Emergency Generator Set
Engineering Submittals

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(1) Caterpillar Model C32 (D1000GC)
Diesel Engine Driven Generator Set
Standby Rated 1000kW For:

MEG Stock 1 Mw Project

☐ **Approved, release order for production**

☐ **Approved as noted, release order for production**

☐ **Not approved, make changes and resubmit**

COMMENTS

PLEASE SIGN AND DATE FOR APPROVAL

Signature _____ Date _____

Section 6
Generator Warranty Statement

Generator Information

Cat® D1000 GC
Diesel Generator Sets

Image shown might not reflect actual configuration

Engine	C32
Bore – mm (in)	145 (5.7)
Stroke – mm (in)	162 (6.4)
Displacement – L (in^3)	32.1 (1959)
Compression Ratio	15.0:1
Aspiration	TA
Fuel System	EUI
Governor Type	ADEM™ A4

Model	Standby 60 Hz ekW (kVA)	Emissions Performance
D1000 GC	1000 (1250)	U.S EPA Emergency Stationary Use only (Tier 2)

Standard Features

Cat® Diesel Engine

- Meets U.S. EPA Emergency Stationary Use only (Tier 2) emission standards
- Reliable performance proven in thousands of applications worldwide

Generator Set Package

- Meets NFPA 110 start time & block load requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability is verified through prototype testing, which includes torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators

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

Cooling System

- Cooling systems available to operate in ambient temperatures 50º C @ 0m
- Tested to ensure proper generator set cooling

GCCP Control Panels

- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored & displayed simultaneously for full visibility
- The module can be configured to suit a wide range of applications for user flexibility

Warranty and Extended Service Coverage (ESC)

- 24 months/1000-hour warranty for standby ratings
- 5 yrs Gold Complimentary Extended Service Coverage

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

Starting
- ☐ Standard batteries
- ☐ Oversized batteries
- ☐ Dual Electric Starters
- ☒ Jacket water heater

Engine Attachments
- ☐ 6" Exhaust Flexible Fittings
- ☐ 6" Exhaust Flange Kits
- ☐ Radiator Duct Flange

Alternator

Output voltage
- ☒ 480V
- ☐ 600V

Temperature Rise (over 40°C ambient)
- ☒ 125°C
- ☐ 105°C

Winding type
- ☐ Random wound

Excitation
- ☐ Internal excitation (IE)
- ☒ Permanent magnet (PM)

Attachments
- ☐ Anti-condensation heater

Power Termination

Type
- ☒ Circuit breaker (Primary)
- ☐ 1200A ☒ 1600A ☐ 2000A
- ☐ Circuit breaker (Auxiliary)
- ☐ 250A ☐ 400A
- ☐ 3-pole
- ☐ Manually operated

Trip Unit
- ☐ LSI ☒ LSIG ☐ LSIG-P

Factory Enclosure
- ☒ Sound attenuated
- ☐ Weatherproof

Attachments
- ☐ DC lighting package

Fuel Tank
- ☐ Intergrated 2100 gal (7950 L)
- ☐ Sub base 3000 gal (11356 L)
- ☐ Sub base 4200 gal (15876 L)

Control System

Controller
- ☑ GCCP 1.2

Attachments
- ☐ Remote annunciator module
- ☐ Expansion I/O module
- ☑ 100A Load Center
- ☑ 20A GFCI AC Receptacle
- ☑ Ground Fault Indication
- ☐ Audible Alarm

Charging
- ☒ Battery charger – 10A (Installed)
- ☐ Battery charger – 20A (Shipped loose)

Cat Connect

Connectivity
- ☐ Ethernet
- ☐ Cellular

Extended Service Options

Terms
- ☐ 3 year
- ☐ 4 year
- ☒ 5 year

Coverage
- ☐ Silver
- ☒ Gold

Certifications
- ☒ UL 2200 Listed
- ☐ cUL CSA 22.2 No. 100-14
- ☐ IBC seismic certification

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

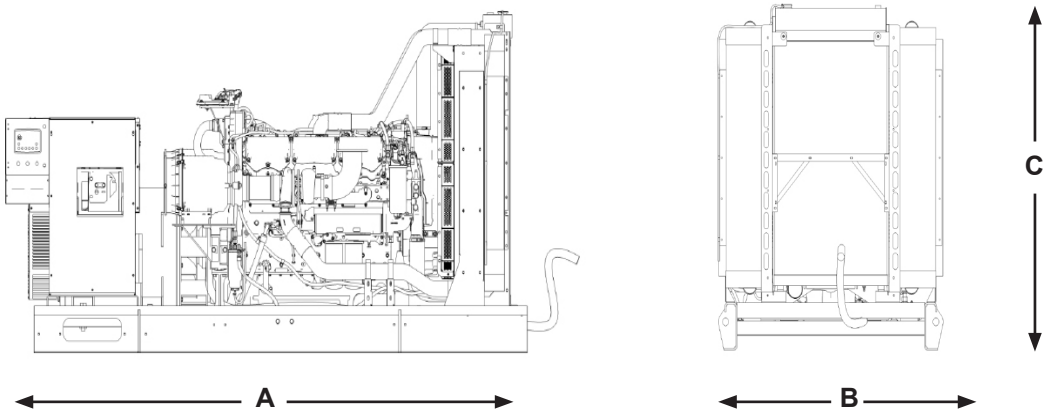
Package Performance – D1000 GC

Performance	Standby	
Frequency	60 Hz	
Gen set power rating with fan	1000 ekW	
Gen set power rating with fan @ 0.8 power factor	1250 kVA	
Fueling strategy	EPA ESE (Tier 2)	
Performance number	DM9933	
Fuel Consumption		
100% load with fan – L/hr (gal/hr)	272.1	(71.9)
75% load with fan – L/hr (gal/hr)	213.4	(56.4)
50% load with fan – L/hr (gal/hr)	144.7	(38.2)
25% load with fan – L/hr (gal/hr)	82.6	(21.8)
Cooling System		
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)
Radiator air flow – m^3/min (cfm)	943	(33301)
Engine coolant capacity – L (gal)	55	(14.5)
Radiator coolant capacity – L (gal)	49	(12.9)
Total coolant capacity – L (gal)	104	(27.5)
Inlet Air		
Combustion air inlet flow rate – m^3/min (cfm)	87.6	(3094.1)
Exhaust System		
Exhaust stack gas temperature – °C (°F)	476.4	(889.5)
Exhaust gas flow rate – m^3/min (cfm)	228.4	(8065.3)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)
Heat Rejection		
Heat rejection to jacket water – kW (Btu/min)	352	(20033)
Heat rejection to exhaust (total) – kW (Btu/min)	1024	(58206)
Heat rejection to aftercooler – kW (Btu/min)	288	(16385)
Heat rejection to atmosphere from engine – kW (Btu/min)	127	(7238)
Heat rejection from alternator – kW (Btu/min)	55	(3131)
Emissions* (Nominal)		
NOx mg/Nm^3 (g/hp-h)	2348.6	(4.93)
CO mg/Nm^3 (g/hp-h)	62.1	(0.13)
HC mg/Nm^3 (g/hp-h)	5.5	(0.01)
PM mg/Nm^3 (g/hp-h)	7.2	(0.02)
Emissions* (Potential Site Variation)		
NOx mg/Nm^3 (g/hp-h)	2841.6	(5.97)
CO mg/Nm^3 (g/hp-h)	116.1	(0.24)
HC mg/Nm^3 (g/hp-h)	10.3	(0.03)
PM mg/Nm^3 (g/hp-h)	14.1	(0.04)

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

D1000 GC Diesel Generator Sets
Electric Power

Weights and Dimensions



Model	Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
D1000 GC	4175 (164.3)	1856 (73.1)	2217.5 (87.3)	6654 (14669)

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

Ratings and 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 power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Applicable Codes and Standards

CSA C22.2 No. 100-14, UL 142, UL 489, UL 869A, UL 2200, IBC 2018, ISO 3046, ISO 8528 and facilitates compliance to NFPA37, NFPA70, NFPA99 and NFPA110 codes

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

Fuel Rates

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

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www.cat.com/electricpower

LEHE20273-04 (01/24)

Performance Number: DM9933 Change Level: 05

SALES MODEL:	C32	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,800
MACHINE SALES MODEL:		**HERTZ:**	60
ENGINE POWER (BHP):	1,483	**FAN POWER (HP):**	56.3
GEN POWER WITH FAN (EKW):	1,000.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	15.0	**AFTERCOOLER TYPE:**	ATAAC
RATING LEVEL:	STANDBY	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
PUMP QUANTITY:	1	**INLET MANIFOLD AIR TEMP (F):**	120
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (F):**	210.2
MANIFOLD TYPE:	DRY	**TURBO CONFIGURATION:**	PARALLEL
GOVERNOR TYPE:	ADEM4	**TURBO QUANTITY:**	2
ELECTRONICS TYPE:	ADEM4	**TURBOCHARGER MODEL:**	GTB45518BS-52T-1.37
IGNITION TYPE:	CI	**CERTIFICATION YEAR:**	2007
INJECTOR TYPE:	EUI	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	1,913.4
REF EXH STACK DIAMETER (IN):	8		
MAX OPERATING ALTITUDE (FT):	997		

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

General Performance Data

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
1,000.0	100	1,483	333	0.342	0.337	71.5	70.4	0.507	0.500
900.0	90	1,338	301	0.341	0.336	64.2	63.3	0.506	0.499
800.0	80	1,195	268	0.348	0.343	58.7	57.9	0.521	0.513
750.0	75	1,124	252	0.353	0.348	56.0	55.2	0.530	0.522
700.0	70	1,053	237	0.354	0.349	52.6	51.9	0.533	0.525
600.0	60	912	205	0.353	0.348	45.4	44.8	0.537	0.530
500.0	50	772	173	0.350	0.345	38.1	37.5	0.540	0.533
400.0	40	635	143	0.351	0.346	31.4	30.9	0.557	0.549
300.0	30	496	111	0.357	0.352	25.0	24.6	0.590	0.582
250.0	25	426	96	0.363	0.358	21.8	21.5	0.619	0.610

200.0	20	355	80	0.373	0.367	18.7	18.4	0.662	0.652
100.0	10	209	47	0.424	0.418	12.5	12.3	0.885	0.872

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
1,000.0	100	1,483	70.8	118.8	1,214.1	58.6	892.5	76	424.5
900.0	90	1,338	64.3	111.4	1,153.5	52.2	856.8	70	392.7
800.0	80	1,195	60.6	106.7	1,117.9	48.8	833.4	66	375.9
750.0	75	1,124	58.4	104.2	1,102.3	47.0	822.2	63	366.1
700.0	70	1,053	54.2	100.0	1,080.1	43.6	811.1	59	345.5
600.0	60	912	44.3	90.6	1,028.7	35.7	789.8	49	304.7
500.0	50	772	33.5	81.3	968.0	27.4	769.5	37	264.3
400.0	40	635	24.3	74.9	899.7	20.8	733.5	27	224.9
300.0	30	496	16.1	70.5	816.3	15.3	679.6	19	185.5
250.0	25	426	12.3	69.0	768.2	12.9	646.0	15	165.6
200.0	20	355	8.9	67.9	713.3	10.7	605.3	11	147.2
100.0	10	209	4.5	67.5	572.6	7.8	491.3	6	123.0

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
1,000.0	100	1,483	3,105.2	8,115.3	13,517.7	14,024.8	2,950.9	2,698.6
900.0	90	1,338	2,944.7	7,443.4	12,775.8	13,231.6	2,780.0	2,550.6
800.0	80	1,195	2,860.8	7,069.3	12,380.1	12,796.7	2,687.9	2,475.7
750.0	75	1,124	2,799.4	6,858.4	12,094.1	12,491.0	2,630.6	2,427.3
700.0	70	1,053	2,654.6	6,439.5	11,425.3	11,795.7	2,491.4	2,301.6
600.0	60	912	2,369.9	5,618.4	10,126.3	10,445.3	2,210.8	2,046.3
500.0	50	772	2,090.3	4,815.2	8,871.8	9,141.4	1,926.2	1,786.0
400.0	40	635	1,819.3	4,039.9	7,654.2	7,876.2	1,664.7	1,547.4
300.0	30	496	1,549.9	3,272.7	6,487.7	6,664.2	1,412.4	1,317.4
250.0	25	426	1,414.6	2,888.8	5,920.9	6,075.3	1,284.6	1,200.7
200.0	20	355	1,292.4	2,528.2	5,413.4	5,545.9	1,167.2	1,094.3
100.0	10	209	1,149.4	1,989.9	4,805.1	4,893.7	1,028.8	975.8

Heat Rejection Data

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
1,000.0	100	1,483	20,153	7,292	58,664	32,275	8,277	16,551	62,887	155,406	165,547
900.0	90	1,338	18,470	6,522	52,678	28,324	7,440	14,394	56,743	139,692	148,807
800.0	80	1,195	16,970	5,949	49,043	26,036	6,799	13,345	50,677	127,654	135,984
750.0	75	1,124	16,223	6,124	47,027	24,781	6,486	12,683	47,666	121,777	129,723
700.0	70	1,053	15,326	6,876	43,772	22,824	6,093	11,231	44,653	114,394	121,858
600.0	60	912	13,529	6,786	37,588	19,231	5,263	8,681	38,675	98,811	105,259
500.0	50	772	11,822	5,357	31,812	16,013	4,411	6,504	32,735	82,825	88,230
400.0	40	635	10,869	4,421	25,935	12,562	3,637	4,598	26,908	68,277	72,732
300.0	30	496	9,934	3,738	20,129	9,084	2,892	2,986	21,049	54,294	57,837
250.0	25	426	9,352	3,463	17,322	7,412	2,525	2,290	18,081	47,414	50,508
200.0	20	355	8,620	3,178	14,651	5,809	2,162	1,718	15,065	40,584	43,232
100.0	10	209	6,683	2,334	9,950	2,795	1,444	1,067	8,853	27,118	28,888

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		**EKW**	**1,000.0**	**750.0**	**500.0**	**250.0**	**100.0**
ENGINE POWER		**BHP**	**1,483**	**1,124**	**772**	**426**	**209**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	7,256	4,250	2,777	1,877	1,108
TOTAL CO		G/HR	192	123	265	435	672
TOTAL HC		G/HR	19	55	53	40	80
TOTAL CO2		KG/HR	726	568	384	219	125
PART MATTER		G/HR	26.9	19.9	34.3	53.7	43.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,346.5	1,746.8	1,683.5	2,004.0	1,999.0
TOTAL CO	(CORR 5% O2)	MG/NM3	62.1	49.6	159.5	470.0	1,358.8
TOTAL HC	(CORR 5% O2)	MG/NM3	5.4	19.7	27.7	36.7	147.6
PART MATTER	(CORR 5% O2)	MG/NM3	7.3	6.9	17.8	53.8	69.4
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	870.7	648.2	624.7	743.6	741.8
TOTAL CO	(CORR 15% O2)	MG/NM3	23.1	18.4	59.2	174.4	504.2
TOTAL HC	(CORR 15% O2)	MG/NM3	2.0	7.3	10.3	13.6	54.8
PART MATTER	(CORR 15% O2)	MG/NM3	2.7	2.5	6.6	20.0	25.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,143	851	820	976	974
TOTAL CO	(CORR 5% O2)	PPM	50	40	128	376	1,087
TOTAL HC	(CORR 5% O2)	PPM	10	37	52	68	275

TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	424	316	304	362	361
TOTAL CO	(CORR 15% O2)	PPM	18	15	47	140	403
TOTAL HC	(CORR 15% O2)	PPM	4	14	19	25	102
TOTAL NOX (AS NO2)		G/HP-HR	4.93	3.81	3.61	4.41	5.32
TOTAL CO		G/HP-HR	0.13	0.11	0.34	1.02	3.22
TOTAL HC		G/HP-HR	0.01	0.05	0.07	0.09	0.38
PART MATTER		G/HP-HR	0.02	0.02	0.04	0.13	0.21
TOTAL NOX (AS NO2)		G/KW-HR	6.61	5.10	4.84	5.92	7.13
TOTAL CO		G/KW-HR	0.18	0.15	0.46	1.37	4.32
TOTAL HC		G/KW-HR	0.02	0.07	0.09	0.13	0.51
PART MATTER		G/KW-HR	0.02	0.02	0.06	0.17	0.28
TOTAL NOX (AS NO2)		LB/HR	16.00	9.37	6.12	4.14	2.44
TOTAL CO		LB/HR	0.42	0.27	0.58	0.96	1.48
TOTAL HC		LB/HR	0.04	0.12	0.12	0.09	0.18
TOTAL CO2		LB/HR	1,600	1,252	847	484	275
PART MATTER		LB/HR	0.06	0.04	0.08	0.12	0.09
OXYGEN IN EXH		%	10.0	11.4	12.2	13.4	15.7
DRY SMOKE OPACITY		%	0.5	0.4	1.3	3.1	2.3
BOSCH SMOKE NUMBER			0.67	0.66	0.83	1.15	1.01

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		**EKW**	**1,000.0**	**750.0**	**500.0**	**250.0**	**100.0**
ENGINE POWER		**BHP**	**1,483**	**1,124**	**772**	**426**	**209**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	8,780	5,143	3,360	2,272	1,341
TOTAL CO		G/HR	359	231	495	813	1,256
TOTAL HC		G/HR	36	104	100	76	151
PART MATTER		G/HR	52.5	38.7	66.9	104.7	83.8
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,839.3	2,113.6	2,037.0	2,424.8	2,418.8
TOTAL CO	(CORR 5% O2)	MG/NM3	116.2	92.7	298.2	879.0	2,541.0
TOTAL HC	(CORR 5% O2)	MG/NM3	10.2	37.3	52.3	69.3	278.9
PART MATTER	(CORR 5% O2)	MG/NM3	14.2	13.4	34.8	104.9	135.3
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,053.6	784.3	755.9	899.8	897.6
TOTAL CO	(CORR 15% O2)	MG/NM3	43.1	34.4	110.6	326.2	942.9
TOTAL HC	(CORR 15% O2)	MG/NM3	3.8	13.8	19.4	25.7	103.5

