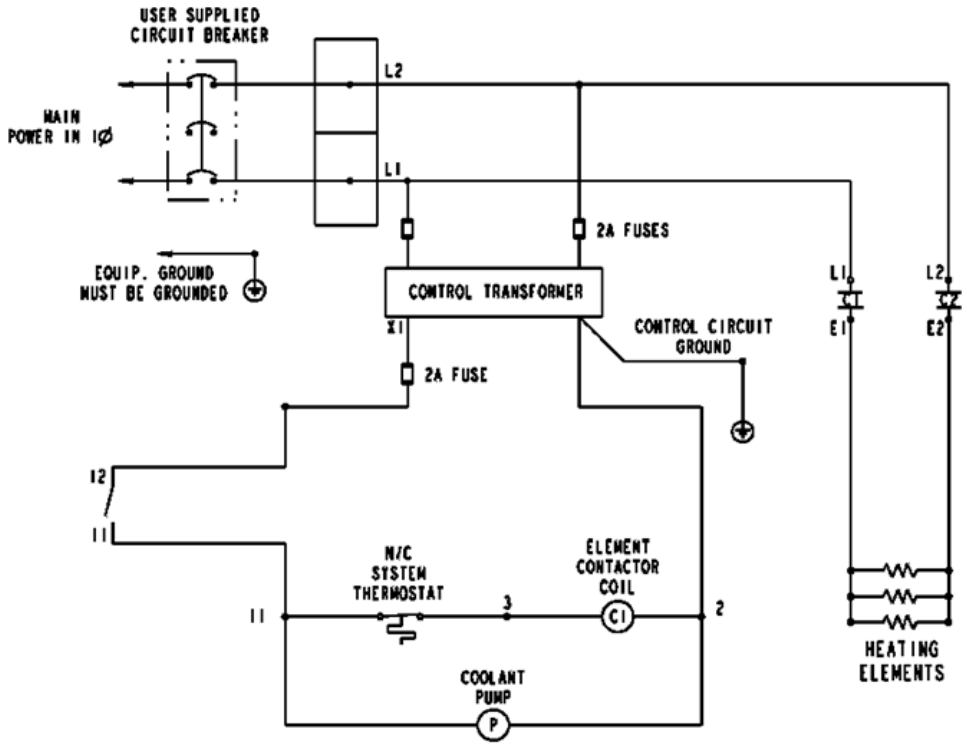
Wiring Diagram - 400 V Three Phase JWH (9 kW and 12 kW Heating Systems)



Wiring Diagram - 208, 220 and 240 V Single Phase JWH (9 kW Heating Systems) and 240 V Single Phase JWH (12 kW Heating Systems)



Wiring Diagram - 208 V Single Phase JWH (10.5 kW Heating Systems)



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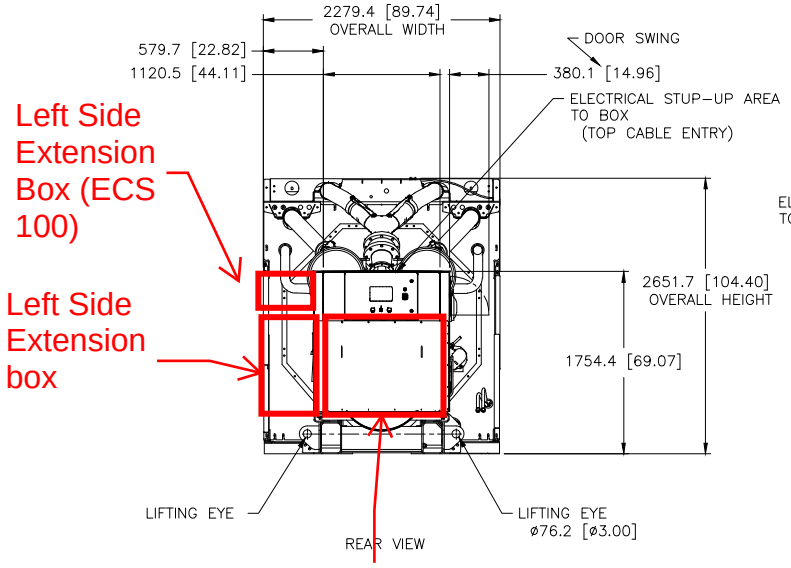
CARTER POWER SYSTEMS

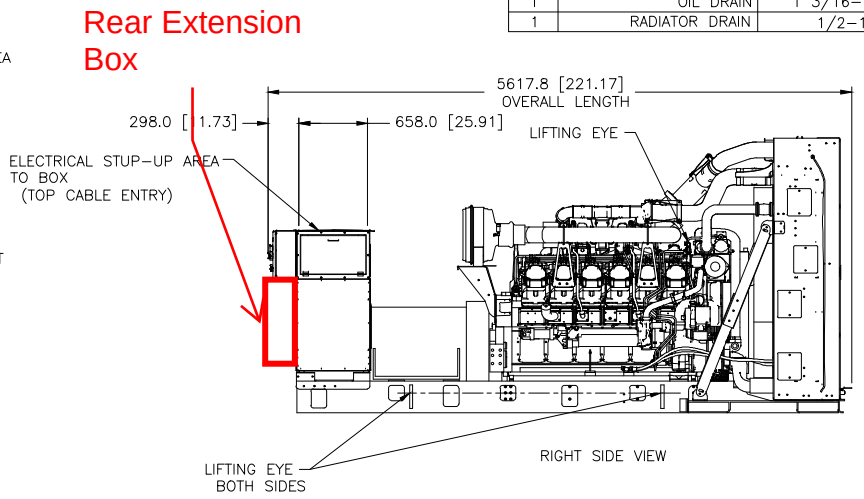
Section Four
DRAWINGS

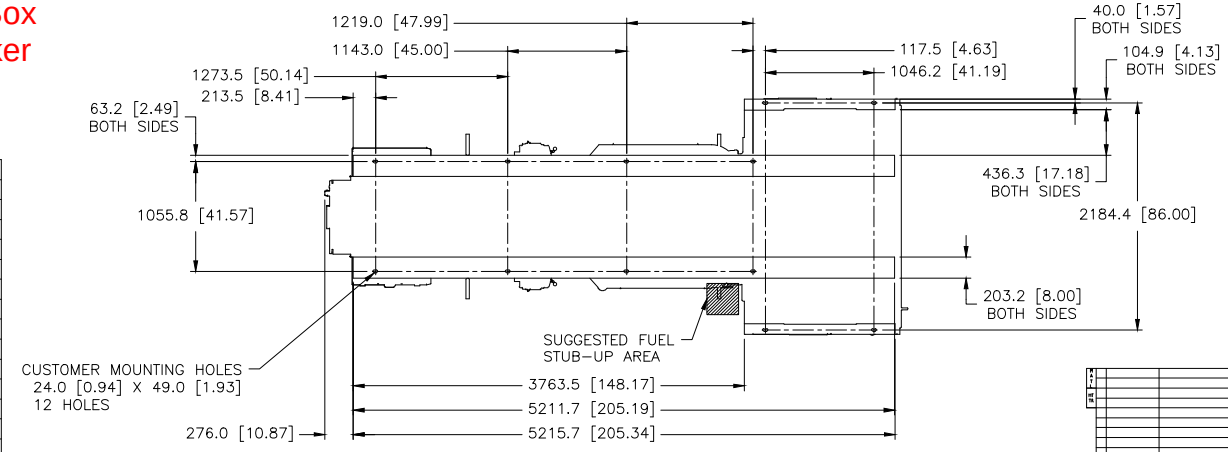
Layout Assembly Drawings
Radiator Drawings
CAT Energy Control Systems (ECS) 100 Wiring Diagram

METRIC 639-6616

QTY	CONNECTION	SIZE	SHEETS
1	FUEL INLET	3/4-14 NPSM	2,5
1	EXCESS FUEL RETURN	1 3/16-12 THD	2,5
1	EXHAUST	DETAIL	4,6,7
2	FUMES DISPOSAL HOSE	ø57.2 [ø2.25] OD	4,5
1	OIL DRAIN	1 3/16-12 THD	2,5
1	RADIATOR DRAIN	1/2-14 NPT	2,3,4







FOOTPRINT
(DIMENSIONED OUTLINE VIEW FROM ABOVE)

MODEL	TYPE	PRICING AR	MANDATORY ATT
3512PGJL	–	LF-2923 CHG 10 LF-2924 CHG 05	LF-6185 CHG 00 621-9888 CHG 01 LF-6206 CHG 02 LF-2838 CHG 01 LF-2975 CHG 00 LF-5487 CHG 00 LF-2830 CHG 00 LF-2848 CHG 02 516-7990 CHG 01 491-5899 CHG 02 491-5896 CHG 03 491-5856 CHG 03 375-2296 CHG 01 447-1538 CHG 01 LF-1344 CHG 00 LF-5495 CHG 00 LF-2694 CHG 02 LF-1318 CHG 02 325-6244 CHG 00 LF-1865 CHG 00 LF-1870 CHG 02 283-2549 CHG 00 473-4535 CHG 00 367-5169 CHG 01 LF-1319 CHG 01 LF-1349 CHG 00

PACKAGE LIFTED IN 3 PLACES WITH RADIATOR INSTALLED
PACKAGE SHOWN WITH MORE DETAIL ON FOLLOWING SHEETS

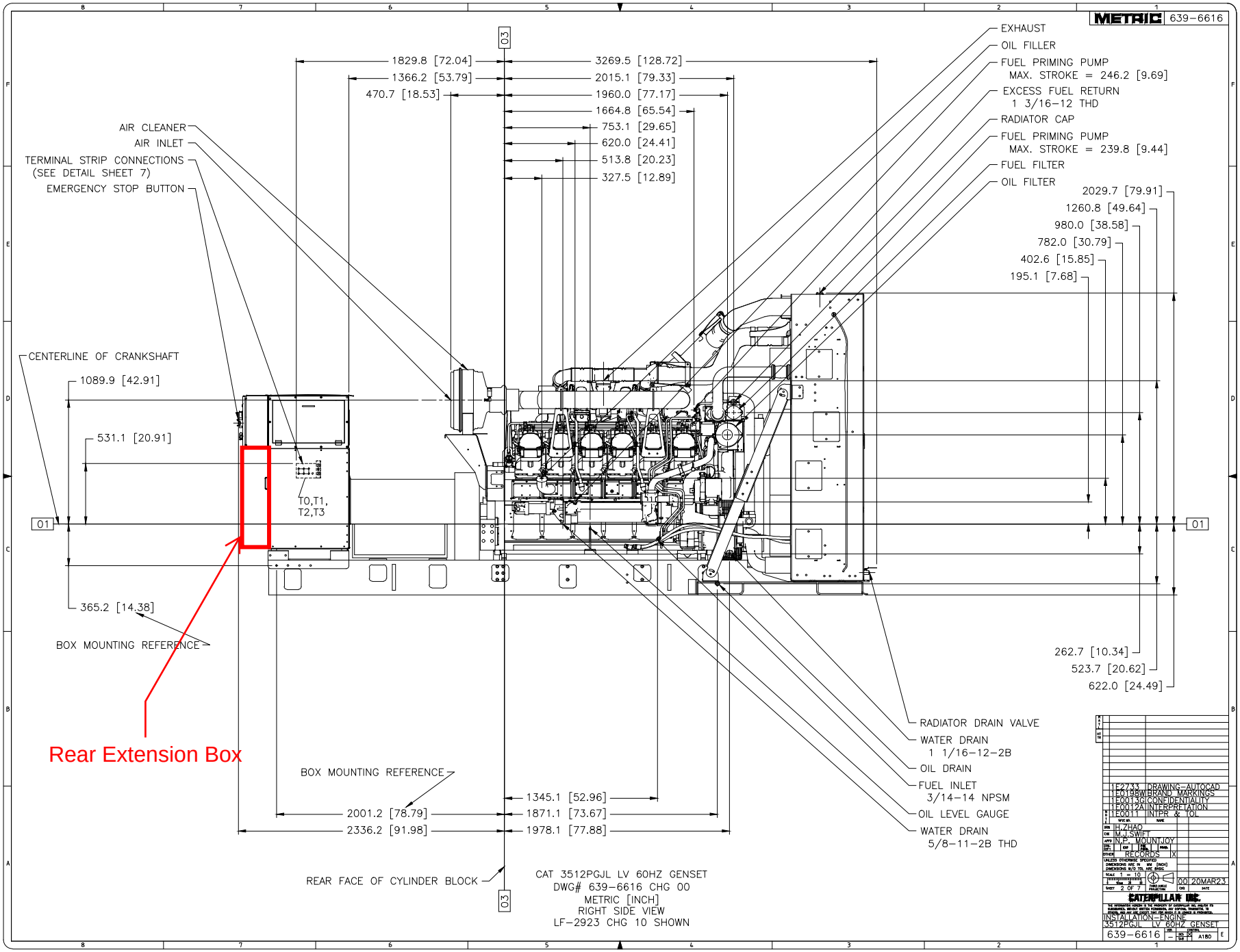
1E2733 DRAWING-AUTOCAD
1E0138 BRAND MARKINGS
1E0013 CONFIDENTIALITY
1E0012 INTERPRETATION
1E0011 INTPR & TOL

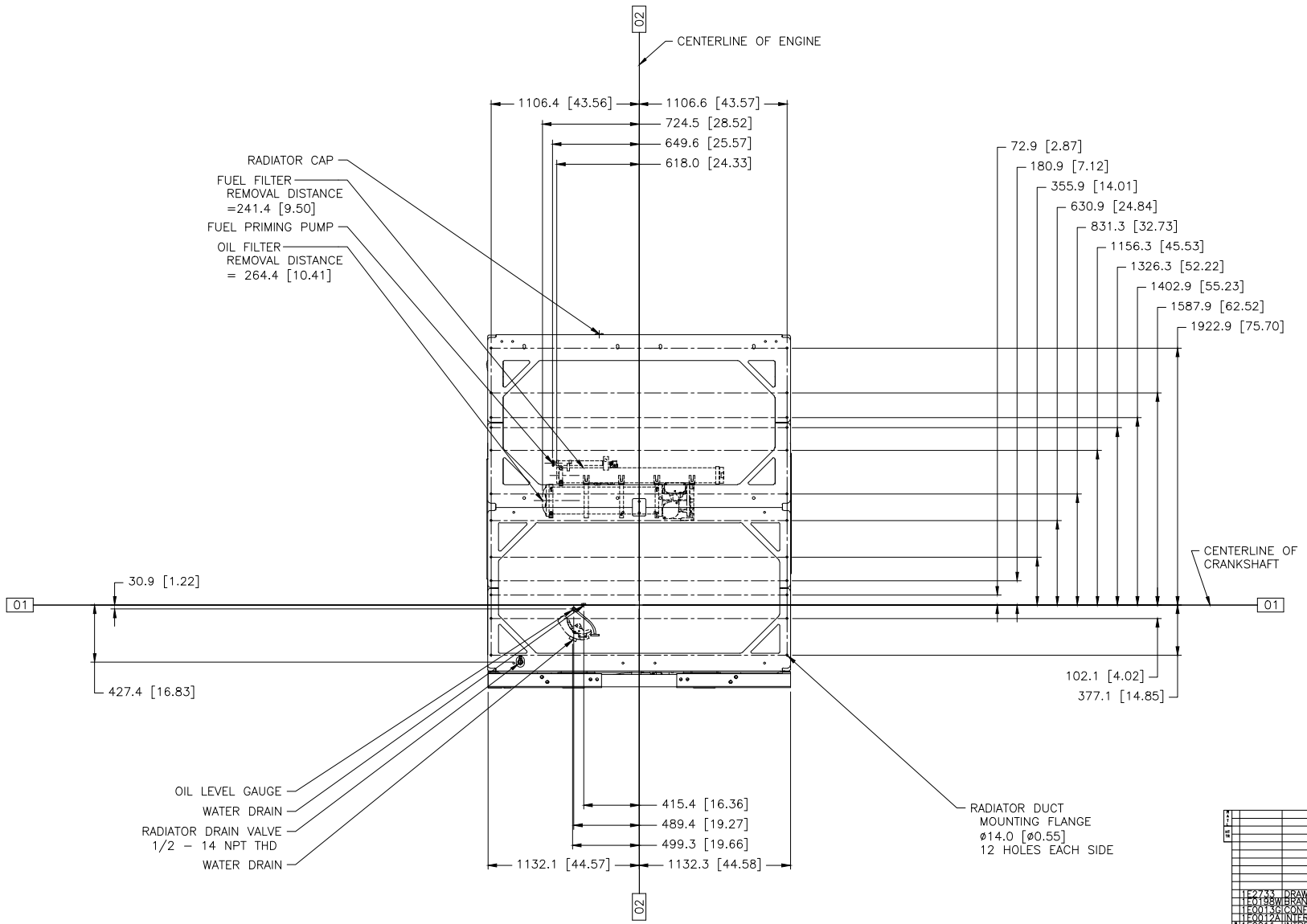
DR	H.ZHAO	
CH	M.J.SWIFT	
APP	N.P. MOUNTJOY	
ENG DEPT	REQ	PROD
OTHER	RECORDS	X

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM [INCH] DIMENSIONS W/O TOL ARE BASIC
SCALE 1 = 18 | SHEET 1 OF 7 | FIRST ANGLE PROJECTION | 00 20MAR23

CATERPILLAR INC.

INSTALLATION-ENGINE
3512PGJL LV 60HZ GENSET
639-6616 – A1B0


METRIC 639-6616
EXHAUST
OIL FILLER
FUEL PRIMING PUMP
MAX. STROKE = 246.2 [9.69]
EXCESS FUEL RETURN
1 3/16-12 THD
RADIATOR CAP
FUEL PRIMING PUMP
MAX. STROKE = 239.8 [9.44]
FUEL FILTER
OIL FILTER
AIR CLEANER
AIR INLET
TERMINAL STRIP CONNECTIONS
(SEE DETAIL SHEET 7)
EMERGENCY STOP BUTTON
CENTERLINE OF CRANKSHAFT
1089.9 [42.91]
531.1 [20.91]
365.2 [14.38]
BOX MOUNTING REFERENCE
T0,T1,
T2,T3
1829.8 [72.04]
1366.2 [53.79]
470.7 [18.53]
3269.5 [128.72]
2015.1 [79.33]
1960.0 [77.17]
1664.8 [65.54]
753.1 [29.65]
620.0 [24.41]
513.8 [20.23]
327.5 [12.89]
2029.7 [79.91]
1260.8 [49.64]
980.0 [38.58]
782.0 [30.79]
402.6 [15.85]
195.1 [7.68]
262.7 [10.34]
523.7 [20.62]
622.0 [24.49]
01
03
RADIATOR DRAIN VALVE
WATER DRAIN
1 1/16-12-2B
OIL DRAIN
FUEL INLET
3/14-14 NPSM
OIL LEVEL GAUGE
WATER DRAIN
5/8-11-2B THD
BOX MOUNTING REFERENCE
2001.2 [78.79]
2336.2 [91.98]
1345.1 [52.96]
1871.1 [73.67]
1978.1 [77.88]
REAR FACE OF CYLINDER BLOCK
CAT 3512PGJL LV 60HZ GENSET
DWG# 639-6616 CHG 00
METRIC [INCH]
RIGHT SIDE VIEW
LF-2923 CHG 10 SHOWN
Rear Extension Box
TE2733 DRAWING-AUTOCAD
TE0138 BRAND MARKINGS
TE0013 CONFIDENTIALITY
TE0012 INTERPRETATION
TE0011 INTPR & TOL
H.ZHAO
M.J.SWIFT
N.P. MOUNTJOY
RECORDS
00 20MAR23
CATERPILLAR INC.
INSTALLATION-ENGINE
3512PGJL LV 60HZ GENSET
639-6616
A1SD



CAT 3512PGJL LV 60HZ GENSET
DWG# 639-6616 CHG 00
METRIC [INCH]
FRONT VIEW
LF-2923 CHG 10 SHOWN

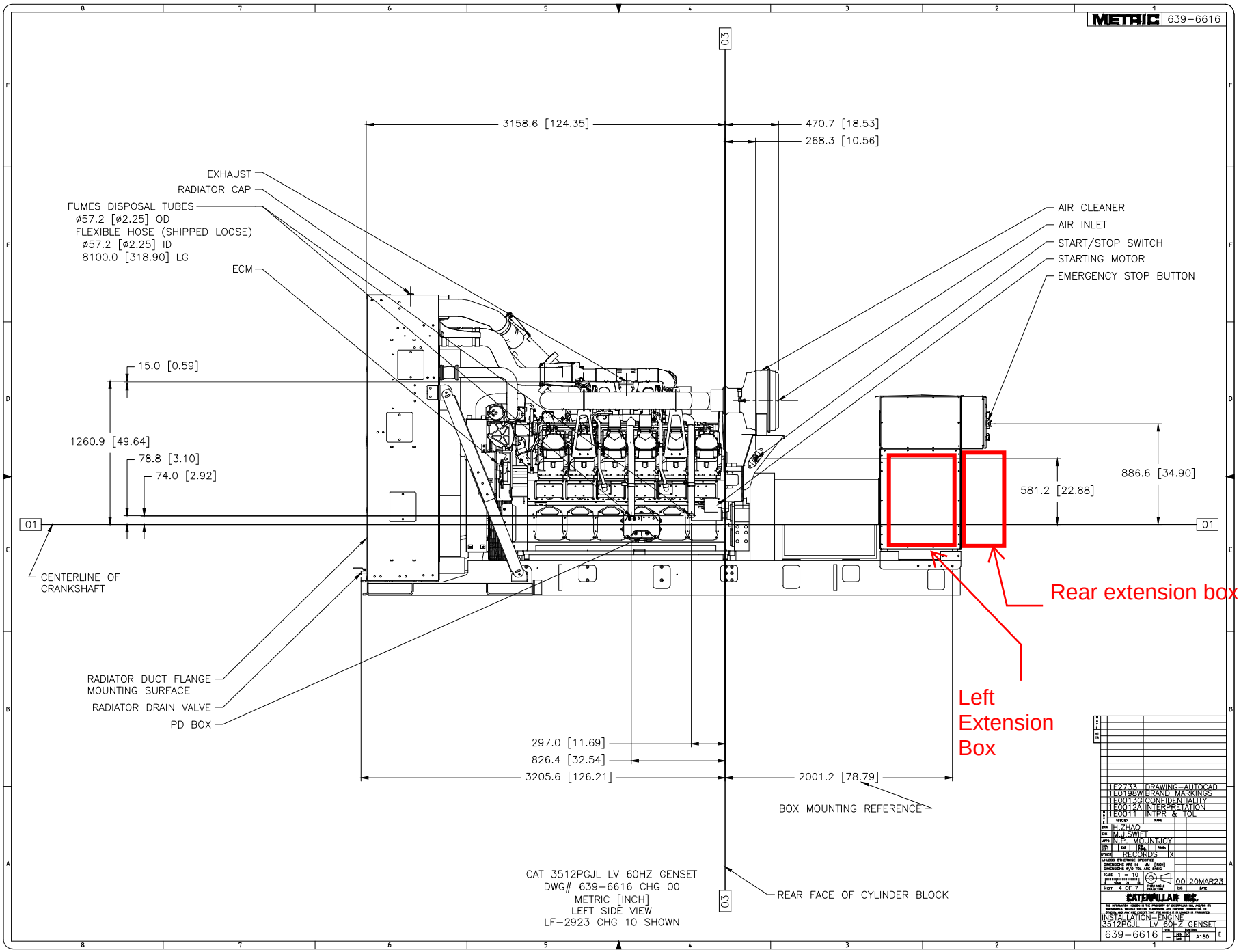
1	E2733	DRAWING-AUTOCAD	
1	E0138	W/BRAND MARKINGS	
1	E0013	CONFIDENTIALITY	
1	E0012	INTERPRETATION	
1	E0011	INTPR & TOL	

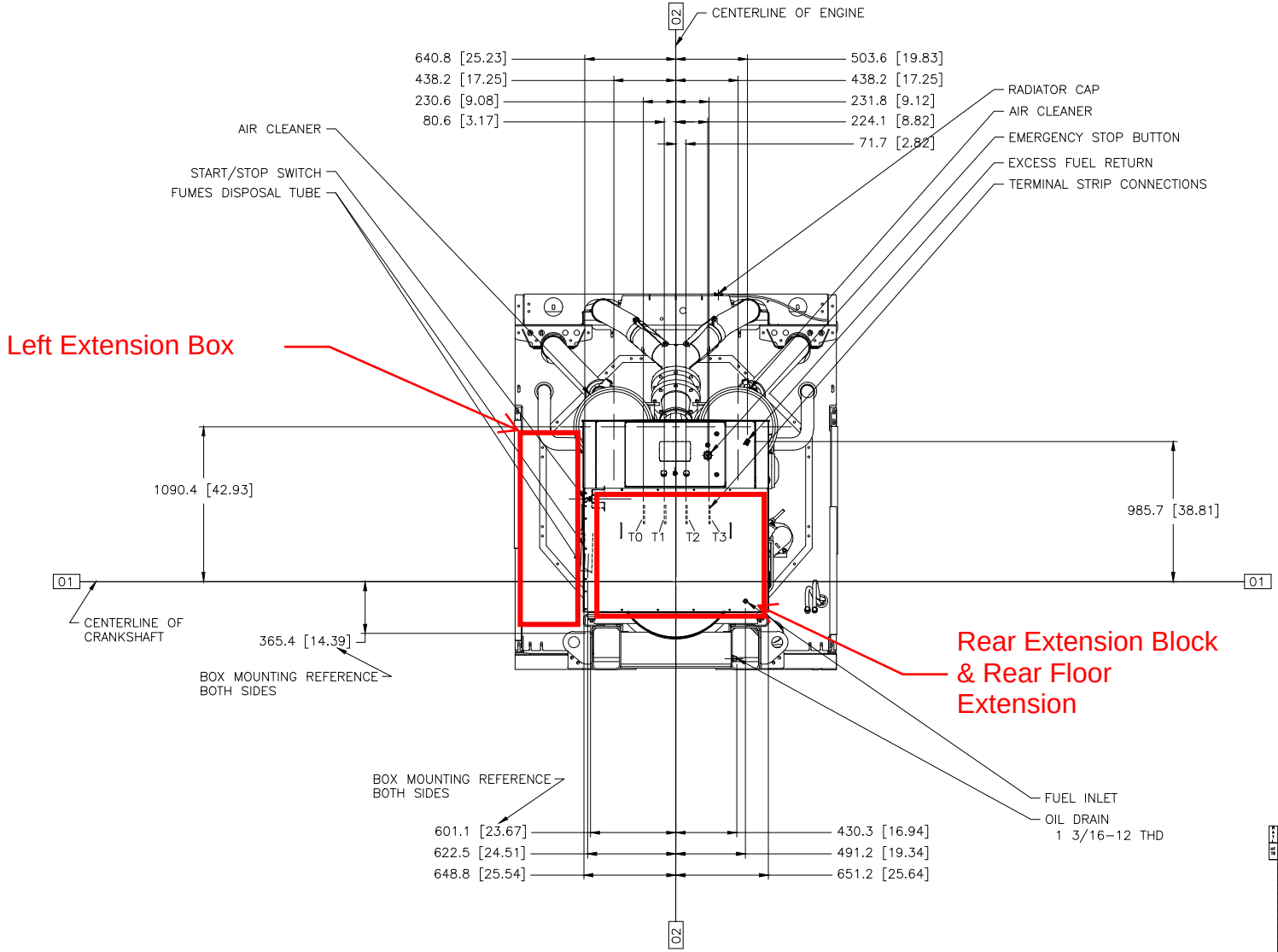
DR H.ZHAO
CH M.J.SWIFT
APP'D N.P. MOUNTJOY
ENG [ ] DES [X] PROJ. [ ]
OTHER RECORDS [X]
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MM [INCH]
DIMENSIONS W/O TOL ARE BASIC
SCALE 1 = 10
THIRD ANGLE PROJECTION
00 20MAR23
SHEET 3 OF 7 CHG DATE

CATERPILLAR INC.

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INSTALLATION-ENGINE
3512PGJL LV 60HZ GENSET
639-6616 — REV [X] A1B0


METRIC 639-6616
03
3158.6 [124.35]
470.7 [18.53]
268.3 [10.56]
EXHAUST
RADIATOR CAP
FUMES DISPOSAL TUBES
ø57.2 [ø2.25] OD
FLEXIBLE HOSE (SHIPPED LOOSE)
ø57.2 [ø2.25] ID
8100.0 [318.90] LG
ECM
AIR CLEANER
AIR INLET
START/STOP SWITCH
STARTING MOTOR
EMERGENCY STOP BUTTON
15.0 [0.59]
1260.9 [49.64]
78.8 [3.10]
74.0 [2.92]
581.2 [22.88]
886.6 [34.90]
01
01
CENTERLINE OF CRANKSHAFT
Rear extension box
Left Extension Box
RADIATOR DUCT FLANGE MOUNTING SURFACE
RADIATOR DRAIN VALVE
PD BOX
297.0 [11.69]
826.4 [32.54]
3205.6 [126.21]
2001.2 [78.79]
BOX MOUNTING REFERENCE
REAR FACE OF CYLINDER BLOCK
03
CAT 3512PGJL LV 60HZ GENSET
DWG# 639-6616 CHG 00
METRIC [INCH]
LEFT SIDE VIEW
LF-2923 CHG 10 SHOWN
1E2733 DRAWING-AUTOCAD
1E0138W BRAND MARKINGS
1E0013C CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL
H.ZHAO
M.J.SWIFT
N.P. MOUNTJOY
RECORDS
00 20MAR23
CATERPILLAR INC.
INSTALLATION-ENGINE
3512PGJL LV 60HZ GENSET
639-6616
A1BD



CAT 3512PGJL LV 60HZ GENSET
DWG# 639-6616 CHG 00
METRIC [INCH]
REAR VIEW
LF-2923 CHG 10 SHOWN

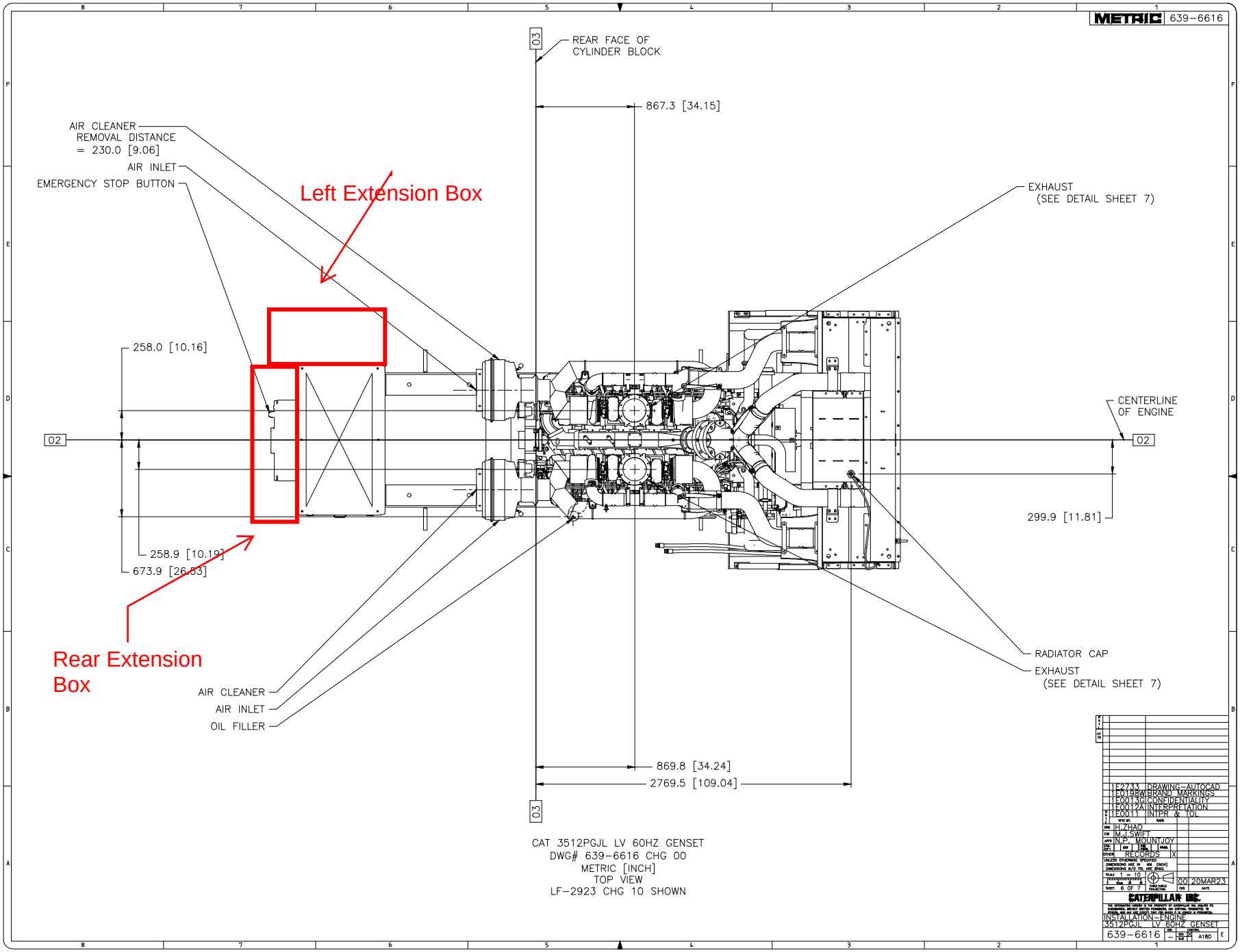
TE2733	DRAWING-AUTOCAD
TE0138W	BRAND MARKINGS
TE0013C	CONFIDENTIALITY
TE0012A	INTERPRETATION
TE0011	INTPR & TOL

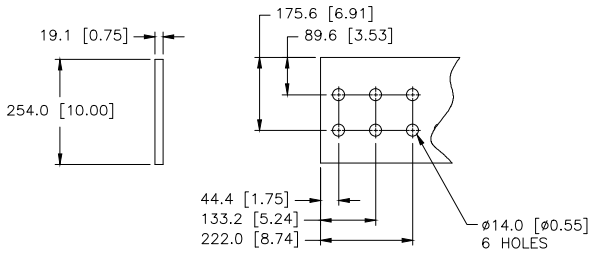
DR H.ZHAO
CH M.J.SWIFT
APP N.P. MOUNTJOY
DEPT RECORDS X
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MM [INCH]
DIMENSIONS W/O TOL ARE BASIC
SCALE 1 = 10
SHEET 5 OF 7
00 20MAR23

CATERPILLAR INC.