PART MATTER	(CORR 15% O2)	MG/NM3	5.3	5.0	12.9	38.9	50.2
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,383	1,030	992	1,181	1,178
TOTAL CO	(CORR 5% O2)	PPM	93	74	239	703	2,033
TOTAL HC	(CORR 5% O2)	PPM	19	70	98	129	521
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	513	382	368	438	437
TOTAL CO	(CORR 15% O2)	PPM	34	28	89	261	754
TOTAL HC	(CORR 15% O2)	PPM	7	26	36	48	193
TOTAL NOX (AS NO2)		G/HP-HR	5.97	4.60	4.37	5.34	6.43
TOTAL CO		G/HP-HR	0.24	0.21	0.64	1.91	6.03
TOTAL HC		G/HP-HR	0.02	0.09	0.13	0.18	0.73
PART MATTER		G/HP-HR	0.04	0.03	0.09	0.25	0.40
TOTAL NOX (AS NO2)		G/KW-HR	8.00	6.18	5.86	7.16	8.62
TOTAL CO		G/KW-HR	0.33	0.28	0.86	2.56	8.08
TOTAL HC		G/KW-HR	0.03	0.12	0.17	0.24	0.97
PART MATTER		G/KW-HR	0.05	0.05	0.12	0.33	0.54
TOTAL NOX (AS NO2)		LB/HR	19.36	11.34	7.41	5.01	2.96
TOTAL CO		LB/HR	0.79	0.51	1.09	1.79	2.77
TOTAL HC		LB/HR	0.08	0.23	0.22	0.17	0.33
PART MATTER		LB/HR	0.12	0.09	0.15	0.23	0.18

Regulatory Information

EPA TIER 2 **2006 - 2010**

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA40 CFR PART 89 SUBPART D AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW AREWEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 2	CO: 3.5 NOx + HC: 6.4 PM: 0.20

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

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	1,483	1,483	1,483	1,483	1,483	1,483	1,483	1,477	1,451	1,426	1,402	1,378	1,483
1,000	1,483	1,483	1,483	1,483	1,483	1,475	1,448	1,422	1,397	1,373	1,350	1,327	1,466
2,000	1,483	1,483	1,483	1,474	1,446	1,419	1,394	1,369	1,345	1,321	1,299	1,277	1,420
3,000	1,483	1,475	1,446	1,418	1,392	1,366	1,341	1,317	1,294	1,272	1,250	1,229	1,376
4,000	1,448	1,419	1,391	1,364	1,339	1,314	1,290	1,267	1,245	1,223	1,202	1,182	1,332
5,000	1,392	1,365	1,338	1,312	1,287	1,263	1,240	1,218	1,197	1,176	1,156	1,137	1,290
6,000	1,339	1,312	1,286	1,261	1,237	1,215	1,192	1,171	1,151	1,131	1,112	1,093	1,248
7,000	1,286	1,261	1,236	1,212	1,189	1,167	1,146	1,125	1,106	1,087	1,068	1,050	1,208
8,000	1,236	1,211	1,187	1,164	1,142	1,121	1,101	1,081	1,062	1,044	1,026	1,009	1,168
9,000	1,186	1,163	1,140	1,118	1,097	1,076	1,057	1,038	1,020	1,002	985	969	1,129
10,000	1,139	1,116	1,094	1,073	1,053	1,033	1,014	996	979	962	946	930	1,092
11,000	1,093	1,071	1,050	1,029	1,010	991	973	956	939	923	907	892	1,055
12,000	1,048	1,027	1,007	987	969	951	933	917	901	885	870	856	1,019
13,000	1,004	984	965	946	929	911	895	879	863	848	834	820	983
14,000	962	943	925	907	890	873	857	842	827	813	799	786	949
15,000	922	903	886	869	852	836	821	807	792	779	766	753	916

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
6351442	NAP	30R0700	RE205	-	ZAG00001	
0K7838	GG0346	3208618	GS490	-	JDB00001	
0K8987	PP6050	3249750	GS277	-	SYC00001	
0K8987	PP6050	3367659	GS471	-	PRH00001	
0K8987	PP6050	3801431	GS471	-	PRH00001	
0K8987	PP6050	4391323	GS471	-	PRH03719	
0K8987	PP6050	4447558	GS471	-	PRH00001	
0K8987	PP6050	4447562	GS471	-	PRH00001	
0K8987	PP6050	5233431	GS471	-	PRH00001	
0K8987	PP6050	5612763	GS471	DK	PRH00001	
0K8987	PP6050	6034725	PG457	-	PRH00001	

Performance Parameter Reference

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

Generator Data July 27,2026

Spec Info Mechanical Data Cooling Data Motor Starting Curve
Reactive Capability Chart General Information

Selected Model

Engine: C32 **Generator Frame:** E3855L4 **Genset Rating (kW):** 1000.0 **Line Voltage:** 480
Fuel: Diesel **Generator Arrangement:** 6145656 **Genset Rating (kVA):** 1250.0 **Phase Voltage:** 277
Frequency: 60 **Excitation Type:** Permanent Magnet **Pwr. Factor:** 0.8 **Rated Current:** 1503.5
Duty: STANDBY **Connection:** PARALLEL STAR **Application:** EPG **Status:** Current
Version: 20239 /20239 /20239 /677263

Spec Information

Generator Specification

Frame: E3855L4 **Type:** SR500 **No. of Bearings:** 1
Winding Type: RANDOM WOUND **Flywheel:** 18
Connection: PARALLELSTAR **Housing:** 0
Phases: 3 **No. of Leads:** 12
Poles: 4
Sync Speed: 1800 **Generator Pitch:** 0.6667

Generator Efficiency

Per Unit Load	kW	Efficiency %
0.25	250	92.7
0.5	500	94.7
0.75	750	95.9
1	1000	96.2

Reactances	Per Unit	Ohms
SUBTRANSIENT - DIRECT AXIS X''_d	0.0825	0.0152
SUBTRANSIENT - QUADRATURE AXIS X''_q	0.1600	0.0295
TRANSIENT - SATURATED X'_d	0.1600	0.0295
SYNCHRONOUS - DIRECT AXIS X_d	3.4142	0.6293
SYNCHRONOUS - QUADRATURE AXIS X_q	1.2061	0.2223
NEGATIVE SEQUENCE X_2	0.1204	0.0222
ZERO SEQUENCE X_0	0.0347	0.0064

Time Constants	Seconds
OPEN CIRCUIT TRANSIENT - DIRECT AXIS T'_{d0}	8.1000
SHORT CIRCUIT TRANSIENT - DIRECT AXIS T'_d	0.2450
OPEN CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_{d0}	0.0349
SHORT CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_d	0.0180
ARMATURE SHORT CIRCUIT T_a	0.0240

Short Circuit Ratio: 0.392 | Stator Resistance = 0.008Ohms | Field Resistance = 2.5 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	40

Generator Excitation

	No Load	Full Load, (rated) pf Series
Excitation voltage:	15.9 Volts	40.6 Volts
Excitation current	1.5 Amps	3.8 Amps

Top...

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Generator Mechanical Information

Center of Gravity

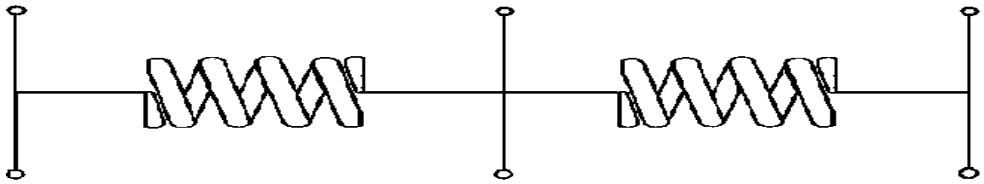
Dimension X	-692 mm	-27.2 IN.
Dimension Y	0 mm	0.0 IN.
Dimension Z	0 mm	0.0 IN.

- "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 = 2370 kg * Rotor WT = 905 kg * Stator WT = 1215 kg
5,225 LB 1,995 LB 2,679 LB

Rotor Balance = 0.016 mm deflection PTP
Overspeed Capacity = 125% of synchronous speed

Generator Torsional Data



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

-8,841.9 MLB IN./rad

Total J
187.7 LB IN. s^2
21.21 N m s^2

Top...

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Generator Cooling Requirements -
Temperature - Insulation Data

Cooling Requirements:		**Temperature Data: (Ambient 40 ^{0}C)**	
Heat Dissipated: 40 kW		**Stator Rise:**	105 ^{0}C
Air Flow:	108 m^3/min	**Rotor Rise:**	105 ^{0}C

Insulation Class: H

Insulation Reg. as shipped: 100MΩ minimum at 40 ^{0}C

Thermal Limits of Generator

Frequency:	60 Hz
Line to Line Voltage:	480 Volts
B BR 80/40	1120 kVA
F BR -105/40	1300 kVA
H BR - 125/40	1400 kVA
H PR - 150/40	1450 kVA

Top...

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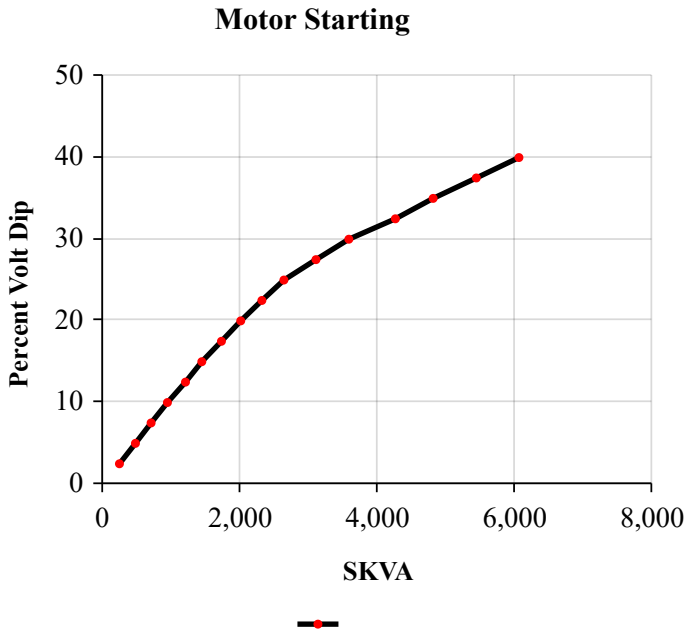
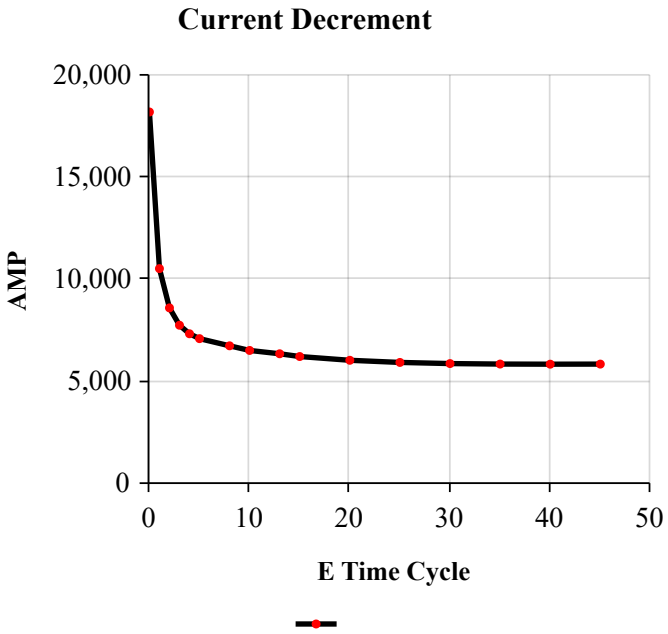
Starting Capability & Current Decrement
Motor Starting Capability (0.6 pf)

SKVA	Percent Volt Dip
238	2.5
471	5.0
699	7.5
937	10.0
1,200	12.5
1,438	15.0
1,724	17.5
2,005	20.0
2,313	22.5
2,634	25.0
3,101	27.5
3,580	30.0
4,258	32.5
4,808	35.0
5,437	37.5
6,058	40.0



Current Decrement Data

E Time Cycle	AMP
0.0	18,225
1.0	10,554
2.0	8,629
3.0	7,779
4.0	7,361
5.0	7,122
8.0	6,771
10.0	6,544
13.0	6,381
15.0	6,246
20.0	6,062
25.0	5,957
30.0	5,901
35.0	5,877
40.0	5,871
45.0	5,875



Instantaneous 3 Phase Fault Current: 18225 Amps **Instantaneous Line - Line Fault Current:** 15856 Amps
Instantaneous Line - Neutral Fault Current: 23692 Amps

Top...

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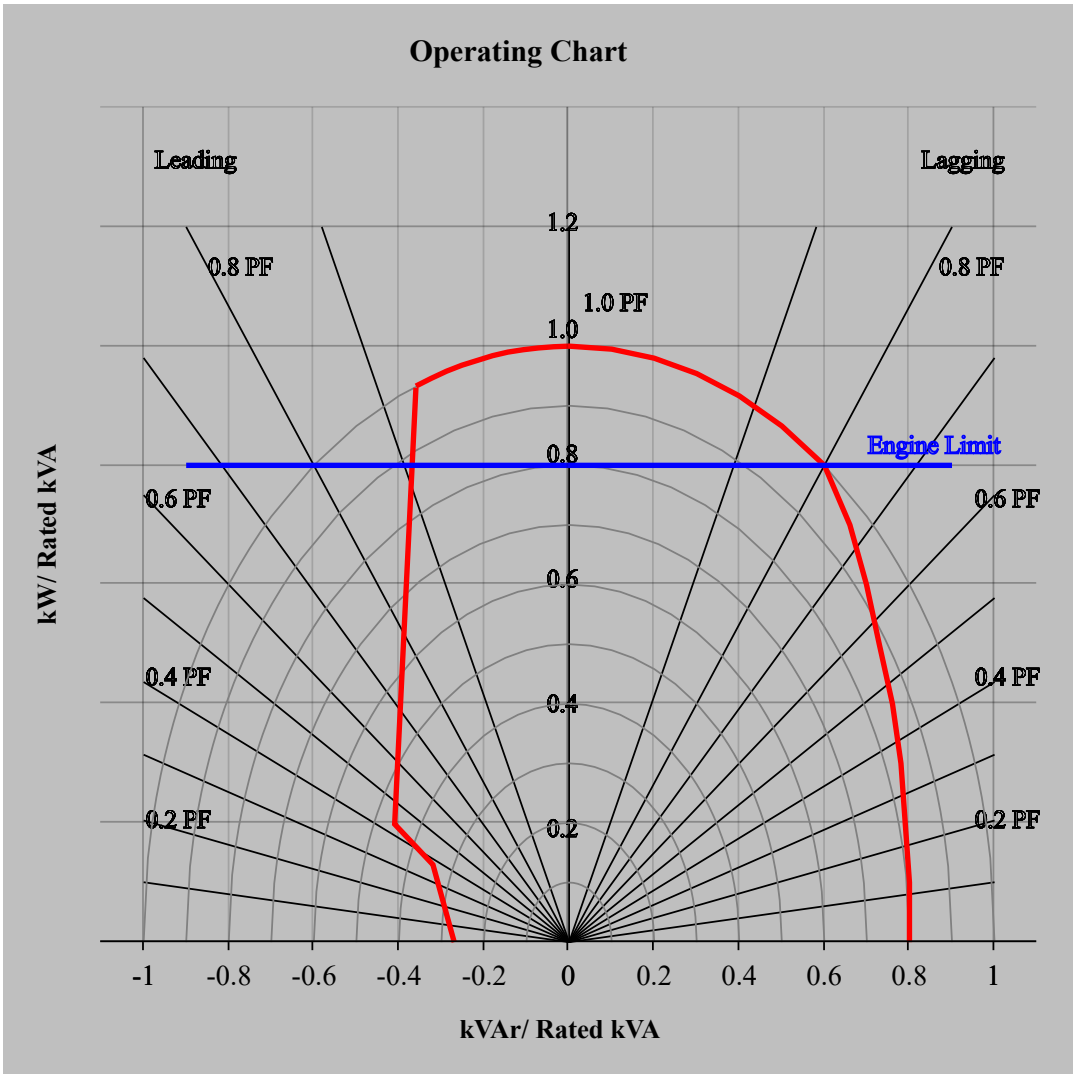
Reactive Capability Curve



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General Information

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DM7802
GENERATOR GENERAL INFORMATION

I. GENERATOR MOTOR STARTING CAPABILITY CURVES
A. THE MOTOR STARTING CURVES ARE REPRESENTATIVE OF THE DATA
OBTAINED BY THE FOLLOWING PROCEDURE:
1. THE CATERPILLAR GENERATOR IS DRIVEN BY A SYNCHRONOUS
DRIVER.
2. VARIOUS SIZE THREE PHASE INDUCTION MOTORS (NEMA
CODE F) ARE STARTED ACROSS THE LINE LEADS OF THE
UNLOADED GENERATOR.
3. THE RESULTING VOLTAGE DIPS ARE RECORDED WITH AN
OSCILLOSCOPE.
4. MOTOR HORSEPOWER HAS BEEN CONVERTED TO STARTING
KILOVOLT AMPERES (SKVA).
5. RECORDED VOLTAGE DIPS HAVE BEEN EXPRESSED AS A
OF GENERATOR RATED VOLTAGE.
```

II. USE OF THE MOTOR STARTING CAPABILITY CURVES.
A. CALCULATE THE SKVA REQUIRED BY THE MOTOR FOR FULL VOLTAGE STARTING ACROSS THE LINE IF THE VALUE IS NOT LISTED ON THE MOTOR DATA PLATE.
1. MOTORS CONFORMING TO NEMA STANDARDS
MULTIPLY THE MOTOR HORSEPOWER BY THE NEMA SKVA/HP FIGURE. FOR NEMA CODE F,USE 5.3 SKVA/HP; FOR NEMA CODE G, USE 6.0 SKVA/HP.
2. ALL OTHER MOTORS:
MULTIPLY THE RATED VOLTAGE BY THE LOCKED ROTOR AMPERE AND BY 0.001732. (IF THE LOCKED ROTOR AMPERES ARE NOT LISTED, MULTIPLY THE FULL LOAD (RUNNING) AMPERES BY
B. USE THE ABOVE SKVA WITH THE MOTOR STARTING TABLE.
1. ACROSS LINE STARTING:
READ ACROSS THE ROW OF "ACROSS THE LINE STARTING SKVA IF THE DESIRED VALUE OF SKVA IS NOT GIVEN, CALCULATE THE DIP BY FINDING THE PROPER SKVA INTERVAL AND INTERPOLATING AS FOLLOWS:
SKVA1 IS THE SKVA TABLE ENTRY JUST SMALLER THAN THE DESIRED SKVA, DIP1 IS THE DIP FOR SKVA2, AND SKVA2 IS THE SKVA TABLE ENTRY JUST GREATER THAN THE DESIRED SKVA. THE DIP (IN PERCENT) AT THE DESIRED SKVA IS:
DIP = DIP1 + (SKVA - SKVA1) * 2.5 / (SKVA2 - SKVA1)
NOTE:VOLTAGE DIPS GREATER THAN 35% MAY CAUSE MAGNETIC CONTACTORS TO DROP OUT.

2. REDUCED VOLTAGE STARTING:
REFER TO THE FOLLOWING TABLE. MULTIPLY THE CALCULATE ACROSS LINE SKVA BY THE MULTIPLIER LISTED FOR THE SPECIFIC STARTING METHOD. APPLY THE RESULT TO THE STARTING TABLE AS IN II A, TO CALCULATE THE EXPECTED VOLTAGE DIP:

TYPE OF REDUCED VOLTAGE STARTING	MULTIPLY LINE SKVA BY
80% TAP	.80
65% TAP	.65
50% TAP	.50
45% TAP	.45
Wye start,delta run	.33
AUTOTRANSFORMER	
80% TAP	.68
65% TAP	.46
50% TAP	.29

NOTE: REDUCE VOLTAGE STARTING LOWERS THE MAXIMUM REQUIRED MOTOR skVA.
3. Part winding starting:
Most common is half-winding start, full-winding run. Multiply the full motor, accross line starting skVA by 0.6. Apply the result to the selected curve as in ii. A above. Read the expected voltage dip, for the required skVA.

III.DEFINITION:
A. GENERATOR TERMS
MODEL: Engine Sales model
ENG TYPE: DI = Direct Injection, NA = Naturally aspirated, etc
HZ: Running frequency, hertz
RATING TYPE: PP, SB (prime power or standby)
KW: Base rating electrical kilowatts (ekW)
VOLTS: Rating terminal, line to line
GEN ARR: Cat generator arrangement part number
GEN FRAME: Generator frame size designation
CONN: Generator output connection (star, wye, delta, ect.)
POLES: Number of pole pieces on rotor. (eg. A 4 pole generator run at 1800) RPM will produce 60 Hz alternating current. A 6 pole

generator run at 1200 RPM will produce 60 Hz alternating current.)

B. GENERATOR TEMPERATURE RISE:

The indicated temperature rise indicated the NEMA limits for standby or prime power applications. These rises are used for calculating the losses and efficiencies and are not necessarily indicative of the actual temperature rise of a given machine.

C. CENTER OF GRAVITY

The specified center of gravity is for the generator only. For single bearing, and two bearing close coupled generators, the center of gravity is measured from the generator/engine flywheel housing interface and from the centerline of the rotor shaft.

For two bearing, standalone generators, the center of gravity is measured from the end of the rotor shaft and from the centerline of the rotor shaft.

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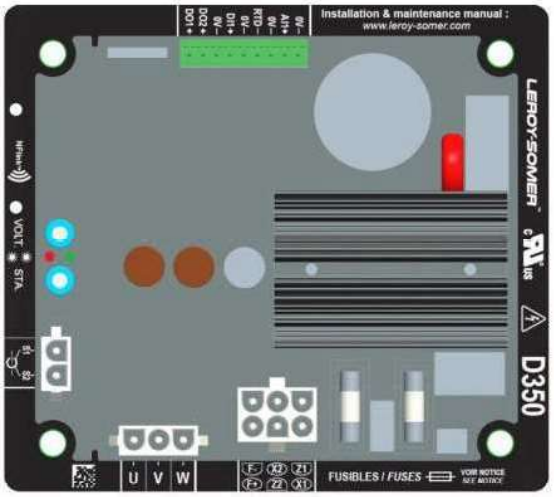
D. GENERATOR DECREMENT CURRENT CURVES

The generator decrement current curve gives the symmetrical current supplied by the generator for a three phase bolted fault at the generator terminals. Generators equipped with the series boost attachment or generators with PM excitation system will supply 300% of rated current for at least 10 seconds.

E. GENERATOR EFFICIENCY CURVES

The efficiency curve is representative of the overall generator efficiency over the normal range of the electrical load and at the specified parameters. This is not the overall engine generator set efficiency curve.

AUTOMATIC VOLTAGE REGULATOR



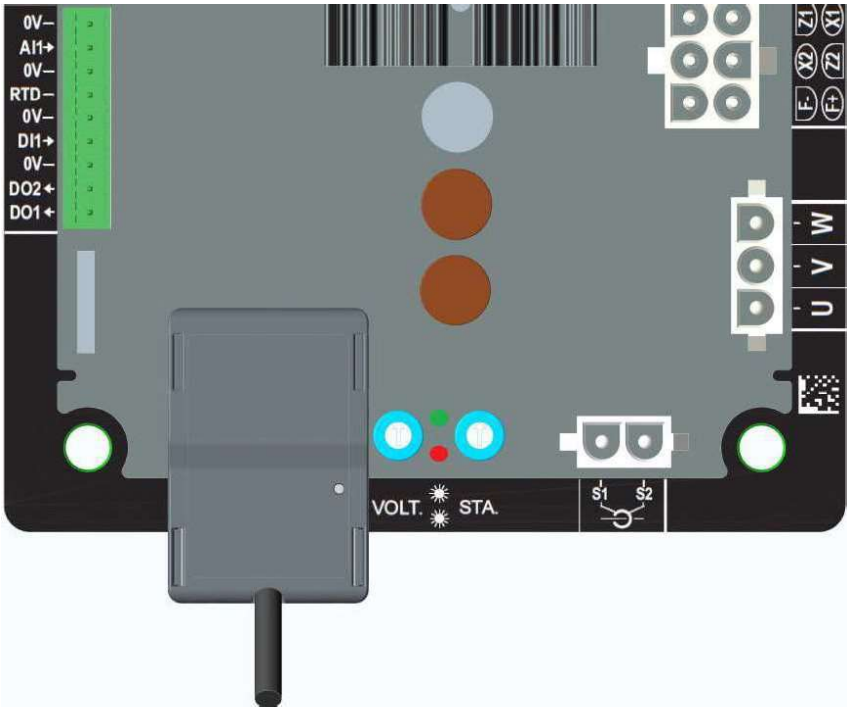
D350 AVR

The D350, Digital Voltage Regulator is used to regulate alternators with a field current of less than 5 A in continuous operations, and 10 A maximum in the event of short-circuit for 10 seconds maximum.

Its design is in accordance with mounting in a generator terminal box or a control cabinet. It is required, at a minimum, to follow the local protection and safety standards, especially those specific to electrical installations for voltages of 300 VAC phase-to-neutral maximum.

NFLink™ configuration module

The D350 is equipped with NFC technology for communication and configuration purposes. The configuration module is placed over the two dedicated positioning holes on the plastic enclosure as shown below. Once the configuration is done, the NF Link must be removed as it is not supposed to be left on the D350 when it is in continuous operation.



AUTOMATIC VOLTAGE REGULATOR

Technical characteristics

D350 regulator can be used to perform the following functions:

Voltage regulation

- With or without reactive droop compensation (Reactive droop to allow parallel operation)
- With or without line droop compensation.

Regulation of the field current, or manual mode, which allows direct control of the field current.

The D350 can also be used to:

- Adjust the reference for the regulation mode in progress, using an analogue input (0-10V and potentiometer)
- Monitoring of temperature sensor (Pt100 or CTP)
- Limit the minimum field current delivered to the exciter field
- Monitoring of the maximum stator current limit
- Loss of voltage sensing
- Withstand a sudden short-circuit for 10 seconds maximum in AREP, PMG
- Signals monitoring (events logger).
- 2 digital outputs for various trip, regulation mode and measurement data

Alternator voltage sensing:

- 3 phases without neutral, 2 phases or 1 phase with neutral
- Three-phase range 0-530VAC
- Consumption < 2VA

Stator current measurement with CT:

- Range 0-1A or 0-5A
- Consumption < 2VA

Power supply:

- 4 terminals for PMG, AREP, SHUNT
- Range 50-277 VAC
- Consumption max < 3000VA

Field excitation:

- Rated 0-5 A
- Short-circuit 10A max.
- Field winding resistance > 4 ohms

Frequency:

- Range 10-100Hz

AUTOMATIC VOLTAGE REGULATOR

- Regulation accuracy: +/-0.25% of the average of the three phases on a linear load, with harmonic distortion less than 5%
- Voltage adjustment range: 0 to 150% of the rated voltage
- Quadrature droop adjustment range: -20% to 20%
- Under frequency protection: integrated, adjustable threshold, slope adjustable from 0.5 to 3V/Hz in steps of 0.1 V/Hz
- Excitation ceiling: adjustable by configuration at 3 points