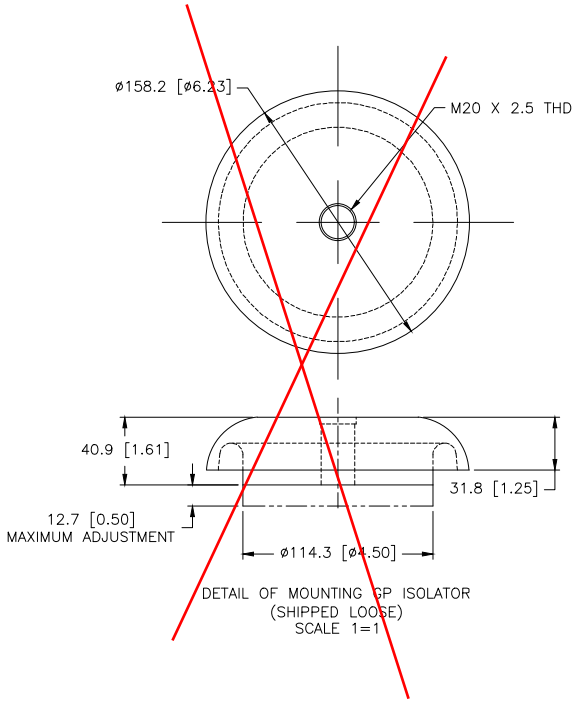
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INSTALLATION-ENGINE
3512PGJL LV 60HZ GENSET
639-6616 — A1BD

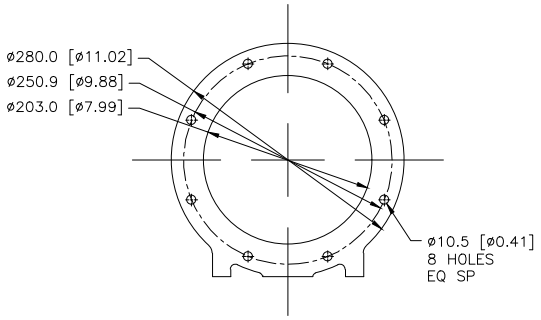

METRIC 639-6616
03
REAR FACE OF CYLINDER BLOCK
867.3 [34.15]
AIR CLEANER REMOVAL DISTANCE = 230.0 [9.06]
AIR INLET
EMERGENCY STOP BUTTON
Left Extension Box
EXHAUST (SEE DETAIL SHEET 7)
258.0 [10.16]
02
CENTERLINE OF ENGINE
02
299.9 [11.81]
258.9 [10.19]
673.9 [26.53]
Rear Extension Box
RADIATOR CAP
EXHAUST (SEE DETAIL SHEET 7)
AIR CLEANER
AIR INLET
OIL FILLER
869.8 [34.24]
2769.5 [109.04]
03
CAT 3512PGJL LV 60HZ GENSET
DWG# 639-6616 CHG 00
METRIC [INCH]
TOP VIEW
LF-2923 CHG 10 SHOWN
1E2733 DRAWING-AUTOCAD
1E0138 BRAND MARKINGS
1E0013 CONFIDENTIALITY
1E0012 INTERPRETATION
1E0011 INTPR & TOL
H.ZHAO
M.J.SWIFT
N.P. MOUNTJOY
RECORDS
00 20MAR23
CATERPILLAR INC.
INSTALLATION-ENGINE
3512PGJL LV 60HZ GENSET
639-6616
A1SO



DETAIL OF TERMINAL STRIP CONNECTIONS
(T0, T1, T2, T3)
SCALE 1=2



DETAIL OF MOUNTING GP ISOLATOR
(SHIPPED LOOSE)
SCALE 1=1



DETAIL OF EXHAUST
SCALE 1=2

1E2733 DRAWING-AUTOCAD
1E0138W BRAND MARKINGS
1E0013 CONFIDENTIALITY
1E0012 INTERPRETATION
1E0011 INTPR & TOL
SPEC NO. NAME

DRN H.ZHAO
CHK M.J. SWIFT
APPD N.P. MOUNTJOY
DOC REL PROD
SUPT EXP
OTHER RECORDS X

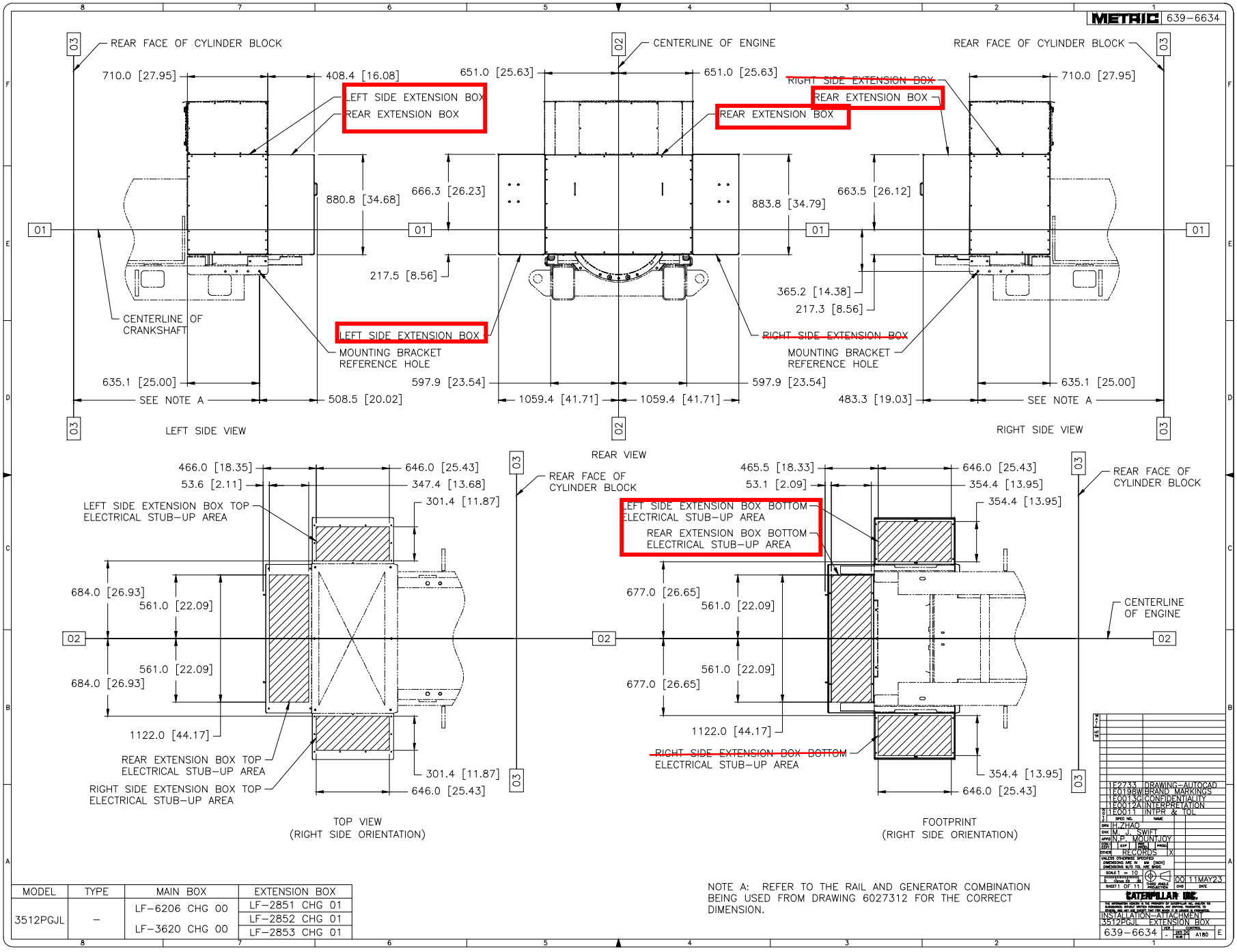
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MM [INCH]
DIMENSIONS W/O TOL ARE BASIC
SCALE 1 = 10
THIRD ANGLE PROJECTION
SHEET 7 OF 7
00 20MAR23
CHG DATE

CATERPILLAR INC.

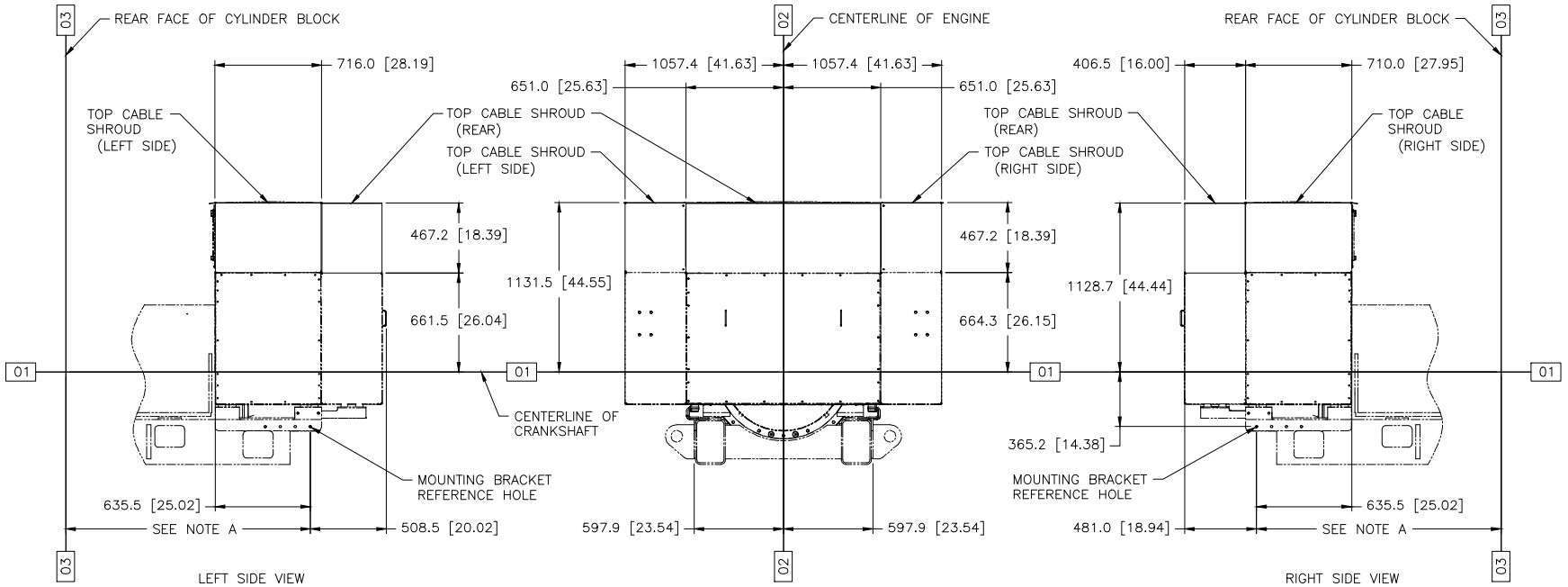
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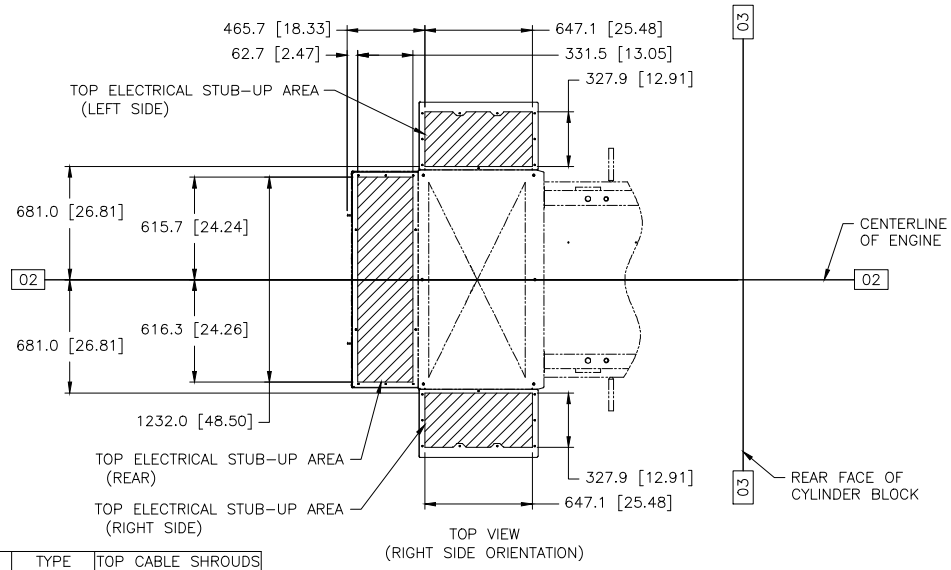
INSTALLATION-ENGINE
3512PGJI LV 60HZ GENSET
639-6616 - DRS 24 SUB 1 A180 E

ECS100 - Mounted Left
Breaker - Mounted Rear



MODEL	TYPE	MAIN BOX	EXTENSION BOX
3512PGJL	–	LF-6206 CHG 00	LF-2851 CHG 01
			LF-2852 CHG 01
		LF-3620 CHG 00	LF-2853 CHG 01





MODEL	TYPE	TOP CABLE SHROUDS
3512PGJL	–	LF-6200 CHG 00
		LF-6201 CHG 00
		LF-6202 CHG 00

NOTE A: REFER TO THE RAIL AND GENERATOR COMBINATION BEING USED FROM DRAWING 6027312 FOR THE CORRECT DIMENSION.

1E2733 DRAWING-AUTOCAD
1E0138 BRAND MARKINGS
1E0013 CONFIDENTIALITY
1E0012 INTERPRETATION
1E0011 INTPR & TOL
SPEC NO. NAME

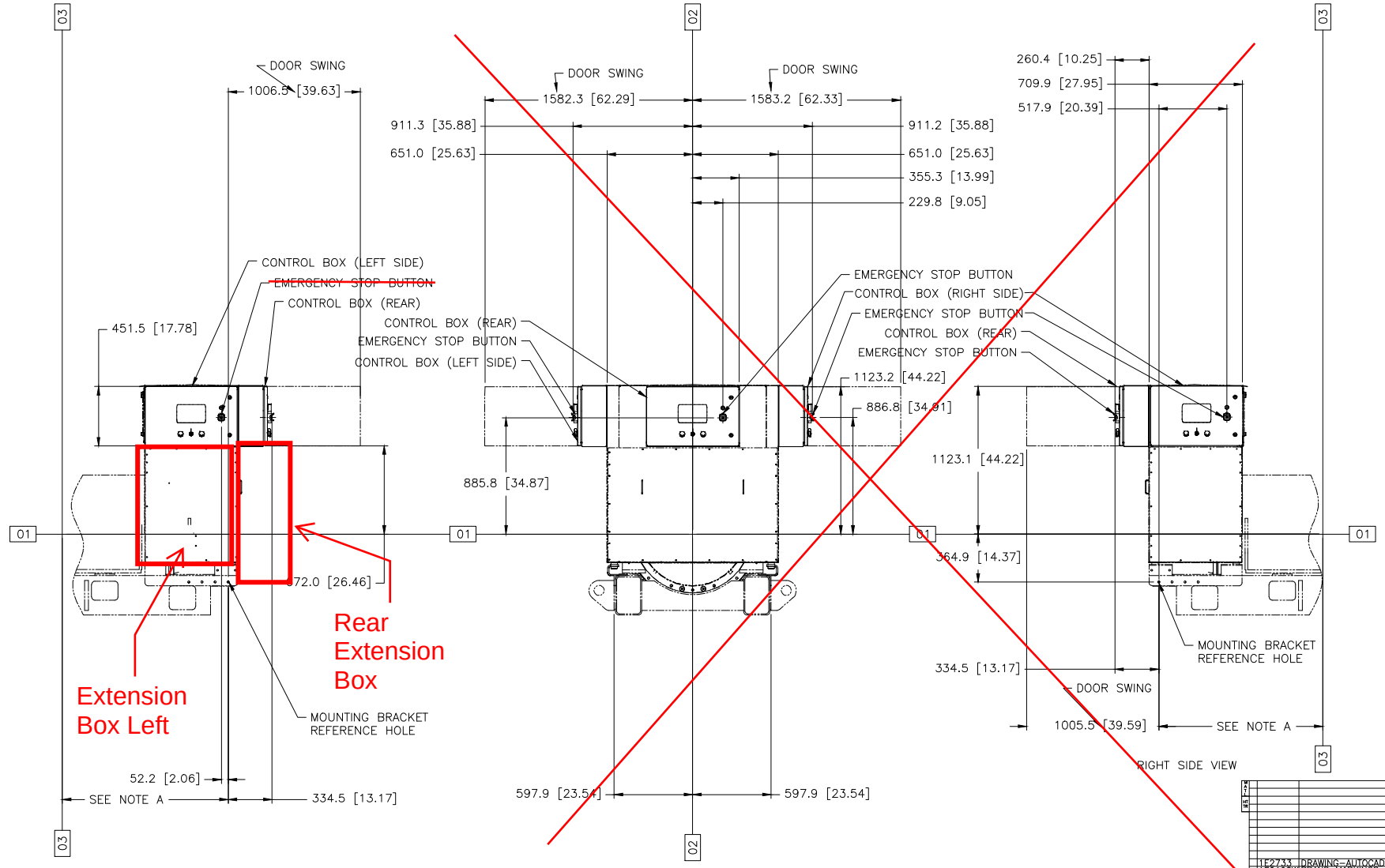
DRN H.ZHAO
CHK M. J. SWIFT
APPD N.P. MOUNTJOY
DES
ENG
PROD
OTHER RECORDS

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MM [INCH]
DIMENSIONS W/O TOL ARE BASIC
SCALE 1 = 10
WEIGHT (KG) [LBS] 25 [55]
SHEET 4 OF 11
THIRD ANGLE PROJECTION
00 11MAY23
CHG DATE

CATERPILLAR INC.

INSTALLATION-ATTACHMENT
3512PGJL TOP CABLE SHROUDS
639-6634
USR -
CONTROL DES 24 SUB 1
A1B0
E

METRIC 639-6634



NOTE A: REFER TO THE RAIL AND GENERATOR COMBINATION BEING USED FROM DRAWING 6027312 FOR THE CORRECT DIMENSION.

MODEL	TYPE	CONTROL BOX	MANDATORY ATT
3512PGJL	–	LF-6185 CHG 00	621-9888 CHG 01

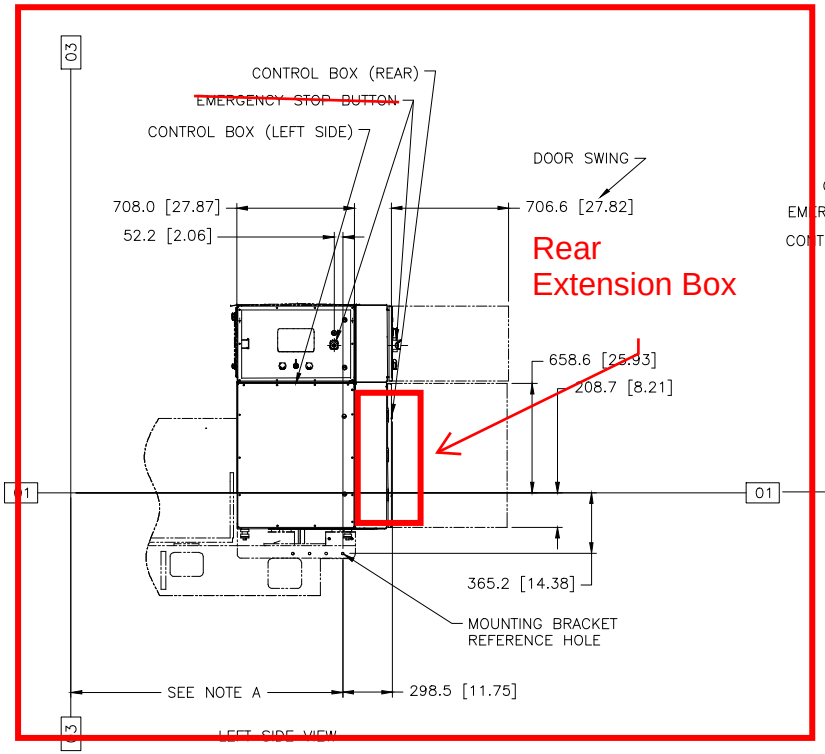
REV	SPEC NO.	NAME
J	1E0011	INTPR & TOL
H	1E0012	INTERPRETATION
G	1E0013	CONFIDENTIALITY
F	1E0138	BRAND MARKINGS
E	1E2733	DRAWING-AUTOCAD

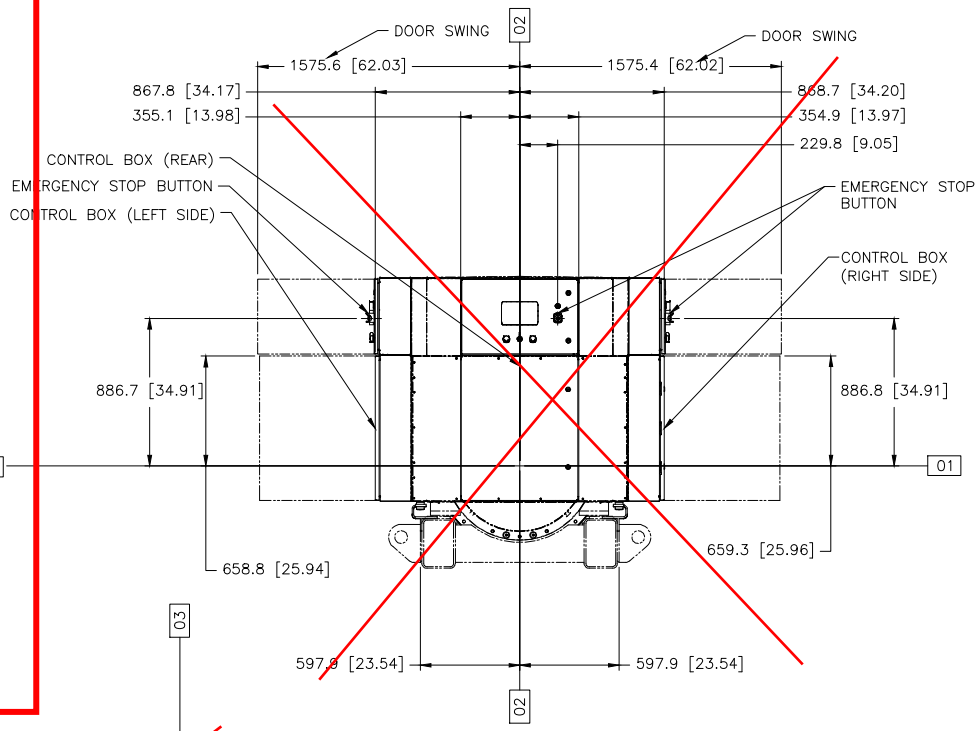
DRN H.ZHAO
CHK M. J. SWIFT
APPD N.P. MOUNTJOY
DOC RECORDS
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM [INCH] DIMENSIONS W/O TOL ARE BASIC
SCALE 1 = 10
SHEET 6 OF 11
THIRD ANGLE PROJECTION
00 11MAY23
CHG DATE

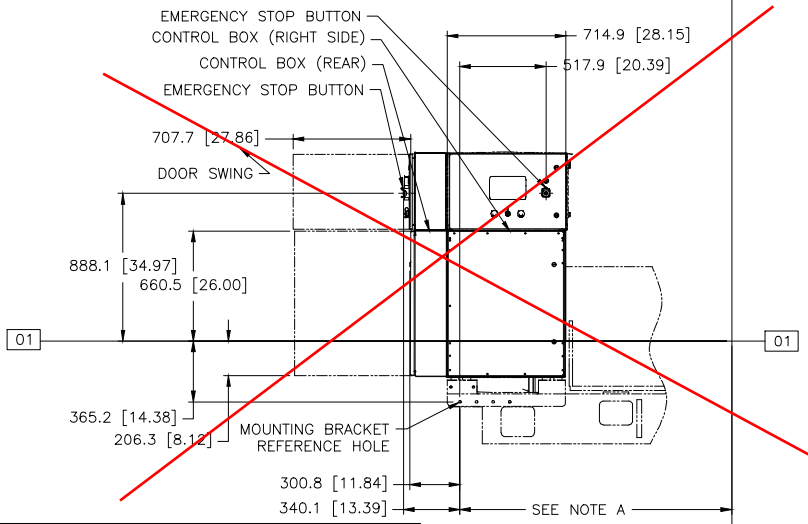
CATERPILLAR INC.

INSTALLATION-ATTACHMENT
3512PGJL ESC100 CONTROLBOX
639-6634 - SIZE A1B0 E

METRIC 639-6634







MODEL	TYPE	CNTL PANEL MTG	CONTROL BOX	HMI PANEL
3512PGJL	–	LF-6280 CHG 01 LF-6191 CHG 00 LF-6282 CHG 01	LF-6189 CHG 01	621-9888 CHG 01

NOTE A: REFER TO THE RAIL AND GENERATOR COMBINATION BEING USED FROM DRAWING 6027312 FOR THE CORRECT DIMENSION.

1E2733 DRAWING-AUTOCAD
1E0138 BRAND MARKINGS
1E0013 CONFIDENTIALITY
1E0012 INTERPRETATION
1E0011 INTPR & TOL

	SPEC NO.	NAME
DRN		H.ZHAO
CHK		M. J. SWIFT
APPD		N.P. MOUNTJOY
DSG APPL		
OTHER		RECORDS

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN mm [INCH] DIMENSIONS W/O TOL ARE BASIC
SCALE 1 = 10 | WEIGHT(LBS) NET | THIRD ANGLE PROJECTION | 00 11MAY23 | SHEET 8 OF 11 | CHG | DATE

CATERPILLAR INC.

INSTALLATION-ATTACHMENT
3512PGJL ECS200 CONTROLBOX
639-6634 | SIZE A1SO | E

SHEET	INDEX
SHEET	DESCRIPTION
1	HARNESS LAYER INDEX, GENERAL NOTES
2	NGC-100 (STANDBY) LOW VOLTAGE PANEL WIRING
3	NGC-200 (PARALLELING) LOW VOLTAGE PANEL WIRING
4	OPTIONS: PANEL DOOR/DISPLAY, CAN-2, DIO, ENGINE ESTOP AND NON-PARALLELING CIRCUIT BREAKER WIRING
5	LOW VOLTAGE IVR, VOLTAGE AND CURRENT SENSING WIRING
6	LOW VOLTAGE CDVR, VOLTAGE AND CURRENT SENSING WIRING
7	MEDIUM VOLTAGE IVR, CDVR, VOLTAGE AND CURRENT SENSING WIRING
8	GAS PANEL UNIQUE WIRING
9	GRID CODE SPECIFIC WIRING
10	MUI WIRING
11	INPUT/OUTPUT CHART
12	CUSTOMER PICTORIAL, NOTES
13	CUSTOMER CONNECTIONS-MAIN TERMINAL BLOCK
14	CUSTOMER CONNECTIONS-A6L3
15	CUSTOMER CONNECTIONS-TELEMATICS
16	CUSTOMER CONNECTIONS-PARALLELING BLOCK
17	ESTOP AND FUNCTIONAL SAFETY CIRCUIT
18	CAN1 AND CAN 2 CIRCUIT
19	ETHERNET COMM CIRCUIT
20	VOLTAGE REGULATOR PANEL LAYOUT

THIS DIAGRAM IS FOR 3500, C175, C27 AND C32 DIESEL AND GAS GENERATOR SET PACKAGES WITH CAT ENERGY CONTROL SYSTEM CONTROL PANELS

NOTE A: THIS DIAGRAM IS PRIMARILY FOR THE ENERGY CONTROL SYSTEMS PANEL.
THIS DIAGRAM IS A PARTIAL SYSTEM DIAGRAM TO BE COMBINED WITH 4913960 DIAGRAM OR 5219364 CUSTOMER SCHEMATIC.

NOTE B: DIAGRAM 4913960 LISTED INFORMATION IS FOR REFERENCE.
THE FOLLOWING ITEMS WILL BE LOCATED ON THE 4913960

ENGINE INTERFACE WIRING	MED VOLTAGE PT AND CT WIRING	MUI WIRING (CURRENT DESIGN)
JACKET WATER HEATER WIRING	RTD MODULE WIRING	GEARBOX WIRING
HIGH VOLTAGE PANEL WIRING	NEUTRAL CT WIRING	GRID CODE (CURRENT DESIGN)

ECS=ENERGY CONTROL SYSTEM

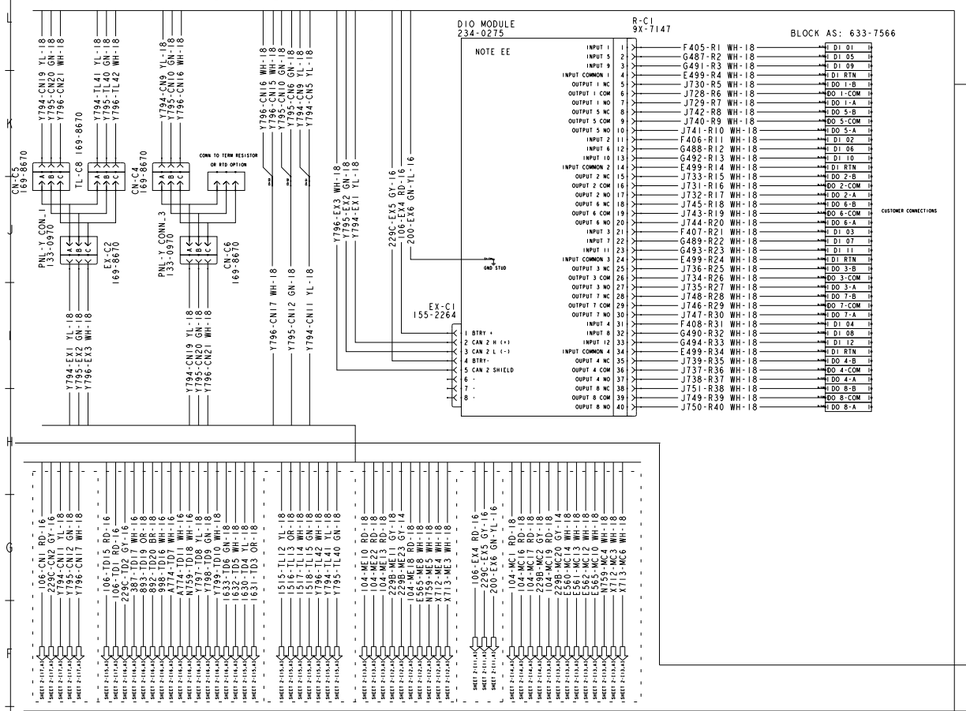
Caterpillar: Confidential Yellow

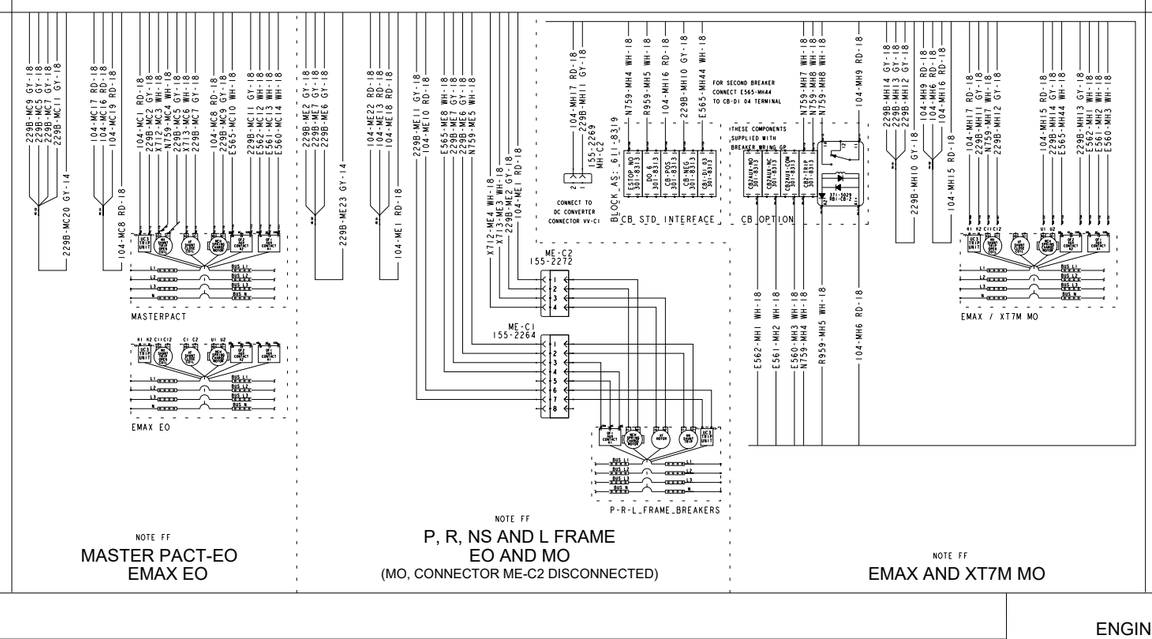
CATERPILLAR

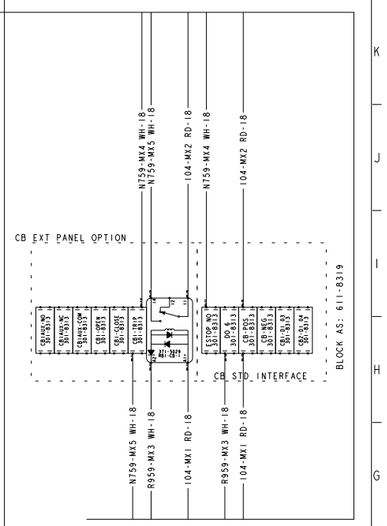
DIAGRAM-WIRING (ECS CONTROLS)

626-0661

ECS-100 (STANDBY) LOW VOLTAGE PANEL WIRING
APPLICABLE FOR GAS AND DIESEL*







NOTE FF

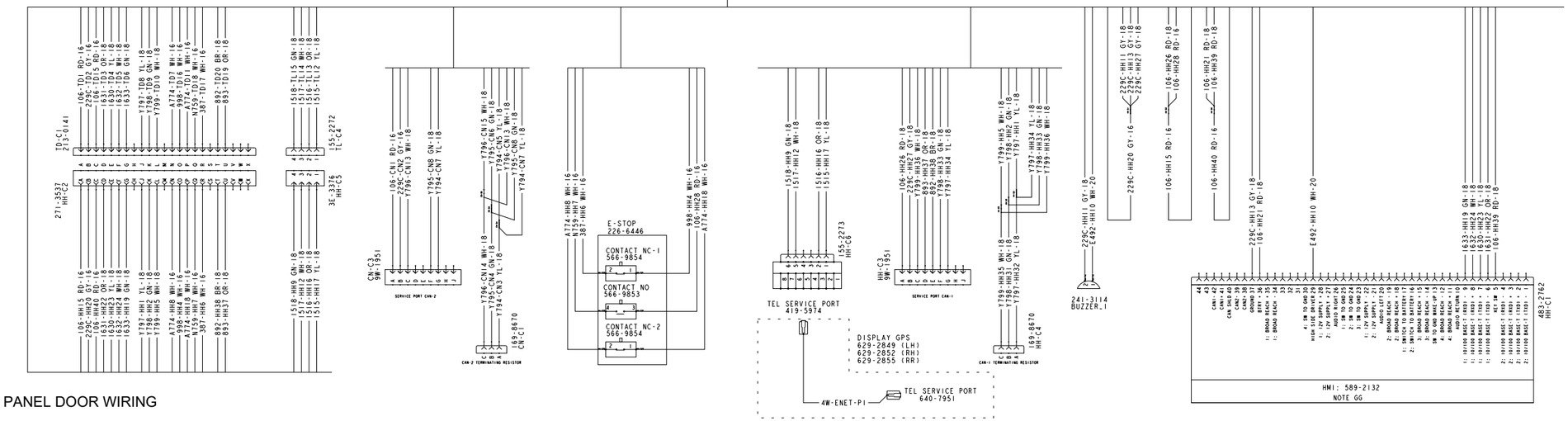
MASTER PACT-EO
EMAX EO

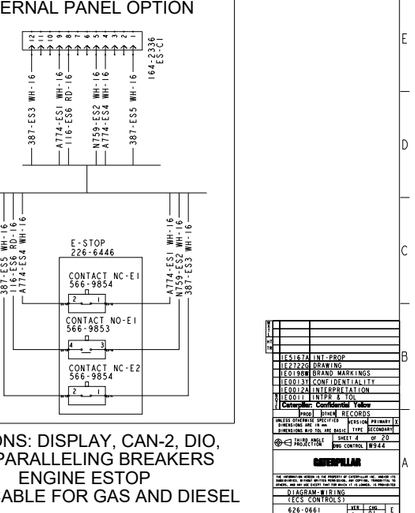
NOTE FF

P, R, NS AND L FRAME
EO AND MO
(MO, CONNECTOR ME-C2 DISCONNECTED)

NOTE FF

EMAX AND XT7M MO





ES167A	INT-PROP
ES2720D	DRAWING
ED1939N	BRAND MARKINGS
ED0137	CONFIDENTIALITY
ED0127A	INTERPRETATION
ED0131	UNITS & TOL

Caterpillar: Confidential Yellow

Insert Drive RECORDS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS AND TOLERANCES ARE ISO 286, BASIC