- Environment: ambient temperature from -40°C to +65°C, relative humidity of less than 95% non-condensing, mounted in a cabinet or in a terminal box

Easy Reg Advanced:

- All the D350 settings are entered / configured using the "EasyReg Advanced" software.
- This program is only compatible with computers running WINDOWS® versions Windows 7 and Windows 10 operating systems.

Dimensions:

- Height : 52.9mm
- width : 125mm
- Length : 140mm

Mounting:

- Holes spacing on the Length : 115mm
- Holes spacing on the width: 100mm

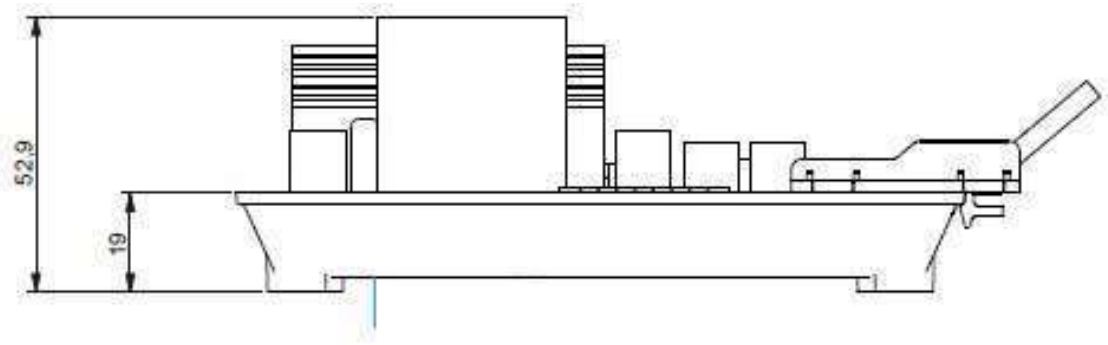
Weight: 0.45kg

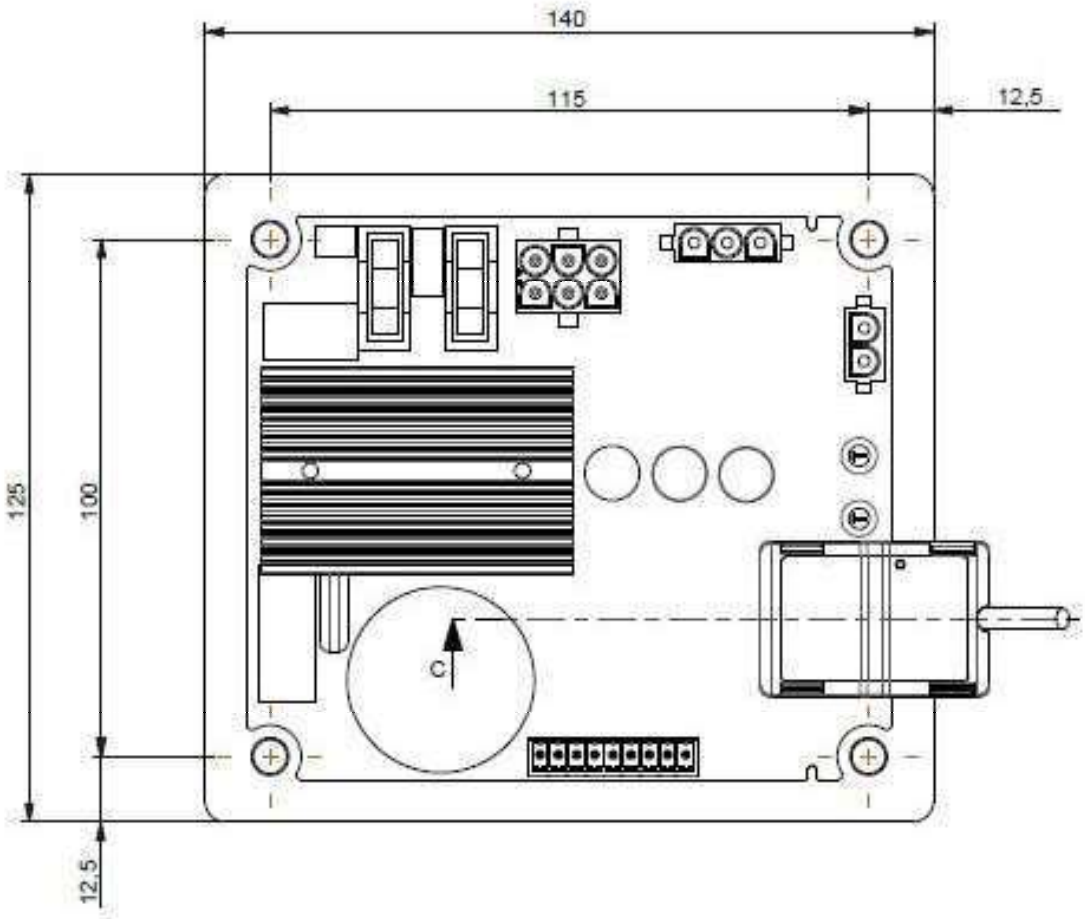
Conformity to standards

- EMC: IEC 61000-6-2, IEC 61000-6-4
- Humidity: IEC 60068-1 and test in accordance with IEC 60068-2-14
- Dry heat: IEC 60068-2-2
- Damp heat: IEC 60028-2-30
- Cold: IEC 600068-2-1

AUTOMATIC VOLTAGE REGULATOR

D350 AVR and NFLink™ Dimensions





Picture shown may not reflect actual configuration

E3855L4 Frame

General Data	
Generator Frame	E3855L4
Insulation Class	190°C (H)
Degree of protection	IP23
Leads	12
Bearing	Single Bearing
Air flow (m^3/min)	90 (50 Hz), 108 (60Hz)
Altitude (m) a.s.l.	≤1000m
Speed (rpm) – 50 Hz	1500
Speed (rpm) – 60 Hz	1800
Overspeed (rpm)	2250
Power Factor	0.8 and 1.0
T.H.D (Total Harmonic Distortion) (at no load) (%)	<5%
Non-drive end bearing	6322
Excitation system	Brushless with auxiliary coil
Stator Winding Pitch	2/3
Number of poles	4
Pole type	Saliente
Balancing	ISO1940-1

Winding Information					
Frequency	50 Hz		60 Hz		
Number for phases	Three Phase		Three Phase		
Parallel Star Y	400V	415V	380V	480V	600V
Exciter stator winding resistance at 20°C (Ohm)	10.63				
Stator winding resistance at 20°C (Ohm)	0.008				
Rotor winding resistance (Ohm)	2.5				
Voltage (V)					
Alternator mass (kg)	2370				
Inertia WR2 (kgm^2)	21.214				
Frequency	50 Hz		60 Hz		
Number for phases	Three Phase		Three Phase		
Parallel Star Y	400V	415V	380V	480V	600V
Output (kVA)					
ΔT=105C (ta=40C)	1050	960	1200	1300	1300
ΔT=125C (ta=40C)	1150	1050	1320	1400	1400
ΔT=150C (ta=40C)	1200	1100	1380	1450	1450
Efficiency (%)					
Power Factor	0.8	0.8	0.8	0.8	0.8
25% of load	92.0	91.8	93.0	93.0	93.0
50% of load	94.8	94.9	95.1	95.1	95.1
75% of load	96.0	96.1	96.1	96.1	96.1
100% of load	95.7	95.5	96.0	96.0	96.0
110% of load	95.5	95.2	95.8	95.8	95.8
Electrical Data (FP=0.8 - ΔT=125C - ta=40C)					
Frequency	50 Hz		60 HZ		
Parallel Star Y Voltage	400V	415V	380V	480V	600V
Xd (%) – Direct axis synchronous reactance	312.9	265.4	317.4		
X'd (%) – Direct axis transient reactance	17.6	14.9	17.9		
X"d (%) – Direct axis subtransient reactance	9.1	7.72	9.24		
Xq (%) – Quadrature axis sync. reactance	133.1	112.9	135.1		
X"q (%) – Quadrature axis subtrans. reactance	17.6	14.9	17.9		
X2 (%) – Negative sequence reactance	13.3	11.3	13.5		
X0 (%) – Zero sequence reactance	3.8	3.25	3.89		
T'd (ms) – Direct axis trans. short circ. time constant	245	245	245		
T"d (ms) – Direct axis subtrans. short circ. time constant	18	18	18		
T'do (ms) – Transient open circuit time constant	8100	8100	8100		
Ta (ms) – Short circuit time const. of armature	24	24	24		
ic (A) – Full load excitation current	4.3	4.7	3.9	4.3	4.3
ic (A) – No load excitation current	1.5	1.6	1.4	1.5	1.5
Sustained short-circuit current (%)	300	300	300		
Short-circuit ratio (Kcc)	0.35	0.4	0.35		

LET'S DO THE WORK.™

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Yancey Power Systems
259 Lee Industrial Blvd.
Austell, GA 30168-7406
770.941.2424 tel
770.941.2411 fax
877.278.6235 toll free
www.YanceyPower.com

Generator Control Information

Cat® GC Control Panel

Image shown might not reflect actual configuration

GCCP 1.2 - Control Panel

GCCP 1.2 is an auto Start Control Module suitable for a wide variety of diesel gen-set applications. Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs and remote PC.

FEATURES

- 4-line back-lit LCD text display
- Multiple display languages
- Five-key menu navigation
- LCD alarm indication
- Customisable power-up text and images
- Data logging facility
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB & RS485 communication
- Front panel configuration with PIN protection
- Power save mode
- 3-phase generator sensing and protection
- Generator current and power monitoring (kW, kvar, kVA, pf)
- kW and kvar overload and reverse power alarms
- Over current protection
- Unbalanced load protection
- Breaker control via fascia buttons
- Fuel and start outputs configurable when using CAN
- Support for 0 V to 10 V & 4 mA to 20 mA sensors
- 8 configurable digital inputs (3 available for Customer use)
- 8 configurable digital outputs (5 available for Customer use)
- 4 configurable analogue outputs (3 available for Customer Use)
- CAN, MPU and alternator frequency speed sensing in one variant
- Real time clock
- Engine pre-heat and post-heat functions
- Engine run-time scheduler
- Engine idle control for starting &stopping
- Fuel usage monitor and low fuel level alarms
- 3 configurable maintenance alarms

BENEFITS

- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored & displayed simultaneously for full visibility
- The module can be configured to suit a wide range of applications for user flexibility
- PLC editor allows user configurable functions to meet user specific application requirements.
- RS485 Communication port can be used for the Remote Monitoring Communication (Compatible with Cat PLG)

SPECIFICATION

DC SUPPLY
CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous
5 V for upto 1 minute

CRANKING DROPOUTS
Able to survive 0 V for 100 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries.
LEDs and backlight will not be maintained during cranking.

MAXIMUM OPERATING CURRENT
260 mA at 12 V, 150 mA at 24 V

MAXIMUM STANDBY CURRENT
145 mA at 12 V, 85 mA at 24 V

CHARGE FAIL/EXCITATION RANGE
0 V to 35 V

GENERATOR & MAINS (UTILITY) VOLTAGE RANGE
15 V to 415 V AC (Ph to N)
26 V to 719 V AC (Ph to Ph)

FREQUENCY RANGE
3.5 Hz to 75 Hz

MAGNETIC PICKUP VOLTAGE RANGE
+/- 0.5 V to 70 V

FREQUENCY RANGE
10,000 Hz (max)

INPUTS
DIGITAL INPUTS A TO H
Negative switching

ANALOGUE INPUTS A & D
Configurable as:
Negative switching digital input 0 V to 10 V sensor
4 mA to 20 mA sensor Resistive sensor

ANALOGUE INPUTS B & C
Configurable as:
Negative switching digital input Resistive sensor

OUTPUTS
OUTPUT A & B (FUEL & START)
15 A DC at supply voltage

AUXILIARY OUTPUTS C, D, E, F, G & H
2 A DC at supply voltage

DIMENSIONS OVERALL
216 mm x 158 mm x 43 mm
8.5" x 6.2" x 1.5"

PANEL CUT-OUT
184 mm x 137 mm
7.2" x 5.3"

MAXIMUM PANEL THICKNESS
8 mm
0.3"

STORAGE TEMPERATURE RANGE
-40°C to +85°C
-40 °F to +185 °F

OPERATING TEMPERATURE RANGE
-30°C to +70°C
-22 °F to +158 °F

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Cat® GC Control Panel Options

Image shown might not reflect actual configuration

Remote Annunciator Module

It is an LED expansion module that can be used with compatible control modules. The module has been designed to display a maximum of eight individual LED indications up to a maximum distance of 1 KM (0.6miles).

The Annunciator will consist of two modules to provide a 16 Channel Fault annunciation.