SERVICE PRIMARY | SECONDARY

SHEET 4 OF 20

THIRD ANGLE PROJECTION

DOC CONTROL: 8944

CATERPILLAR

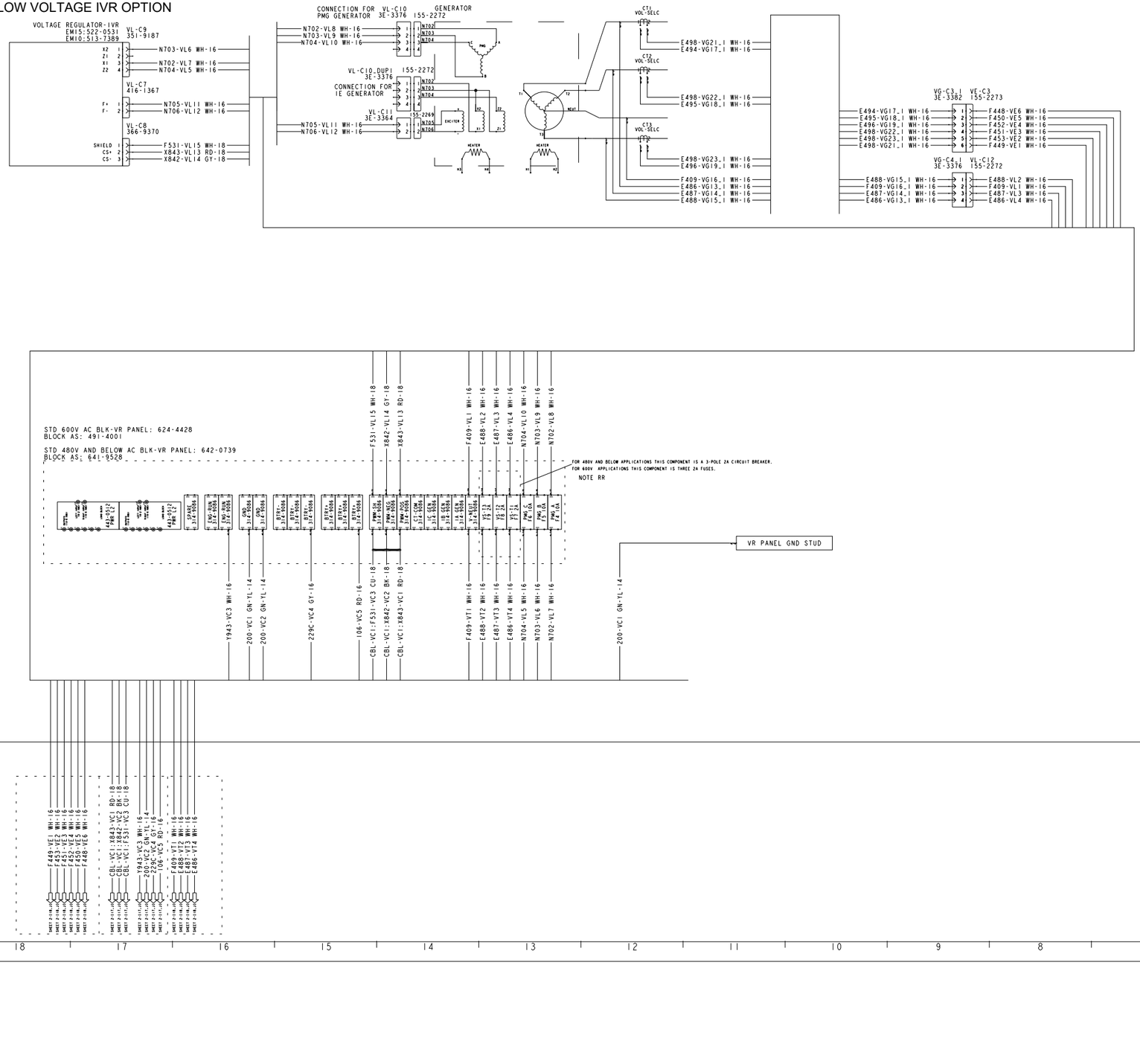
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DIAGRAM-WIRING

TECS CONTROLS

626-0661 | REV CHG | DT | C

LOW VOLTAGE IVR OPTION



LOW VOLTAGE IVR REGULATOR, VOLTAGE AND CURRENT SENSING OPTIONS
APPLICABLE FOR GAS AND DIESEL

ES16A2A	JNT-PROP
EC2722Q	DRAWING
EG0198W	BRAND MARKINGS
ED0013T	CONFIDENTIALITY
ED0012A	INTERPRETATION
ED0011	INTRP & TOL
Caterpillar: Confidential Yellow	

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN mm. DIMENSIONING PER ASME Y14.5M-1994
TOLERANCES: DECIMALS ± FRACTIONS ± ANGLES ±
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14.5M-1994
MATERIAL
FINISH
NEXT ASSY
PROJECTION
DESIGN PRIMARY
TYPE SECONDARY
SHEET 5 OF 20
DOC CONTROL
BP44

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WIRING DIAGRAM
(ECS CONTROLS)
626-0661
SER. CHR. 01 C

ECS-100

DESCRIPTION	RELAY	3500 EUI	C175-16/C175-20	C27 & C32	G3500
		A6L3-SINGLE GEN (1)	A6L3-SINGLE GEN (1)	A6L3-SINGLE GEN (1)	A6L3-SINGLE GEN (1)
PROG ISO DI		START (DEDICATED)	START (DEDICATED)	START (DEDICATED)	START (DEDICATED)
PROG DI-1	RST1	ESTOP-NC	ESTOP-NC	ESTOP-NC	ESTOP-NC
PROG DI-2	RST1	ESTOP-NO	ESTOP-NO	ESTOP-NO	ESTOP-NO
PROG DI-3		#1 CB OPEN WARNING	#1 CB OPEN WARNING	#1 CB OPEN WARNING	#1 CB OPEN WARNING
PROG DI-4		#2 CB OPEN WARNING	#2 CB OPEN WARNING	#2 CB OPEN WARNING	#2 CB OPEN WARNING
PROG DI-5		GEARBOX OIL PRESSURE	JW COOLANT LEVER	SPARE	GEARBOX OIL PRESSURE
PROG DI-6		GEARBOX FILTER BYPASS PRESSURE	SCAC LEVEL	SPARE	GEARBOX FILTER BYPASS PRESSURE
PROG DI-7		SAFETY SHUTDOWN INPUT-NO	SAFETY SHUTDOWN INPUT-NO	SAFETY SHUTDOWN INPUT-NO	SAFETY SHUTDOWN INPUT-NO
PROG DI-8		SAFETY SHUTDOWN INPUT-NC	SAFETY SHUTDOWN INPUT-NC	SAFETY SHUTDOWN INPUT-NC	SAFETY SHUTDOWN INPUT-NC
PROG DI-9		SPARE	SPARE	FUEL RUPTURE (ENCLOSURE)	COOLAND LOSS SENSOR-1
PROG DI-10		DIFFERENTIAL AIR FILTER	SPARE	BATTERY CHARGE ALARM (ENCLOSURE)	COOLAND LOSS SENSOR-2
PROG DI-11		SPARE	SPARE	SPARE	ENGINE ALARM
PROG DI-12		SPARE	SPARE	SPARE	ENGINE FAIL
PROG DI-13		SPARE	SPARE	SPARE	SPARE
PROG DI-14		SPARE	SPARE	SPARE	SPARE
PROG DI-15		SPARE	SPARE	SPARE	SPARE
PROG DI-16		SPARE	SPARE	SPARE	SPARE
DO-1	R1	STARTER MOTOR MAG RELAY	SPARE	SPARE	STARTER MOTOR MAG RELAY
DO-2	R2	GEARBOX PLC	SPARE	SPARE	START (FUEL ENABLE)
DO-3	R3	SPARE	SPARE	DISABLE AUX AC SUPPLY (ENCLOSURE)	KEYSWITCH-ECU FAULT RESET
DO-4	R4	SPARE	SPARE	SPARE	SPARE
DO-5 DEDICATED	R5	FUNCTIONAL SAFETY-HARD ESTOP	FUNCTIONAL SAFETY-HARD ESTOP	FUNCTIONAL SAFETY-HARD ESTOP	FUNCTIONAL SAFETY-HARD ESTOP
DO-6 DEDICATED	RB1-CB	COMMON SHUT DOWN (SHUNT TRIP)	COMMON SHUT DOWN (SHUNT TRIP)	COMMON SHUT DOWN (SHUNT TRIP)	COMMON SHUT DOWN (SHUNT TRIP)
DO-7 DEDICATED	R7	FUNCTIONAL SAFETY-GSOV	FUNCTIONAL SAFETY-GSOV	FUNCTIONAL SAFETY-GSOV	FUNCTIONAL SAFETY-GSOV
DO-8	R8	SPARE	SPARE	SPARE	SPARE
DO-9	R9	SPARE	SPARE	SPARE	SPARE
DO-10	R10	START AID (ENGINE PRELUBE)	SPARE	SPARE	SPARE
DO-11	R11	SPARE	IDLE SPEED COMMAND	IDLE SPEED COMMAND	RATED/ IDLESPEED
DO-12	R12	DISABLE AUX AC SUPPLY	DISABLE AUX AC SUPPLY	DISABLE AUX AC SUPPLY	DISABLE AUX AC SUPPLY
ANALOG INPUT-1		GEAR OIL TEMPERATURE (GEARBOX)	SPARE	SPARE	GEAR OIL TEMPERATURE (GEARBOX)
ANALOG INPUT-2		SPARE	SPARE	SPARE	SPARE
ANALOG INPUT-3		SPARE	SPARE	FUEL LEVEL (ENCLOSURE)	SPARE
ANALOG OUTPUT-1		SPARE	SPARE	SPARE	KILOWATT TRANSDUCER
ANALOG OUTPUT-2		SPARE	SPARE	SPARE	SPARE
PWM OUTPUT-1		SPARE	SPARE	SPARE	SPARE
PWM OUTPUT-2		SPARE	SPARE	SPARE	SPARE
PWM OUTPUT-3		IVR VOLTAGE CONTROL	IVR VOLTAGE CONTROL	IVR VOLTAGE CONTROL	IVR VOLTAGE CONTROL
MPU INPUT		SPARE	SPARE	SPARE	MAG PICKUP-SPEED SENSOR

ETHERNET I/O

NOTE HH

PRELOADED MODULE CONFIGURATIONS

ETHERNET I/O	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	RTD
MODULE PN	16 PER CARD	16 PER CARD	4 PER CARD	4 PER CARD	4 PER CARD
622-9250 (GENSET CONF-A)	1X	1X	0	0	0
622-9251 (GENSET CONF-B)	1X	1X	1X	1X	1X
622-9252 (GENSET CONF-C)	2X	2X	1X	1X	0
622-9253 (GENSET CONF-D)	1X	1X	2X	2X	0
622-9244 (PARALLELING CONF-A)	1X	1X	0	0	0
622-9245 (PARALLELING CONF-B)	1X	1X	1X	1X	1X
622-9246 (PARALLELING CONF-C)	2X	2X	1X	1X	0
622-9248 (PARALLELING CONF-D)	1X	1X	2X	2X	0
622-9233 (GRID CODE)	2X	1X	2X	1X	0

ECS-200

DESCRIPTION	RELAY	3500 EUI	RELAY_1	3500 EUI_1	RELAY_2	C175-16/C175-20	RELAY_3	C175-16/C175-20_1	RELAY_4	C27 & C32	RELAY_5	C27 & C32_1	RELAY_6	G3500	RELAY_7	G3500_1
		A6L3-GENSET (1)		A6L3-PARALLELING (2)		A6L3-GENSET (1)		A6L3-PARALLELING (2)		A6L3-GENSET (1)		A6L3-PARALLELING (2)		A6L3-GENSET (1)		A6L3-PARALLELING (2)
PROG ISO DI		START (DEDICATED)		GROUP START		START (DEDICATED)		GROUP START		START (DEDICATED)		GROUP START		START (DEDICATED)		GROUP START
PROG DI-1	RST1	ESTOP-NC		SPARE	RST1	ESTOP-NC		SPARE	RST1	ESTOP-NC		SPARE	RST1	ESTOP-NC		SPARE
PROG DI-2	RST1	ESTOP-NO		SPARE	RST1	ESTOP-NO		SPARE	RST1	ESTOP-NO		SPARE	RST1	ESTOP-NO		SPARE
PROG DI-3		#1 CB OPEN WARNING		CIRCUIT BREAKER ALARM		#1 CB OPEN WARNING		CIRCUIT BREAKER ALARM		#1 CB OPEN WARNING		CIRCUIT BREAKER ALARM		#1 CB OPEN WARNING		CIRCUIT BREAKER ALARM
PROG DI-4		#2 CB OPEN WARNING		CIRCUIT BREAKER AUX3-NO		#2 CB OPEN WARNING		CIRCUIT BREAKER AUX3-NO		#2 CB OPEN WARNING		CIRCUIT BREAKER AUX3-NO		#2 CB OPEN WARNING		CIRCUIT BREAKER AUX3-NO
PROG DI-5		GEARBOX OIL PRESSURE		CIRCUIT BREAKER AUX3-NC		JW COOLANT LEVER		CIRCUIT BREAKER AUX3-NC		SPARE		CIRCUIT BREAKER AUX3-NC		GEARBOX OIL PRESSURE		CIRCUIT BREAKER AUX3-NC
PROG DI-6		GEARBOX FILTER BYPASS PRESSURE		SPARE		SCAC LEVEL		SPARE		SPARE		SPARE		GEARBOX FILTER BYPASS PRESSURE		SPARE
PROG DI-7	R-P3	SAFETY SHUTDOWN INPUT-NO	R-P3	SAFETY SHUTDOWN INPUT-NO	R-P3	SAFETY SHUTDOWN INPUT-NO	R-P3	SAFETY SHUTDOWN INPUT-NO	R-P3	SAFETY SHUTDOWN INPUT-NO	R-P3	SAFETY SHUTDOWN INPUT-NO	R-P3	SAFETY SHUTDOWN INPUT-NO		SAFETY SHUTDOWN INPUT-NO
PROG DI-8	R-P3	SAFETY SHUTDOWN INPUT-NC	R-P3	SAFETY SHUTDOWN INPUT-NC	R-P3	SAFETY SHUTDOWN INPUT-NC	R-P3	SAFETY SHUTDOWN INPUT-NC	R-P3	SAFETY SHUTDOWN INPUT-NC	R-P3	SAFETY SHUTDOWN INPUT-NC	R-P3	SAFETY SHUTDOWN INPUT-NC		SAFETY SHUTDOWN INPUT-NC
PROG DI-9		SPARE		SPARE		SPARE		SPARE		FUEL RUPTURE (ENCLOSURE)		SPARE		COOLAND LOSS SENSOR-1		SPARE
PROG DI-10		DIFFERENTIAL AIR FILTER		SPARE		SPARE		SPARE		BATTERY CHARGE ALARM (ENCLOSURE)		SPARE		COOLAND LOSS SENSOR-2		SPARE
PROG DI-11		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		ENGINE ALARM		SPARE
PROG DI-12		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		ENGINE FAIL		SPARE
PROG DI-13		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE
PROG DI-14		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE
PROG DI-15		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE
PROG DI-16		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE
DO-1	R1	STARTER MOTOR MAG RELAY	R-P1	CIRCUIT BREAKER OPEN	R1	SPARE	R-P1	CIRCUIT BREAKER OPEN	R1	SPARE	R-P1	CIRCUIT BREAKER OPEN	R1	STARTER MOTOR MAG RELAY	R-P1	SPARE
DO-2	R2	GEARBOX PLC	R-P2	CIRCUIT BREAKER CLOSE	R2	SPARE	R-P2	CIRCUIT BREAKER CLOSE	R2	SPARE	R-P2	CIRCUIT BREAKER CLOSE	R2	START (FUEL ENABLE)	R-P2	SPARE
DO-3	R3	SPARE	R-P3	SAFETY SHUTDOWN	R3	SPARE	R-P3	SAFETY SHUTDOWN	R3	DISABLE AUX AC SUPPLY (ENCLOSURE)	R-P3	SAFETY SHUTDOWN	R3	KEYSWITCH-ECU FAULT RESET	R-P3	SPARE
DO-4	R4	SPARE	R-P4	SPARE	R4	SPARE	R-P4	SPARE	R4	SPARE	R-P4	SPARE	R4	SPARE	R-P4	SPARE
DO-5 DEDICATED	R5	FUNCTIONAL SAFETY-HARD ESTOP	R-P5	SPARE	R5	FUNCTIONAL SAFETY-HARD ESTOP	R-P5	SPARE	R5	FUNCTIONAL SAFETY-HARD ESTOP	R-P5	SPARE	R5	FUNCTIONAL SAFETY-HARD ESTOP	R-P5	SPARE
DO-6 DEDICATED	RB1-CB	COMMON SHUT DOWN (SHUNT TRIP)	R-P6	COMMON SHUT DOWN (SHUNT TRIP)	RB1-CB	COMMON SHUT DOWN (SHUNT TRIP)	R-P6	COMMON SHUT DOWN (SHUNT TRIP)	RB1-CB	COMMON SHUT DOWN (SHUNT TRIP)	R-P6	COMMON SHUT DOWN (SHUNT TRIP)	RB1-CB	COMMON SHUT DOWN (SHUNT TRIP)	R-P6	COMMON SHUT DOWN (SHUNT TRIP)
DO-7 DEDICATED	R7	FUNCTIONAL SAFETY-GSOV	R-P7	SPARE	R7	FUNCTIONAL SAFETY-GSOV	R-P7	SPARE	R7	FUNCTIONAL SAFETY-GSOV	R-P7	SPARE	R7	FUNCTIONAL SAFETY-GSOV	R-P7	SPARE
DO-8	R8	SPARE	R-P8	SPARE	R8	SPARE	R-P8	SPARE	R8	SPARE	R-P8	SPARE	R8	SPARE	R-P8	SPARE
DO-9	R9	SPARE	R-P9	SPARE	R9	SPARE	R-P9	SPARE	R9	SPARE	R-P9	SPARE	R9	SPARE	R-P9	SPARE
DO-10	R10	START AID (ENGINE PRELUBE)	R-P10	SPARE	R10	SPARE	R-P10	SPARE	R10	SPARE	R-P10	SPARE	R10	SPARE	R-P10	SPARE
DO-11	R11	SPARE	R-P11	SPARE	R11	IDLE SPEED COMMAND	R-P11	SPARE	R11	IDLE SPEED COMMAND	R-P11	SPARE	R11	RATED/ IDLESPEED	R-P11	SPARE
DO-12	R12	DISABLE AUX AC SUPPLY	R-P12	SPARE	R12	DISABLE AUX AC SUPPLY	R-P12	SPARE	R12	DISABLE AUX AC SUPPLY	R-P12	SPARE	R12	DISABLE AUX AC SUPPLY	R-P12	SPARE
ANALOG INPUT-1		GEAR OIL TEMPERATURE (GEARBOX)		SPARE		SPARE		SPARE		SPARE		SPARE		GEAR OIL TEMPERATURE (GEARBOX)		SPARE
ANALOG INPUT-2		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE
ANALOG INPUT-3		SPARE		SPARE		SPARE		SPARE		FUEL LEVEL (ENCLOSURE)		SPARE		SPARE		SPARE
ANALOG OUTPUT-1		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		KILOWATT TRANSDUCER		SPARE
ANALOG OUTPUT-2		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE
PWM OUTPUT-1		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE
PWM OUTPUT-2		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE
PWM OUTPUT-3		SPARE		IVR VOLTAGE CONTROL		SPARE		IVR VOLTAGE CONTROL		SPARE		IVR VOLTAGE CONTROL		SPARE		IVR VOLTAGE CONTROL
MPU INPUT		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		MAG PICKUP-SPEED SENSOR		SPARE

1E5167A	INT-PROP
1E2722G	DRAWING
1E0198W	BRAND MARKINGS
1E0013Y	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL

Caterpillar: Confidential Yellow

PROD | OTHER | RECORDS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN mm DIMENSIONS W/O TOL ARE BASIC | VERSION TYPE | PRIMARY X | SECONDARY

THIRD ANGLE PROJECTION | SHEET 11 OF 20 | DWG CONTROL W944

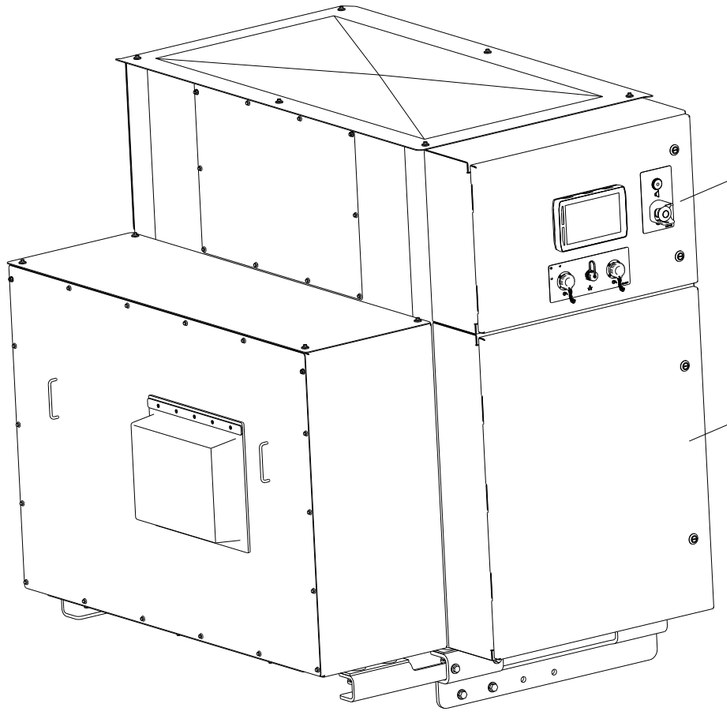
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DIAGRAM-WIRING (ECS CONTROLS)

626-0661 | VER - | CHG 01 | E

INPUT & OUTPUT CHART



ENERGY CONTROL SYSTEM (ECS) - 100 PANEL

~~ENERGY CONTROL SYSTEM (ECS) - 200 PANEL~~

EXAMPLE CONFIGURATION. SEE ORDER OR PRICELIST FOR ALL AVAILABLE OPTIONS FOR PANEL, DISPLAY AND POWER CONNECTION LOCATIONS.

NOTE AA: SEE LEBE20718 TO PROGRAM A6L3 INPUTS AND OUTPUTS.

NOTE BB: REMOVE JUMPER BAR BETWEEN ESTOP-A AND ESTOP-B TERMINAL BOARD POINTS AFTER INSTALLATION OF C27/C32 ENCLOSURE OR ENGINE MOUNTED EMERGENCY STOP. REMOVE THE JUMPER WIRE FROM BTRY POS AND ESTOP-A WITH THE INSTALLATION OF THE CUSTOMER SUPPLIED ESTOP. (CUSTOMER ESTOP IS CONNECTED ACROSS TERMINALS BTRY POS AND ESTOP-A)

NOTE CC: CUSTOMER LOADING FROM TERMINAL STRIP SHOULD BE LIMITED TO 5A RESISTIVE ONLY AND FOR EXCESS DEMAND USE BATTERY CONNECTION.

NOTE DD: SEE LEBE20718 FOR A6L3 SCADA DATA LINKS.

NOTE EE: SEE LEBE20714 TO PROGRAM DISCRETE I/O MODULE INPUTS AND OUTPUTS.

NOTE FF: REFERENCE 524-1257 FOR CIRCUIT BREAKER INSTALLATION DRAWINGS.

NOTE GG: SEE LEBE20717 FOR HMI INFORMATION.

NOTE HH: SEE LEBE20714 FOR ETHERNET I/O INFORMATION.

NOTE JJ: DIGITAL INPUT 3 IS ONLY AVAILABLE ON PACKAGES WITHOUT A CIRCUIT BREAKER.
DIGITAL INPUT 5 AND 6 ARE USED BY THE FACTORY FOR THE C175 GENSET.

NOTE KK: ANALOG INPUT (-)'S MUST BE REFERENCED TO BATTERY (-).

NOTE LL: THE A6L3 CONNECTORS USES SPRING CLAMP TERMINAL INTERFACE CONNECTIONS.

NOTE MM: CIRCUIT BREAKER TERMINAL LABELS ARE LOCATION BASED, LF=LEFT, RT=RIGHT, RR=REAR.

NOTE NN: RECOMMENDED WIRING FOR ACTIVE SENSORS.

NOTE PP: RECOMMENDED WIRING FOR RESISTIVE SENSORS.

NOTE RR: FUSES ARE DEDICATED TO A6L3 VOLTAGE SENSING ONLY. NOT FOR OTHER USES.

SCHEMATIC INDEX TABLE

Generator Set Product	Control System	Serial Number Prefix	APPLICABLE DIAGRAM PART NUMBERS												
			Modular Panel	ECS Panel	GCCP Panel	12V ENCLOSURE	GAS WM PANEL	Diesel EIH	Diesel A6 ECM	GAS EIH I2 & 20 DSL	GAS EIH H 50Hz	GAS EIH H 60Hz	GAS EIH C & E	GAS EIH A	GAS WM EIH
			491-3960	626-0661	634-4123	430-2803	443-5152	491-3960	645-5502	548-7730	540-6381	552-5603	540-0807	542-6472	443-5152
C27/C32	EMCP 4.2B/4.3/4.4	JSJ, TZJ, 2A3	X			X		X							
C27/C32	ECS 100	JSJ, TZJ, 2A3	X	X		X		X							
C27/C32	GCCP1.2/1.3	JSJ, TZJ, 2A3	X	X	X	X		X							
3512-Diesel	EMCP 4.2B/4.3/4.4	LYP, LY7, LY8, LY9, LYH, JM2, JM3, JM4	X					X	X						
3512-Diesel	ECS 100 & 200	LYP, LY7, LY8, LY9, LYH, JM2, JM3, JM4	X	X				X	X						
3512-MUI Diesel	EMCP 4.2B/4.3	LY7, JM2	X					X							
3516-Diesel	EMCP 4.2B/4.3/4.4	LY3, LY4, LY4, LY5, LY6, LYM, JD7, FF2, F4H, ZNL, JCH, JCN, JH8, PXY, ZNZ, GBZ, GWZ	X					X	X						
3516-Diesel	ECS 100 & 200	LY3, LY4, LY4, LY5, LY6, LYM, JD7, FF2, F4H, ZNL, JCH, JCN, JH8, PXY, ZNZ, GBZ, GWZ	X	X				X	X						
3516-MUI Diesel	EMCP 4.2B/4.3	LY2, JCG	X					X							
C175	EMCP 4.2B/4.3/4.4	TB8, TE8, TZ8	X					X							
C175	ECS 100 & 200	TB8, TE8, TZ8	X	X				X							
G3512H NL	EMCP 4.3/4.4	GF4, GF5, RNK	X								X	X			
G3512 DSL	EMCP 4.3/4.4	E26, E27, E2T, E2N	X							X					
G3512 DSL	ECS 100 & 200	E26, E27, E2T, E2N	X	X						X					
G3516CNPL	EMCP 4.3/4.4	NWD, NWE, NWF	X										X		
G3516CLP8	EMCP 4.3 WALLMOUNT	HCY					X								X
G3516HNPL	EMCP 4.3/4.4	NWH, NWJ, RNH	X								X	X			
G3516 NGL	EMCP 4.3/4.4	E6R	X											X	
G3516LNGL	EMCP 4.3/4.4	E6W	X											X	
G3516LNPL	EMCP 4.3/4.4	E6W, E6Y	X											X	
G3516 DSL	EMCP 4.3/4.4	E24, F6S, F6T	X					X							
G3516 DSL	ECS 100 & 200	E24, F6S, F6T		X				X							
G3520HNPL	EMCP 4.3/4.4	GFB, GFP	X								X	X			
G3520DSL	EMCP 4.3/4.4	E28, E29, E2J, E2K, JF4, E33, E37, E32, E36, E42	X							X					
G3520DSL	ECS 100 & 200	E28, E29, E2J, E2K, JF4, E33, E37, E32, E36, E42		X						X					
G3520CLPL	EMCP 4.3/4.4	LGS, RLP	X										X		
G3520CNPL	EMCP 4.3/4.4	GZN, GZA	X										X		
G3520CLP8	EMCP 4.3/4.4	R8C	X										X		
G3516PTPL	EMCP 4.3/4.4	E6Z, E6Z	X											X	
G3520PTPL	EMCP 4.3/4.4	PZJ, GAW	X								X				

GENERATOR TERMINAL BOX PICTORIAL
NOTES AND REFERENCES
APPLICABLE FOR GAS AND DIESEL

E	ECS1672 JINT-PROP
D	E2722G DRAWING
C	E0139M BRAND MARKINGS
B	E0013T CONFIDENTIALITY
A	E0012A INTERPRETATION
REVISIONS	INTP & TOL

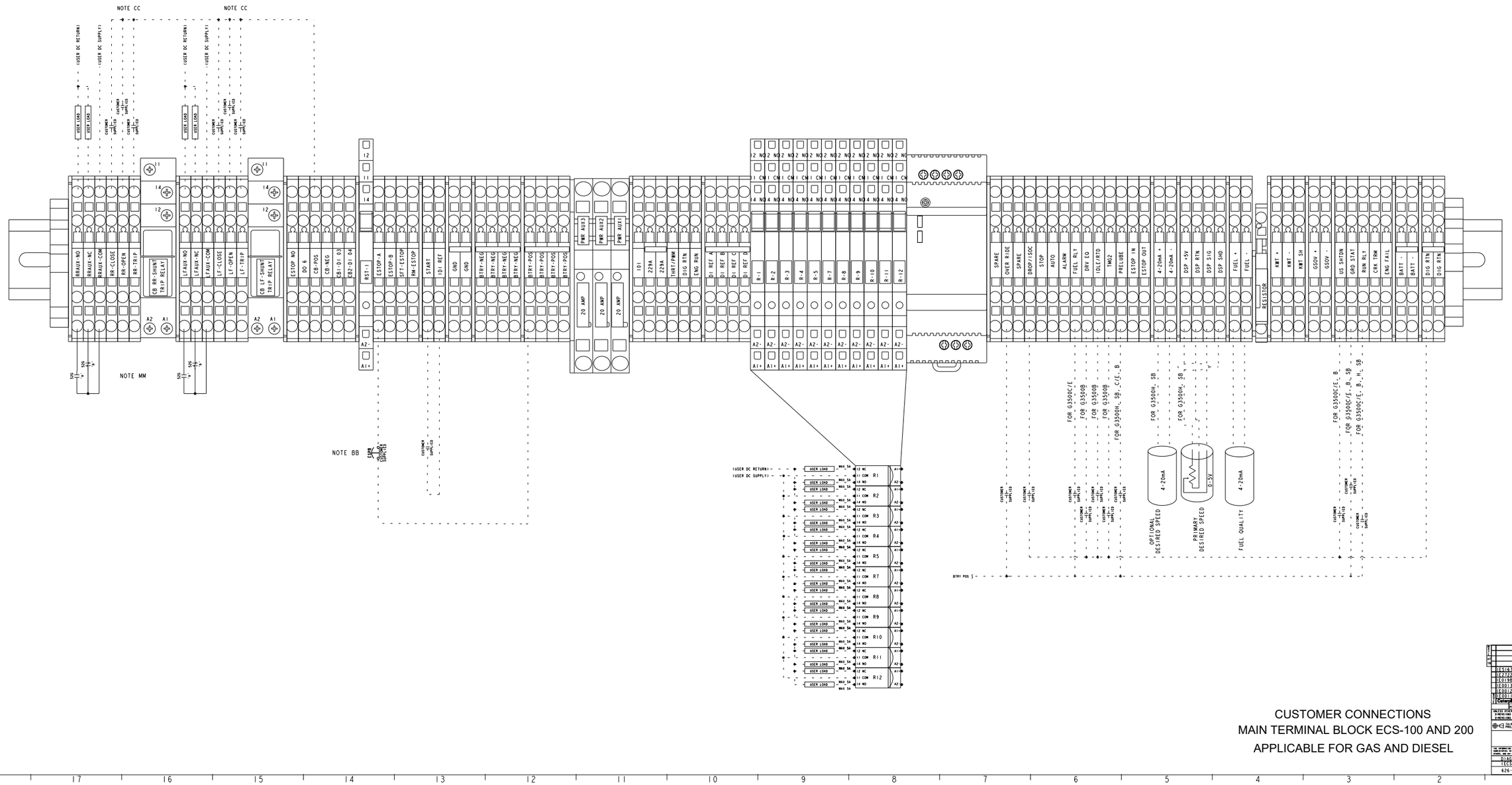
Caterpillar Confidential Yellow

PRINT DATE(S) RECORDS
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM. DIMENSIONS ARE TOL PER BASIC | TYPE: PRIMARY / SECONDARY
THIRD ANGLE PROJECTION | SHEET 12 OF 20 | DWG CONTROL #944

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DIAGRAM-WIRING (ECS CONTROLS)
626-0661 | SER - CHG - DT | E



CUSTOMER CONNECTIONS
MAIN TERMINAL BLOCK ECS-100 AND 200
APPLICABLE FOR GAS AND DIESEL

E5167A	INT-PROP
E2722C	DRAWING
E0190B	BRAND MARKINGS
E0013J	CONFIDENTIALITY
E0012A	INTERPRETATION
E001	INTPR I TOL

Caterpillar Confidential Yellow

PROP | SPARE RECORDS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM. DIMENSIONS ARE TOL PER BASIC

ENGINE PRIMARY TYPE SECONDARY

FIRST ANGLE PROJECTION | SHEET 13 OF 20 | DOC CONTROL 8944

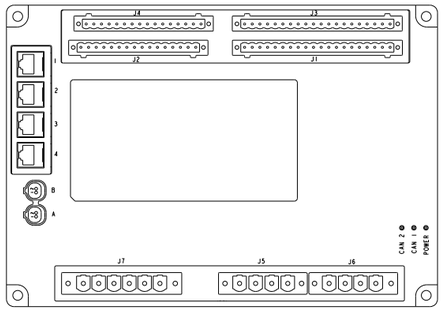
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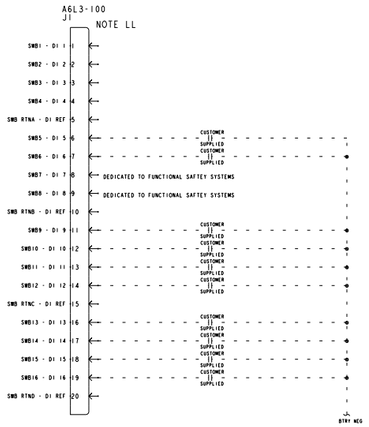
DIAGRAM, WIRING
ECS CONTROLS

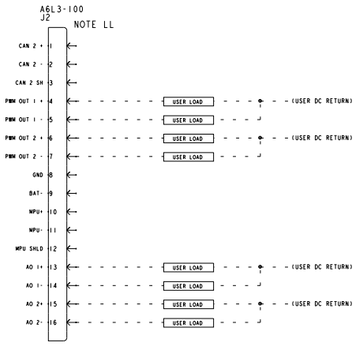
626-0461 | REV CHK | 01 | E

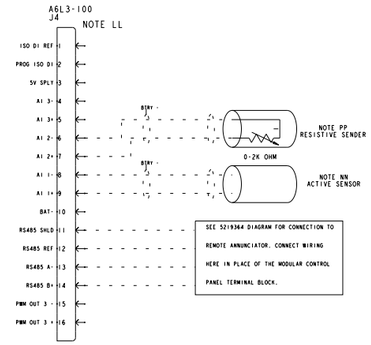
A6L3 GENSET BASE CONTROL MODULE: ECS -100



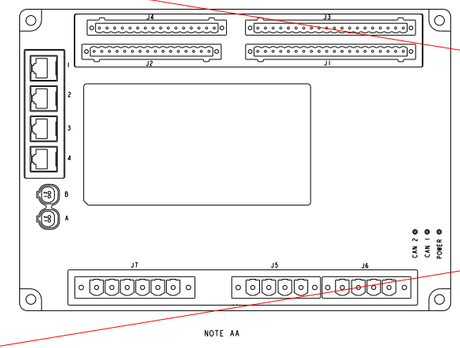
NOTE AA



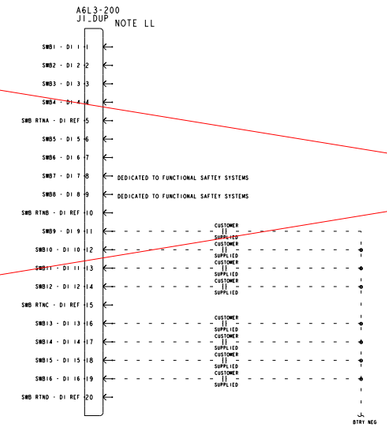


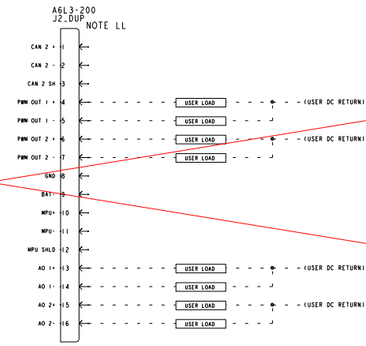


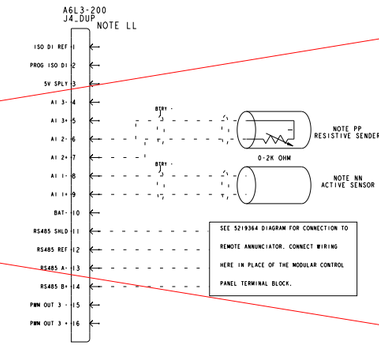
A6L3 GENSET PARALLELING CONTROL MODULE: ECS -200