It is presented in a vertical enclosure. It includes an alarm sounder that is triggered when the host controller detects an alarm condition. The alarm can be muted using the front push button.

The Panels will be fitted with removable label cards which can be used to identify the standard NFPA alarms. If desired

It includes individual LEDs for each channel and a 'Power On' LED that flashes when the link with the host controller is lost.

FEATURES

- The Remote annunciator has an integral Sounder / Horn
- Eight configurable LEDs (per module)
- Works up to 1 KM (0.6 miles) from the host controller
- A single Controller can support five Caterpillar Configured remote annunciator control boxes

ENVIRONMENTAL TESTING STANDARDS

ELECTRO-MAGNETIC COMPATIBILITY
BS EN 61000-6-2
EMC Generic Immunity Standard for the Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the Industrial Environment

ELECTRICAL SAFETY
BS EN 60950
Safety of Information Technology Equipment, including Electrical Business Equipment

TEMPERATURE
BS EN 60068-2-1
Ab/Ae Cold Test -30 °C BS EN 60068-2-2
Bb/Be Dry Heat+70°C

VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz @ +/-7.5 mm, 8 Hz to 500 Hz @ 2 gn

SHOCK
BS EN 60068-2-27
Three shocks in each of three major axes 15 gn in 11 Ms

HUMIDITY
BS EN 60068-2-30
Db Damp Heat Cyclic 20/55 °C @ 95% RH 48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40 °C @ 93% RH 48 Hours

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES BS EN 60529
IP65 - Front of module when installed into the control panel with the supplied sealing gasket.

SPECIFICATION

CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous

CRANKING DROPOUTS
Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

MAXIMUM OPERATING CURRENT
112 mA at 12 V, 53 mA at 24 V

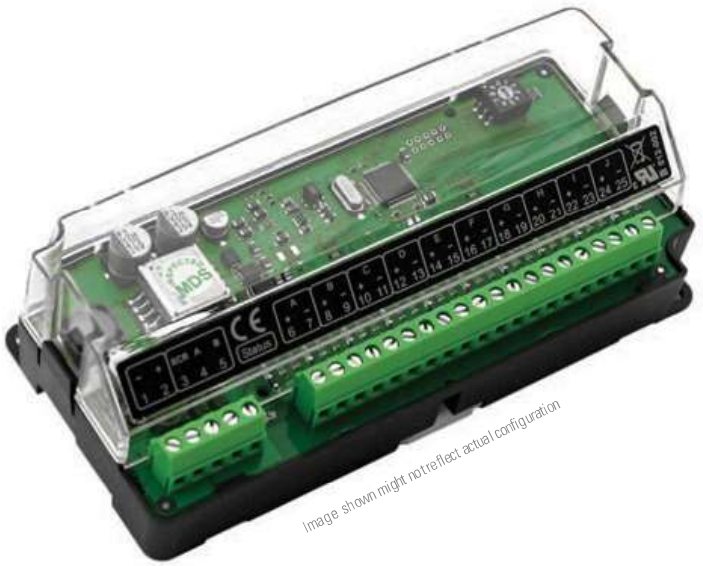
MAXIMUM STANDBY CURRENT
74 mA at 12 V, 35 mA at 24 V

DIMENSIONS OVERALL
275.5 mm x 214.2 mm x 108.8 mm
10.85" x 8.43" x 4.28"

MAXIMUM PANEL THICKNESS
8 mm
0.3"

LEHE2021-00 (08-19)

Cat® GC Control Panel Options



Input Expansion Module

The Ratiometric Input Expansion module is used in conjunction with supported controllers to provide additional, flexible, input functionality. The module's ID switch is configurable from the module and the 10 inputs can be configured from within the 'host controller'.

The ratiometric inputs can be configured in a number of ways to connect to digital switches, resistive sensors, 0-10 V DC signals or 4-20 mA signals.
LED indication is provided for 'Power On' and 'Link Lost'

FEATURES

- Power On/Link Lost LED
- 10 inputs configurable for digital/resistive 4-20 mA and 0-10 V DC
- A maximum of 4 modules can be connected to 1 host control module to provide up to 40 additional configurable inputs
- Works up to 1.2 km (0.75 miles) from the host controller
- Terminal strip connection for quick and easy set-up

ENVIRONMENTAL TESTING STANDARDS

ELECTRO-MAGNETIC COMPATIBILITY
BS EN 61000-6-2
EMC Generic Immunity Standard for the Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the Industrial Environment

ELECTRICAL SAFETY
BS EN 60950
Safety of Information Technology Equipment, including Electrical Business Equipment

TEMPERATURE
BS EN 60068-2-1
Ab/Ae Cold Test -30 °C BS EN 60068-2-2
Bb/Be Dry Heat+70°C

VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz @ +/-7.5 mm, 8 Hz to 500 Hz @ 2 gn

SHOCK
BS EN 60068-2-27
Three shocks in each of three major axes 15 gn in 11 Ms

HUMIDITY
BS EN 60068-2-30
Db Damp Heat Cyclic 20/55 °C @ 95% RH 48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40 °C @ 93% RH 48 Hours

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES BS EN 60529
IP21

SPECIFICATION

CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous

CRANKING DROPOUTS
Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs light will not be maintained during cranking.

MAXIMUM OPERATING CURRENT
292 mA at 12 V, 167 mA at 24 V mA at 24 V

MAXIMUM STANDBY CURRENT
101 mA at 12 V, 167 mA at 24 V

INPUTS
10 inputs configurable for digital/resistive (3k ohms) 4-20 mA and 0-10 V DC

DIMENSIONS OVERALL
165 mm x 76 mm x 49 mm
6.5" x 3" x 1.9"

STROAGE TEMPERATURE RANGE
-40°C TO +85°C

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Cat® GC Control Panel Options

Image shown might not reflect actual configuration

OUTPUT EXPANSION MODULE

Output relay expansion module for use with compatible control modules. The Output Expansion module has been designed to extend a host module's output capabilities.

A maximum of 10 Output Expansion modules can be connected to an individual module at any one time. All outputs are configurable via the host controller.

The module will work up to 1 KM (0.6miles) from the host control module

FEATURES

- Power On/Link Lost LED ID SWITCH
- 10 expansion modules can be connected to 1 host controller at a time
- 8 configurable relay contacts with LED indicators:
- 4 Normally Open (N/O)
- 4 Change Over (C/O)
- Terminal strip connection for quick and easy set-up

ENVIRONMENTAL TESTING STANDARDS

ELECTRO-MAGNETIC COMPATIBILITY
BS EN 61000-6-2
EMC Generic Immunity Standard for the Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the Industrial Environment

ELECTRICAL SAFETY
BS EN 60950
Safety of Information Technology Equipment, including Electrical Business Equipment

TEMPERATURE
BS EN 60068-2-1
Ab/Ae Cold Test -30 °C BS EN 60068-2-2
Bb/Be Dry Heat+70°C

VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz @ +/-7.5 mm, 8 Hz to 500 Hz @ 2 gn

SHOCK
BS EN 60068-2-27
Three shocks in each of three major axes 15 gn in 11 Ms

HUMIDITY
BS EN 60068-2-30
Db Damp Heat Cyclic 20/55 °C @ 95% RH 48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40 °C @ 93% RH 48 Hours

SPECIFICATION

CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous

CRANKING DROPOUTS
Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

MAXIMUM OPERATING CURRENT
325 mA at 12 V, 152 mA at 24 V

MAXIMUM STANDBY CURRENT
70 mA at 12 V, 32 mA at 24 V

AUXILIARY RELAY CONTACTS
2 Amp DC rated voltage free

DIMENSIONS OVERALL
165 mm x 76 mm x 49 mm
6.5" x 3" x 1.9"

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www.Cat.com/electricpower

Yancey Power Systems
259 Lee Industrial Blvd.
Austell, GA 30168-7406
770.941.2424 tel
770.941.2411 fax
877.278.6235 toll free
www.YanceyPower.com

Generator Enclosure
&
Fuel System Information

Enclosure

Image shown may not reflect actual configuration.

Enclosures
D800 GC – D1250 GC NA
C27 / C32

Sound Attenuated and Weather Protective

These sound attenuated and weather protective, factory installed enclosures are designed for safety and aesthetic value. Rugged construction provides weather protection and the ability to withstand exposure to the elements.

FEATURES

Robust/Highly Corrosion-Resistant Construction

- Environmentally friendly, polyester powder-baked paint in Caterpillar White
- Zinc plated and stainless steel fasteners
- 14-Gauge steel construction
- Flat roof with protection for water ingress from rain
- Critical grade internally mounted muffler/exhaust system
- Soft mounted isolators
- 75 dbA @ 7m for sound attenuated enclosures
- 100 mph wind loading
- Refer TMI for ambient capability data

Excellent Access

- Control panel mounted on RH side with an optional auxiliary box on the LH side of the package
- Large cable entry area for the ease of installation
- Left-hand or Right-hand bottom entry access to power cable bus or circuit breaker
- Multiple doors on both sides allow easy access to service points
- Hinged doors allow 180° opening rotation
- Lube oil and coolant drains piped to exterior of enclosure and terminated drain valves
- Radiator fill cover

Options

- Weather protective enclosure available with same footprint
- Interior DC lighting systems
- Caterpillar White paint (default)
- 100 (factory installed), 3000 and 4000 (shipped loose) gallon fuel tanks

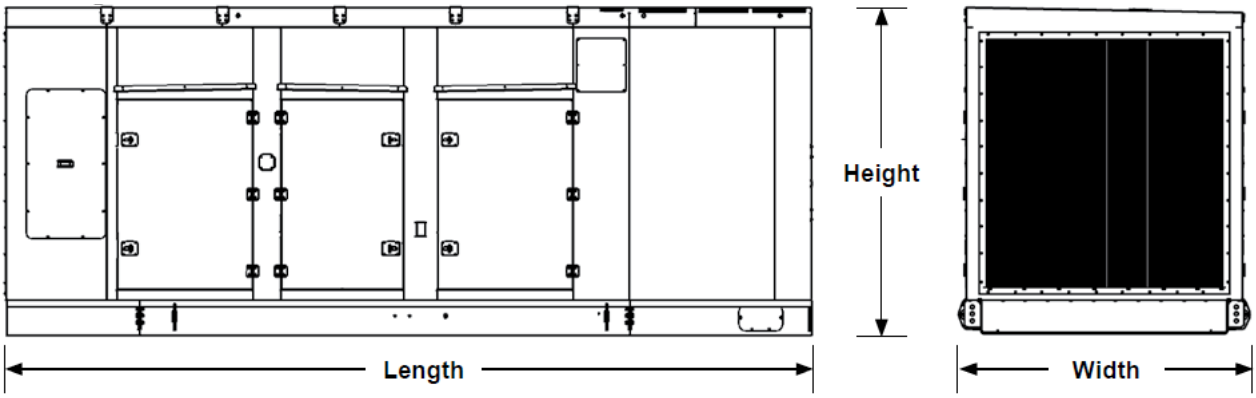
Security and Safety

- Lockable access doors with standard key use
- Cooling fan and battery charging alternator fully guarded
- Oil fill and battery can only be reached via lockable access
- External fuel connections
- Externally mounted emergency stop buttons
- Designed for spreader bar lifting to ensure safety

Certifications

- UL 2200 listed & cUL
- Seismic certification per applicable building codes: IBC 2021
- Tested and analysed in accordance with: ASCE 7-98, ASCE 7-02, ASCE 7-05, ICC-ES AC-156

Enclosure Weights and Dimensions



Sound Attenuated Enclosure Base Options*	Weight kgs (lbs)	Length mm (in)	Width mm (in)	Height mm (in)
With lifting base	2672 (5891)	6610 (260)	2342 (92.2)	2350 (92.5)
With 2100 gal integral tank base	4891 (10783)	7620 (300)	2350 (92.5)	3265 (128.5)
With 3000 gal tank with lifting base	5638 (12429)	7646 (301)	2471 (97)	3565 (140)
With 4200 gal tank with lifting base	6563 (14468)	7646 (301)	2471 (97)	3870 (152)

Weather Protective Enclosure Base Options*	Weight kgs (lbs)	Length mm (in)	Width mm (in)	Height mm (in)
With lifting base	2452 (5405)	6610 (260)	2342 (92.2)	2350 (92.5)
With 2100 gal integral tank base	4671 (10298)	7620 (300)	2350 (92.5)	3265 (128.5)
With 3000 gal tank with lifting base	5418 (11944)	7646 (301)	2471 (97)	3565 (140)
With 4200 gal tank with lifting base	6343 (13984)	7646 (301)	2471 (97)	3870 (152)

Note: For reference only – do not use for installation design. Please contact your dealer for exact weights and dimensions.
*Weight does not include package generator set weight.

Exhaust Back-Pressure Data

Generator Set Models	Enclosed Set L2 (75 dBA) kPa (allowable) at 100% Load
D800 GC	–
D1000 GC	–
D1250 GC	6.7

Generator Set Weights

Generator Set Weights**	Weight kgs (lbs)
C27 Open generator set	5813 (12815)
C32 Open generator set	6798 (14987)

**Dry Weight of heaviest configuration and without base rail weight (Does not include exhaust system weights).

LET'S DO THE WORK.™

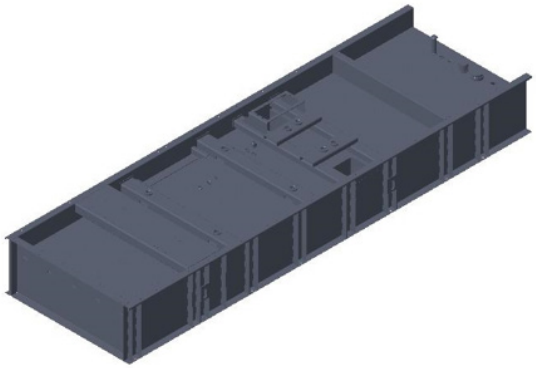
100 Amp Load Center

Image shown may not reflect actual package

Specifications

Number of spaces	6
Number of circuits	12
Number of tandem circuit breakers	6
System voltage	120/240VAC
NEMA degree of protection	NEMA 3R outdoor
Electrical connection	Lugs
Wiring configuration	3-wire
Material	Tin plated aluminum busbar
Enclosure material	Welded galvannealed steel
Cover finish	Gray baked enamel
Product certifications	UL E-6294

Cat® GC
Fuel Tank Bases



Picture shown may not reflect actual configuration

Fuel Tank Bases for D800 GC - D1250 GC

Dual Wall fuel tank bases offer an integrated fuel solution for your Cat GC diesel generator set.

Features

- UL 142 (US) and ULC S601 (Canada) Listed
- Facilitates compliance to NFPA 30, 70 and 110
- CSA C282-09 and B139-04 installation compliant
- Dual wall, secondary containment (minimum of 110%of primary tank capacity)
- Tank design provides capacity for thermal expansion of fuel
- Direct reading fuel level gauge
- Fuel supply dip tube is positioned so as not to pick up fuel sediment
- Fuel return and supply dip tubes are separated by an internal baffle to prevent recirculation of heated return fuel
- Fuel fill – 43 mm (1.7 in), lockable flip top cap
- Primary tank level detection switch in containment basin
- Primary and secondary tanks are leak tested at 20.7 kPa (3 psi) minimum
- Interior tank surfaces coated with a solvent-based thin-film rust preventative
- Heavy gauge steel gussets suitable for lifting package (2100 gal only)
- Gloss black polyester alkyd acrylic enamel exterior paint over epoxy based primer
- Primary tanks are equipped with customer Lockable 2" raised fuel fill with optional seven gallon spill containment
- Leak detection switch
- Port for access to containment tank
- Removable engine supply and return dip tubes
- Fittings for opt fuel levels or auxiliary fuel pump
- Excellent stub-up access beneath circuit breaker (within fuel tank)
- Emergency vents on primary and secondary tanks are sized in accordance with NFPA 30, external to enclosure.
- Optional installed fuel level indication at the generator set control panel.
- Optional seismic certification per applicable building codes: IBC 2021
- Tested and analyzed in accordance with: ASCE 7-98, ASCE 7-02, ASCE 7-05, ICC- ES AC-156
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength. IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer.

Cat® GC Fuel Tank Bases

Standby Rating		Engine	Strategy	Run Time @ 100% Load (Hrs)		
ekW	kVA			2100 gal	3000 gal*	4200 gal*
1250	1562	C32	ESE (Tier 2)	24.3	34.8	48.7
1000	1250	C32	ESE (Tier 2)	29.4	42.0	58.7
800	1000	C27	ESE (Tier 2)	37.8	54.0	75.5

*Requires enclosure lifting base, and fuel tank is shipped loose. Not available with IBC certification.

LET'S DO THE WORK.™

www.cat.com/electricpower

LEHE20309-00 (10/22)

Spill Containment Box

Image shown may not reflect actual configurati

7 Gallon Fuel Spill containment for 1000 or 2000 gallon fuel tanks for C27 and C32.

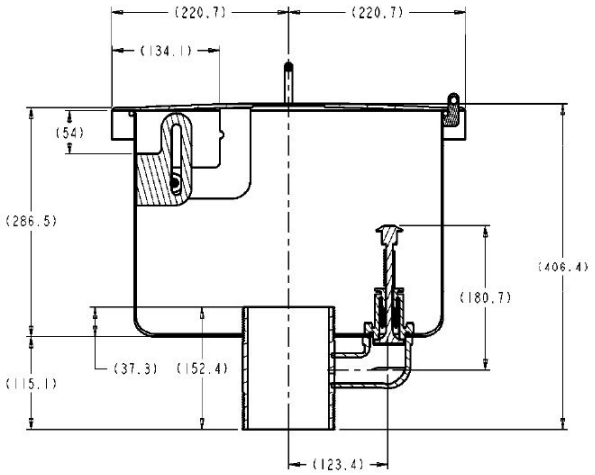
Durable spill containment box designed for containment of small spills during filling of an above ground storage tank.

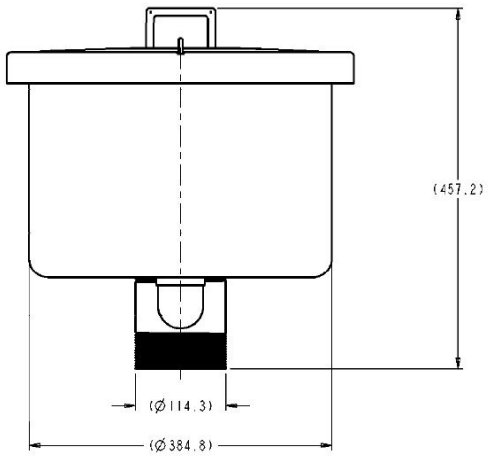
Features

- ULC listing
- The base and lid made of 12 gauge mild steel
- Nylon washers at contact points to prevent rust
- Spun construction minimizes leakage
- Weather deflecting lid
- Push drain
- Cover lock
- Offset drain style
- Rolled lip on base

Dimensions

- Height: 406.4mm (16")
- Height with handle: 457.2mm (18")
- Width: 441.3mm (17.4")
- Pipe diameter: 114.3 (4.5")
- Body diameter: 384.8 (15.14")



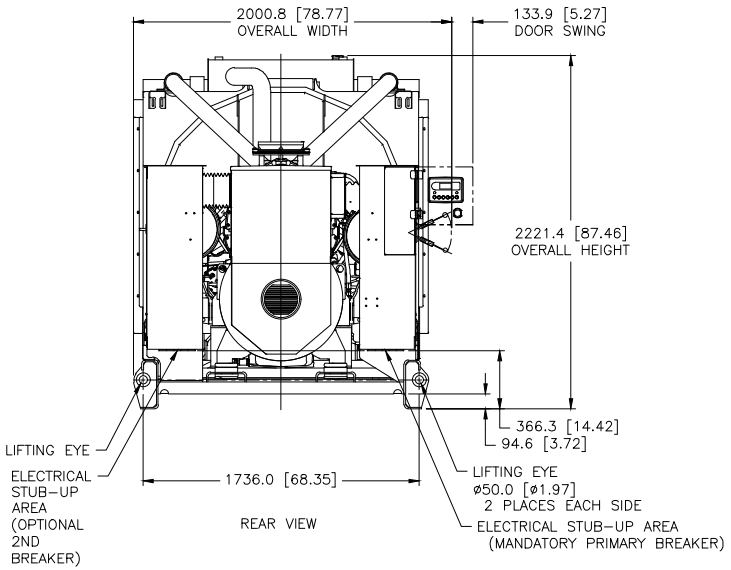


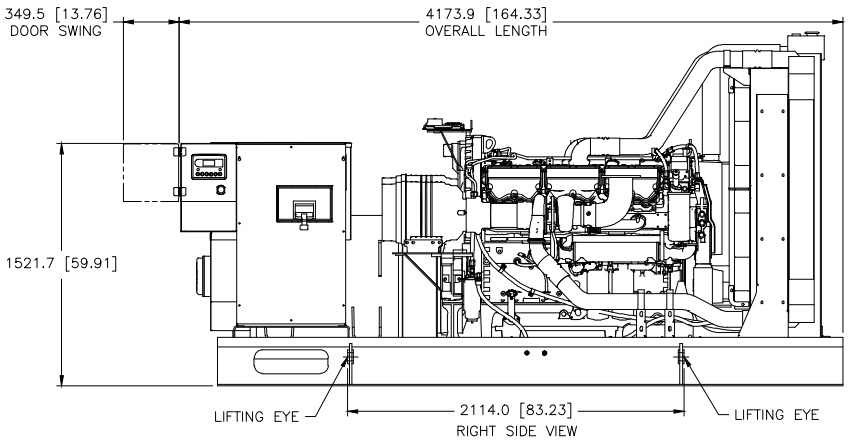
Yancey Power Systems
259 Lee Industrial Blvd.
Austell, GA 30168-7406
770.941.2424 tel
770.941.2411 fax
877.278.6235 toll free
www.YanceyPower.com

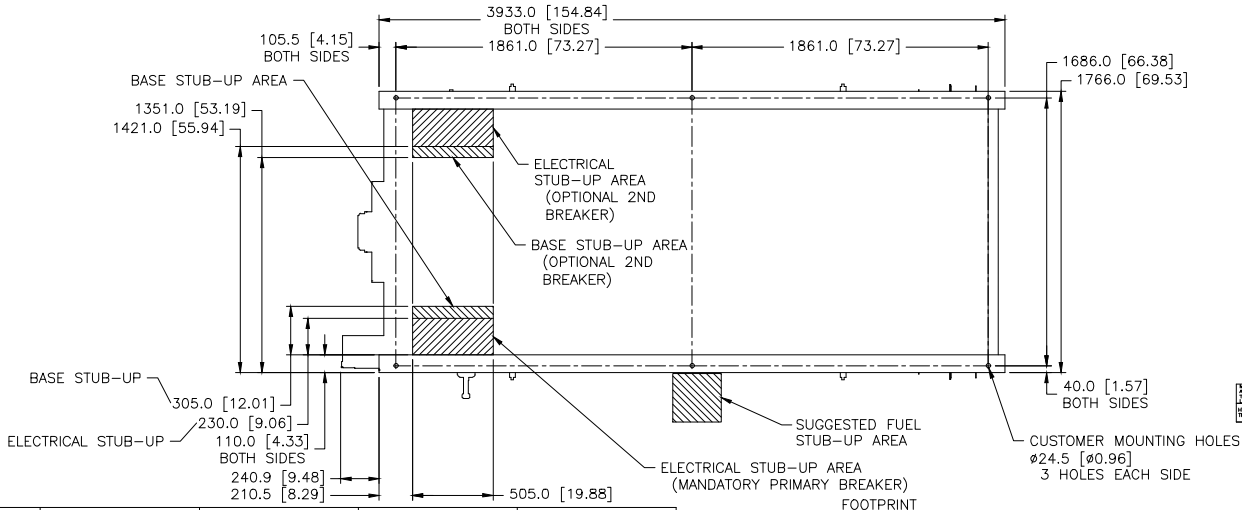
Generator Drawings & Wiring Schematics

METRIC 621-3215

QTY	ENGINE CONNECTIONS	SIZE	SHEETS
1	FUEL INLET	1/2-14 NPTF THD	2,3
1	EXCESS FUEL RETURN	1/2-14 NPTF THD	2,3
2	EXHAUST	SEE DETAIL SHEET 7	2,4,6,7
1	ENGINE BREATHER OUTLET	ø76.0 [ø2.99] O.D.	2,5
1	OIL DRAIN	1-1/16-12 THD	3,4
1	RADIATOR DRAIN	3/4-16 THD	3,4







FOOTPRINT
(DIMENSIONED OUTLINE VIEW FROM ABOVE)

MODEL	TYPE	PRICING AR	GENERATORS	1ST BREAKER	2ND BREAKER	MANDATORY ATT