NOTE AA







CUSTOMER CONNECTIONS
A6L3 CONTROL MODULE
APPLICABLE FOR GAS AND DIESEL

	[ES167A]	INT-PROP
	[EZ722C]	DRAWING
	[E0198N]	BRAND MARKINGS
	[E0013T]	CONFIDENTIALITY
	[E0012A]	INTERPRETATION
	[E0011]	INTPR & TOL

Caterpillar Confidential Yellow

PROG DYNE RECORDS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM. ANGULAR DIMENSIONS ARE TOL ARE BASIC

ECRS-CON PRIMARY SECONDARY TYPE

THIRD ANGLE PROJECTION

SHEET 14 OF 20

SMS CONTROL B944

CATERPILLAR

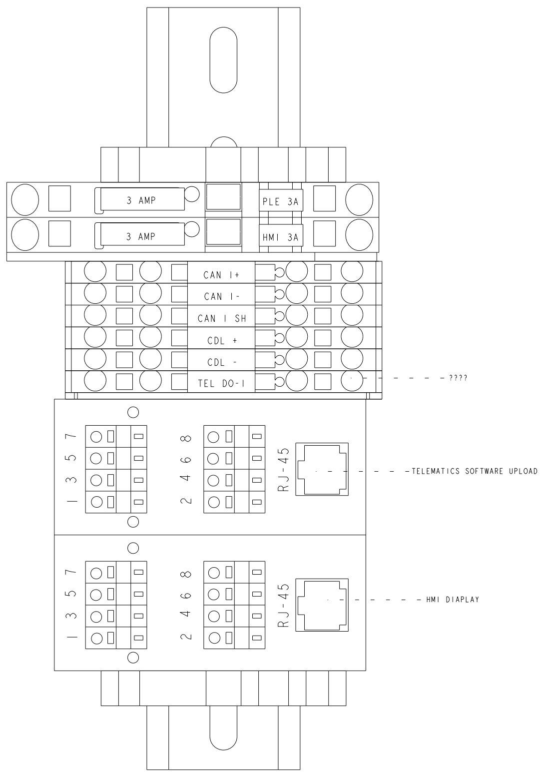
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DIAGRAM-WIRING

ECS CONTROLS3

626-0661

REV CHG
ST



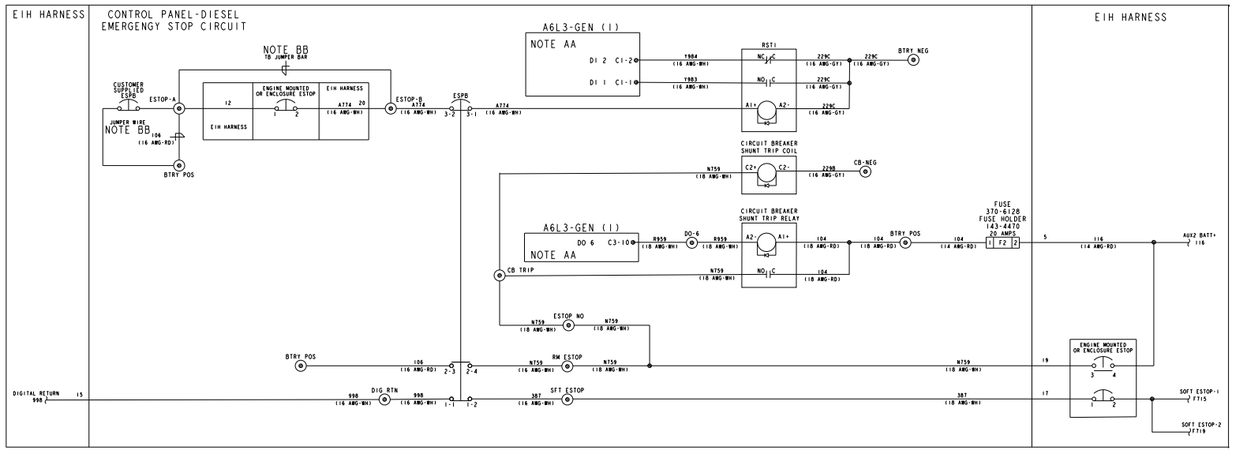
CUSTOMER CONNECTIONS

CAT CONNECT (A6N2 OR A6N1H)

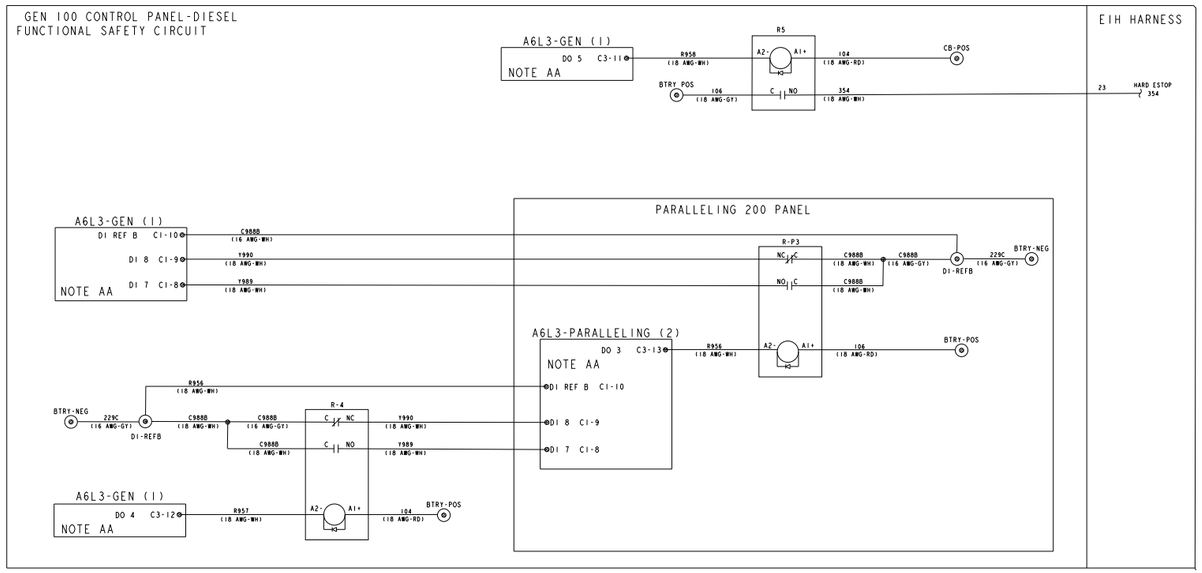
APPLICABLE FOR GAS AND DIESEL

1E5167A INT-PROP
1E2722G DRAWING
1E0198W BRAND MARKINGS
1E0013Y CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL
Caterpillar: Confidential Yellow
PROD OTHER RECORDS
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN mm DIMENSIONS W/O TOL ARE BASIC
VERSION PRIMARY X TYPE SECONDARY
THIRD ANGLE PROJECTION
SHEET 15 OF 20
DWG CONTROL W944
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WIRING-DIAGRAM
(ECS CONTROLS)
626-0661 VER - CHG 01 E

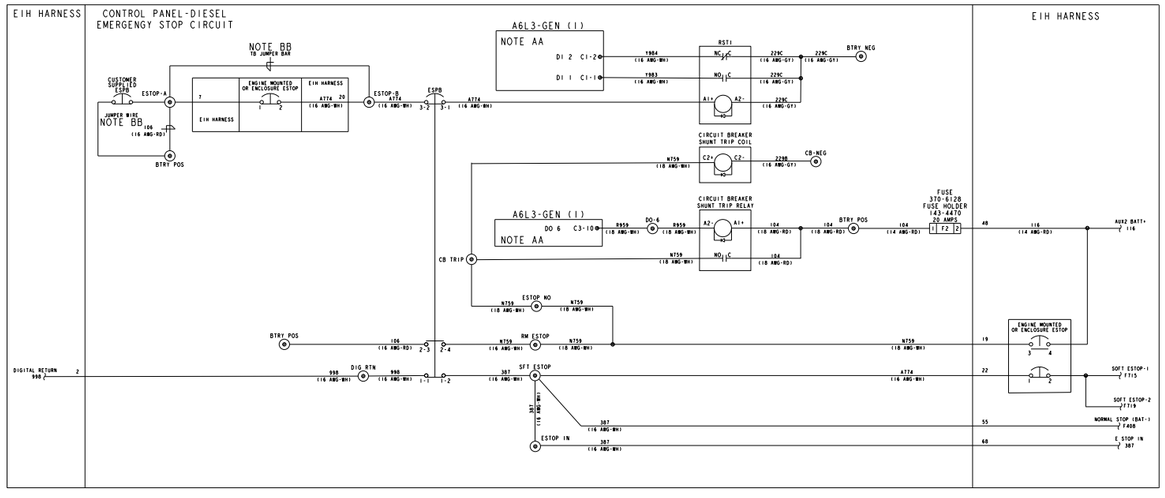
E-STOP & F-SAFETY CIRCUIT DIESEL



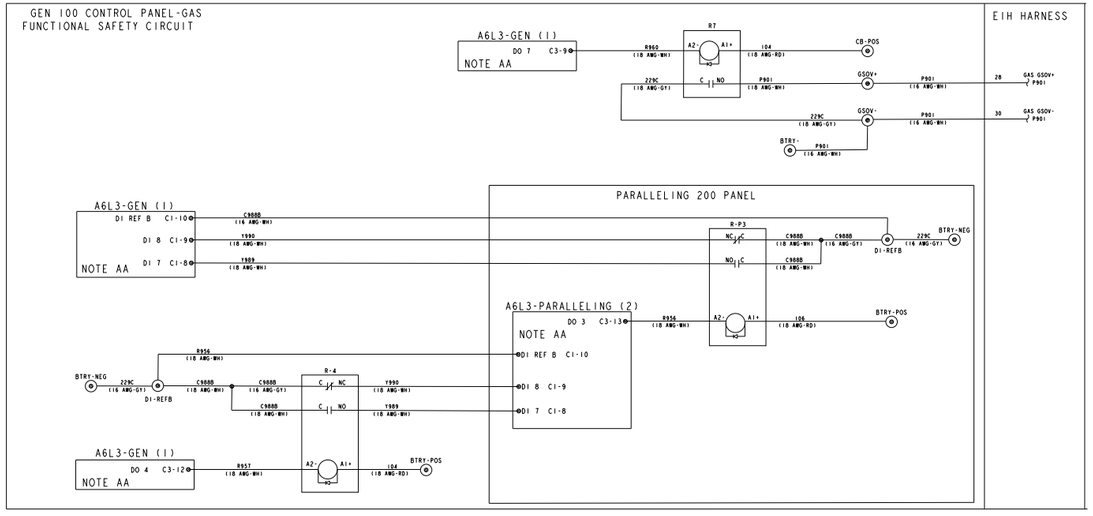
GEN 100 CONTROL PANEL-DIESEL FUNCTIONAL SAFETY CIRCUIT



E-STOP & F-SAFETY CIRCUIT GAS



GEN 100 CONTROL PANEL-GAS FUNCTIONAL SAFETY CIRCUIT



ESTOP AND FUNCTIONAL SAFETY CIRCUIT

	E516/A	INT-PROP
	E2720	DRAWING
	E0190	BRAND MARKINGS
	E0013	CONFIDENTIALITY
	E0012	INTERPRETATION
T	E001	INTPR 1 TOL
	Caterpillar Confidential Yellow	

PROJ | OTHER RECORDS

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN mm. DIMENSIONING AND TOL. ARE BASIC. | ORIGINAL PRIMARY | TYPE | SECONDARY

FAILURE MODE AND EFFECTS ANALYSIS | SHEET 17 OF 20 | DOC CONTROL | B9E4

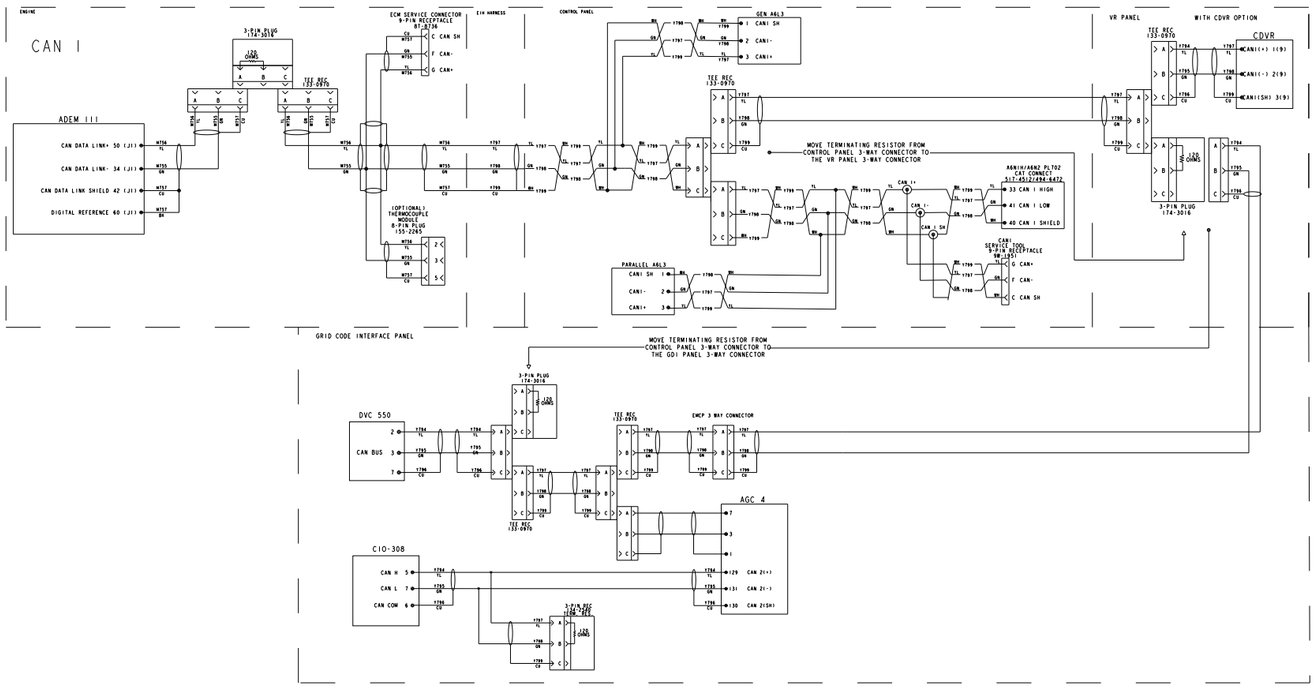
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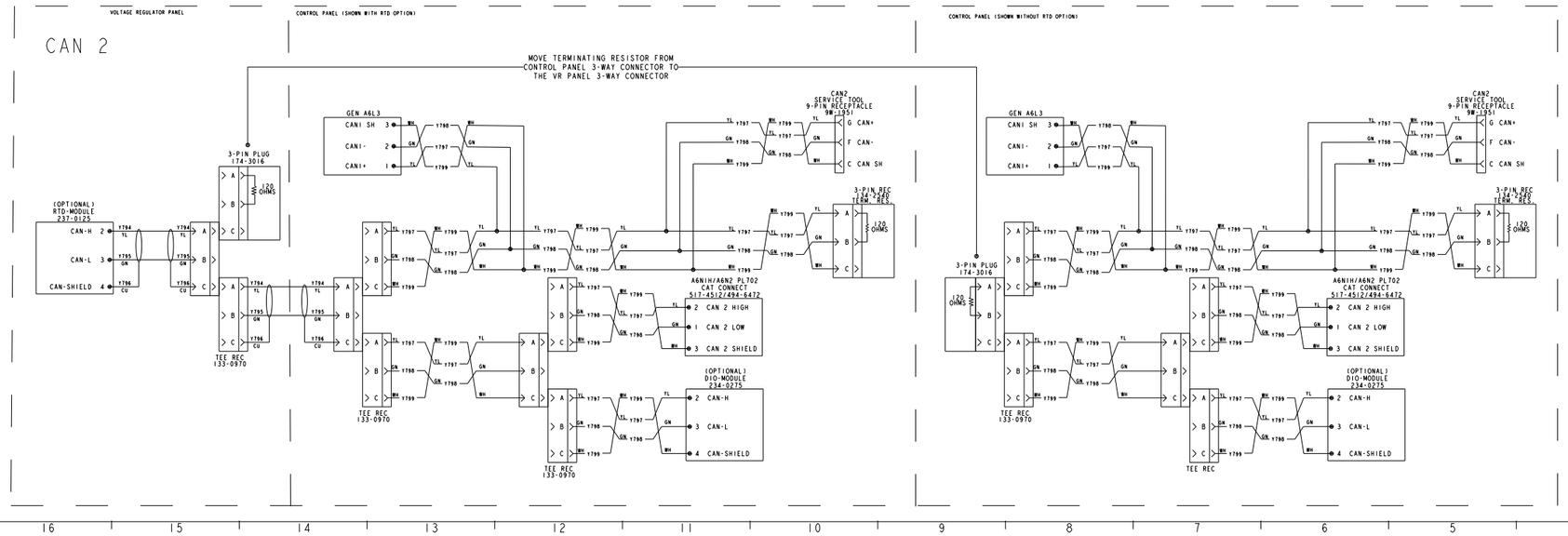
DIAGRAM-WIRING
(ECS CONTROLS)

626-0461 | SER | CHK | E | 87

CAN 1 CIRCUIT ECS



CAN 2 CIRCUIT ECS



CAN-1 AND CAN-2 CIRCUIT

E517A	INT-PROP
E2722	DRAWING
E0190	BRAND MARKINGS
E0013	CONFIDENTIALITY
E0012	INTERPRETATION
E0011	INTPR I TOL
Caterpillar Confidential Yellow	
PROD	OTHER RECORDS

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN mm. DIMENSIONS ARE TOL PER ANSI B32.1

ORIGINAL PRIMARY | TYPE SECONDARY

SCALE: SINGLE LINE | SHEET 18 OF 20 | DOC CONTROL 18944

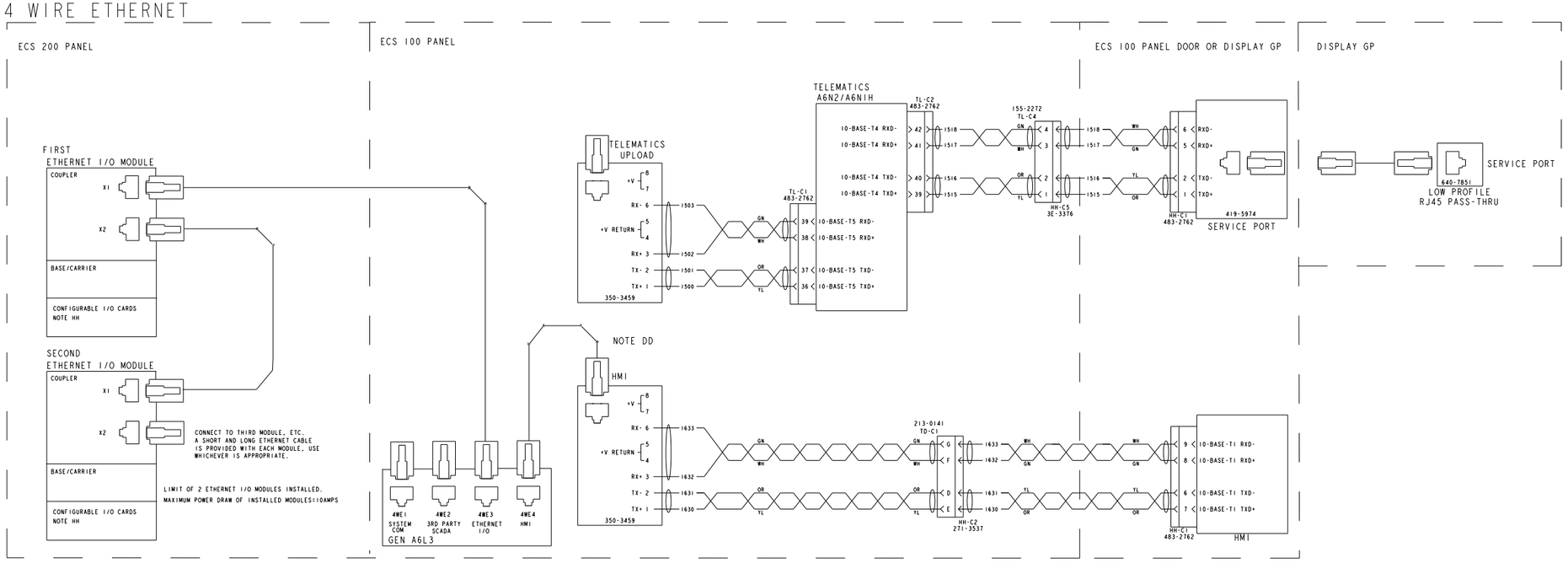
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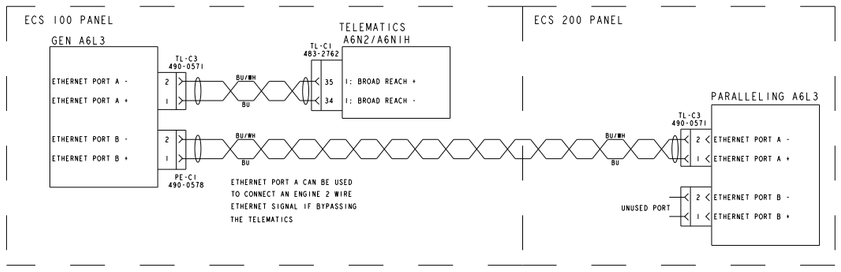
DIAGRAM WIRING (ECS CONTROLS)

626-0461 | REV C | SH 1

4 WIRE ETHERNET



2 WIRE ETHERNET



ETHERNET CIRCUIT

ES167A	INT-PROP
E2722G	DRAWING
E0198B	BRAND MARKINGS
E0013I	CONFIDENTIALITY
E0012A	INTERPRETATION
E0014	INTRP & TOL
Caterpillar Confidential Yellow	

PROD INDEX RECORDS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS AND TOLERANCES ARE AS FOLLOWS: DECIMALS .X ±0.1, .XX ±0.05, .XXX ±0.025, ANGLES ±0.5°

SCALING PRIMARY: E
TYPE: SECONDARY:

SHEET 19 OF 20

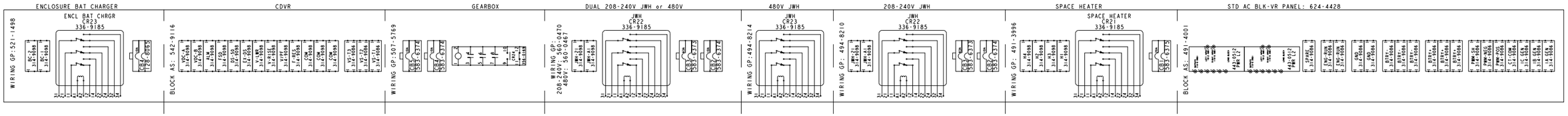
FACTORY APPLICATION: ENG CONTROL: B944

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DIAGRAM-WIRING (ECS CONTROLS)

626-0661 REV. E



VOLTAGE REGULATOR PANEL TERMINAL BLOCK LAYOUT
SHOWING ALL AVAILABLE OPTIONS
***NOT ALL OPTIONS WILL FIT ON THE TERMINAL BLOCK
APPLICABLE FOR GAS AND DIESEL

	[ES167A]	INT-PROP
	[E2722C]	DRAWING
	[E0198B]	BRAND MARKINGS
	[E0013I]	CONFIDENTIALITY
	[E0012A]	INTERPRETATION
	[E001]	INTPR I TON
	Caterpillar Confidential Yellow	

PROG | OTHER RECORDS

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM. DIMENSIONS ARE TOL ARE BASIC

DRAWING PRIMARY | TYPE | SECONDARY

FIRST ANGLE PROJECTION | SHEET 20 OF 20 | DOC CONTROL [8964]

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DIAGRAM,WIRING
TECS CONTROLS7

626-0461 | REV | CHK | E

CARTER POWER SYSTEMS

Section Five
Enclosure

ACS Custom Enclosure

NOTES:

1. ENCLOSURE ASSEMBLY:
   - a.) FOR A CATERPILLAR 1500KW 3512C GEN–SET. (480VAC)
   - b.) FULLY ASSEMBLED ACOUSTICAL ENCLOSURE TO BE MOUNTED TO THE SUB BASE FUEL TANK THEN ANCHORED TO THE FOUNDATION.
   - c.) PANEL JOINTS ARE SKIP WELDED AND CAULKED.
   - d.) WIND LOAD: 120 MPH
   - e.) SEISMIC RATING: IBC RATED FOR JOB SITE w/ PE STAMP & SEAL (ANCHORING CALCS NOT INCLUDED)

2. ENCLOSURE CONSTRUCTION:
   - a.) SKIN – 14 GA. GALVANNEAL STEEL (WALLS).
     14 GA. GALVANNEAL STEEL (ROOF).
   - b.) FRAMING – A36 STRUCTURAL ANGLE & A500–B TUBING
   - c.) INNER LINER – 22 GA. GALVANIZED PERFORATED STEEL.
   - d.) INSULATION – MINERAL WOOL
   - e.) DOORS – THREE (3) SINGLE ACCESS SERVICE DOORS & TWO (2) DOUBLE ACCESS SERVICE DOOR WITH STAINLESS STEEL HINGES & CHROME PLATED REFRIGERATOR STYLE DOOR LATCHES w/ INSIDE RELEASE.
   - f.) INLET HOOD ASSEMBLY (GALVANNEAL CONSTRUCTION).
   - g.) INLET BAFFLE PANELS – (GALVANNEALED CONSTRUCTION).
   - h.) MOTORIZED INTAKE DAMPER ASSEMBLY (ALUMINUM CONSTRUCTION–CD356).
   - i.) GRAVITY BACKDRAFT DAMPERS – (ALUMINUM CONSTRUCTION – CBD2).
   - j.) INTERNAL DISCHARGE ELBOW – (GALVANNEAL INSULATED CONSTRUCTION).

3. DESIGN CONSTRUCTION:
   - a.) AIR FLOW RATES;
     RADIATOR – 61,624 CFM
     COMBUSTION – 4,794 CFM
   - b.) PRESSURE DROPS;
     INLET & DISCHARGE LOUVERS/BAFFLES 0.5" W.G. OR LESS (TOTAL).
   - c.) PERFORMANCE;
     DESIGNED TO REDUCE THE GEN–SET EQUIPMENT NOISE LEVEL TO 75 dBA WHEN MEASURED AT A DISTANCE OF 23 FEET FROM THE ENCLOSURE AND 5 1/2 FEET ABOVE GRADE IN A FREE FIELD ENVIRONMENT. (PROVIDING THE EQUIPMENT NOISE DOES NOT EXCEED 119 dB @ 3 FEET).

4. PAINT:
   - a.) ALL EXTERIOR GALVANNEAL SURFACES TO BE SOLVENT CLEANED
     * PER SSPC–SP1 AND PAINTED AS FOLLOWS;
     * FINISH – ONE COAT OF AMERSHIELD VOC.
   - b.) ALL CARBON STEEL SURFACES TO BE POWER TOOL CLEANED PER SSPC–SP3 AND PAINTED AS FOLLOWS;
     * PRIMER – ONE COAT AMERCOAT 370.
     * FINISH – ONE COAT OF AMERSHIELD VOC.
     * INTERIOR WALL AND ROOF SURFACES WILL NOT BE PAINTED.
   - c.) COLOR: ENCLOSURE: T.B.D.
     TANK: BLACK

5. ELECTRICAL: SEE SHEET 13869–10E

6. QUANTITY REQUIRED:
   TWO (2) GEN–SET ENCLOSURE ASSEMBLIES AS SHOWN
   TWO (2) U.L. LISTED 142 DAY FUEL TANKS AS SHOWN

7. WEIGHTS:
   ESTIMATED WEIGHTS ARE AS FOLLOWS:

a.) ENCLOSURE ASSEMBLY	– 26,000 LBS
b.) GEN–SET	– 38,000 LBS WET (CUSTOMER TO CONFIRM)
c.) SUB BASE FUEL TANK	– 16,000 LBS
TOTAL	– 80,000 LBS
d.) LIFTING SKID w/SCR	– 14,000 LBS

8. PACKAGED ASSEMBLY SHIPPING SIZES:
   - a.) ENCLOSURE PACKAGE ASSEMBLY – 518"L x 132"W x 146"H
   - b.) LIFTING SKID w/SCR – 203"L x 128"W x 116"H

9. ACS CONTACT INFORMATION

SALES: WESLEY RITCHIE
TELEPHONE: 903.462.2034
E–MAIL: wesley.ritchie@acsmanufacturing.com

PROJECT MANAGER: JIMMAY MUNDINE
TELEPHONE: 903.462.2001 EXT. 10089
E–MAIL: jimmayshun.mundine@acsmanufacturing.com

*CUSTOMER TO VERIFY ALL NOTES AND DIMENSIONS

☐ APPROVED AS IS – Manufacturing may proceed.
☐ APPROVED WITH NOTED CHANGES – Resubmit drawing; manufacturing may proceed.
☐ NOT APPROVED – Correct drawing as noted and resubmit for approval before manufacturing begins.

BY: _____ DATE: _____

COMPANY: _____

RETURNED APPROVAL DRAWINGS WITH SIGNATURE REQUIRED BEFORE ACS WILL BEGIN MANUFACTURING PROCESS

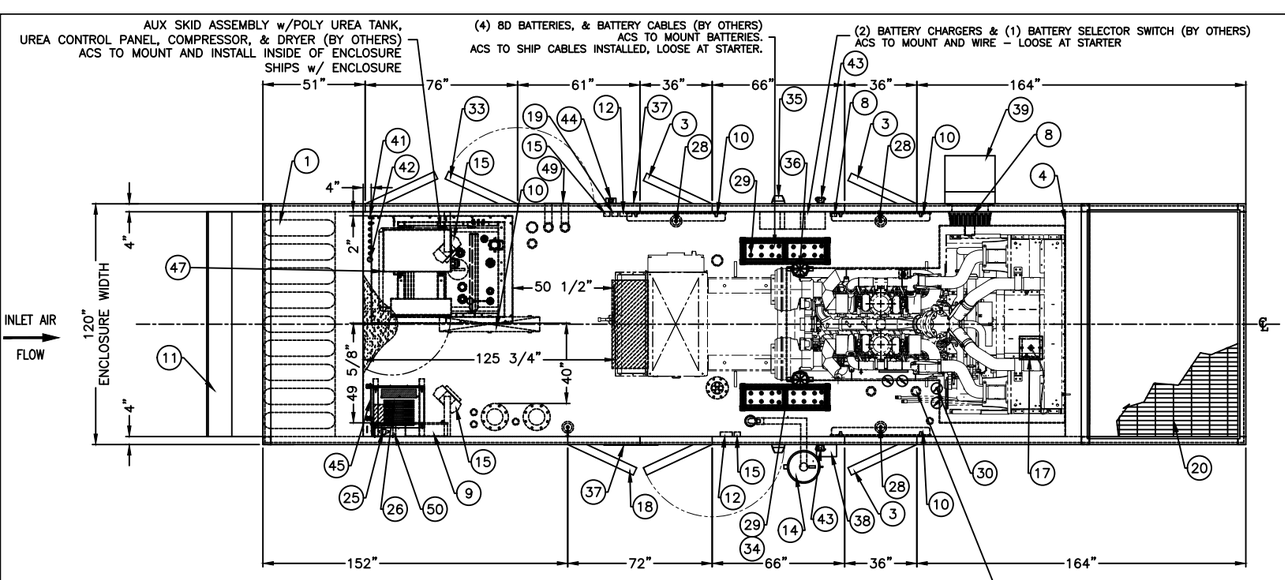
QUOTE NO.: 202507107
PO NO.: 425504PRP1–1
ACS MFG LOC.: TX
JOB NAME: PROLOGIS ATHENA

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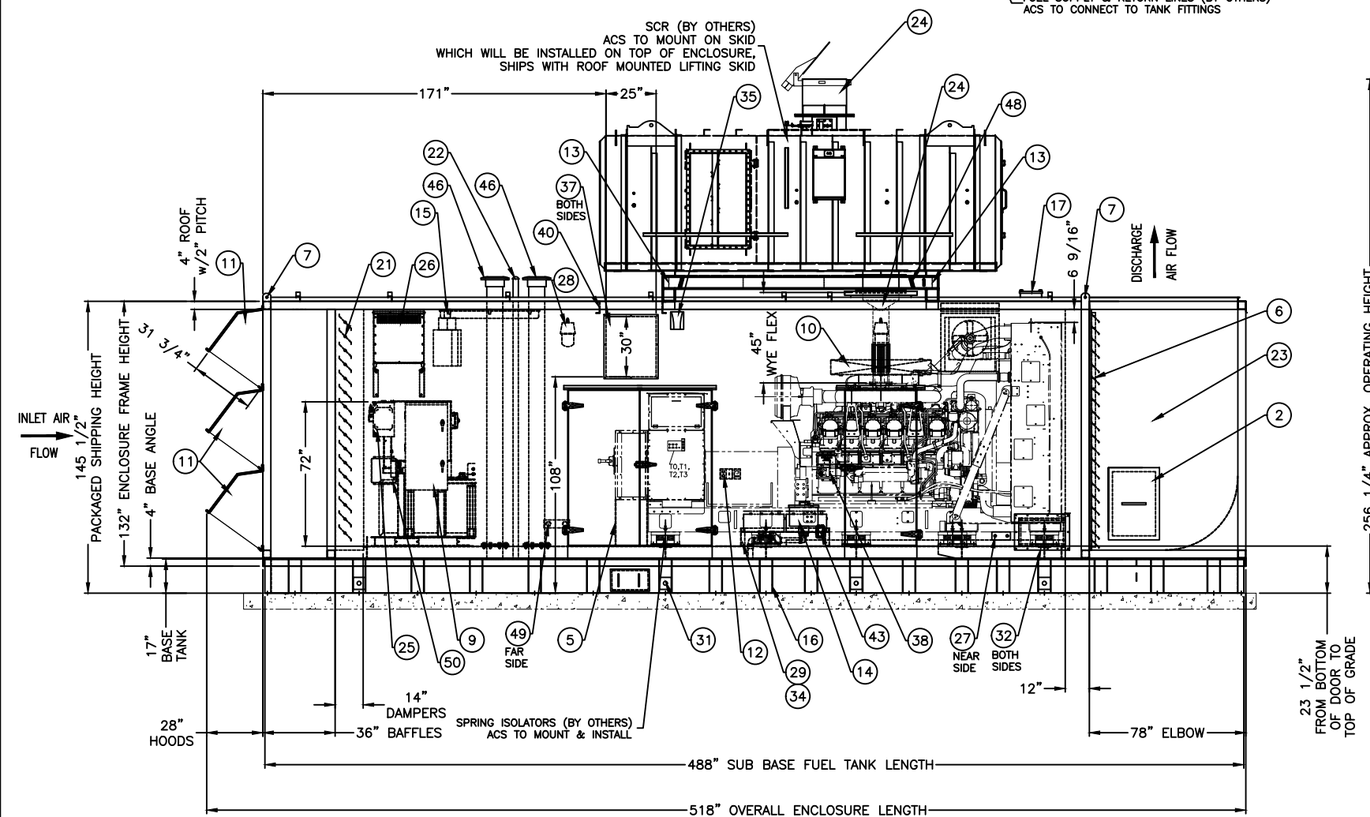
REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE

ACS MANUFACTURING, INC.
1601 COMMERCE BLVD. – DENISON, TEXAS – 75020

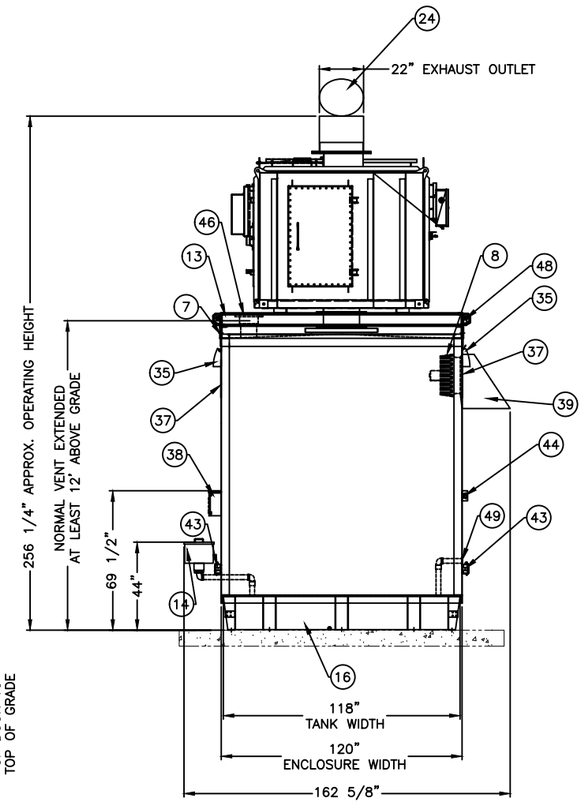
TOLERANCES (EXCEPT AS NOTED)	CARTER CAT	DRAWN BY: CE
DECIMAL ± 0.125"		CHECKED BY:
FRACTIONAL ± 1/8"	TITLE ACOUSTICAL ENCLOSURE ASSEMBLY TEXT SHEET	CHECKED BY:
ANGULAR ± 3°		APPROVED BY: JM
SCALE 48:1	DRAWING NUMBER 13869–10	SHEET 1 OF 5 / REV. —
DATE 09/23/25		



PLAN VIEW



ELEVATION VIEW



END VIEW

- ☐ APPROVED AS IS – Manufacturing may proceed.
- ☐ APPROVED WITH NOTED CHANGES – Resubmit drawing; manufacturing may proceed.
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BY: _____ DATE: _____

COMPANY: _____

RETURNED APPROVAL DRAWINGS WITH SIGNATURE REQUIRED BEFORE ACS WILL BEGIN MANUFACTURING PROCESS

ACS BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	9	BAFFLE PANELS WITH MINERAL WOOL
2	1	MAN WAY ACCESS PANEL
3	3	36" X 78" SINGLE DOOR (SINGLE SEAL) & (BOND STRAP FROM ENCLOSURE DOOR TO DOOR FRAME)
4	1	RADIATOR FLASHING & TRIM FLASHING
5	1	SKIRTING, FROM BOTTOM OF BREAKER CAN TO TOP OF TANK
6	1	DISCHARGE GRAVITY BACKDRAFT DAMPER (CBD2)
7	4	ENCLOSURE LIFTING LUG (DESIGNED FOR ENCLOSURE REMOVAL ONLY)
8	1	2400 CFM VENT FAN w/ DAMPERS & T-STAT
9	1	120/208VAC, PANELBOARD, 3PH
10	4	LED LIGHT (4')
11	3	INTAKE HOOD ASSEMBLY
12	2	3-WAY LIGHT SWITCH/DUPLEX RECEPTACLE w/ WEATHERPROOF COVER
13	1	ROOF SKID FOR SCR – ACS TO MOUNT SCR TO SKID AND SHIP AS ASSEMBLY
14	1	7-1/2" GALLONS SPILL BUCKET w/ DRAIN
15	2	5KW SPACE HEATER w/ T-STAT
16	1	U.L. 142 SUB BASE FUEL TANK
17	1	RADIATOR CAP ACCESS HATCH
18	1	72" X 78" DOUBLE DOOR (SINGLE SEAL) & (BOND STRAP FROM ENCLOSURE DOOR TO DOOR FRAME)
19	1	0-60 MIN TIMER SWITCH (FOR DC LIGHTS)
20	1	BIRD SCREEN
21	1	DAMPERS, MOTORIZED INLET (CD-356)
22	1	NORMAL VENT, FUEL TANK – EXTENDED OUTSIDE OF ENCLOSURE TO ROOF LINE AT LEAST 12' ABOVE GRADE. SHIPPED LOOSE & INSTALLED BY OTHERS
23	1	INTERNAL DISCHARGE ELBOW (INSULATED)
24	1	COMPLETE EXHAUST SYSTEM INCLUDING – EXHAUST WYE FLEX ASSEMBLY, TAIL PIPE, STAINLESS STEEL EXHAUST WEATHER COVER, RAIN CAP, NBG KIT, & REMOVABLE BLANKETS (COVERING WYE FLEX SPOOL ASSEMBLY, & FLANGES)
25	1	480VAC DISCONNECT, FUESED, 60A
26	1	30KVA TRANSFORMER, 480-120/208VAC, 3PH
27	2	1" COUPLING, OIL & WATER DRAIN, EXTENDED TO ENCLOSURE WALL (BALL VALVE ON THE INSIDE, PLUGGED ON THE OUTSIDE)
28	4	24VDC LED LIGHT w/ GLOBE & GUARD
29	2	BATTERY RACK – ANCHORED TO TOP OF TANK – CARBON STEEL – PAINTED – EACH RACK TO HOLD (2) 8D BATTERIES
30	2	RACOR FILTER ASSEMBLY – ACS TO MOUNT & PLUMB (FLEX HOSES) TO ENGINE CAPABLE OF BEING HOT SWAPPABLE
31	8	TANK LIFTING LUG (DESIGNED TO LIFT ENTIRE PACKAGE)
32	2	SIDE ACCESS w/ REMOVABLE COVER PLATE (FOR ISOLATORS)
33	1	76" X 78" DOUBLE DOOR (SINGLE SEAL) & (BOND STRAP FROM ENCLOSURE DOOR TO DOOR FRAME)
34	1	BATTERY CABLES ARE ACS SUPPLIED AND TO BE INSTALLED & WIRED BY ACS. ACS TO PROVIDE & INSTALL THE 4/0 CABLE SPECIFIED.
35	2	EXTERIOR LED LIGHT w/ 1 PHOTOCELL FOR ALL LIGHTS
36	1	CCV8000 KIT WITH HOSE KITS ACS TO INSTALL ON ENGINE PRIOR TO SHIPMENT
37	2	20"x30" REMOVABLE GLAND PLATE w/ RAIN LIP (FOR BUSS DUCT)
38	1	FUEL TANK ANNUNCIATOR w/ CRITICAL LOW
39	1	HOOD FOR VENT FAN (REMOVABLE & SHIPS LOOSE) w/ RAIN LIP ABOVE OPENING
40	2	INTERNAL CHANNEL (FOR CUSTOMER ELECTRICAL SUPPORT USE)
41	7	1" SCH 40 PIPE (CAPPED FOR FUTURE SCR USE)
42	1	2" SCH 40 PIPE (CAPPED FOR FUTURE SCR USE)
43	2	DUPLEX RECEPTACLE w/ IN-USE WEATHERPROOF COVER
44	1	E-STOP w/ BREAK GLASS TYPE
45	1	S/S GROUNDING BAR (FOR GROUNDING, PANELBOARD, TRANSFORMER, GENSET ALTERNATOR, GENSET FRAME, FUEL TANK, & ENCLOSURE)
46	2	EMERGENCY VENT, FUEL TANK – EXTENDED OUTSIDE OF ENCLOSURE TO ROOF LINE AT LEAST 12' ABOVE GRADE. SHIPPED LOOSE & INSTALLED BY OTHERS
47	1	UREA LINES – ACS TO INSULATE AND HEAT TRACE (CONNECTING TO EXTERNAL SCR ONSITE TO BE BY OTHERS)
48	4	ROOF MOUNTED SKID LIFTING LUG (DESIGNED TO LIFT SCR & SKID ONLY)
49	2	2" FUEL COUPLINGS ACS TO CONNECT TANK FITTINGS TO FUEL COUPLINGS IN ENCLOSURE WALL (FOR P3 AND P4 PORTS)
50	1	U.L. LISTED 12"x12"x6" J-BOX w/ POWER BLOCKS (MOUNTED BELOW DISCONNECT)

QUOTE NO.: 202507107
PO NO.: 425504PRP1-1
ACS MFG LOC.: TX
JOB NAME: PROLOGIS ATHENA

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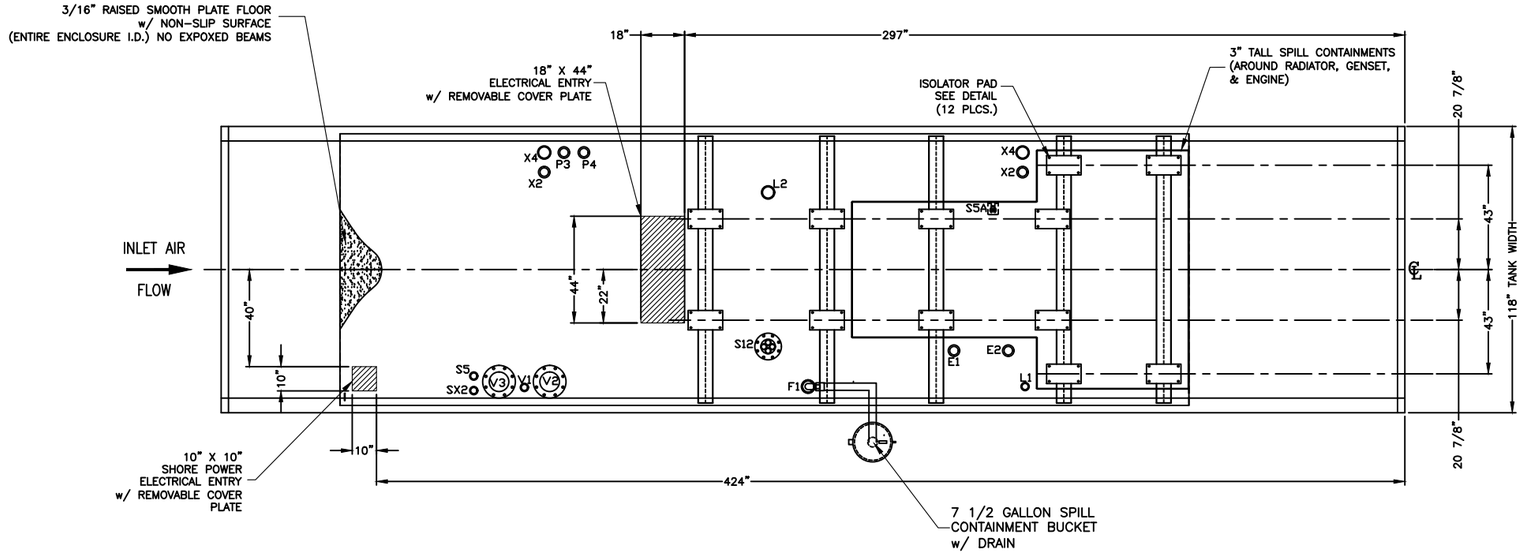
REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE

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1601 COMMERCE BLVD. – DENISON, TEXAS – 75020

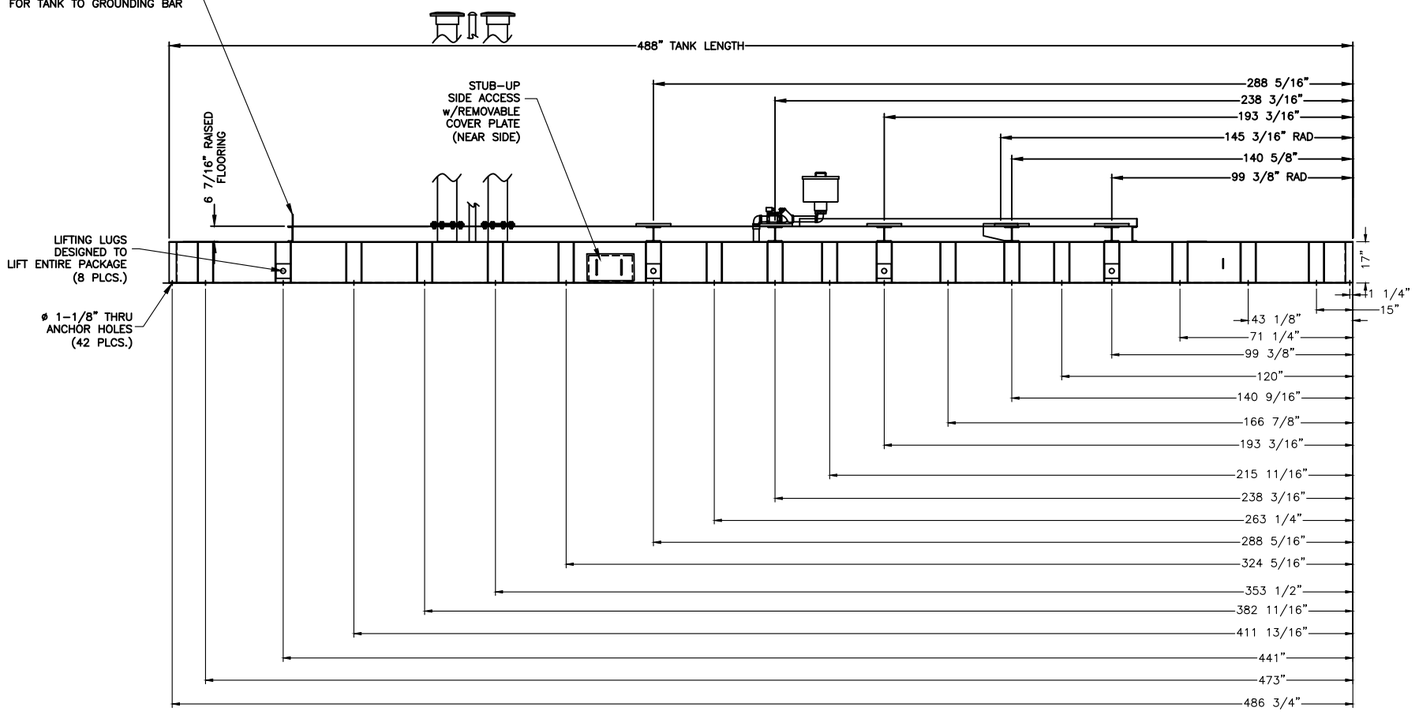
TOLERANCES (EXCEPT AS NOTED)
DECIMAL ± 0.125"
FRACTIONAL ± 1/8"
ANGULAR ± 3°
SCALE 1 : 1
DATE 09/23/25

CARTER CAT
TITLE: ACOUSTICAL GEN-SET ENCLOSURE ASSEMBLY
DRAWING NUMBER: 13869-10

DRAWN BY: CE
CHECKED BY:
CHECKED BY:
APPROVED BY: JM
SHEET 2 OF 5
REV. —

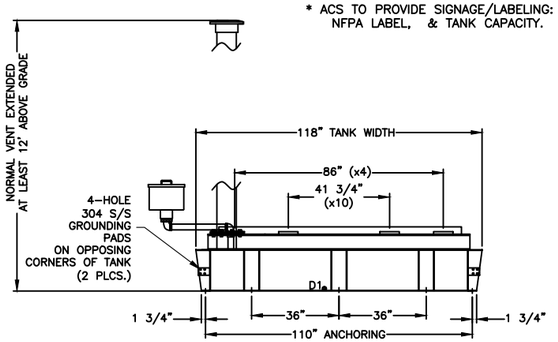


PLAN VIEW

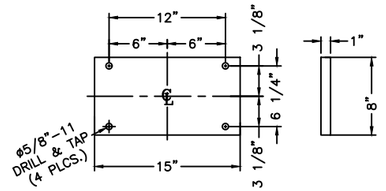


ELEVATION VIEW

U.L. 142 SUB BASE FUEL TANK
2,900 CAPACITY / 2,500 GALLON USABLE
w/ INTERNAL SCH40 BLACK IRON PIPING REACHING OPPOSING CORNERS
(FOR CUSTOMER SUPPLIED FUEL POLISHING SYSTEM)



END VIEW



ISOLATOR PAD DETAIL

12 REQ'D
SCALE: 4X

REF.	FITTING SIZE	DESCRIPTION
D1	1" NPT	TANK DRAIN – SECONDARY
E1	4" NPT	ENGINE FUEL SUPPLY – w/ 1" NPT DIP TUBE
E2	2" NPT	ENGINE FUEL RETURN – w/1" NPT DIP TUBE
F1	2" NPT	FUEL FILL w/ 2" CAMLOCK & OPV @ 95%
L1	2" NPT	LEVEL GAUGE – DIRECT SITE READING
L2	4" NPT	LEVEL SENSOR – ROCHESTER 240-30 OHM (WIRE TO GCP)
P3	2" PIPE	FUEL POLISHER SUPPLY – w/ INTERNAL PIPING (FOR CUSTOMER FPS)
P4	2" PIPE	FUEL POLISHER RETURN – w/ INTERNAL PIPING (FOR CUSTOMER FPS)
S5	2" NPT	LEAK DETECTOR SWITCH – N.O. (WIRE TO FTA THEN TO GCP)
S5A	–	SIDE MOUNTED LEAK DETECTOR SWITCH – N.O. (WIRE TO GCP)
S12	6" FLANGE (WIRE TO FTA THEN TO GCP)	CRITICAL LOW LEVEL SWITCH – N.C. – 20% LOW LEVEL SWITCH – N.C. – 25% HIGH LEVEL SWITCH – N.O. – 90% CRITICAL HIGH LEVEL SWITCH – N.O. – 95%
SX2	2" NPT	SPARE FITTING, SECONDARY – (1)
V1	2" NPT	PRIMARY TANK NORMAL VENT – EXTEND ABOVE ENCLOSURE ROOF LINE (AT LEAST 12' ABOVE GRADE) SHIPPED LOOSE & INSTALLED BY OTHERS
V2	8" NPT	EMERGENCY VENT – PRIMARY – EXTEND ABOVE ENCLOSURE ROOF LINE (AT LEAST 12' ABOVE GRADE) SHIPPED LOOSE & INSTALLED BY OTHERS
V3	8" NPT	EMERGENCY VENT – SECONDARY – EXTEND ABOVE ENCLOSURE ROOF LINE (AT LEAST 12' ABOVE GRADE) SHIPPED LOOSE & INSTALLED BY OTHERS
X2	2" NPT	SPARE FITTING, PRIMARY – w/ CAP (2)
X4	4" NPT	SPARE FITTING, PRIMARY w/ CAP (2)

* EXTEND TANK ALARMS TO REACH GENSET CONTROL PANEL VIA FLEX CONDUIT
* ACS TO PROVIDE SIGNAGE/LABELING: "DIESEL FUEL, FLAMMABLE, NO SMOKING", NFPA LABEL, & TANK CAPACITY.

☐ APPROVED AS IS – Manufacturing may proceed.

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PO NO.: 425504PRP1-1
ACS MFG LOC.: TX
JOB NAME: PROLOGIS ATHENA

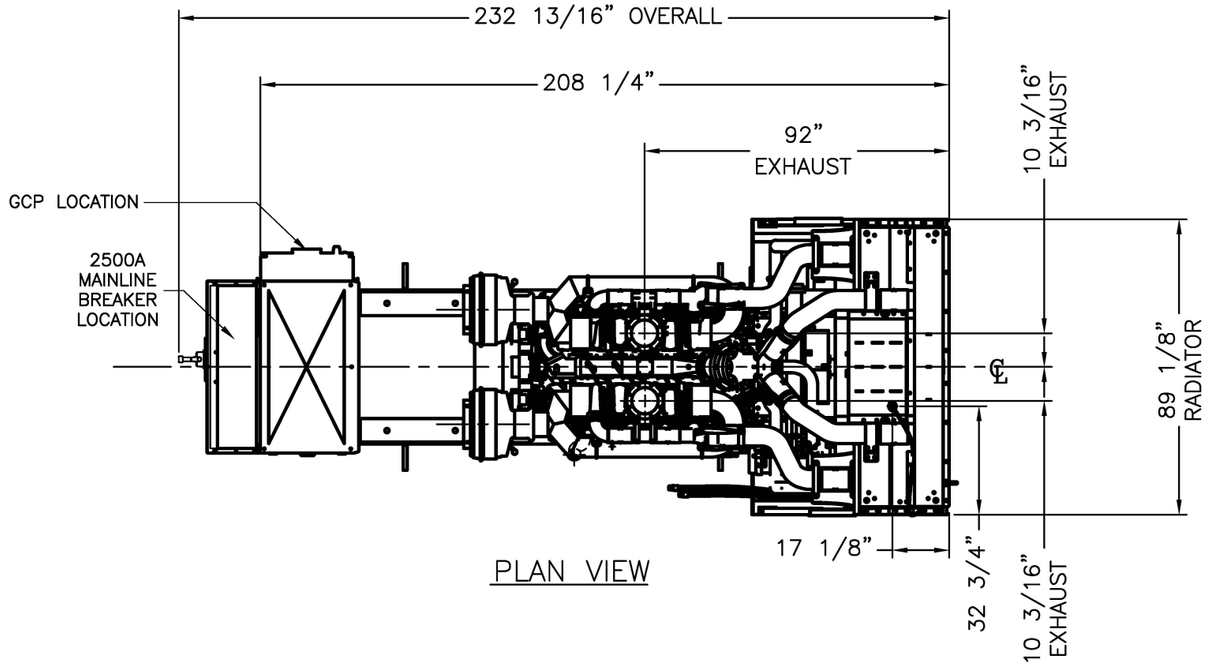
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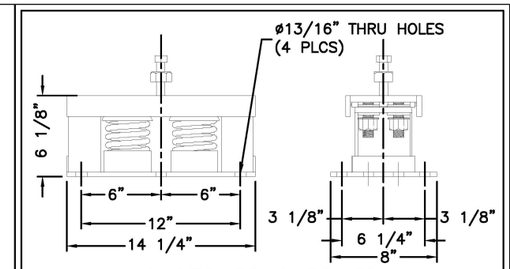
REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE

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1601 COMMERCE BLVD. – DENISON, TEXAS – 75020

TOLERANCES (EXCEPT AS NOTED)		DRAWN BY:	CE
DECIMAL ± 0.125"	CARTER CAT	CHECKED BY:	
FRACTIONAL ± 1/8"	TITLE: U.L. 142 SUB BASE FUEL TANK	CHECKED BY:	
ANGULAR ± 3°		APPROVED BY:	JM
SCALE 1 TO 1	DRAWING NUMBER: 13869-10	SHEET: 3 OF 5	REV.: —
DATE 09/23/25			

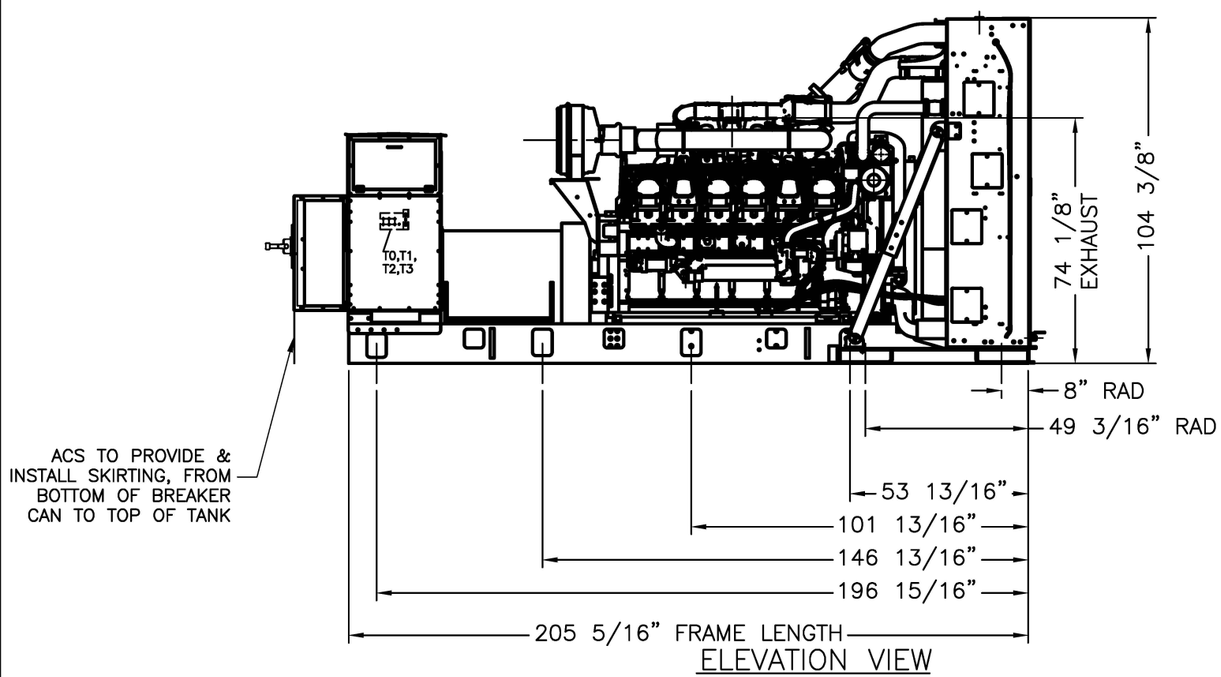


PLAN VIEW

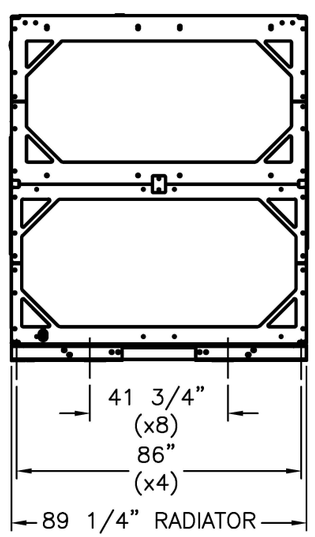


CUSTOMER SUPPLIED
GENSET ISOLATORS DETAIL
SCALE 4X
12 PLCS

CATERPILLAR 1500KW
3512C GENSET



ELEVATION VIEW



END VIEW

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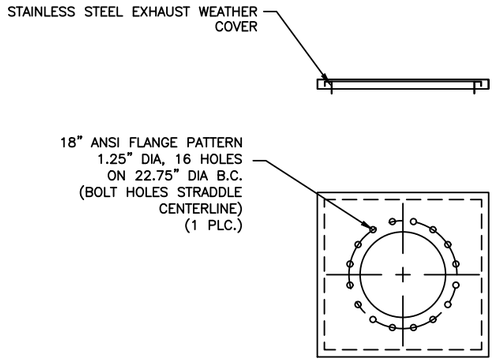
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The gen-set was NOT available for physical review when this drawing was created. Please verify all dimensions prior to fabrication of parts connected to the location of the gen-set. If the dimensions do not match please contact Engineering.

REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE

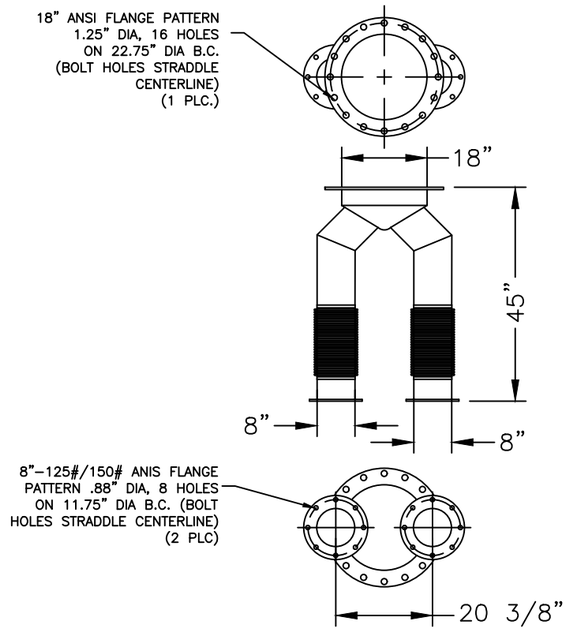
ACS MANUFACTURING, INC.
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TOLERANCES (EXCEPT AS NOTED)	CARTER CAT		DRAWN BY: CE
DECIMAL ± 0.125"			CHECKED BY:
FRACTIONAL ± 1/8"	TITLE GENSET ENCLOSURE ASSEMBLY GENSET DETAILS		CHECKED BY:
ANGULAR ± 3°			APPROVED BY: JM
SCALE 1 TO 1	DRAWING NUMBER	SHEET	REV.
DATE 09/23/25	13869–10	4 OF 5	—



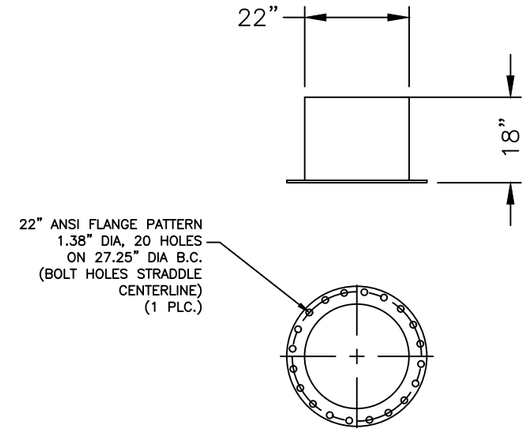
EXHAUST WEATHER CAP DETAIL

1 REQUIRED PER UNIT



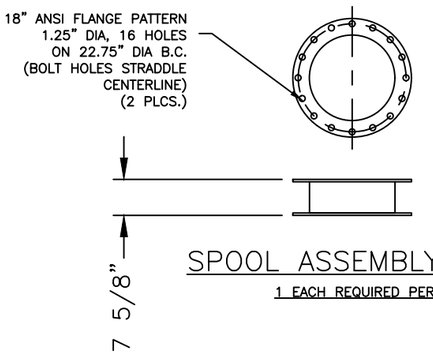
WYE FLEX ASSEMBLY DETAIL

1 EACH REQUIRED PER UNIT



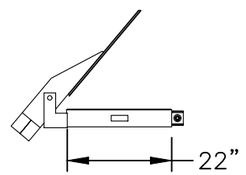
TAIL PIPE DETAIL

1 REQUIRED PER UNIT



SPOOL ASSEMBLY DETAIL

1 EACH REQUIRED PER UNIT



22" RAIN CAP DETAIL

1 EACH REQUIRED PER UNIT

ACS TO PROVIDE PER ENCLOSURE:

1. ONE (1) WYE FLEX ASSEMBLY AS SHOWN.
2. TWO (2) 10" ANSI NBG KITS.
3. TWO (2) 8" ANSI NBG KITS.
4. TWO (2) 18" ANSI NBG KIT.
5. ONE (1) 18" ANSI GASKET KIT.
6. ONE (1) 22" ANSI NBG KIT.
7. ONE (1) TAIL PIPE AS SHOWN.
8. ONE (1) STAINLESS STEEL EXHAUST WEATHER CAP AS SHOWN.
9. ONE (1) 22" RAIN CAP AS SHOWN.
10. ONE (1) EXTERNAL SPOOL ASSEMBLY AS SHOWN.
11. ONE (1) REMOVABLE BLANKETS (FOR WYE FLEX ASSEMBLY, & FLANGES)

- ☐ APPROVED AS IS – Manufacturing may proceed.
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QUOTE NO.: 202507107
PO NO.: 425504PRP1–1
ACS MFG LOC.: TX
JOB NAME: PROLOGIS ATHENA

ACS MANUFACTURING, INC.
1601 COMMERCE BLVD. – DENISON, TEXAS – 75020

REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE

TOLERANCES (EXCEPT AS NOTED)		DRAWN BY: CE
DECIMAL ± 0.125"	CARTER CAT	CHECKED BY:
FRACTIONAL ± 1/8"	TITLE: EXHAUST COMPONENTS DETAIL SHEET	CHECKED BY:
ANGULAR ± 3°		APPROVED BY: JM
SCALE 1 TO 1	DRAWING NUMBER: 13869–10	SHEET: 5 OF 5
DATE 09/23/25		REV. —

480VAC, 3Ø EXTERNAL SERVICE
FIELD INSTALLED BY CUSTOMER

J-BOX w/POWER BLOCKS
(MOUNTED BELOW DISCONNECT)

9kW, 480VAC, 3Ø
JACKET WATER HEATER

BRN / ORG / YEL
#12 AWG THHN

SQUARE D 30kVA
480VAC-208/120, 3Ø TRANSFORMER

1" SEAL-TIGHT:
BRN / ORG / YEL
#6 AWG THHN,
GRN #10 AWG GND

60A, 480VAC
FUSIBLE
SAFETY
SWITCH w/
(3) 50A FUSES

GRN #6 AWG THHN
BONDING JUMPER

2" SEAL-TIGHT:
BLK / RED / BLU #1 AWG THHN,
WHT #1 AWG THHN NEU,
GRN #6 AWG GND

#10 AWG (GRN)

L1
L2

POWER BLOCK

AC/DC TERMINATION PANEL
(REAR DOGHOUSE MOUNTED
VOLTAGE REGULATOR PANEL)

1200W, 208VAC, 1Ø
ALTERNATOR / SPACE HEATER

600W
600W

BATTERY CHARGER #1
(SENS 30A - CUSTOMER SUPPLIED)

BATTERY CHARGER #2
(SENS 30A - CUSTOMER SUPPLIED)

BBS-4800
BATTERY DIODE /
SELECTOR SWITCH

2400cfm ROOF
MOUNTED VENT
FAN MOTOR

VENT FAN
MOTOR
RECEPTACLE

VF T-STAT
NO C

GEN-RUN
INTERLOCK J-BOX

5kW SPACE HEATER #1

SH T-STAT #1
NC C

100A
L1 L2 L3
A B C
NEUTRAL
GROUND

#12 AWG (BLK)
#12 AWG (RED)
#12 AWG (BLU)
#12 AWG (GRN)

QTY (2)
3-WAY
LIGHT
SWITCH

QTY. (4)
4' LED LIGHT FIXTURE
(INTERIOR)

QTY. (2)
GFCI DUPLEX
RECEPTACLE (WR)
(INTERIOR)

QTY. (2)
GFCI-WR DUPLEX RECEPTACLE
w/ IN-USE WP COVER
(EXTERIOR)

#12 AWG (WHT)

GEN-RUN
INTERLOCK J-BOX

INTAKE DAMPER
MOTORS
DM

QTY (1)
PHOTOCELL

QTY. (2)
LED LIGHT
(EXTERIOR)

QTY. (2)
GFCI DUPLEX
RECEPTACLE (WR)
(BATTERY HEATER)

5kW SPACE HEATER #2

SH T-STAT #2
C NC

GEN-RUN
INTERLOCK J-BOX

N G

EXTERIOR MOUNTED
EMERGENCY STOP BUTTONS

ENGINE SHUTDOWN
CONTACTS LOCATED
IN GCP

GEN-SET EMERGENCY STOP (BREAK GLASS TYPE)
QTY (1)

ELECTRICAL NOTES:

1. ACS TO PROVIDE AND INSTALL PANEL BOARD AS SHOWN THIS SHEET. CUSTOMER TO PROVIDE EXTERNAL POWER SOURCE TO PANEL.
2. ACS TO INSTALL CUSTOMER SUPPLIED BATTERY CHARGERS, AND EXTEND BATTERY CHARGER MALFUNCTION ALARMS TO GENERATOR CONTROL PANEL.
3. ELECTRICALLY BOND ALL MAJOR COMPONENTS WITHIN ENCLOSURE.
4. PROVIDE FUEL TANK ANNUNCIATOR PANEL WIRED TO CRIT LOW, LOW, HIGH, CRIT HIGH AND LEAK DETECTOR FLOATS. PROVIDE RELAY JUMPERS FROM FUEL TANK ANNUNCIATOR PANEL TO GCP..
5. BATTERY CABLES ARE SUPPLIED BY ACS AND TO BE INSTALLED & WIRED BY ACS. ACS TO PROVIDE & INSTALL THE 4/0 CABLE SPECIFIED.
6. GALVANIZED EMT CONDUIT & FITTINGS, & ACS GUTTER SYSTEM.
7. CUSTOMER TO VERIFY ALL GCP TERMINATIONS PRIOR TO USE.
8. ACS TO PROVIDE & INSTALL BREAKER SKIRT FROM BOTTOM OF BREAKER CAN TO TOP OF TANK.
9. UREA LINES – ACS TO INSULATE AND HEAT TRACE (CONNECTING TO EXTERNAL SCR ONSITE TO BE BY OTHERS)

100A, 120/208VAC, 3Ø PANEL BOARD w/
30kVA, 480-208/120VAC, 3Ø TRANSFORMER,
60A, 480VAC, 3Ø FUSIBLE SAFETY SWITCH

PANEL BOARD
GENSET ALTERNATOR
ENCLOSURE
FUEL TANK
TRANSFORMER
6 AWG
4/0 AWG
CABLE TRAY
250 MCM
GENSET FRAME
GENSET CB CABINET GROUND BUS
GROUND BAR AND CONNECTIONS WITHIN ENCLOSURE ARE PROVIDED BY ACS
GROUND FROM GRID (FIELD INSTALLED BY CUSTOMER)

TERMINATIONS ARE TO BE MADE WITH 2 HOLE COMPRESSION LUGS. PROVIDE SEMI PERMANENT TAGS ON EACH CONDUCTOR PER GROUNDING DETAILS AND SPECS.