C32	–	LF-5438 CHG 01	LF-5644 CHG 00 LF-5647 CHG 00 LF-5649 CHG 00 LF-5651 CHG 00 LF-5654 CHG 00	LF-5659 CHG 00 LF-5660 CHG 00 LF-5661 CHG 00 LF-5662 CHG 00 LF-5663 CHG 00 LF-5664 CHG 00 LF-5665 CHG 00 LF-5666 CHG 00 LF-5667 CHG 00	LF-5668 CHG 00 LF-5669 CHG 00 LF-5670 CHG 00	LF-5657 CHG 00 LF-5656 CHG 00 LF-5598 CHG 02 605-1997 CHG 00 LF-5698 CHG 00 607-0611 CHG 01 LF-5692 CHG 00 LF-5691 CHG 00

PACKAGE LIFTED IN 4 PLACES ON SKIDBASE

PACKAGE SHOWN WITH MORE DETAIL ON SHEETS 2 THRU 10

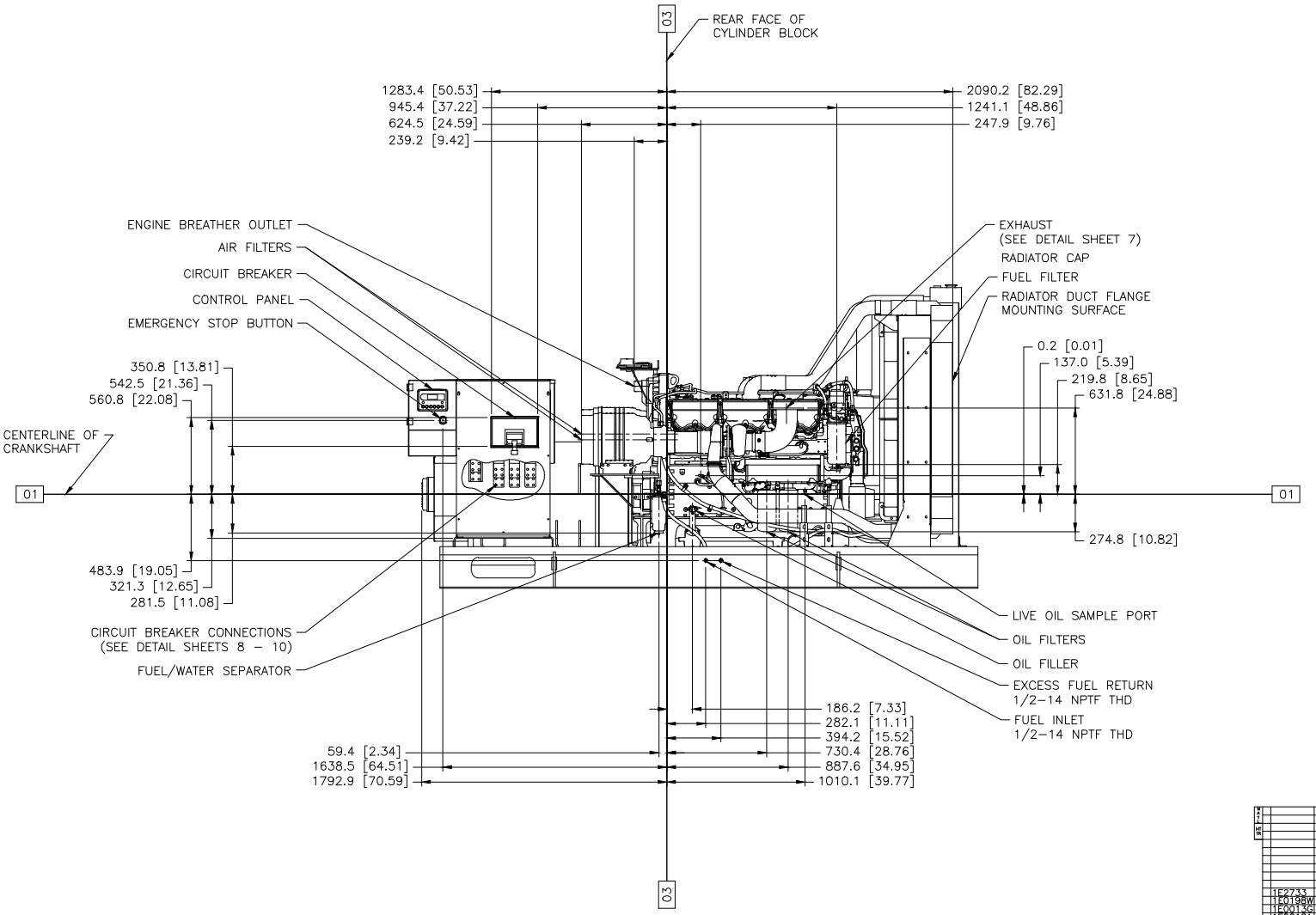
1E2733 DRAWING-AUTOCAD
1E0136W BRAND MARKINGS
1E0013G CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL

DRN B.R.VILLENA
CHK M.J.SWIFT
APVD N.P. MOUNTJOY
STAGE RECORDS
SCALE 1 = 10
SHEET 1 OF 10
00 20SEP21

CATERPILLAR INC.

INSTALLATION-ENGINE
C32 60HZ 1000KW OPEN
621-3215 – A1B0 E

METRIC 621-3215



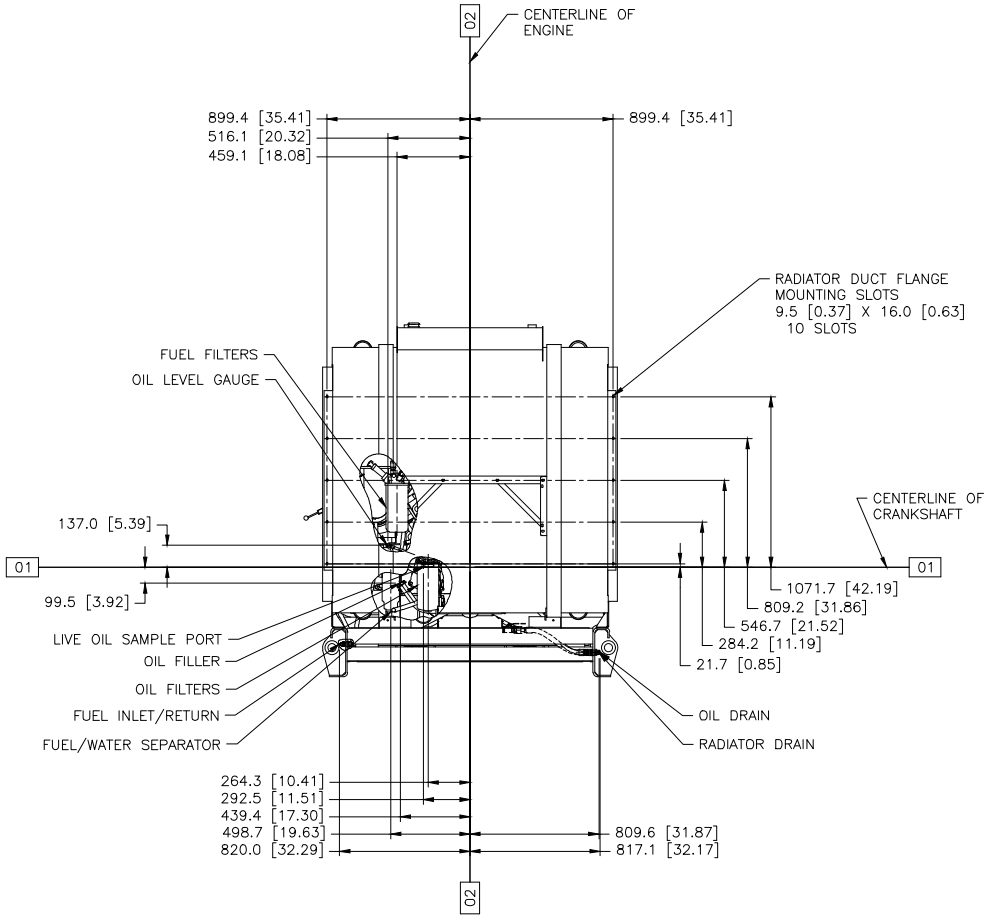
C32 60HZ 1000KW OPEN
DWG# 621-3215 CHG 00
METRIC [INCH]
RIGHT SIDE VIEW
LF-5438 CHG 01 W/ MANDATORY ATTACHMENTS SHOWN

1E2733	DRAWING - AUTOCAD
1E0136W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL

DRN B.R.VILLENA
CHK M.J.SWIFT
APVD N.P. MOUNTJOY
STAGE RECORDS
SCALE 1 = 10
SHEET 2 OF 10
00 20SEP21

CATERPILLAR INC.

INSTALLATION-ENGINE
C32 60HZ 1000KW OPEN
621-3215 – E
A1B0



C32 60HZ 1000KW OPEN
DWG# 621-3215 CHG 00
METRIC [INCH]
FRONT VIEW
LF-5438 CHG 01 W/ MANDATORY ATTACHMENTS SHOWN

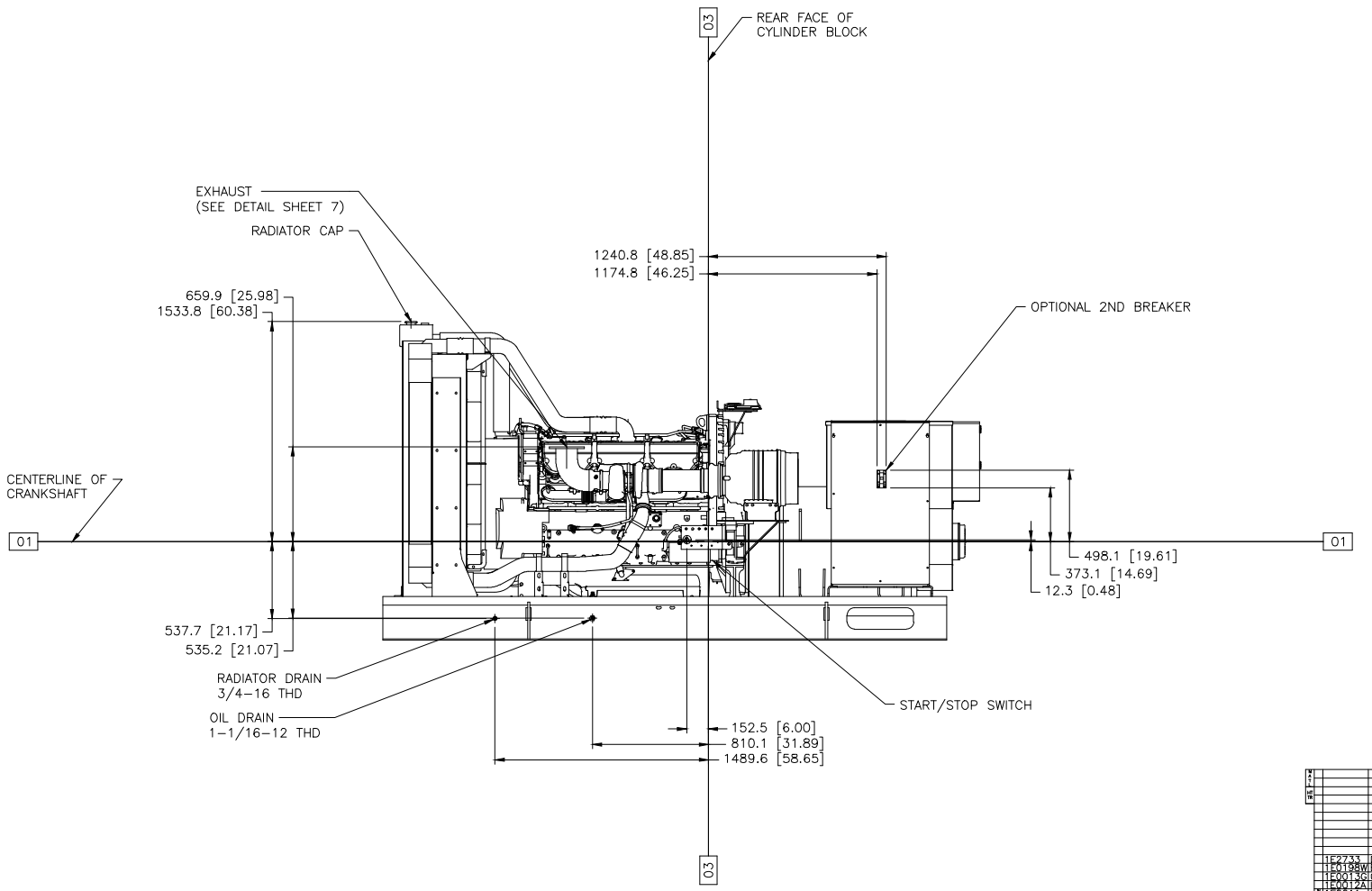
1E2733 DRAWING-AUTOCAD
1E0136W BRAND MARKINGS
1E0013C CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL

DRN	B.R.VILLENA
CHK	M.J.SWIFT
APVD	N.P. MOUNTJOY
STAGE	RECORDS
SCALE	1 = 10
SHEET	3 OF 10
CHG	00
DATE	20SEP21

CATERPILLAR INC.

INSTALLATION-ENGINE
C32 60HZ 1000KW OPEN
621-3215 — A1B0 E

METRIC 621-3215



C32 60HZ 1000KW OPEN
DWG# 621-3215 CHG 00
METRIC [INCH]
LEFT SIDE VIEW
LF-5438 CHG 01 W/ MANDATORY ATTACHMENTS SHOWN

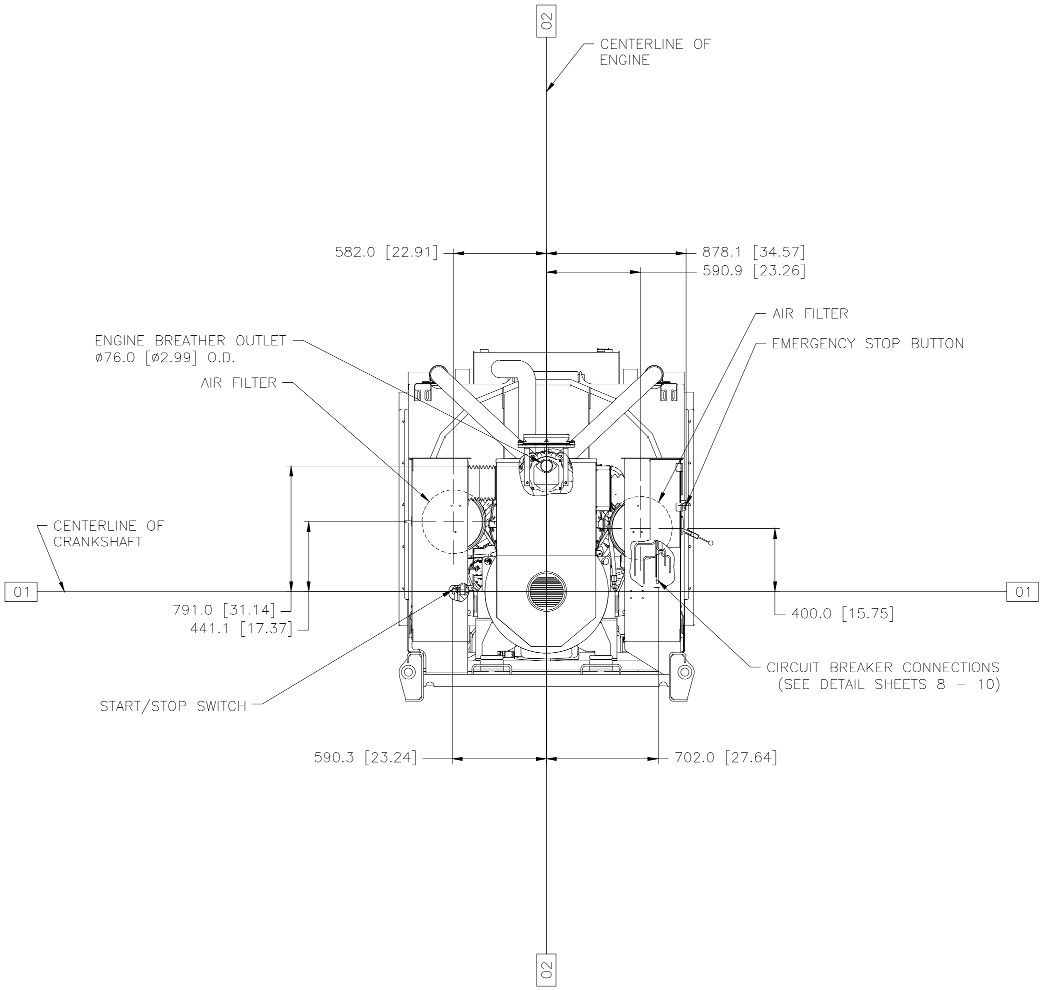
1F2733	DRAWING - AUTOCAD
1F0136W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL

DRN B.R.VILLENA
CHK M.J.SWIFT
APVD N.P. MOUNTJOY
STAGE RECORDS
SCALE 1 = 10
SHEET 4 OF 10
00 20SEP21

CATERPILLAR INC.

INSTALLATION-ENGINE
C32 60HZ 1000KW OPEN
621-3215 E

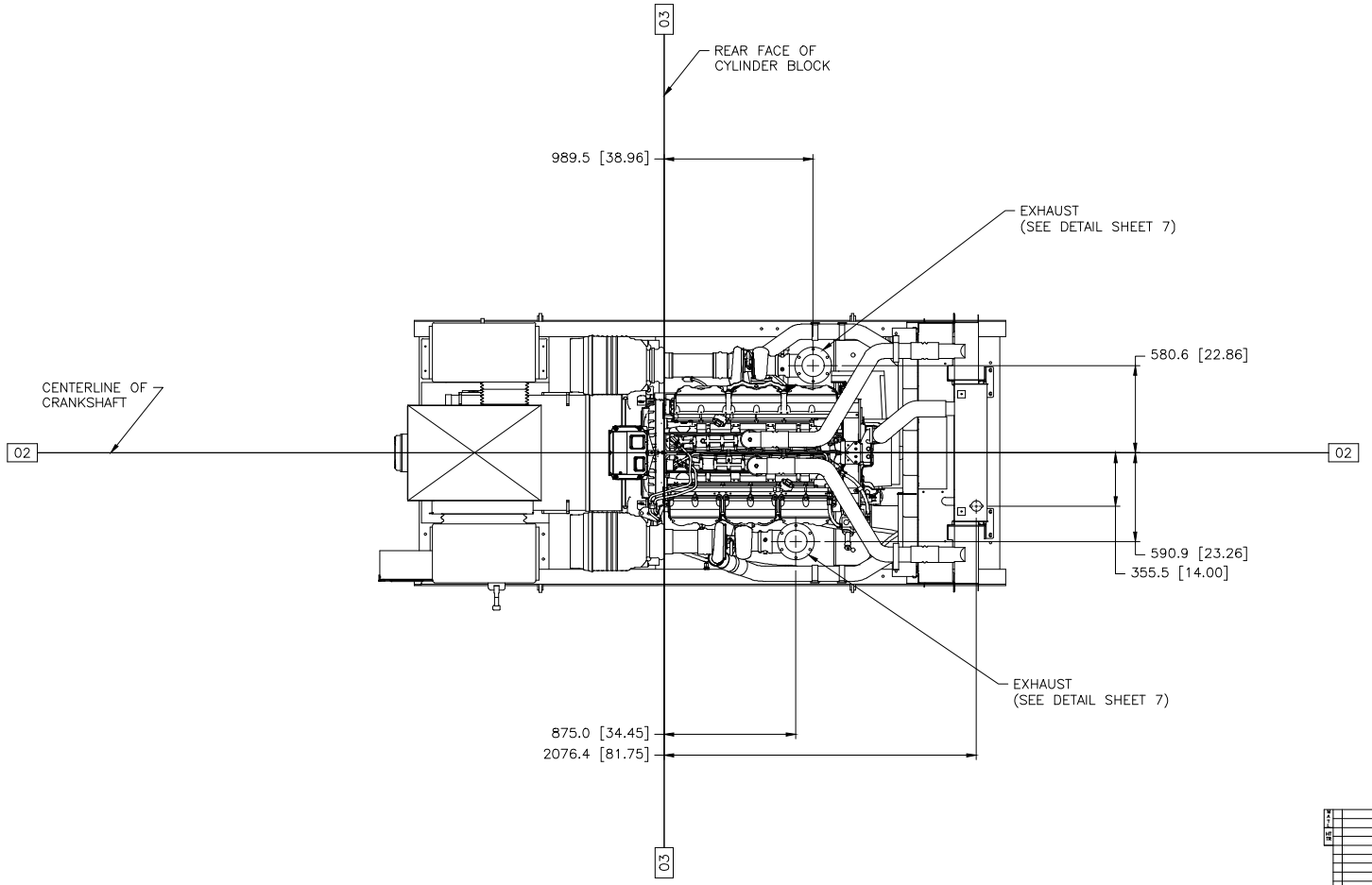
METRIC 621-3215



C32 60HZ 1000KW OPEN
DWG# 621-3215 CHG 00
METRIC [INCH]
REAR VIEW
LF-5438 CHG 01 W/ MANDATORY ATTACHMENTS SHOWN

1E2733 DRAWING-AUTOCAD
1E0198W BRAND MARKINGS
1E0013G CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL
DRN B.R.VILLENA
CHK M.J.SWIFT
APPD N.P. MOUNTJOY
RECORDS X
SCALE 1 = 10
SHEET 5 OF 10
00 20SEP21
CATERPILLAR INC.
INSTALLATION-ENGINE
C32 60HZ 1000KW OPEN
621-3215 A180 E

METRIC 621-3215



C32 60HZ 1000KW OPEN
DWG# 621-3215 CHG 00
METRIC [INCH]
TOP VIEW
LF-5438 CHG 01 W/ MANDATORY ATTACHMENTS SHOWN

1E2733 DRAWING-AUTOCAD
1E0136W BRAND MARKINGS
1E0013G CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL

	SPEC NO.	MAC
DRN	B.R.VILLENA	
CHK	M.J.SWIFT	
APVD	N.P. MOUNTJOY	
DOC APP	CHF	PROD

STAGE RECORDS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MM [INCH]
DIMENSIONS W/O TOL ARE BASIC

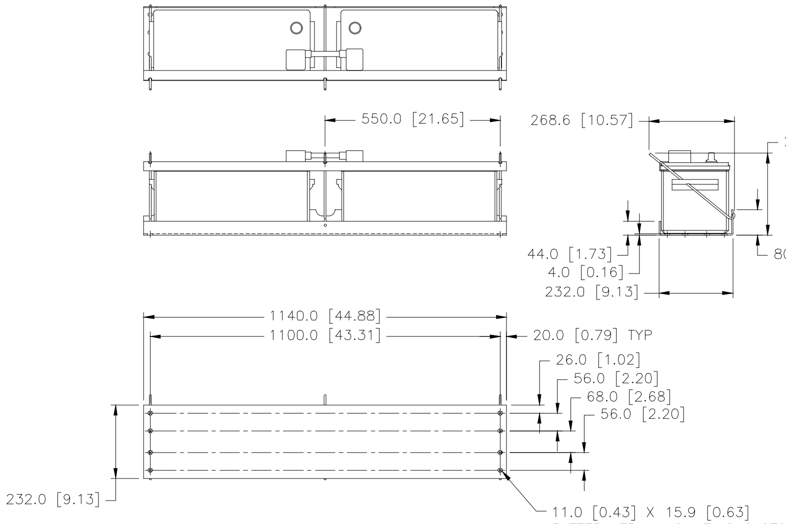
SCALE 1 = 10
WEIGHT (KG) N/A
SHEET 6 OF 10 THIRD ANGLE PROJECTION

00 20SEP21
CHG DATE

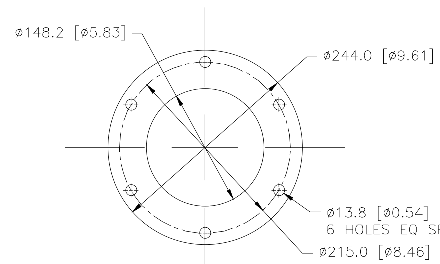
CATERPILLAR INC.

INSTALLATION-ENGINE
C32 60HZ 1000KW OPEN
621-3215 — DOC TYP SUB A1B0 E

METRIC 621-3215



DETAIL OF BATTERY GP
LF-5698 CHG 00
(SHIPPED LOOSE)
SCALE 1=5



DETAIL OF EXHAUST
SCALE 1=2

SPEC NO.	NAME
1E2733	DRAWING-AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL

DRN B.R.VILLENA
CHK M.J.SWIFT
APPD N.P. MOUNTJOY
CONCEPT | EXP | PRE PROD. | PROD.
OTHER RECORDS X

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MM [INCH]
DIMENSIONS W/O TOL ARE BASIC

SCALE 1 = 10
SHEET 7 OF 10
THIRD ANGLE PROJECTION

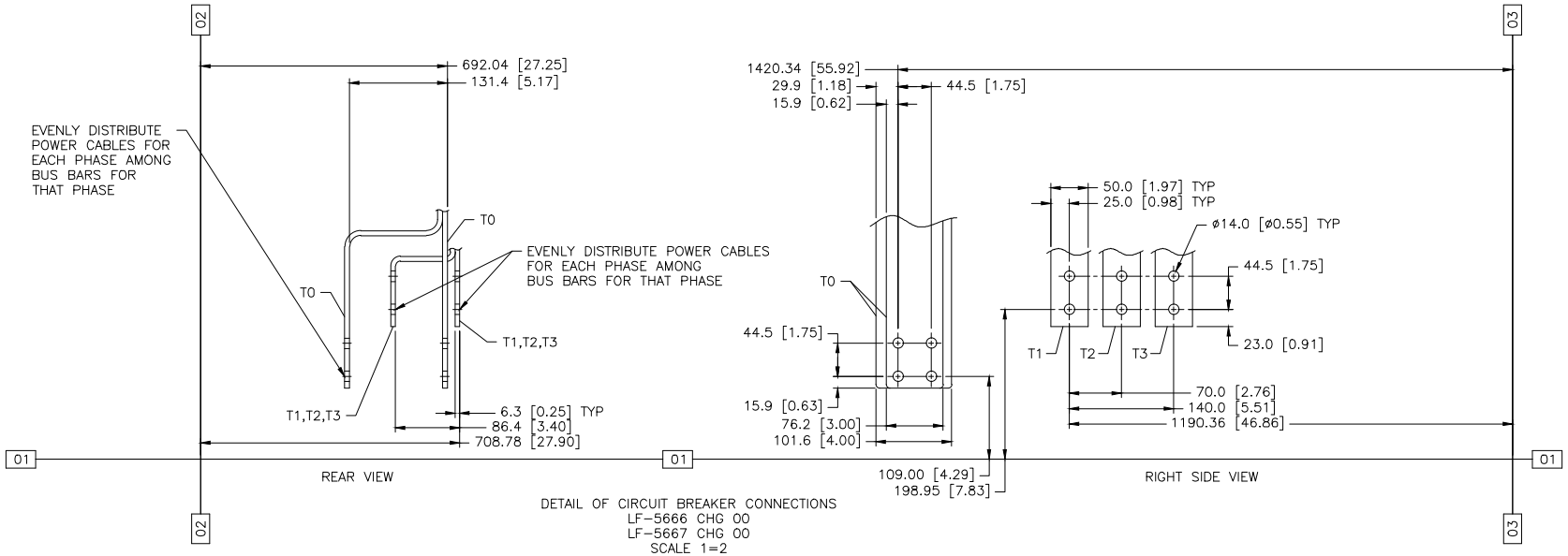
CHG 00 DATE 20SEP21

CATERPILLAR INC.

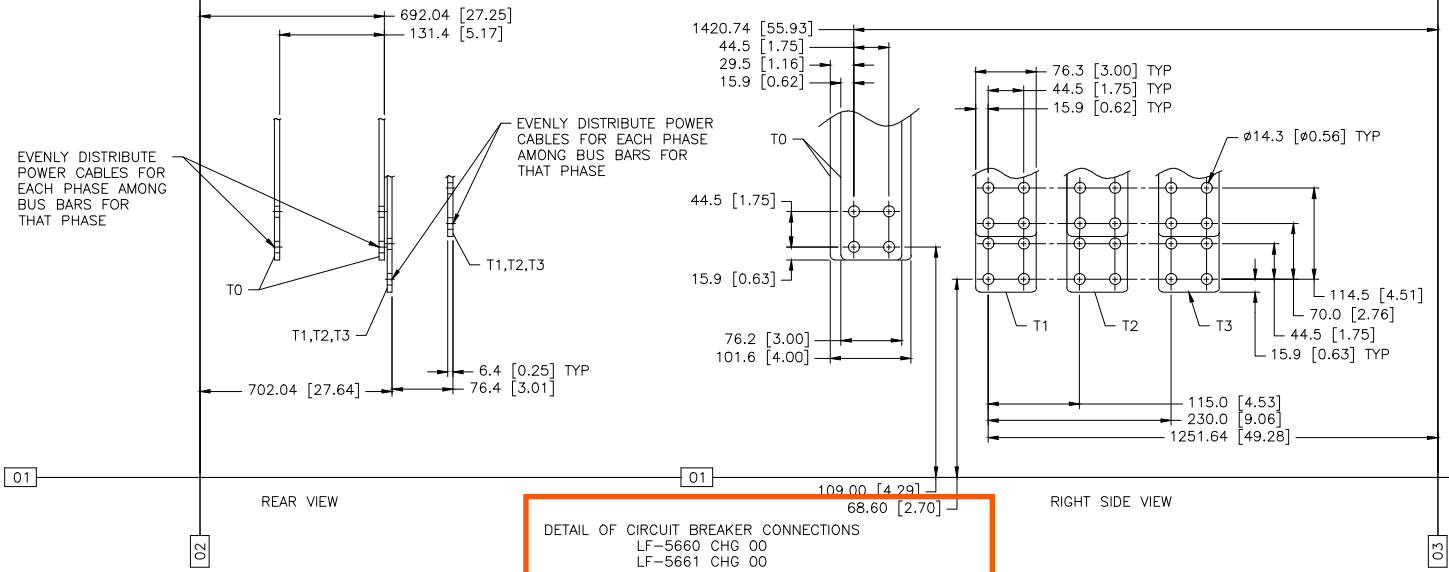
INSTALLATION-ENGINE
C32 60HZ 1000KW OPEN

621-3215 VER – CONTROL DES A180 E

METRIC 621-3215



DETAIL OF CIRCUIT BREAKER CONNECTIONS
LF-5666 CHG 00
LF-5667 CHG 00
SCALE 1=2



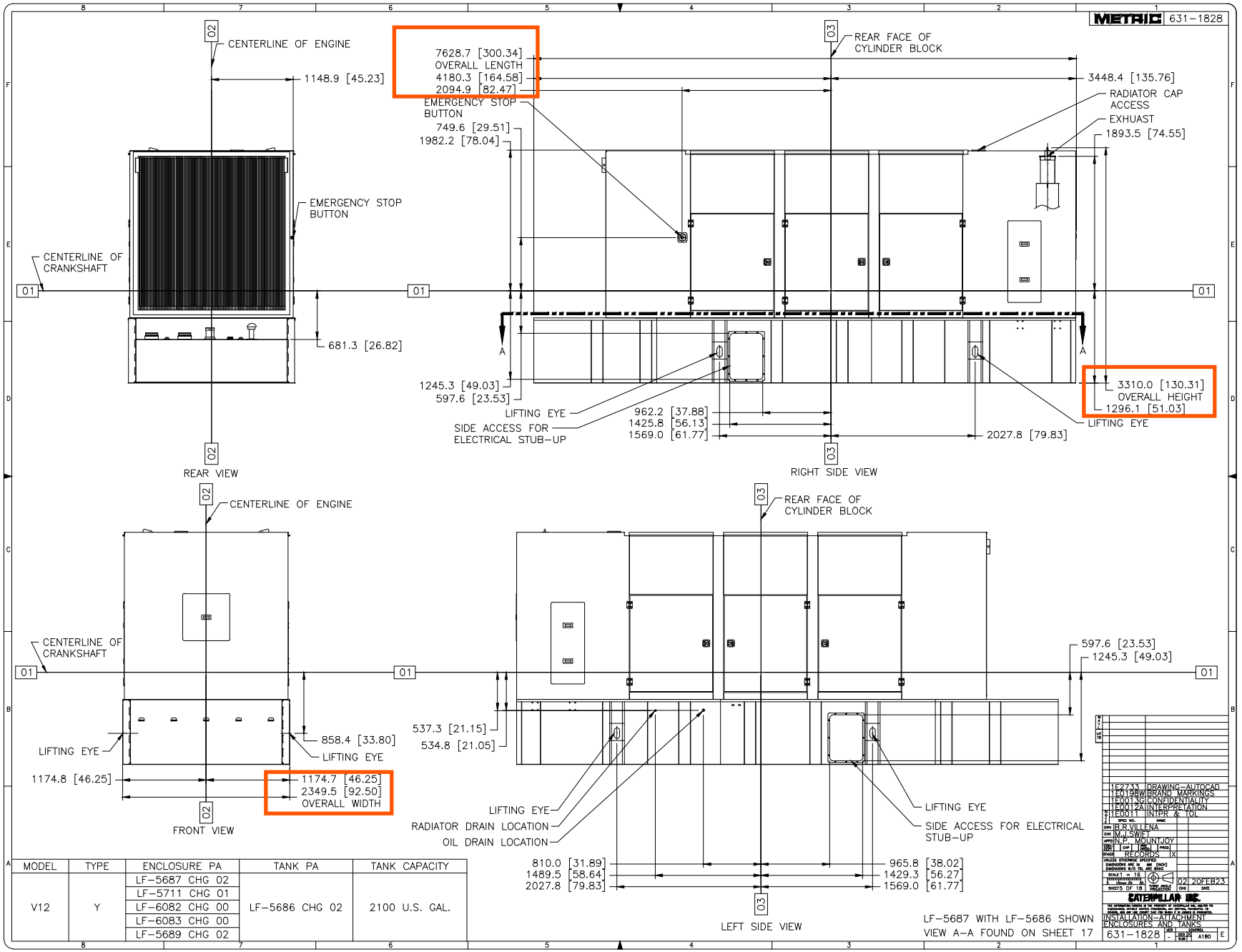
DETAIL OF CIRCUIT BREAKER CONNECTIONS
LF-5660 CHG 00
LF-5661 CHG 00
SCALE 1=2

1E2733 DRAWING - AUTOCAD
1E0136W BRAND MARKINGS
1E0013C CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 IN1PR & TOL

DRN B.R.VILLENA
CHK M.J.SWIFT
APVD N.P. MOUNTJOY
STAGE RECORDS
SCALE 1 = 10
SHEET 1 OF 10
00 20SEP21

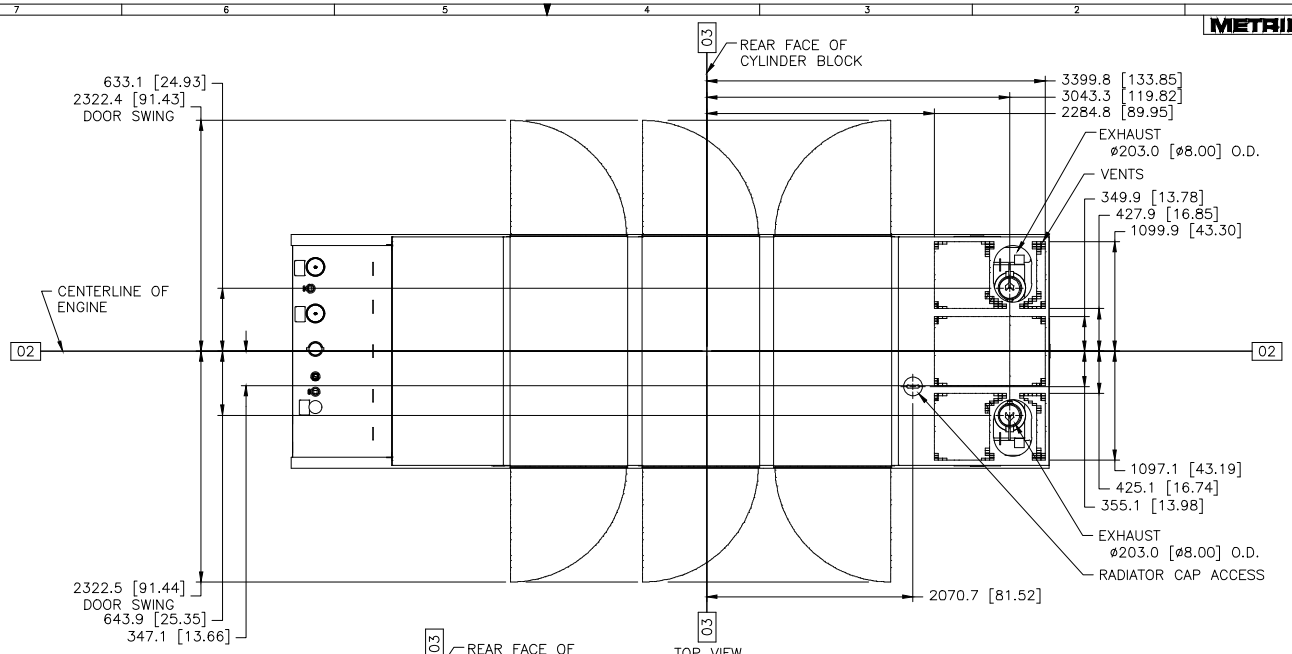
CATERPILLAR INC.

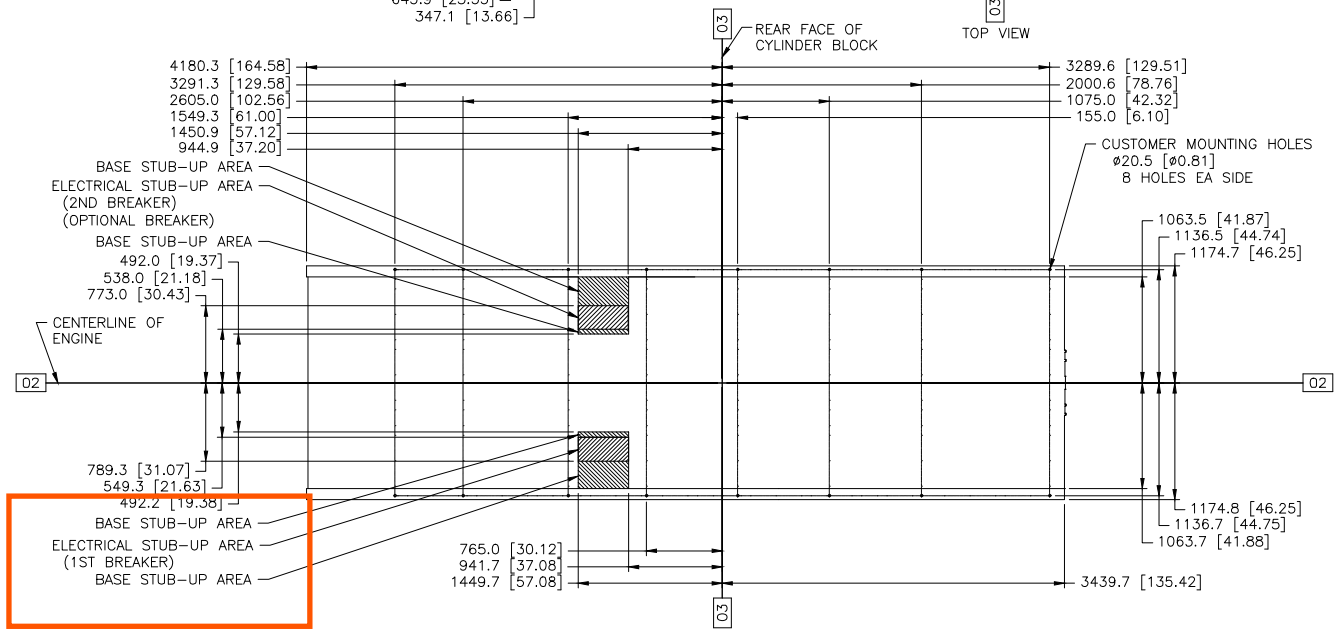
INSTALLATION-ENGINE
C32 60HZ 1000KW OPEN
621-3215 E



MODEL	TYPE	ENCLOSURE PA	TANK PA	TANK CAPACITY
V12	Y	LF-5687 CHG 02	LF-5686 CHG 02	2100 U.S. GAL.
		LF-5711 CHG 01		
		LF-6082 CHG 00		
		LF-6083 CHG 00		
		LF-5689 CHG 02		

METRIC 631-1828





LF-5687 WITH LF-5686 SHOWN

1E2733 DRAWING-AUTOCAD
1E0136W BRAND MARKINGS
1E0013G CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL

DRN B.R.VILLENA
CHK M.J.SWIFT
APVD N.P. MOUNTJOY
STAGE RECORDS

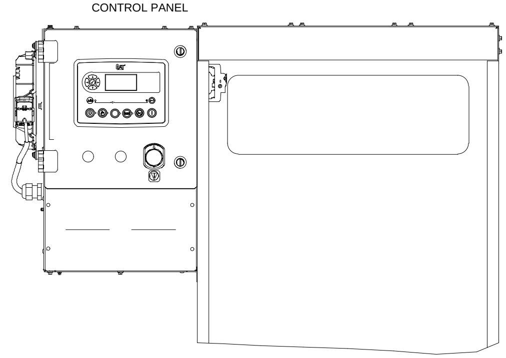
SCALE 1 = 16
SHEETS OF 18
02 20FEB23

CATERPILLAR INC.

INSTALLATION-ATTACHMENT ENCLOSURES AND TANKS

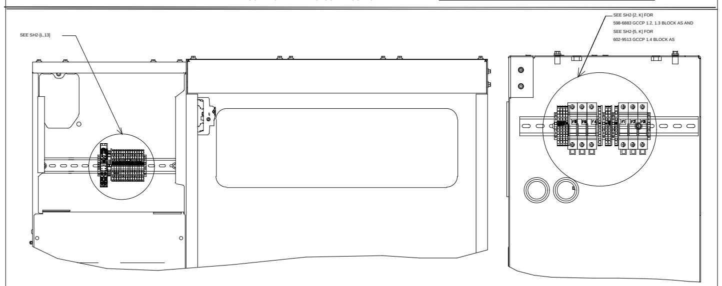
631-1828 - E

CONTROL PANEL



CONTROL PANEL - CLOSED POSITION

606-3828	GCCP 1.2	NORTH AMERICA (AUTO START)
599-3959	GCCP 1.3	REST OF WORLD (AUTO MAINS FAILURE)
602-9241	GCCP 1.4	REST OF WORLD (SYNCHRONIZING)



LEFT INTERIOR WALL OF CIRCUIT BREAKER ENCLOSURE

CONTROL PANEL - OPEN POSITION

SHEET	HARNESS DESCRIPTION	LOCATION
SHEET 1	CONTROL PANEL VIEW(CLOSED)	L-16
	CONTROL PANEL VIEW(OPEN)	G-16
	SCHNEIDER EASYPACT MVS CIRCUIT BREAKER PART NUMBER TABLE	G-6
	CHINT NA8 CIRCUIT BREAKER PART NUMBER TABLE	B-18
	WIRING HARNESS AND WIRING GP PART NUMBER TABLE	L-7
	ALTERNATOR PART NUMBER TABLE	C-5
	SCHNEIDER POWER PACT P/R/L-FRAME PART NUMBER TABLE	E-11
	GROUND WIRE CABLE LIST	B-15
	GCCP I/O CONFIGURATION TABLE	G-11
	SCHNEIDER MASTERPACT NW CIRCUIT BREAKER (IEC_CE & UKCA CERTIFIED)	E-6
	FUSE TABLE	B-8
SHEET 2	AC DISTRIBUTION PANEL	E-18
	AC DISTRIBUTION PANEL WITH LOAD CENTER	E-9
	WIRING GP (GENERAL RUN/FAULT RELAY)	L-18
	ENCLOSURE LIGHT BLOCKS	L-16
	TELEMATICS FUSE	L-15
	GROUND FAULT ANNUNCIATE OPTION	L-9
	CIRCUIT BREAKER ENCLOSURE BLOCK ASSEMBLY (GCCP 1.4)	K-5
	CIRCUIT BREAKER ENCLOSURE BLOCK ASSEMBLY (GCCP 1.2 / GCCP 1.3)	K-2
SHEET 3	GENERATOR TEMPERATURE MONITORING OPTION (C32B)	L-18
	VOLTAGE REGULATOR	L-14
	ARC FLASH ENERGY REDUCTION MAINTENANCE MODE SWITCH OPTION	L-9
	REMOTE ANNUNCIATOR OPTION	I-18
	20A BATTERY CHARGER OPTION	I-7
	DSENET WIRING	F-18
SHEET 4	MAIN WIRING HARNESS	L-18
SHEET 5	BREAKER SHUNT TRIP WIRING	L-18
	PLG TELEMATICS OPTION	L-9
	FUEL LEVEL SENSOR (NA/ROW) - FOR USE WITH FUEL TANK BASES	G-4
	FUEL LEVEL SENSOR (ROW)FOR USE WITH FUEL TANK BASES	E-4
	PL444 TELEMATICS - OPEN GENSETS	G-10
	PL444 TELEMATICS - ENCLOSURE GENSET	D-10
	NA8 CIRCUIT BREAKER 24VDC WIRING	G-18
SHEET 6	CURRENT SENSING WIRING FOR GCCP 1.2, 1.3, & 1.4 F/U/W SIDE-MOUNTED CONTROL PANEL	L-18
	GCCP 1.4 CONTROLLER WITH ELECTRICALLY OPERATED (MVS/NA8) BREAKERS FOR SYNCHRONISE OPTION	L-18
	GCCP 1.2 CONTROLLER WITH P/R/L-FRAME BREAKER OPTION	L-10
	GROUND FAULT ANNUNCIATE OPTION FOR GCCP 1.2-GCCP 1.3	L-10
	24V DC-DC CONVERTER (USED WITH LSIG-P TRIP UNITS)	L-4
SHEET 7	10A BATTERY CHARGER OPTION(120VAC)	F-9