ELECTRICAL GROUNDING DETAIL

WIRING LEGEND

- ACS WIRING
- NOT IN ACS SCOPE

20A
FUSE

ONE (1) 60 MINUTE SPRING WOUND TIMER SWITCH

24VDC
GENERATOR
BATTERY

(4) 24VDC LED LIGHT w/ GLOBE & GUARD

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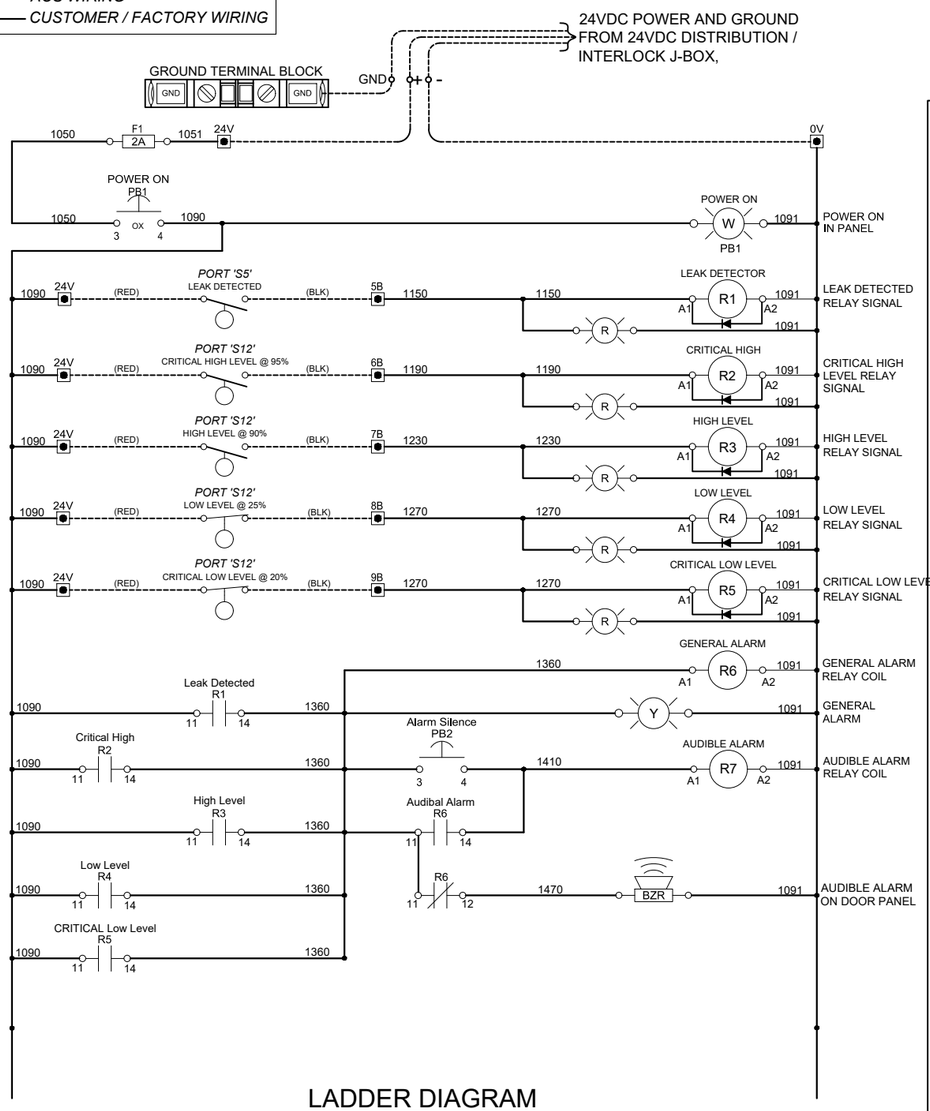
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REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE

ACS MANUFACTURING, INC.
1601 COMMERCE BLVD. – DENISON, TEXAS – 75020

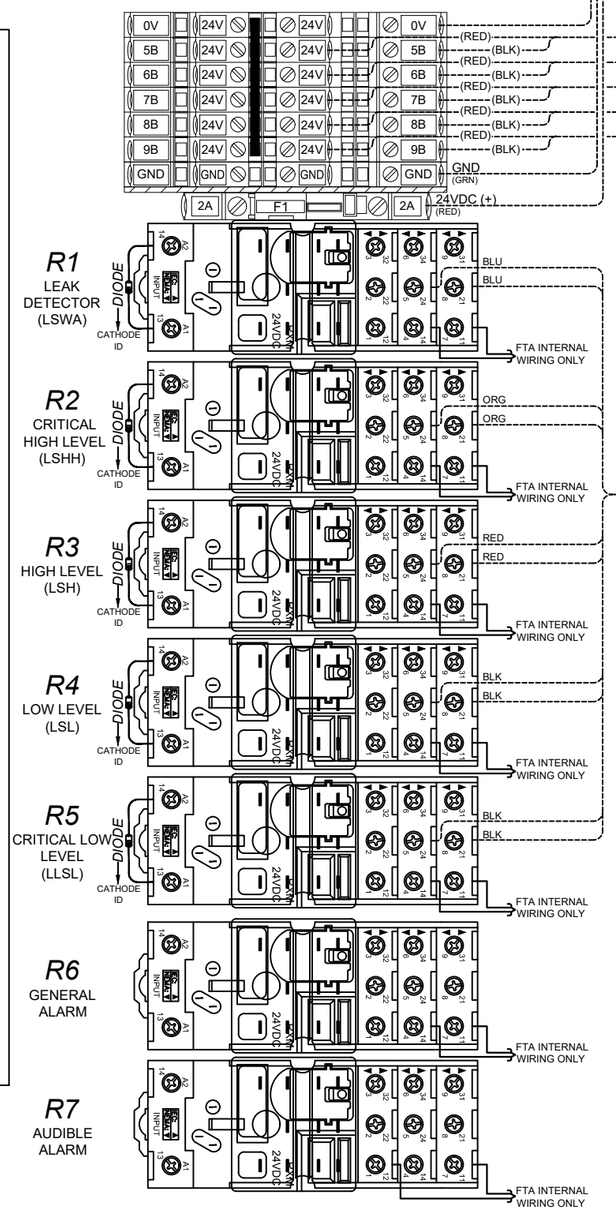
TOLERANCES (EXCEPT AS NOTED)	
DECIMAL ± N/A	
FRACTIONAL ± N/A	
ANGULAR ± N/A	
SCALE N/A	
DATE 09/23/25	
TITLE	CARTER CAT ELECTRICAL SYSTEM DETAIL SHEET
DRAWING NUMBER	13869-10E
DRAWN BY:	CE
CHECKED BY:	
CHECKED BY:	
APPROVED BY:	JM
SHEET	1 OF 2
REV.	—

---------- ACS WIRING
——— CUSTOMER / FACTORY WIRING



LADDER DIAGRAM

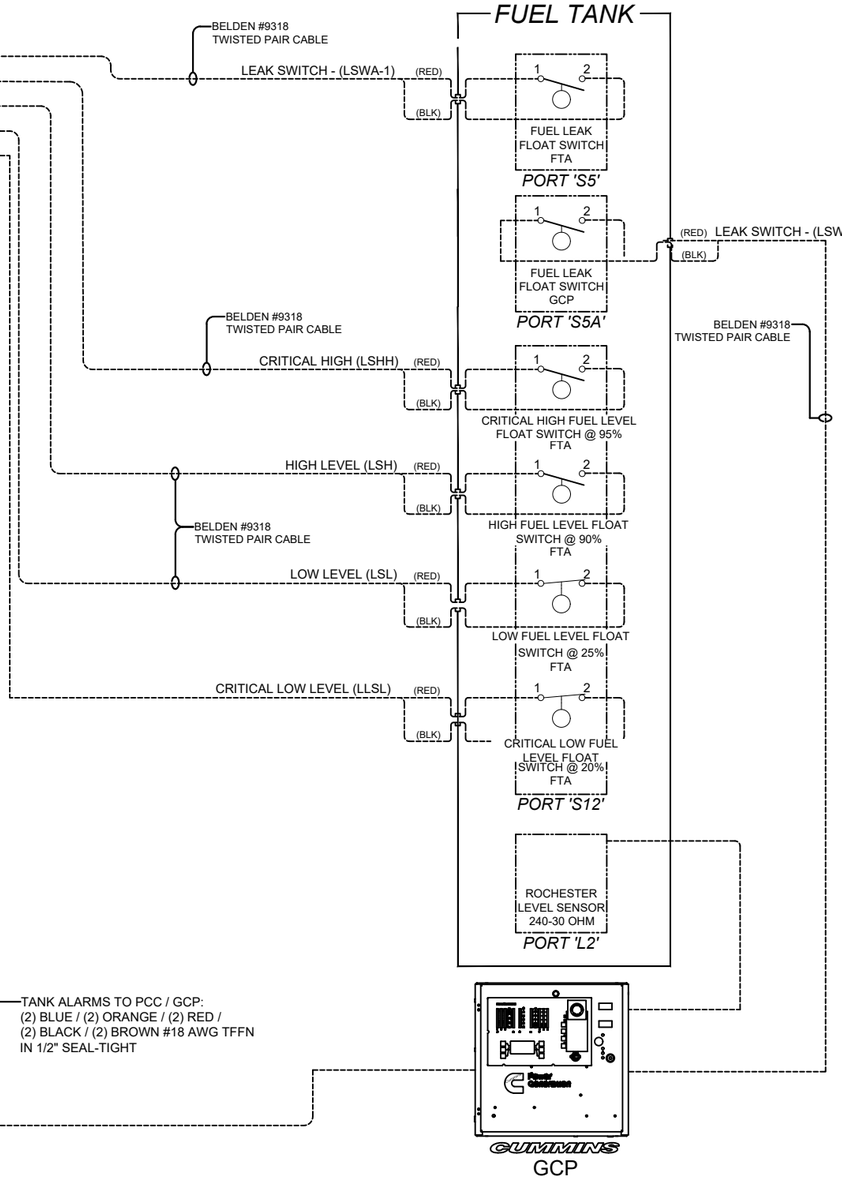
INTERNAL WIRING NOT SHOWN FOR CLARITY



WIRING DIAGRAM

BLK / RED / GRN #12 AWG IN 1/2" CONDUIT TO 24VDC DISTRIBUTION / INTERLOCK J-BOX,

TANK ALARMS TO PCC / GCP:
(2) BLUE / (2) ORANGE / (2) RED /
(2) BLACK / (2) BROWN #18 AWG TFFN
IN 1/2" SEAL-TIGHT



LEVEL SENSOR AND LEAK SWITCH WIRING:
FROM LEAK SWITCH TO FTA: BELDEN 9318.
FROM ECHOPOD TO FTA, #18 AWG TFFN w COLORS AS NOTED BELOW:

CRITICAL HIGH:	RED WIRING
HIGH LEVEL:	YELLOW WIRING
LOW LEVEL:	ORANGE WIRING
CRITICAL LOW:	BLUE WIRING
GROUP COMMON:	BROWN WIRING

FROM FTA TO GENSET: #18AWG TFFN w/ COLORS AS NOTED BELOW:

LEAK DETECTED:	BLUE WIRING
CRITICAL HIGH:	ORANGE WIRING
HIGH LEVEL:	RED WIRING
LOW LEVEL:	BLACK WIRING
CRITICAL LOW:	BROWN WIRING

☐ APPROVED AS IS - Manufacturing may proceed.

☐ APPROVED WITH NOTED CHANGES - Resubmit drawing; manufacturing may proceed.

☐ NOT APPROVED - Correct drawing as noted and resubmit for approval before manufacturing begins.

BY: _____ DATE: _____

COMPANY: _____

RETURNED APPROVAL DRAWINGS WITH SIGNATURE REQUIRED BEFORE ACS WILL BEGIN MANUFACTURING PROCESS

PROPRIETARY NOTICE

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FUEL TANK ANNUNCIATOR WIRING DIAGRAM w/ CRITICAL LOW

QUOTE NO.: 202507107
PO NO.: 425504PRP1-1
ACS MFG LOC.: TX
JOB NAME: PROLOGIS ATHENA

REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE

ACS MANUFACTURING, INC.
1601 COMMERCE BLVD. – DENISON, TEXAS – 75020

TOLERANCES (EXCEPT AS NOTED)	
DECIMAL ±	N/A
FRACTIONAL ±	N/A
ANGULAR ±	N/A
SCALE	N/A
DATE	09/23/25
TITLE	CARTER CAT ELECTRICAL SYSTEM DETAIL SHEET
DRAWING NUMBER	13869-10E
DRAWN BY:	CE
CHECKED BY:	
CHECKED BY:	
APPROVED BY:	JM
SHEET	2 OF 2
REV.	—

CARTER POWER SYSTEMS

Section Six

Catalytic Combustion Corporation SCR

Catalytic Combustion Corporation SCR

CATALYTIC COMBUSTION
EMISSION TECHNOLOGIES

311 Riggs Street
Bloomer, Wisconsin 54724
Phone: 715-568-2882

CUSTOMER APPROVAL PAGE

Submittal Date:	9/16/2025
Catalytic Combustion Project No.:	WO241269
Submittal Revision No.:	0

Contact and Shipping Information			
Company Name:	Carter CAT		
Contact Name:	Mackenzie Young	*Phone:*	785-917-0048
E-Mail:	Mackenzie_Young@cartermachinery.com		
Shipping Address:	TBD		

Comments / Site Specific Information

Project/Design Specifications (Per CCC Quote 306232 Rev 1):

(2) Sized for Caterpillar 3512C rated at 1500kW to meet tier IV emissions:

SCR Reactor

- 304 Stainless Steel reactor housing, Insulation Blanket, Oxidation, DPF, SCR Catalysts, Rain Cap, Short Exhaust Stack, Urea Injection, and Mixing duct.
- Factory installed pressure, temperature NOx sensor(s), junction panel, and dosing panel.
- Bottom Inlet, Top Outlet
- Reactor Shipping Dimensions
  - Height = 86” | Width = 108” | Length = 204”
  - Weight (approximate) = 10,000 lbs.

ADC Skid

- Air Compressor
- 300 Gallon Poly urea day tank
- Urea flow rate (32.5% concentration) is 6.98 gallons per hour.
- Sensor/Dosing Control Panel

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CATALYTIC COMBUSTION
EMISSION TECHNOLOGIES

311 Riggs Street
Bloomer, Wisconsin 54724
Phone: 715-568-2882

Emissions

- Guaranteed Emissions for EPA Tier IV Compliance:
  - NOx at 0.5 gr/bhp-hr.
  - CO at 2.6 g/bhp-hr
  - THC at 0.14 g/bhp-hr
  - PM at 0.022 g/bhp-hr
- Noise is controlled. Integrated attenuation is 35-45 dBA.
- Warranty = 24 months after startup or 27 months after delivery, whichever is sooner.

Documents Included	
Description	*Drawing / Document No.*
SCR System	727821_00
SCR Assembly	727819_00
ADC Skid Assembly	727819_00
P&ID	727783_00
Control Panel Schematics	727020_00
Junction Panel Schematics	727796_00
Field Interconnect Schematics	727807_00

APPROVED ☐ No exceptions or comments noted.

APPROVED ☐ Requested changes noted in red ink.

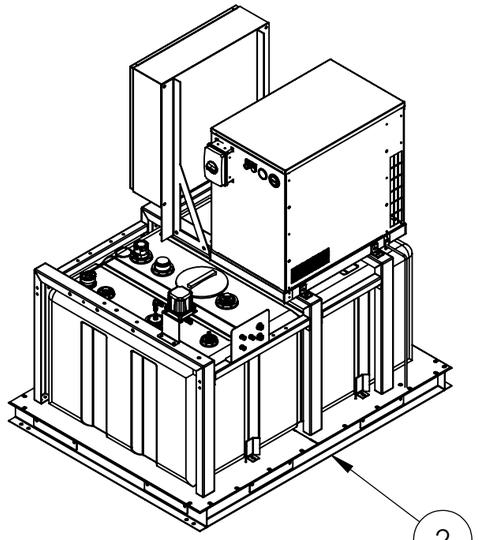
RESUBMIT ☐ Unacceptable as submitted. Make requested changes and resubmit.

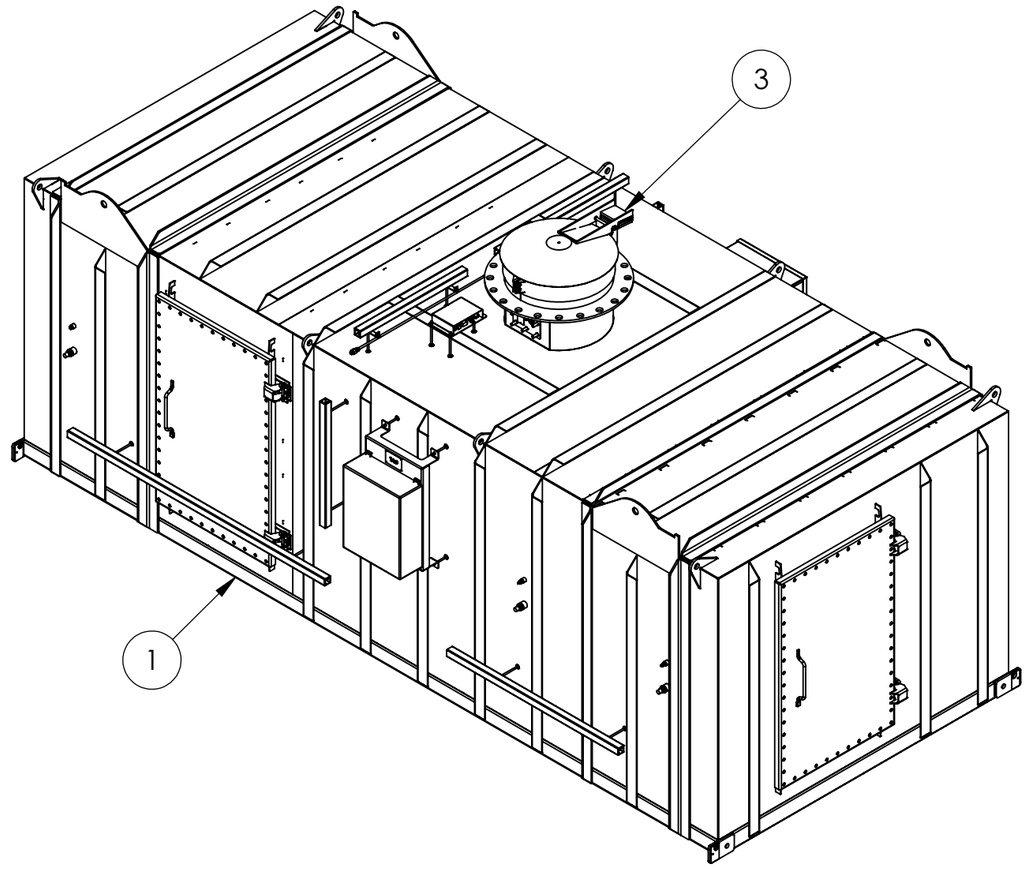
Please review and return to: Cal Fadness cfadness@catalyticcombustion.com

Date *Signature* *Company*

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ITEM NO.	DRAWING NUMBER	REVISION	VISUAL P/N	DESCRIPTION	WEIGHT	QTY.
1	727692	00	1050357	SCR ASSEMBLY 33215-138-X0PFS1-118FB122FT-SB0-01	9422.94	1
2	727819	00	1050360	ADC SKID ASYM S1E0-A1DX-0300PSH0I0-C1-01	843.63	1
3	725071	A	1049351	RAIN CAP RCF-22BS	34.49	1





REV.	ECN	TIER	DESCRIPTION	DATE	APPROVED BY
00	N/A	2	CREATED	09/16/2025	KHABLE

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:

ANGULAR: FABRICATED ±1.0°
MACHINED ±0.5°
ONE PLACE DECIMAL ±0.1
TWO PLACE DECIMAL ±0.06
THREE PLACE DECIMAL ±0.030
DUAL DIMENSIONS IN. (MM)

REMOVE ALL BURRS AND BREAK SHARP EDGES

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	NAME	DATE
DRAWN	KHABLE	09/16/2025

MATERIAL:

THIRD ANGLE PROJECTION

CATALYTIC COMBUSTION
311 RIGGS ST.
BLOOMER, WI 54724
TEL. 715-568-2882
FAX 715-568-2884

DESCRIPTION:
SCR SYSTEM 33215-138-X1PFS1-118FB122FT-SB0-30E0-01

VISUAL PART NO.
1050359

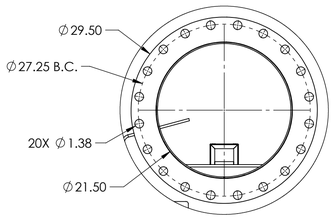
DO NOT SCALE DRAWING

SIZE
B

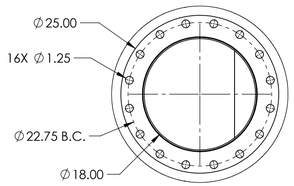
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727821

REV
00

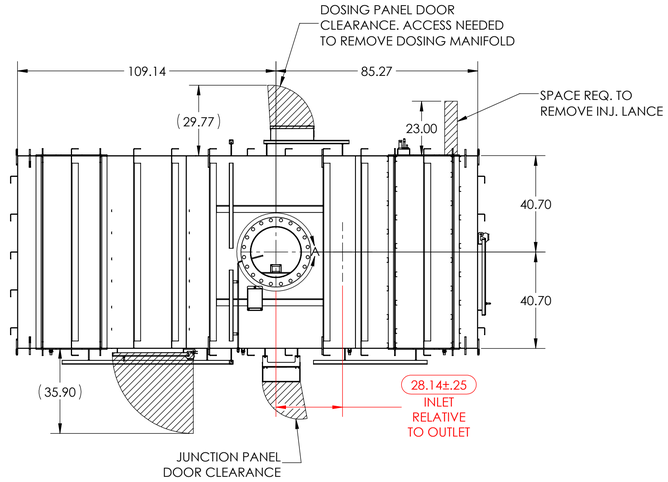
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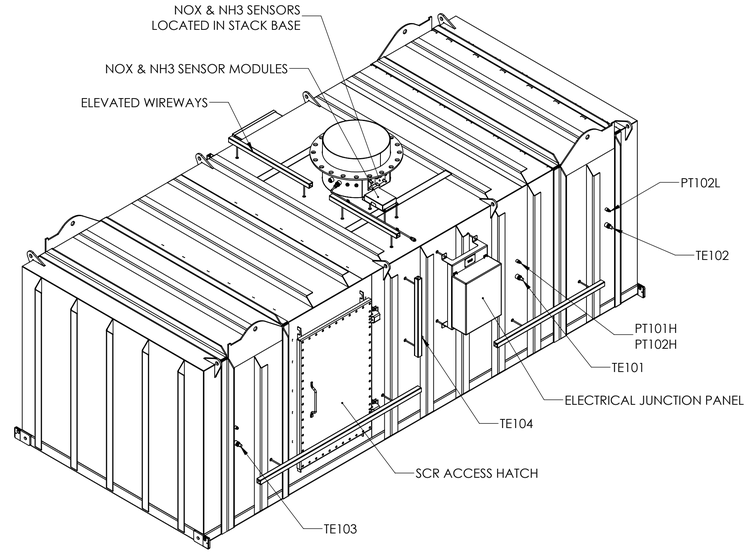


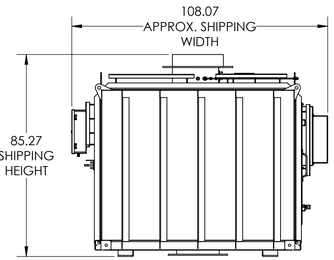
DETAIL A
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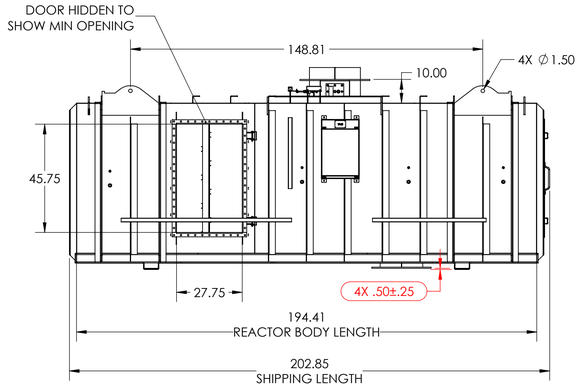


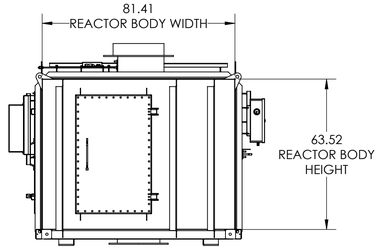
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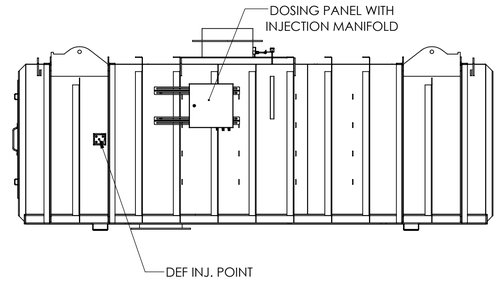


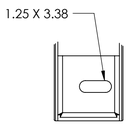




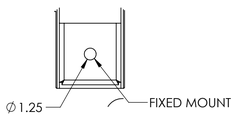




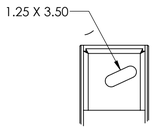




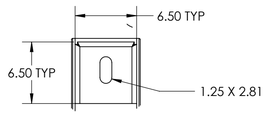
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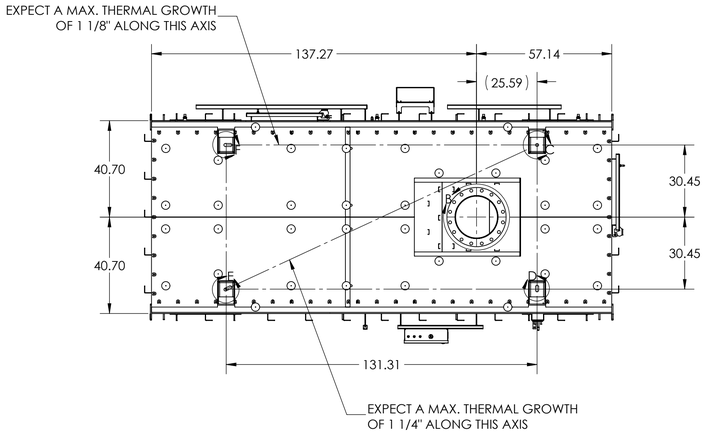
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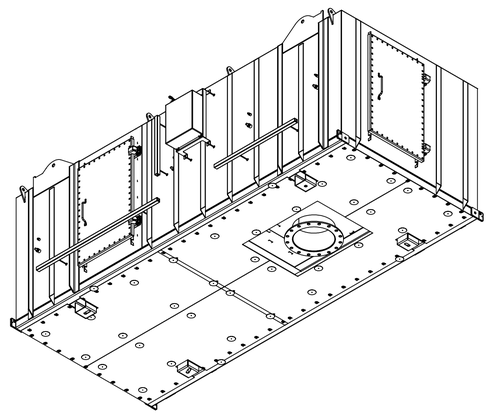


DETAIL E
SCALE 1 : 8



DETAIL D
SCALE 1 : 8





NOTES:

1) APPROXIMATE WEIGHT: 10,000LBS

2) EXTERIOR WILL BE COVERED WITH FABRIC INSULATION BLANKET, INSULATION OUTER COVER WILL BE GRAY WITH SS FASTENERS

3) ALLOW 5" FROM THE OUTSIDE FACES OR REACTOR TO CLOSEST OBSTRUCTION

REV.	ECN	TIER	DESCRIPTION	DATE	APPROVED BY
00	N/A	2	CREATED	09/16/2025	khable

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
ANGULAR: FABRICATED ±1.0°
MACHINED ±0.5°
ONE PLACE DECIMAL ±0.1
TWO PLACE DECIMAL ±0.06
THREE PLACE DECIMAL ±0.030
DUAL DIMENSIONS IN (MM)

REMOVE ALL BURRS AND BREAK SHARP EDGES

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	NAME	DATE
DRAWN	khable	09/11/2025
MATERIAL:		

THIRD ANGLE PROJECTION

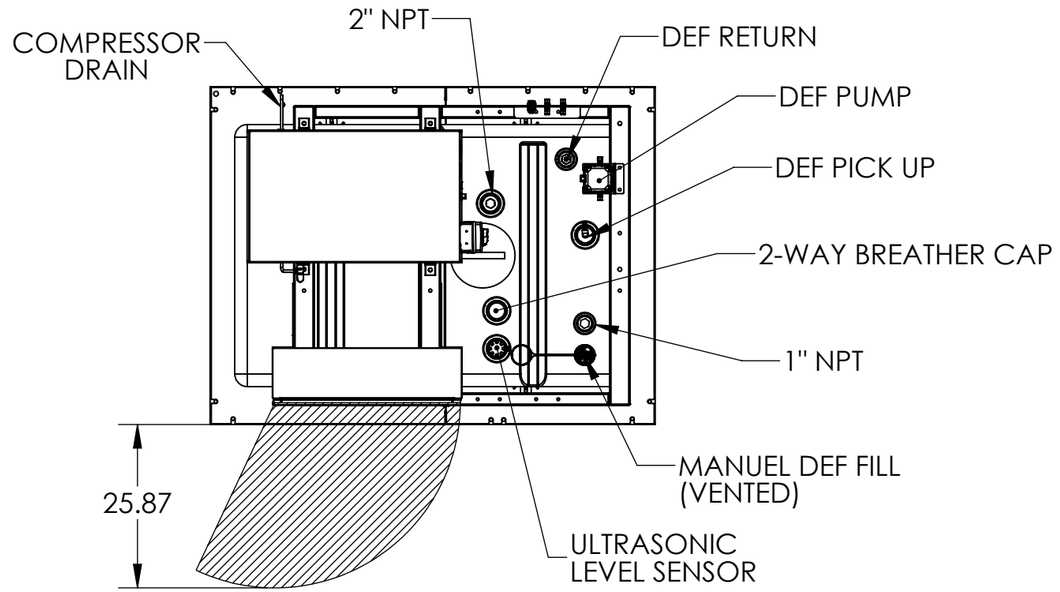
DO NOT SCALE DRAWING

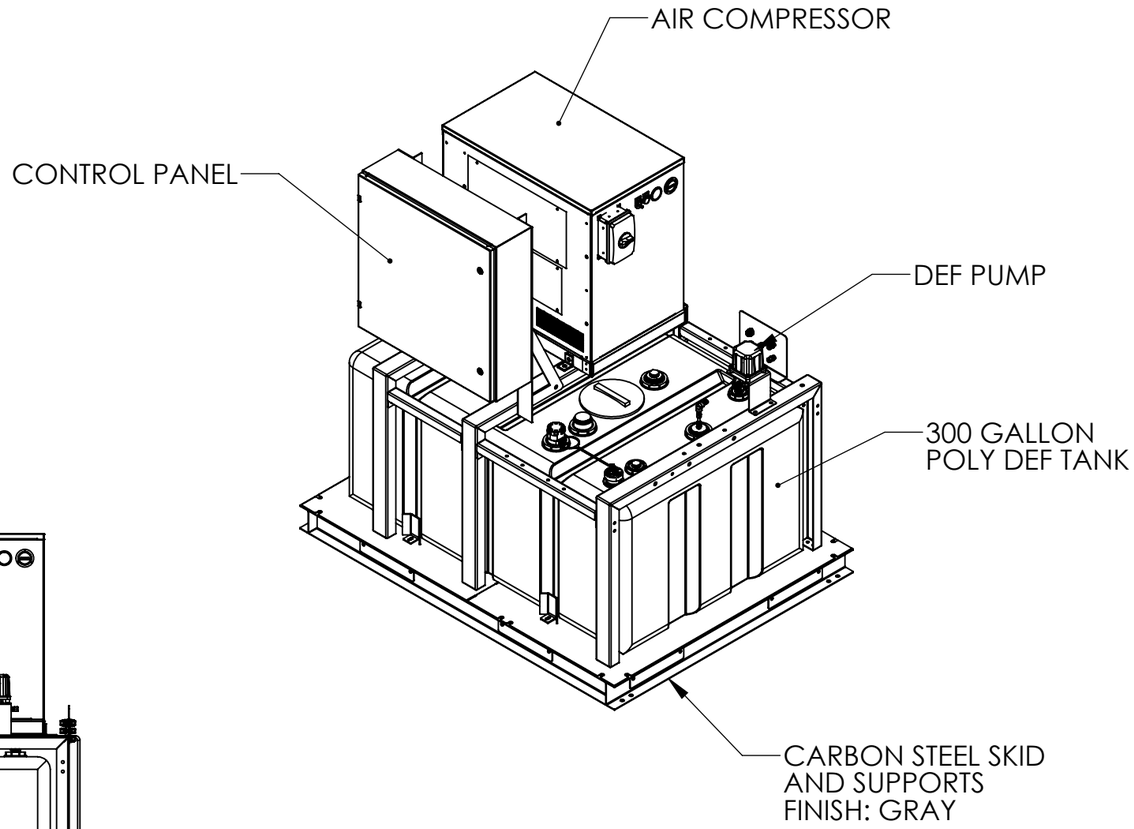
CATALYTIC COMBUSTION
311 RIGGS ST
BLOOMER, WI 54724
TEL 715-568-2882
FAX 715-568-2884

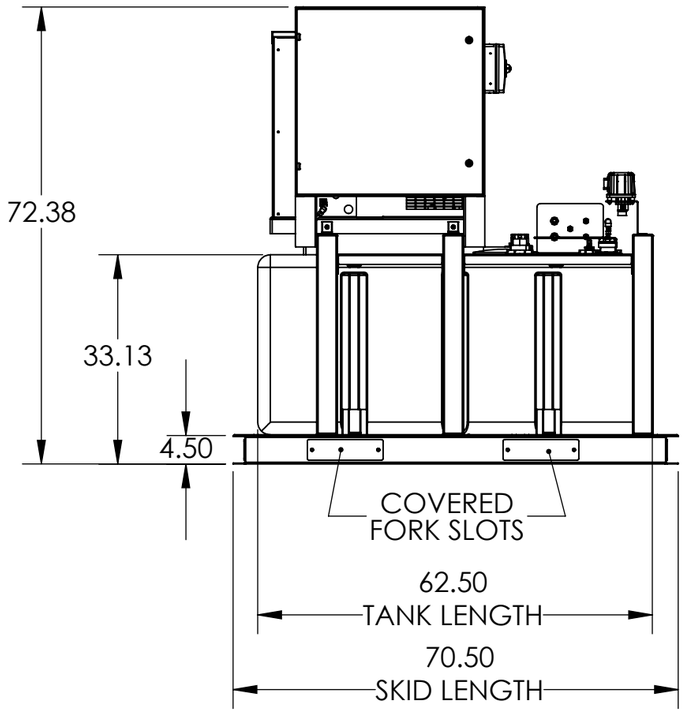
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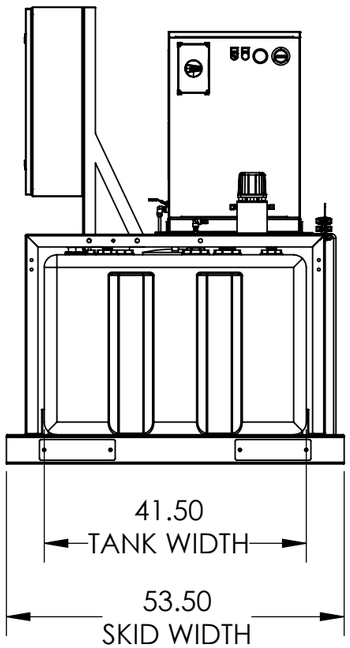
VISUAL PART NO.	SIZE	DRAWING NO.	REV
1050357	D	727692	00

SCALE: 1:32 SHEET 1 OF 3









FLEX LINES NOT SHOWN
SKID IS NOT DESIGNED TO BE LIFTED WHEN TANK HAS FLUID IN IT.
APPROXIMATE WEIGHT WITH EMPTY TANK: 900LBS
APPROXIMATE WEIGHT WITH FULL TANK: 3,600LBS

DEF PUMP LIMITATIONS:
-MOUNTING: MAX 1.0M ABOVE TOP OF DEF TANK
-MIN MOUNTING LOCATION: 0.15M BELOW TOP OF THE DEF TANK
-MAX 2.0M SUCTION LINE LENGTH FROM DEF TANK TO PUMP
-MAX 10.0M PRESSURE LINE LENGTH VERTICAL OR HORIZONTAL BETWEEN PUMP AND DOSING MANIFOLD

REV.	ECN	TIER	DESCRIPTION	DATE	APPROVED BY
00	N/A	2	CREATED	09/16/2025	khable

UNLESS OTHERWISE SPECIFIED:

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MACHINED ±0.5°
ONE PLACE DECIMAL ±0.1
TWO PLACE DECIMAL ±0.06
THREE PLACE DECIMAL ±0.030
DUAL DIMENSIONS IN. (MM)

REMOVE ALL BURRS AND BREAK SHARP EDGES

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	NAME	DATE
CREATED	khable	09/16/2025

MATERIAL:

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

CATALYTIC COMBUSTION
311 RIGGS ST.
BLOOMER, WI 54724
TEL. 715-568-2882
FAX 715-568-2884

DESCRIPTION:
ADC SKID ASYM S1E0-A1DX-0300PSH0I0-C1-01

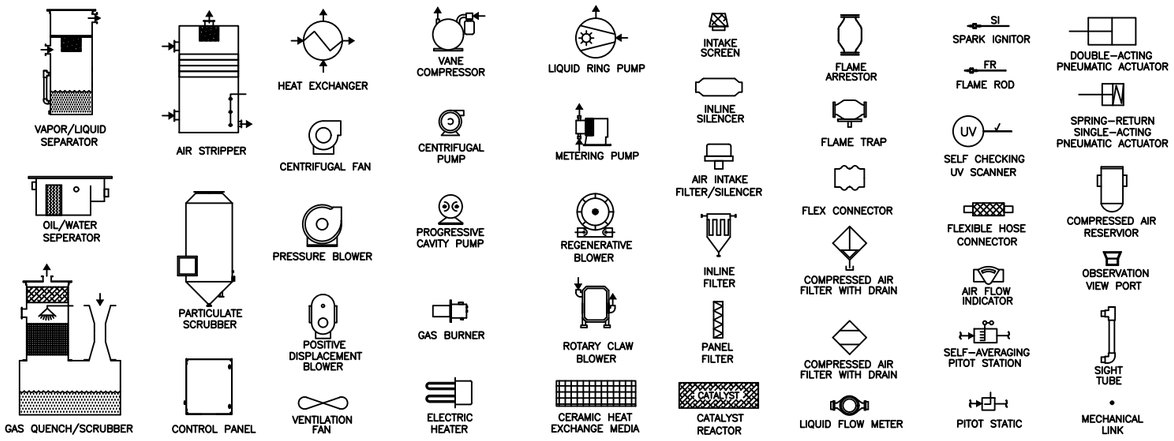
VISUAL PART NO.	SIZE	DRAWING NO.	REV
1050360	B	727819	00

SCALE: 1:24 | WT: 843.63 | SHEET 1 OF 2

VALVES AND PIPING

- GLOBE
- BALL
- BUTTERFLY
- CHECK
- GATE
- ORIFICE METERING
- LUBRICATED PLUG
- VACUUM RELIEF
- PRESSURE RELIEF
- PRESSURE REDUCING INTERNAL RELIEF
- PRESSURE REDUCING EXTERNAL PRESSURE
- PRESSURE REDUCING DIFFERENTIAL PRESSURE
- PRESSURE REDUCING VENTED
- 3 WAY
- REDUCER
- Y–STRAINER
- SAMPLE/TEST PORT
- FLANGE
- UNION
- ORFICE PLATE
- VALVE NORMALLY OPEN
- VALVE NORMALLY CLOSED

EQUIPMENT



TRANSDUCERS

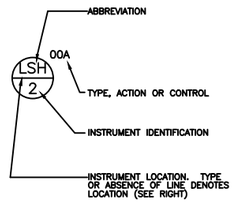
EXAMPLE:

FT V/P — CURRENT TO PNEUMATIC TRANSDUCER (MOUNTED BEHIND–THE–PANEL)

A	ANALOG
D	DIGITAL
E	VOLTAGE
F	FREQUENCY
I	CURRENT
P	PNEUMATIC
PF	PULSE FREQUENCY
PD	PULSE DURATION

INSTRUMENT IDENTIFICATION

BUBBLE SYMBOL



INSTRUMENT LOCATION SYMBOL

- FIELD MOUNTED INSTRUMENT
- PANEL MOUNTED INSTRUMENT
- BEHIND–THE–PANEL MOUNTED INSTRUMENT
- PILOT LIGHT/ALARM LIGHT (LIGHT COLOR)
- PROGRAMMABLE LOGIC CONTROLS

SPECIAL CASES

- HS 4 OO — ON AND OFF EVENT LIGHTS
- HS 4 OC — OPENED AND CLOSED POSITION LIGHTS
- HS 4 OC — OPENED AND CLOSED POSITION SWITCHES
- INTERLOCKS

TYPE, ACTION, OR CONTROL ABBREVIATIONS

AAH	ANALYTICAL ALARM HIGH
AAL	ANALYTICAL ALARM LOW
AC	ALTERNATING CURRENT
AE	ANALYTICAL ELEMENT
AI	ANALOG INPUT
AM	AUTO MANUAL
AO	ANALOG OUTPUT
AT	ANALYTICAL TRANSMITTER
B	BURNER
CV	CONTROL VALVE
DC	DIRECT CURRENT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DPI	DIFFERENTIAL PRESSURE INDICATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
EH	ELECTRIC HEATER
ENET	ETHERNET
F	FAN
FAR	FORWARD AUTO REVERSE
FE	FLOW ELEMENT/SENSOR
FI	FLOW INDICATOR
FIR	FLOW INDICATING RECORDER
FIT	FLOW INDICATING TRANSMITTER
FS	FLOW SWITCH
HOA	HAND OFF AUTO
HS	HAND SWITCH
HV	HAND VALVE
LAH	LEVEL ALARM HIGH
LAL	LEVEL ALARM LOW
LEL	LOWER EXPLOSIVE LIMIT
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH HIGH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW LOW
LT	LEVEL TRANSMITTER
M	MOTOR
MV	MOTORIZED VALVE
N	NOZZLE
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
OC	OPEN–CLOSE
OCA	OPEN–CLOSE–AUTO
OO	ON–OFF
OOA	ON–OFF–AUTO
OOR	ON–OFF–REMOTE
P	PUMP
PAH	PRESSURE ALARM HIGH
PAL	PRESSURE ALARM LOW
PC	PRESSURE CONTROL
PCV	PRESSURE CONTROL VALVE
PI	PRESSURE INDICATOR
PIR	PRESSURE INDICATING RECORDER
PIS	PRESSURE INDICATING SWITCH
PIT	PRESSURE INDICATING TRANSMITTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PRV	PRESSURE RELIEF VALVE
PRX	PRESSURE RELIEF RUPTURE DISK
PS	PRESSURE SWITCH
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
PT	PRESSURE TRANSMITTER
SR	SPRING RETURN
SS	START–STOP
SSOV	SAFETY SHUT OFF VALVE
SV	SOLENOID VALVE
TAH	TEMPERATURE ALARM HIGH
TAL	TEMPERATURE ALARM LOW
TCV	TEMPERATURE CONTROL VALVE
TE	TEMPERATURE ELEMENT
TI	TEMPERATURE INDICATOR
TIC	TEMPERATURE INDICATING CONTROLLER
TIR	TEMPERATURE INDICATING RECORDER
TIT	TEMPERATURE INDICATING TRANSMITTER
TS	TEMPERATURE SWITCH
TSH	TEMPERATURE SWITCH HIGH
TSL	TEMPERATURE SWITCH LOW
TT	TEMPERATURE TRANSMITTER
VFD	VARIABLE FREQUENCY DRIVE
VRV	VACUUM RELIEF VALVE
XCV	CHECK VALVE
XDA	DETONATION ARRESTOR
XFA	FLAME ARRESTOR
XFT	FLAME TRAP
XHE	HEAT EXCHANGER
XIF	INLET FILTER
XIS	INLET SCREEN
XJ	FLEX CONNECTOR/EXPANSION JOINT
XS	SILENCER
XSI	SPARK IGNITER
XUV	UV DETECTOR
XV	UNCLASSIFIED VALVE
YC	EVENT CLOSED
YI	EVENT INDICATOR
YO	EVENT OPEN
ZAC	POSITION ALARM CLOSED
ZAO	POSITION ALARM OPEN
ZS	POSITION SWITCH
ZSC	POSITION SWITCH CLOSED
ZSO	POSITION SWITCH OPEN
ZT	POSITION TRANSMITTER

OPERATORS

- M 01 — MOTOR
- MV 01 — MOTORIZED VALVE
- PA 01 — PNEUMATIC ACTUATOR
- PV 01 — PNEUMATIC VALVE
- VFD 01 — VARIABLE FREQUENCY DRIVE
- SV 01 — SOLENOID VALVE
- MANUAL
- MV 01 — MANUAL VALVE

LINE LEGEND

- PIPING
- PROCESS DUCTWORK
- COMPRESSED AIR
- PNEUMATIC SIGNAL
- ELECTRICAL SIGNAL OTHER
- ANALOG SIGNAL
- NON CONNECTING LINES
- CONNECTING LINES
- DATA LINK
- HOSE
- LINE SIZE 6 — FLOW DIRECTION
- OTHERS — CCC

PROCESS FLOW DIAGRAM LEGEND

- °F — TEMPERATURE DEGREES FAHRENHEIT
- SCFM — VAPOR FLOW STANDARD CUBIC FEET PER MINUTE
- PSIG — PRESSURE POUNDS PER SQUARE INCH GAGE
- PPM — CONCENTRATION PARTS PER MILLION
- GPM — WATER FLOW GALLONS PER MINUTE
- PROCESS NO.

NOTES

1. SPECIFICATIONS AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTIFICATION.
2. REFERENCE ANSI/ISA–S5.1 FOR SYMBOLS NOT SHOWN ON THIS LEGEND.
3. THIS IS A STANDARD LEGEND, THEREFORE, NOT ALL OF THIS INFORMATION MAY APPLY.
4. THESE SYMBOLS AND ABBREVIATIONS ARE SPECIFIC TO CATALYTIC COMBUSTION CORPORATION AND MAY DIFFER FROM ISA.

REV	DESCRIPTION	DATE	BY
00	CREATED	9/15/2025	BL
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	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	9/15/2025	BL
	FOR APPROVAL		
	APPROVED FOR FAB		
	AS BUILT		
	AS FIELD MODIFIED		

MATERIAL: SEE BOM

WEIGHT: N/A

TOLERANCES:
.X = 0.06
.XX = 0.03
.XXX = 0.015
∠ = 0.5°

THIRD ANGLE PROJECTION

INCH [mm]

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EMISSION TECHNOLOGIES

Catalytic Combustion Corporation
311 Riggs Street
Bloomer, WI 54724

Telephone: 715–568–2882
Fax: 715–568–2884

www.catalyticcombustion.com

DATE: 09/15/2025

SCALE: NTS

DRAWN BY: BL

CHECKED BY:

CUSTOMER: CARTER CAT PROLOGIS

TITLE: PROCESS & INSTRUMENTATION DIAGRAM

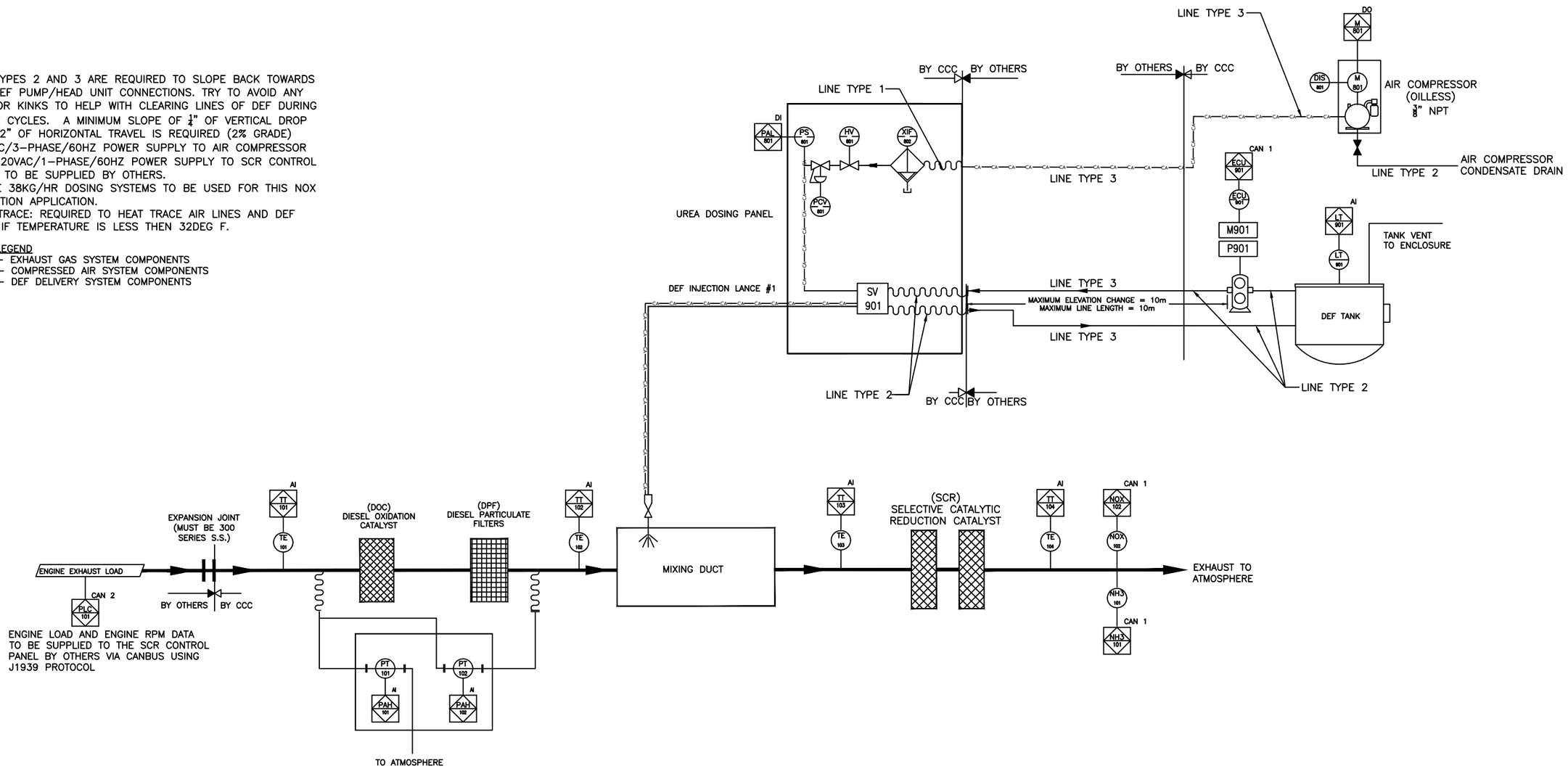
PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
WO241269	500	0	B

LEGEND OF PIPING, HOSE, & TUBING SYSTEMS		
LINE TYPE	MATERIAL	CONNECTION TYPE
1	¼" OD NYLON BLACK TUBE, UV STABLE, SEMI-FLEXIBLE	N/A
2	3/8" PTFE TUBING .063 WALL THK	3/8" COMPRESSION
3	3/8" OD SS TUBE 0.035" MIN. WALL THICKNESS	3/8" COMPRESSION

NOTES:

1. LINE TYPES 2 AND 3 ARE REQUIRED TO SLOPE BACK TOWARDS THE DEF PUMP/HEAD UNIT CONNECTIONS. TRY TO AVOID ANY DIPS OR KINKS TO HELP WITH CLEARING LINES OF DEF DURING PURGE CYCLES. A MINIMUM SLOPE OF ¼" OF VERTICAL DROP PER 12" OF HORIZONTAL TRAVEL IS REQUIRED (2% GRADE)
2. 208VAC/3-PHASE/60HZ POWER SUPPLY TO AIR COMPRESSOR AND 120VAC/1-PHASE/60HZ POWER SUPPLY TO SCR CONTROL PANEL TO BE SUPPLIED BY OTHERS.
3. SINGLE 38KG/HR DOSING SYSTEMS TO BE USED FOR THIS NOX REDUCTION APPLICATION.
4. HEAT TRACE: REQUIRED TO HEAT TRACE AIR LINES AND DEF LINES IF TEMPERATURE IS LESS THEN 32DEG F.

TAG SERIES LEGEND
100 SERIES – EXHAUST GAS SYSTEM COMPONENTS
800 SERIES – COMPRESSED AIR SYSTEM COMPONENTS
900 SERIES – DEF DELIVERY SYSTEM COMPONENTS



REV	DESCRIPTION	DATE	BY
00	CREATED	9/15/2025	BL
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	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	9/15/2025	BL
.	FOR APPROVAL		
.	APPROVED FOR FAB		
.	AS BUILT		
.	AS FIELD MODIFIED		

MATERIAL: SEE BOM

WEIGHT: N/A

TOLERANCES:
.X = 0.06
.XX = 0.03
.XXX = 0.015
∠ = 0.5°

THIRD ANGLE PROJECTION

INCH [mm]

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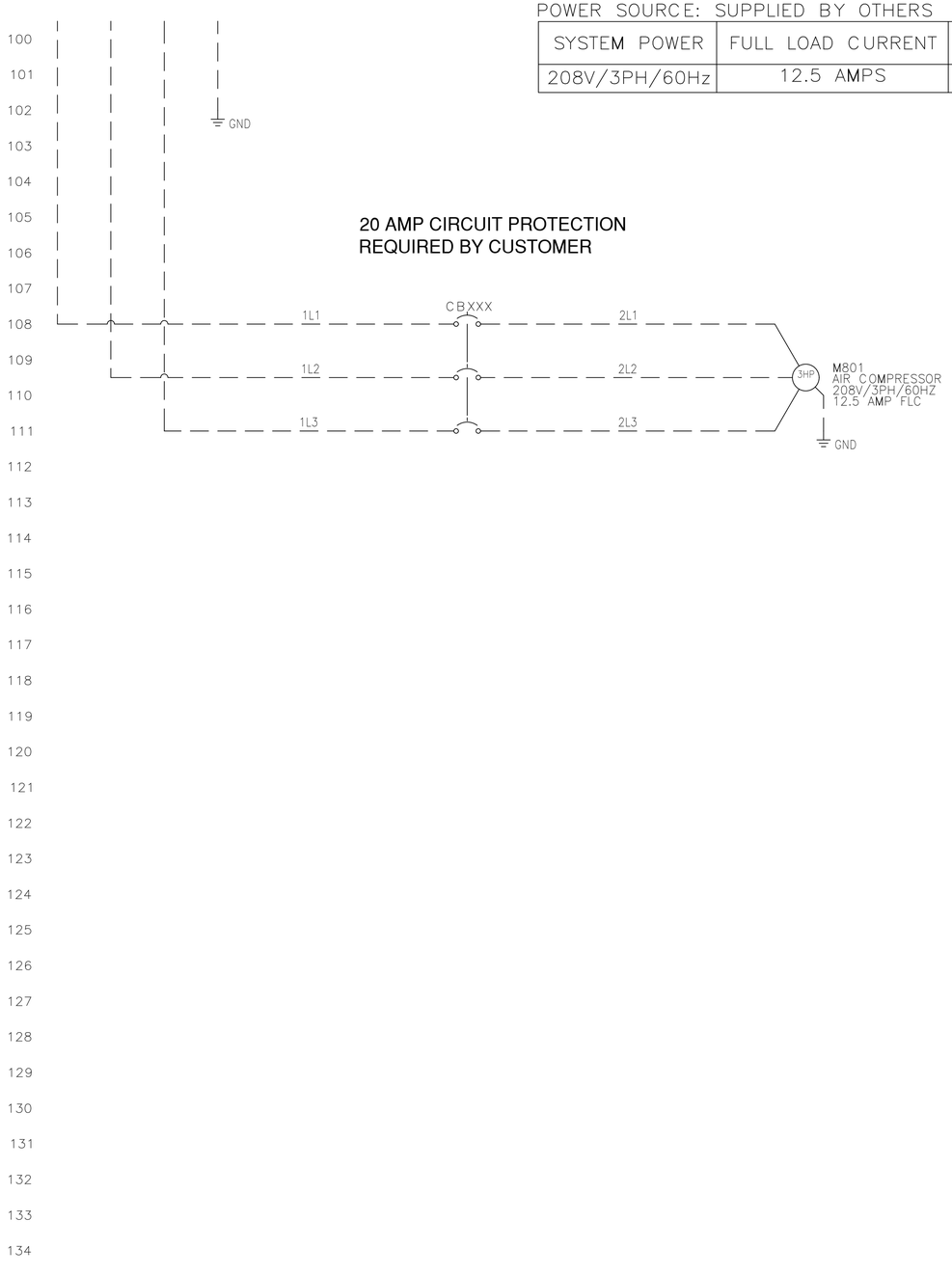
CUSTOMER: CARTER CAT PROLOGIS

TITLE: PROCESS & INSTRUMENTATION DIAGRAM

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
WO241269	501	0	B

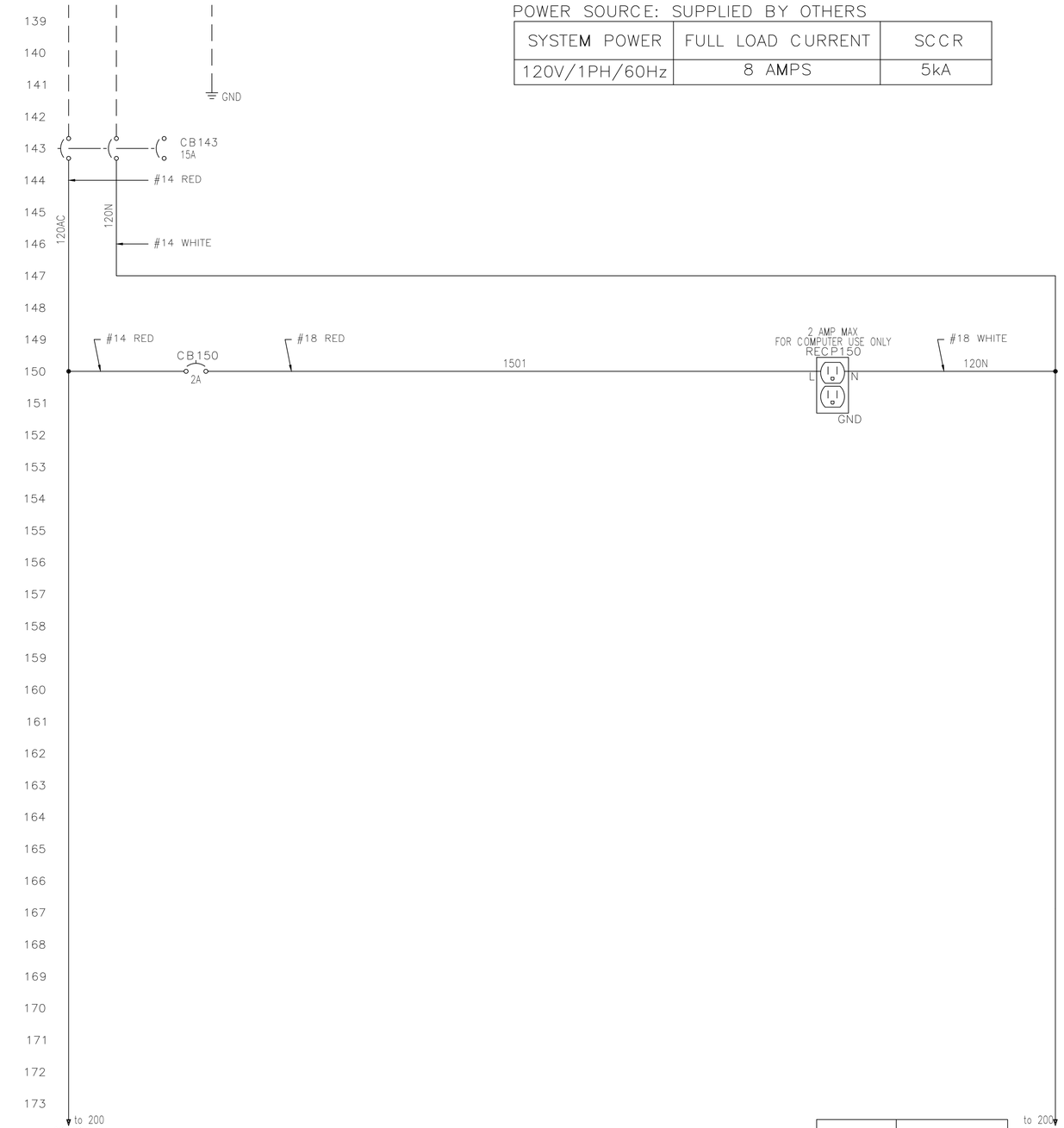
POWER SOURCE: SUPPLIED BY OTHERS

SYSTEM POWER	FULL LOAD CURRENT	SCCR
208V/3PH/60Hz	12.5 AMPS	5kA



POWER SOURCE: SUPPLIED BY OTHERS

SYSTEM POWER	FULL LOAD CURRENT	SCCR
120V/1PH/60Hz	8 AMPS	5kA



———	INTERNAL WIRING
—— ——	FIELD WIRING

REV	DESCRIPTION	DATE	BY
0	INITIAL CREATION	8/11/2025	BK

	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	8/11/2025	BK
	FOR APPROVAL		
	APPROVED FOR FAB		
	AS BUILT		
	AS FIELD MODIFIED		

MATERIAL: SEE BOM
WEIGHT: N/A
TOLERANCES:
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.XX = 0.03
.XXX = 0.015
∠ = 0.5°

THIRD ANGLE PROJECTION
INCH [mm]

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www.catalyticcombustion.com

DATE: 08/11/2025
CUSTOMER: CCC
SCALE: NTS
DRAWN BY: BK
CHECKED BY: BOS
TITLE: SCR CP-1-B07-D0-NA-U1-I1-NA-09
ELECTRICAL SCHEMATICS & PANEL LAYOUT

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
1050138	3010	0	D

120AC from 173

120N from 173

#12 RED

CB201 6A

#14 RED

2011

PWS201

L1 1~ N

GND == – +

20A

#14 WHITE

120N

#12 BLUE

2031

#12 WHITE WITH BLUE STRIPE

0VDC

0VDC TB2

#12 BLUE

2031

#12 WHITE WITH BLUE STRIPE

0VDC

UPS206

DC+ DC–

BAT+ BAT–

UPS209

BAT+ BAT–

#12 BLUE

2031

CB211 15A

#14 BLUE

2111

2111 TB2

#12 BLUE

2031

CB215 15A

2151

2151 to 363

CB217 5A

#18 BLUE

24VDC from 238

24VDC

24VDC TB2

#18 BLUE

24VDC

HMI219

GND + –

#18 WHITE WITH BLUE STRIPE

0VDC

0VDC TB2

24VDC

to 239 24VDC

HMI COMMS

DIP SWITCH

	ON	OFF
S1SW1		
S1SW2		
S1SW3		
S1SW4		
S2SW1		
S2SW2		
S2SW3		
S2SW4		

CIX CAN MODULE CAN2

1 2 3 4 5 6 7 8 9

CAN2L #18 BLACK

CAN2L TB4

CAN2H #18 RED

CAN2H TB4

INTERNAL COM1

1 2 3 4 5 6 7 8 9

C29 #18 RED

C29 TB2

COM+ #18 RED

COM+ TB4

C15 #18 BLACK

C15 TB2

COM– #18 BLACK

COM– TB4

SCR I/O ENET–A

CAT5E

ENET_A

ENET_A from 273

CUSTOMER E–NET ENET–B

#18 BLUE

E–STOP PB241

#18 BLUE

24VDC TB2

24VDC

2411

E–STOP MCR241

1 8

NO 250,321

NC

0VDC from 238

0VDC TB2

#18 WHITE WITH BLUE STRIPE

LEVEL TRANSMITTER LT901

#18 BLUE

24VDC TB2

CBL245/BLACK 1

1 2 3 4

CBL245/WHITE 1

2451 TB2

2451 to 302

DEF PUMP P901

2111 TB2

CBL249/WHITE 1

24VDC 100W

CBL249/BLACK 1

0VDC TB2

24VDC TB2

E–STOP MCR241

3 4

241

2501 TB2

CBL249/WHITE 2

2 5 4 9

CBL249/BLACK 2

C14–1 TB2

RES251 220 OHMS

CBL249/BLACK 3

2511 TB2

24VDC

AIR COMPRESSOR M801

24VDC TB2

COMPRESSOR ENABLE CR343

3 4

343

2571

2571 TB2

CBL257/BLUE

3 1

CBL257/BROWN

0VDC

0VDC TB2

BEIJER ELECTRONICS GL–9089 RACK 1 SLOT 0 NETWORK ADAPTOR

PLC268

#18 BLUE

24VDC TB2

24VDC

SYSTEM POWER 24V 1

SYSTEM POWER 0V 2

FIELD GROUND 3

FIELD POWER 0V 4

FIELD POWER 24V 5

ETHERNET A

ETHERNET B

#18 WHITE WITH BLUE STRIPE

0VDC

0VDC TB2

#18 BLUE

24VDC TB2

24VDC

CAT5E

ENET_A

ENET_A to 236

to 300 24VDC

to 300 0VDC

INTERNAL WIRING

FIELD WIRING

REV	DESCRIPTION	DATE	BY
0	INITIAL CREATION	8/11/2025	BK

	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	8/11/2025	BK
.	FOR APPROVAL		
.	APPROVED FOR FAB		
.	AS BUILT		
.	AS FIELD MODIFIED		

MATERIAL: SEE BOM

WEIGHT: N/A

TOLERANCES: .X = 0.06 .XX = 0.03 .XXX = 0.015 ∠ = 0.5°

CATALYTIC COMBUSTION EMISSION TECHNOLOGIES

Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724

Telephone: 715-568-2882 Fax: 715-568-2884

www.catalyticcombustion.com

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THIRD ANGLE PROJECTION

INCH [mm]

DO NOT SCALE THIS DRAWING

DATE: 08/11/2025

SCALE: NTS

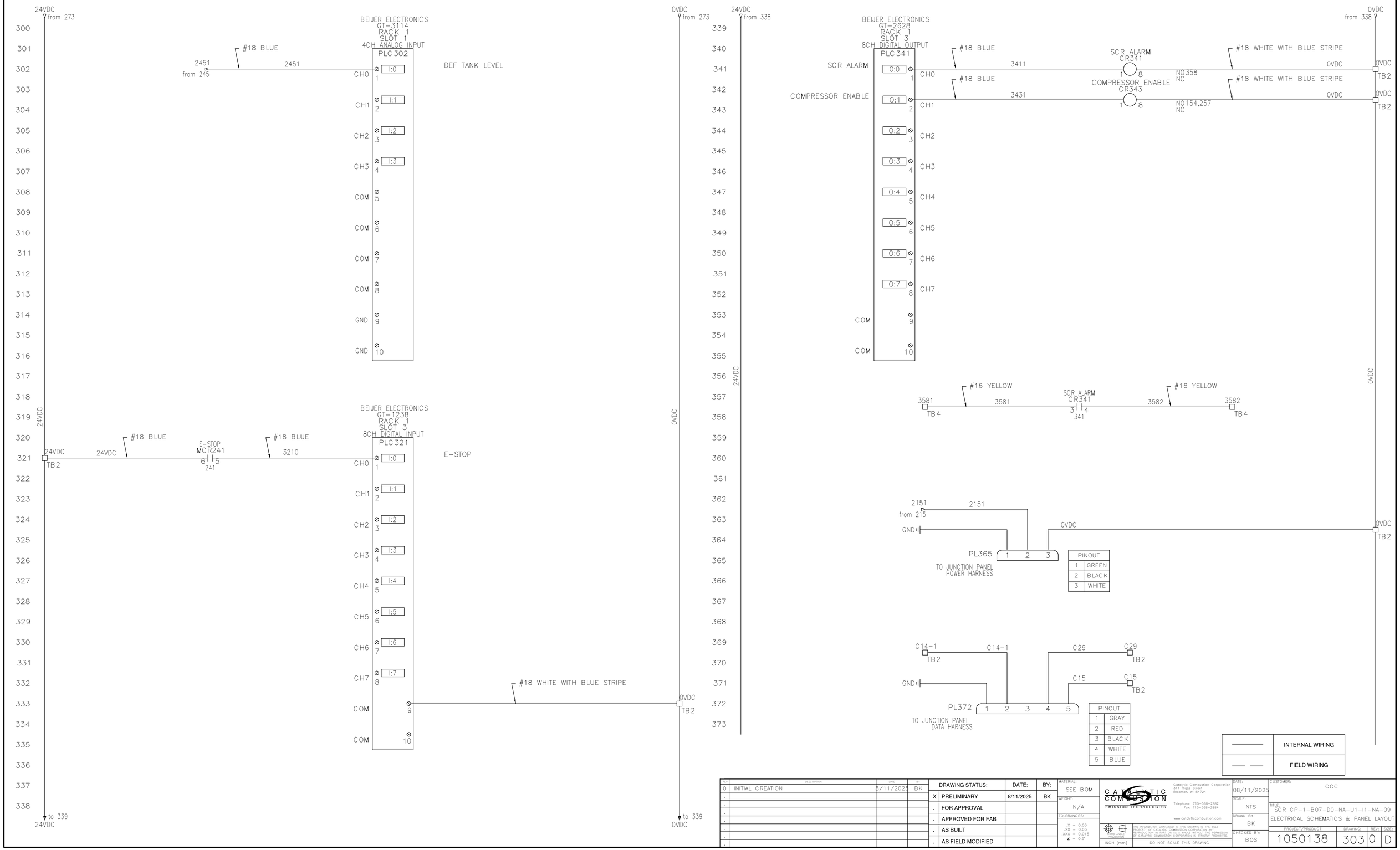
DRAWN BY: BK

CHECKED BY: BOS

CUSTOMER: CCC

TITLE: SCR CP–1–B07–D0–NA–U1–I1–NA–09 ELECTRICAL SCHEMATICS & PANEL LAYOUT

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
1050138	302	0	D



REV	DESCRIPTION	DATE	BY
0	INITIAL CREATION	8/11/2025	BK

	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	8/11/2025	BK
.	FOR APPROVAL		
.	APPROVED FOR FAB		
.	AS BUILT		
.	AS FIELD MODIFIED		

MATERIAL: SEE BOM
WEIGHT: N/A
TOLERANCES: .X = 0.06, .XX = 0.03, .XXX = 0.015, ∠ = 0.5°

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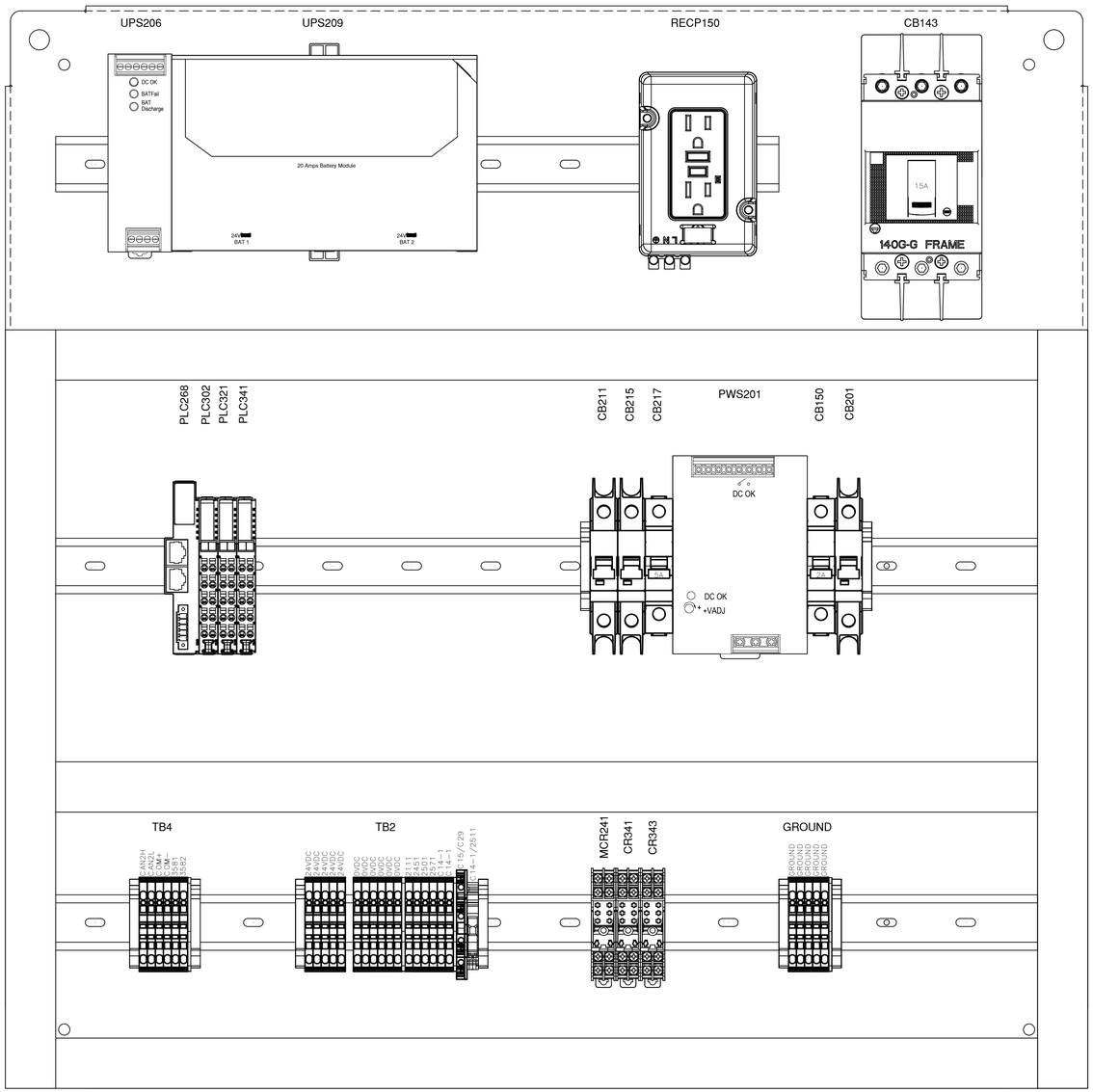
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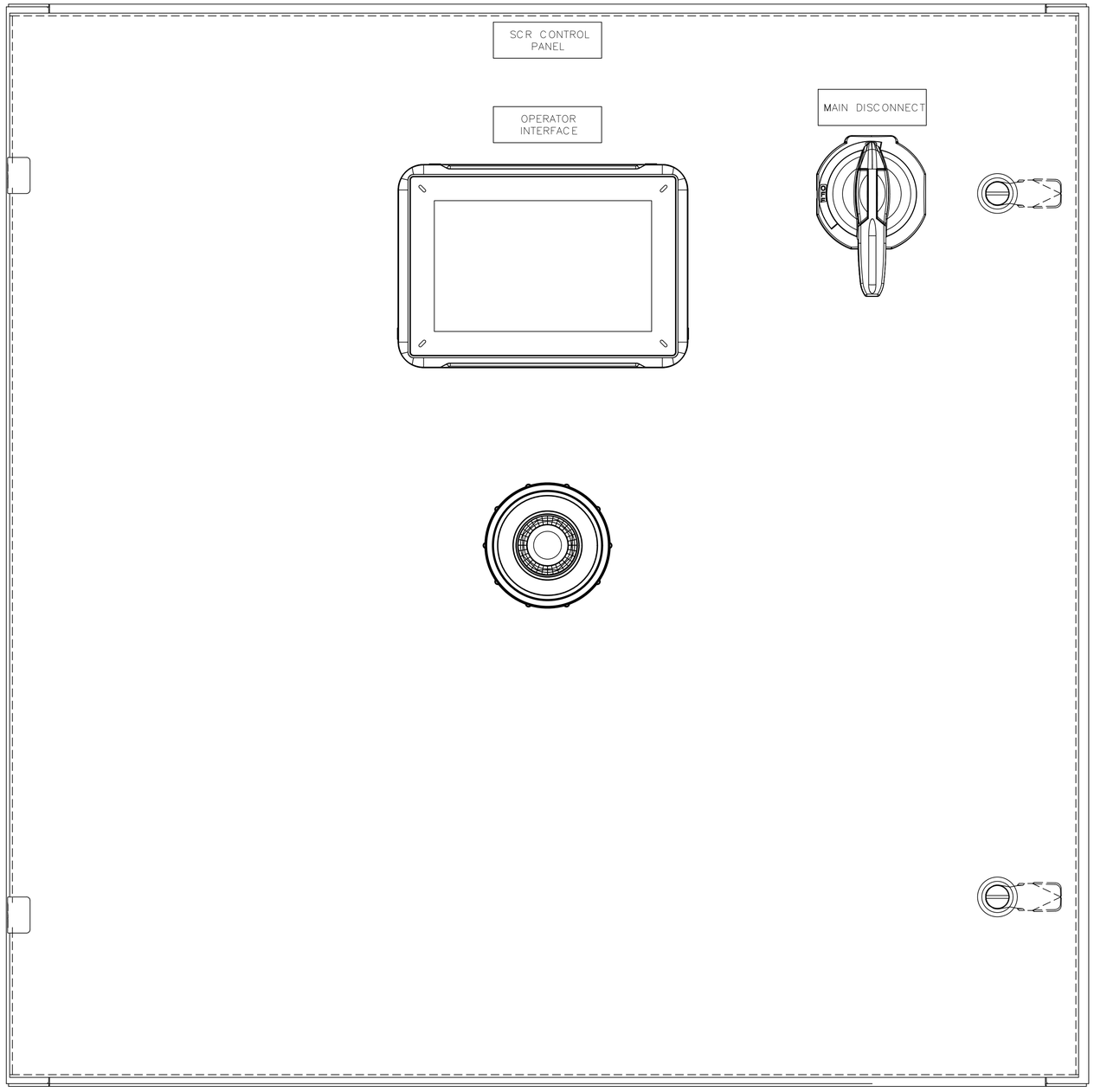
THIRD ANGLE PROJECTION
INCH [mm]
DO NOT SCALE THIS DRAWING

DATE: 08/11/2025
CUSTOMER: CCC
SCALE: NTS
DRAWN BY: BK
CHECKED BY: BOS
TITLE: SCR CP-1-B07-D0-NA-U1-I1-NA-09
ELECTRICAL SCHEMATICS & PANEL LAYOUT

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
1050138	3030	0	D



SUBPANEL FRONT VIEW



FRONT VIEW

REV	DESCRIPTION	DATE	BY
0	INITIAL CREATION	8/11/2025	BK
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	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	8/11/2025	BK
.	FOR APPROVAL		
.	APPROVED FOR FAB		
.	AS BUILT		
.	AS FIELD MODIFIED		

MATERIAL: SEE BOM
WEIGHT: N/A
TOLERANCES:
.X = 0.06
.XX = 0.03
.XXX = 0.015
∠ = 0.5°
THIRD ANGLE PROJECTION
INCH [mm]

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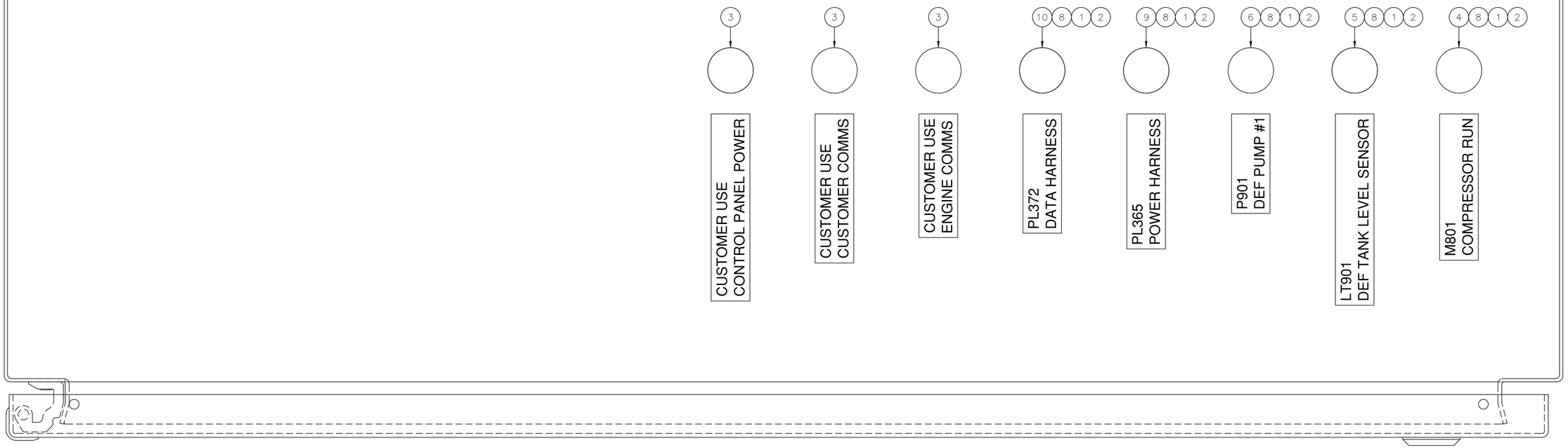
DATE: 08/11/2025
SCALE: NTS
DRAWN BY: BK
CHECKED BY: BOS

CUSTOMER: CCC

TITLE: SCR CP-1-B07-D0-NA-U1-I1-NA-09
ELECTRICAL SCHEMATICS & PANEL LAYOUT

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
1050138	309	0	D

ITEM	CCC P/N	QTY	CATALOG	MFG	DESCRIPTION
1	1041227	5	101-S	BRIDGEPORT	CONDUIT LOCKNUT 1/2"
2	1001589	5	321	BRIDGEPORT	CONDUIT BUSHING PLASTIC 1/2"
3	1045068	3	SCE-HPSERIES15	SCE	HOLE SEAL 0.875" NEMA 4X
4	1001541	1	2520	THOMAS & BETTS	LIQUIDTIGHT CORD GRIP 1/2" 0.125-0.250
5	1000481	1	2521	THOMAS & BETTS	LIQUIDTIGHT CORD GRIP 1/2" 0.250-0.375
6	1001542	1	2522	THOMAS & BETTS	LIQUIDTIGHT CORD GRIP 1/2" 0.375-0.500
8	1005941	5	5262	THOMAS & BETTS	LIQUIDTIGHT SEALING GASKET 1/2"
9	1044983	1	RKF 34-1M/NPT	TURCK	CONNECTOR BULKHEAD 3 POSITION FEMALE 7/8-16 TO FLYING LEAD
10	1044984	1	RKF 57-1M/14.5	TURCK	CONNECTOR BULKHEAD 5 POSITION FEMALE 7/8-16 TO FLYING LEAD



TOP VIEW (FROM INSIDE ENCLOSURE)

REV	DESCRIPTION	DATE	BY
0	INITIAL CREATION	8/11/2025	BK

	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	8/11/2025	BK
.	FOR APPROVAL		
.	APPROVED FOR FAB		
.	AS BUILT		
.	AS FIELD MODIFIED		

MATERIAL: SEE BOM
WEIGHT: N/A
TOLERANCES:
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.XX = 0.03
.XXX = 0.015
∠ = 0.5°
THIRD ANGLE PROJECTION
INCH [mm]

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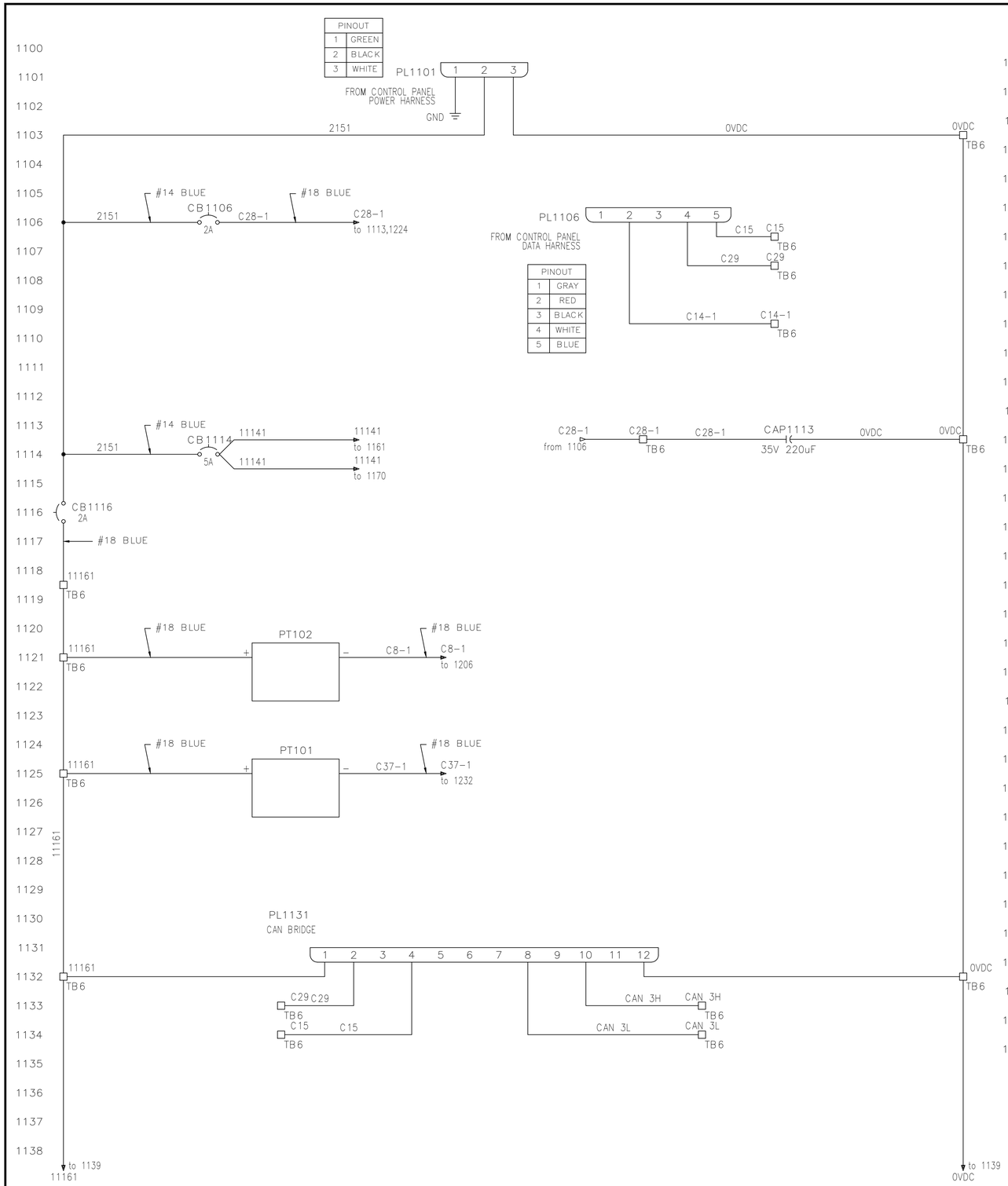
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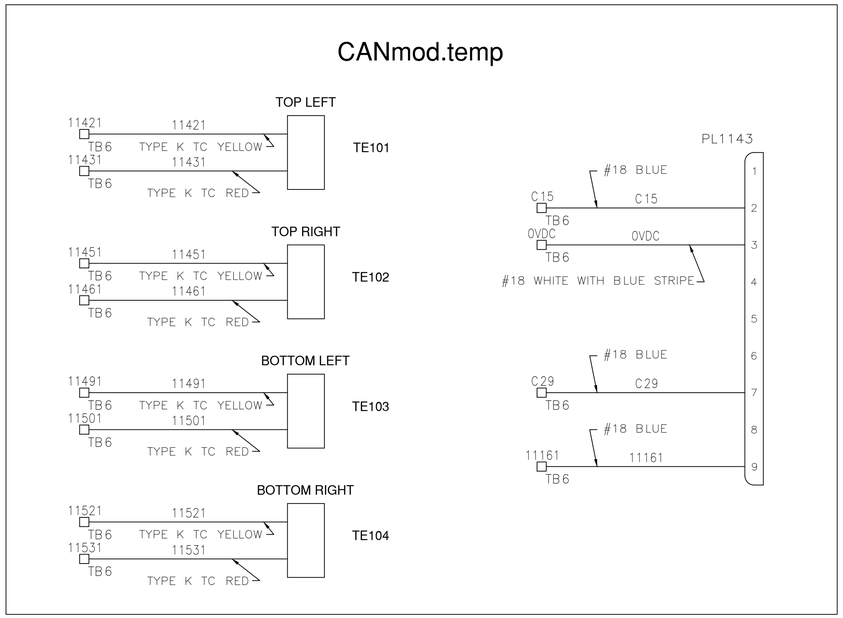
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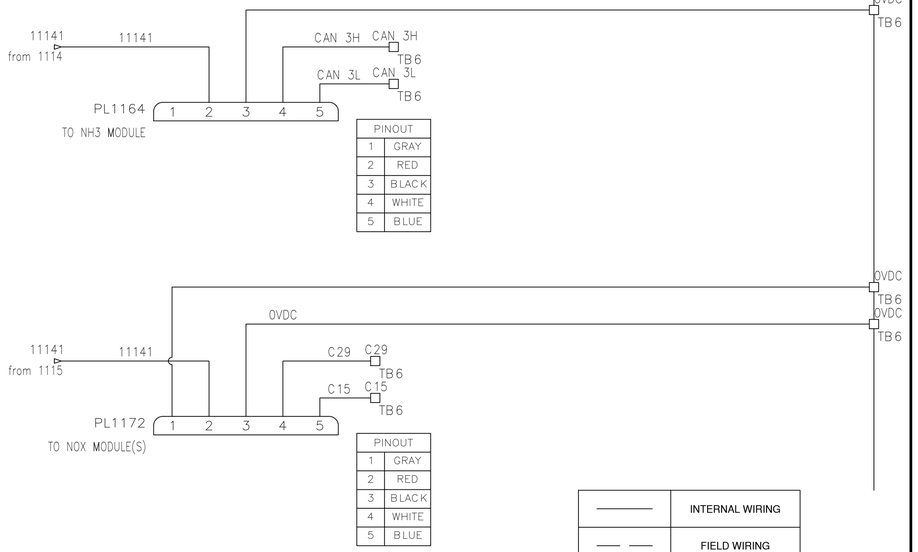
DATE: 08/11/2025
SCALE: NTS
DRAWN BY: BK
CHECKED BY: BOS

CUSTOMER: CCC
TITLE: SCR CP-1-B07-D0-NA-U1-I1-NA-09
ELECTRICAL SCHEMATICS & PANEL LAYOUT

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
1050138	310	0	D







REV	DESCRIPTION	DATE	BY
0	INITIAL CREATION	9/15/2025	BK

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X	PRELIMINARY	9/15/2025	BK
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MATERIAL: SEE BOM
WEIGHT: N/A
TOLERANCES: X = 0.06, XX = 0.03, XXX = 0.015, ∠ = 0.5°
THIRD ANGLE PROJECTION
INCH [mm]

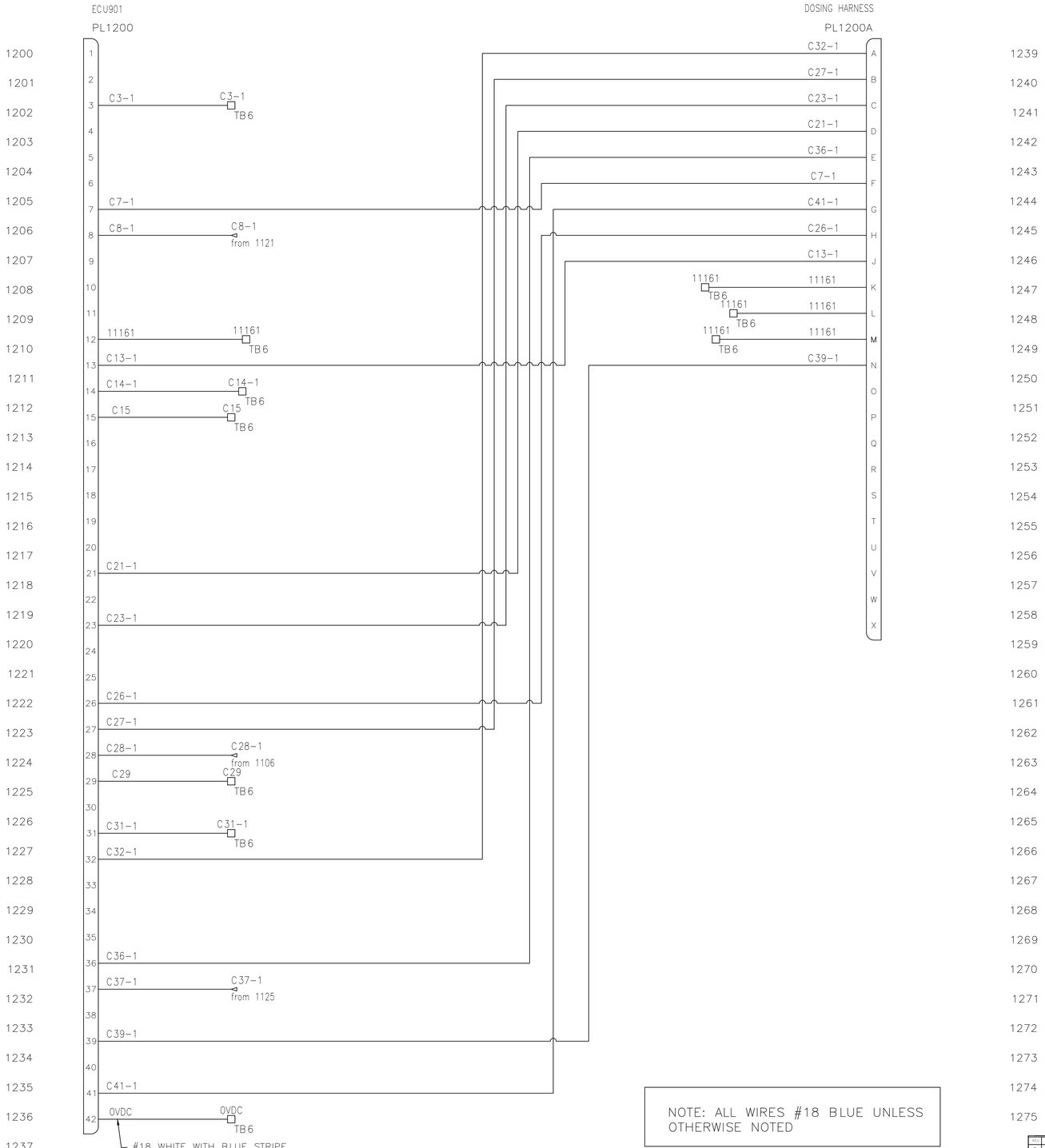
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DATE: 09/15/2025
SCALE: NTS
DRAWN BY: BK
CHECKED BY: BOS

CUSTOMER: CCC
DRAWING #727796
TITLE: SCR JP-138KG-T4P2-WP0-2
ELECTRICAL SCHEMATICS & PANEL LAYOUT

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
1050346	3110	0	D



NOTE: ALL WIRES #18 BLUE UNLESS OTHERWISE NOTED

THIS SECTION INTENTIONALLY LEFT BLANK

———	INTERNAL WIRING
— —	FIELD WIRING

REV	DESCRIPTION	DATE	BY
0	INITIAL CREATION	9/15/2025	BK
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	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	9/15/2025	BK
.	FOR APPROVAL		
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MATERIAL: SEE BOM
WEIGHT: N/A
TOLERANCES: .X = 0.06, .XX = 0.03, .XXX = 0.015, ∠ = 0.5°
THIRD ANGLE PROJECTION
INCH [mm]

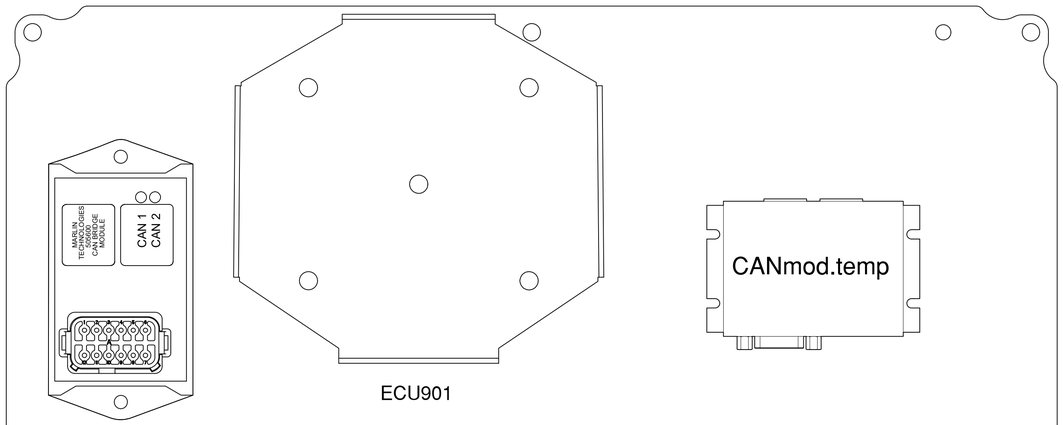
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DRAWN BY: BK
CHECKED BY: BOS

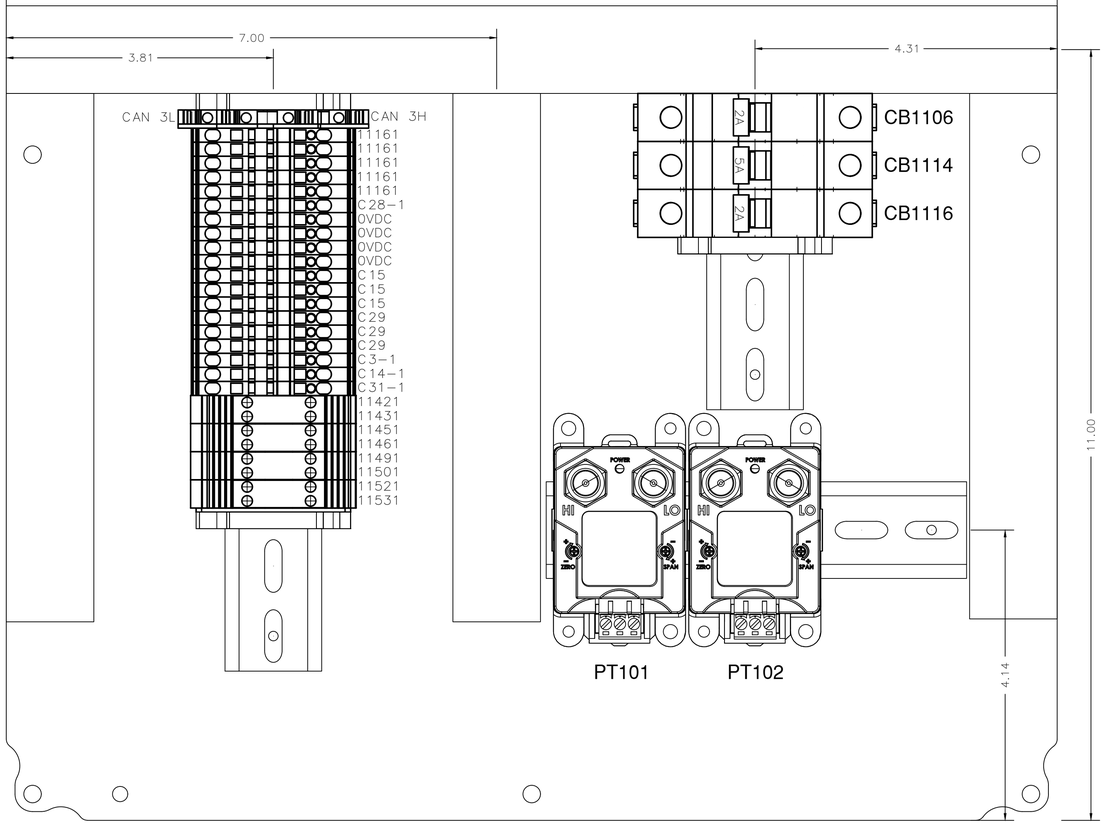
CUSTOMER: CCC
DRAWING #727796
TITLE: SCR JP-138KG-T4P2-WP0-2
ELECTRICAL SCHEMATICS & PANEL LAYOUT

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
1050346	312	0	D

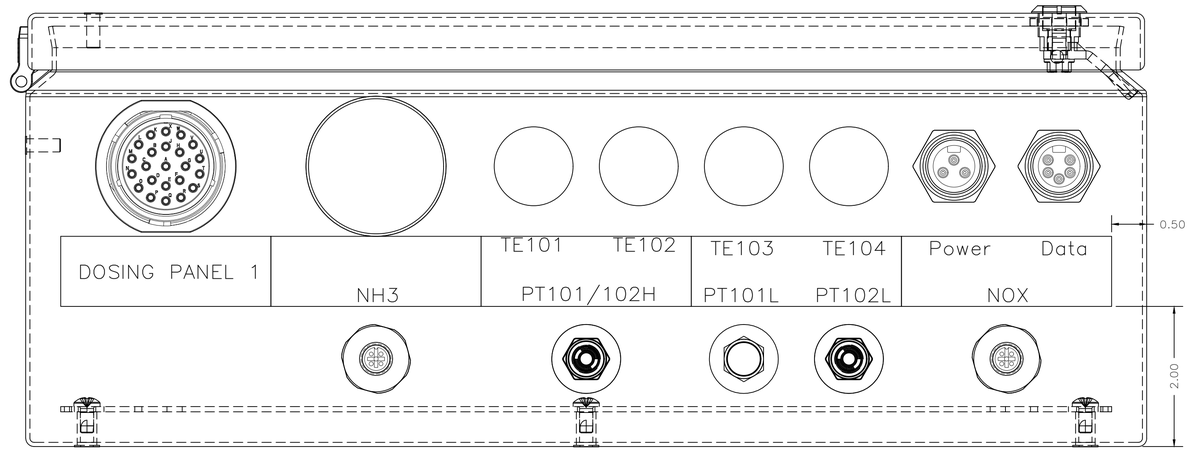


PL1131

ECU901



SUBPANEL FRONT VIEW



BOTTOM VIEW

REV	DESCRIPTION	DATE	BY
0	INITIAL CREATION	9/15/2025	BK

	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	9/15/2025	BK
.	FOR APPROVAL		
.	APPROVED FOR FAB		
.	AS BUILT		
.	AS FIELD MODIFIED		

MATERIAL: SEE BOM
WEIGHT: N/A
TOLERANCES: .X = 0.06, .XX = 0.03, .XXX = 0.015, ∠ = 0.5°

CATALYTIC COMBUSTION EMISSION TECHNOLOGIES
Catalytic Combustion Corporation
311 Riggs Street
Bloomer, WI 54724
Telephone: 715-568-2882
Fax: 715-568-2884
www.catalyticcombustion.com

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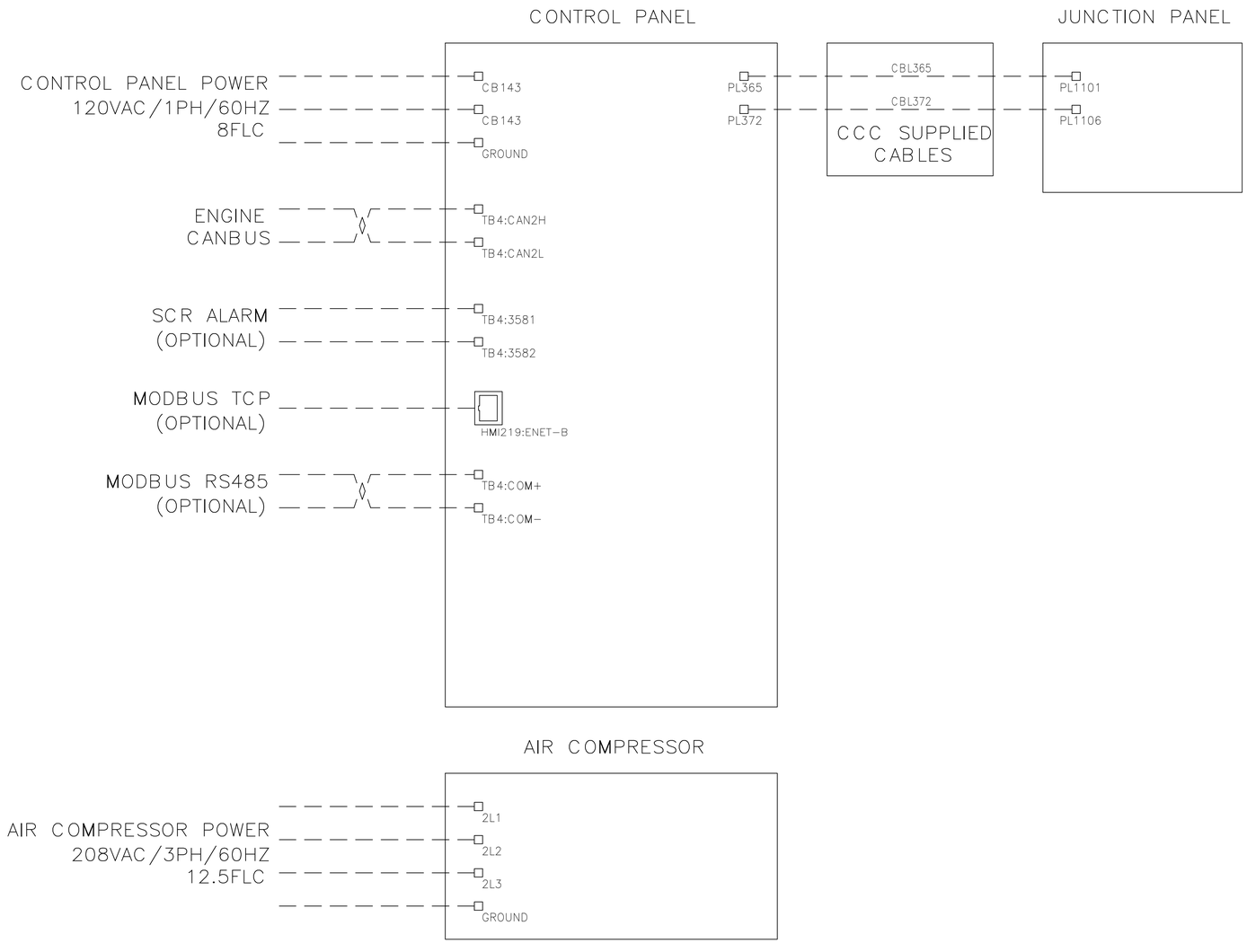
THIRD ANGLE PROJECTION
INCH [mm]
DO NOT SCALE THIS DRAWING

DATE: 09/15/2025
SCALE: NTS
DRAWN BY: BK
CHECKED BY: BOS

CUSTOMER: CCC
DRAWING #727796
TITLE: SCR JP-138KG-T4P2-WP0-2
ELECTRICAL SCHEMATICS & PANEL LAYOUT

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
1050346	3190	0	D

FIELD INTERCONNECT WIRING



INTERCONNECT WIRING				
DESCRIPTION	FROM	TO	WIRE SIZE/TYPE	SCHEMATIC LINE REFERENCE
CONTROL PANEL POWER	CUSTOMER	CB143	3x14AWG	143
AIR COMPRESSOR POWER	CUSTOMER	M801	4x12AWG	108
ENGINE LOAD/SPEED	CUSTOMER	TB4	SHIELDED TWISTED PAIR 20AWG	226,231
JUNCTION PANEL POWER HARNESS	PL365	PL1101	3x14AWG	365,1101
JUNCTION PANEL DATA HARNESS	PL367	PL1106	2x16AWG 3x20AWG	367,1106
SCR ALARM	TB4	CUSTOMER	2x18AWG	358
MODBUS TCP	HMI219	CUSTOMER	ETHERNET	236
MODBUS RS485	TB4	CUSTOMER	SHIELDED TWISTED PAIR 20AWG	228,233

———	INTERNAL WIRING
— — —	FIELD WIRING

REV	DESCRIPTION	DATE	BY
0	INITIAL RELEASE	9/16/2025	BK

	DRAWING STATUS:	DATE:	BY:
X	PRELIMINARY	9/16/2025	BK
	FOR APPROVAL		
	APPROVED FOR FAB		
	AS BUILT		
	AS FIELD MODIFIED		

MATERIAL: SEE BOM
WEIGHT: N/A
TOLERANCES: .X = 0.06, .XX = 0.03, .XXX = 0.015, ∠ = 0.5°
THIRD ANGLE PROJECTION
INCH [mm]

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DO NOT SCALE THIS DRAWING

DATE: 09/16/2025
SCALE: NTS
DRAWN BY: BK
CHECKED BY: BOS

CUSTOMER: CCC
TITLE: SCR FIELD INTERCONNECT WIRING

PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:
727807	3910	0	D