	100A LOAD CENTER	K-18
	JACKET WATER HEATER OPTION WITH LOAD CENTER	D-12
	GENERATOR WITH ANTI-CONDENSATION SPACE HEATER OPTION	L-9
	JWH OPTION	D-15
	GFCI RECEPTACLE OPTION	F-14
	10A BATTERY CHARGER OPTION(240VAC)	L-7
SHEET 8	AC SHORE POWER WIRING (NO LOAD CENTRE)- BATTERY CHARGER/ANTI-CONDENSATION HTR/JWH	L-18
	GENERATOR ANTI-CONDENSATION SPACE HEATER OPTION	D-2
	C32B SPACE HEATER OPTION	F-3
	BATTERY CHARGER OPTION	F-9
	JACKET WATER HEATER OPTION DIRECT CONNECTION	H-13
SHEET 9	ENCLOSURE LIGHTS	L-18
	NEUTRAL CT WIRING - POWERPACT P/R-FRAME	G-18
	GENERAL FAULT RELAY/GENSET RUNNING RELAY	L-11
	REMOTE ANNUNCIATOR	H-9
SHEET10	BATTERY CHARGER (C32B)	L-18
	DSENET EXTENSION HARNESS (C32B)	H-18
	GENERATOR TEMPERATURE MONITORING (C32B)	L-11
SHEET11	JACKET WATER HEATER OPTION FOR REAR MOUNTED CONTROL PANEL	J-4
	CURRENT SENSING WIRING FOR GCCP 1.3 F/U/W REAR-MOUNTED CONTROL PANEL	I-18
	WIRING FOR REAR-MOUNTED CONTROL PANEL (S/N PREFIX GGS)	L-18

LAYER	ITEM NUMBER	ITEM NAME	GROUP NUMBER	GROUP NAME	DESCRIPTION
A	598-2490	HARNESS AS	598-8045	CONTROL GP	MAIN HARNESS
			602-5465	CONTROL GP	
			606-3823	CONTROL GP	
AB	602-5511	HARNESS AS	602-5465	CONTROL GP	PARALLELING CIRCUIT BREAKER HARNESS
B	599-2062	HARNESS AS	614-7156	MTG GP - BATTERY CHARGER	10A INSTALLED BATTERY CHARGER HARNESS
			599-2061	WIRING GP	BATTERY CHARGER OPTION
BA	636-3221	HARNESS AS	636-4949	WIRING GP	C32B DSE NET EXTENSION
BB	636-3275	HARNESS AS	636-4948	WIRING GP	10A INSTALLED BATTERY CHARGER HARNESS FOR C32B
BL	604-3119	HARNESS AS	604-3116	WIRING GP	PANEL LIGHTS
C	580-2678	PLUG AS-JUMPER	580-2673	PLUG GP	E-STOP LINK OPEN SET
C_REF	578-6063	HARNESS AS	578-4983	ALARM GP-BASIC	REMOTE ANNUNCIATOR PANEL HARNESS
CA	599-2064	HARNESS AS	599-2063	WIRING GP	SHUNT TRIP HARNESS
CB	602-5514	HARNESS AS	602-9584	WIRING GP	ELECTRICALLY OPERATED CIRCUIT BREAKER HARNESS (MVS)
	603-0229	HARNESS AS	602-6799	WIRING GP	ELECTRICALLY OPERATED CIRCUIT BREAKER HARNESS (NA8)
CC	602-9512	HARNESS AS	602-9513	WIRING GP	P&R FRAME BREAKER HARNESS
CD	603-0016	HARNESS AS	603-0116	WIRING GP	24V DC POWER SUPPLY (OUTPUT)
CE	603-6940	HARNESS AS	603-6942	WIRING GP	AUX BREAKER HARNESS
CF	603-0115	HARNESS AS	603-0116	WIRING GP	24V DC POWER SUPPLY (INPUT)
CG	603-1562	HARNESS AS	603-1563	NEUTRAL CT HARNESS	NEUTRAL CT HARNESS
CH	617-6963	HARNESS AS	617-6962	WIRING GP	CHINT BREAKER 4 POLE
E	604-3122	HARNESS AS	604-3121	WIRING GP	ESTOP HARNESS FOR ENCLOSURE
FM	610-5134	HARNESS AS	611-6739	WIRING GP	FUEL LEVEL SENSOR HARNESS (ROW)
FN	614-3427	HARNESS AS	614-3426	WIRING GP	FUEL LEVEL SENSOR HARNESS (NA)
GF	602-1203	HARNESS AS	601-8432	WIRING GP	20A GFCI RECEPTACLE HARNESS
GR	603-1982	HARNESS AS	603-1981	WIRING GP	GENERAL FAULT/RUNNING RELAY
GS	604-1897	HARNESS AS	604-1870	RELAY GP	GF ANNUNCIATION
H	600-1197	HARNESS AS	600-1193	WIRING GP	GENERATOR ANTI-CONDENSATION HEATER HARNESS (WITHOUT LOAD CENTER)
			603-0569	WIRING GP	GENERATOR ANTI-CONDENSATION HEATER HARNESS (WITH LOAD CENTER)
J	601-9292	HARNESS AS	601-9290	WIRING GP	JACKET WATER HEATER HARNESS
JV	610-3782	HARNESS AS	611-6740	WIRING GP	JACKET WATER HEATER HARNESS (WITH LOAD CENTER)
JH	600-0529	HARNESS AS	600-0521	CONNECTION GP	SHORE POWER HARNESS
			604-6578	CONNECTION GP	SHORE POWER HARNESS
L	604-6580	HARNESS AS	604-6578	WIRING GP	DC ENCLOSURE LIGHT HARNESS
LB	614-7463	HARNESS AS	614-7453	WIRING GP	BATTERY CHARGER OPTION (110-150V POWER SUPPLY)
LC	602-1210	HARNESS AS	601-5733	CONNECTION GP (DISTRIBUTION)	LOAD CENTER HARNESS
S	598-8047	HARNESS AS	598-8045	CONTROL GP	VOLTAGE SENSING HARNESS (FUSE TO CONTROLLER)
			602-5465	CONTROL GP	
			606-3823	CONTROL GP	
SA	600-3638	HARNESS AS	598-8045	CONTROL GP	VOLTAGE SENSING HARNESS (FUSE TO BUS BAR)
			602-5465	CONTROL GP	
			606-3823	CONTROL GP	
SC	602-5029	HARNESS AS	602-9577	WIRING GP	CURRENT SENSING HARNESS
SD	599-2058	HARNESS AS	599-2057	WIRING GP	CURRENT SENSING HARNESS (FOR REAR-MOUNTED PANEL DESIGN ONLY)
SG	602-6448	HARNESS AS	602-9673	WIRING GP	GCCP 1.4 GROUND FAULT CT HARNESS
SR	602-5510	HARNESS AS	602-9579	WIRING GP	VOLTAGE REGULATOR
P	600-7039	HARNESS AS	599-2073	INSTALLATION GP	PLG601 TELEMATICS MODULE (ETHERNET)
			599-2074	INSTALLATION GP	PLG641 TELEMATICS MODULE (CELLULAR)
			611-5230	INSTALLATION GP	PLG641 TELEMATICS MODULE (EU)
PA	625-3975	HARNESS AS	625-4036	WIRING GP	PL444 TELEMATICS MODULE (NA) FOR OPEN SET
			625-4051	WIRING GP	PL444 TELEMATICS MODULE (ROW) FOR OPEN SET
PB	625-4050	HARNESS AS	625-4045	WIRING GP	PL444 TELEMATICS MODULE (ROW) FOR ENCLOSURE
PC	625-4052	HARNESS AS	625-4049	WIRING GP	PL444 TELEMATICS MODULE (ROW) FOR ENCLOSURE
R	636-0152	HARNESS AS	636-2442	WIRING GP	RTD OPTION (C32B)

GCCP I/O CONFIGURATION TABLE

PARAMETER	GCCP 1.2	GCCP 1.3	GCCP 1.4
DI-A	REMOTE START ON LOAD	REMOTE START ON LOAD	REMOTE START ON LOAD
DI-B	FUEL TANK BUND LEVEL HIGH	LOW FUEL LEVEL SWITCH	LOW FUEL LEVEL SWITCH
DI-C	(SPARE)	(SPARE)	GENERATOR CLOSED AUXILIARY
DI-D	GENERATOR CIRCUIT BREAKER OPEN	(SPARE)	(SPARE)
DI-E	ENCLOSURE LIGHT	ENCLOSURE LIGHT	ENCLOSURE LIGHT
DI-F	(SPARE)	(SPARE)	(SPARE)
DI-G	(SPARE)	(SPARE)	(SPARE)
DI-H	(SPARE)	(SPARE)	(SPARE)
DI-I	NOT AVAILABLE	NOT AVAILABLE	(SPARE)
DI-J	NOT AVAILABLE	NOT AVAILABLE	(SPARE)
DI-K	NOT AVAILABLE	NOT AVAILABLE	(SPARE)
DI-L	NOT AVAILABLE	NOT AVAILABLE	(SPARE)
AI-A	FUEL LEVEL SENSOR	FUEL LEVEL SENSOR	FUEL LEVEL SENSOR
AI-B	(SPARE)	(SPARE)	(SPARE)
AI-C	(SPARE)	(SPARE)	(SPARE)
AI-D	GROUND FAULT ANNUNCIATION (TRANSDUCER)	GROUND FAULT ANNUNCIATION (TRANSDUCER)	(SPARE)
DO-A (SUPPLIED FROM E-STOP)	(SPARE)	(SPARE)	(SPARE)
DO-B (SUPPLIED FROM E-STOP)	(SPARE)	(SPARE)	(SPARE)
DO-C	COMMON TRIP (CB SHUNT TRIP)	COMMON TRIP (CB SHUNT TRIP)	NOT AVAILABLE
DO-D	LOUVRE CONTROL (SHORE POWER DISCONNECT)	LOUVRE CONTROL (SHORE POWER DISCONNECT)	NOT AVAILABLE
DO-E	COMMON WARNING	(SPARE)	COMMON TRIP (CB SHUNT TRIP)
DO-F	GENERATOR AVAILABLE	(SPARE)	LOUVRE CONTROL (SHORE POWER DISCONNECT)
DO-G	ENCLOSURE LIGHT OUTPUT (PLC)	ENCLOSURE LIGHT OUTPUT (PLC)	GENERAL FAULT RELAY
DO-H	AUDIBLE ALARM	(SPARE)	GENERATOR RUNNING RELAY
DO-I	NOT AVAILABLE	NOT AVAILABLE	ENCLOSURE LIGHT OUTPUT (PLC)
DO-J	NOT AVAILABLE	NOT AVAILABLE	(SPARE)
DO-K	NOT AVAILABLE	NOT AVAILABLE	(SPARE)
DO-L	NOT AVAILABLE	NOT AVAILABLE	(SPARE)
RO-C (NC VOLT-FREE)	NOT AVAILABLE	NOT AVAILABLE	CLOSE MAINS OUTPUT
RO-D (NO VOLT-FREE)	NOT AVAILABLE	NOT AVAILABLE	CLOSE GEN OUTPUT PULSE

SCHNEIDER POWER PACT P/R/L-FRAME

PART NUMBER	PART NAME	DESCRIPTION
244-9774	BREAKER AS	SCHNEIDER P-FRAME CIRCUIT BREAKER - 1200A, 3-POLE, UL, LSI, MO
244-9778	BREAKER AS	SCHNEIDER P-FRAME CIRCUIT BREAKER - 1200A, 3-POLE, UL, LSIG, MO
244-9790	BREAKER AS	SCHNEIDER P-FRAME CIRCUIT BREAKER - 1200A, 3-POLE, UL, LSIG-P, MO
244-9864	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 1600A, 3-POLE, UL, LSI, MO
244-9865	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 1600A, 3-POLE, UL, LSIG, MO
244-9868	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 2000A, 3-POLE, UL, LSI, MO
244-9869	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 2000A, 3-POLE, UL, LSIG, MO
340-7174	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 1600A, 3-POLE, UL, LSIG, MO
385-3411	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 1600A, 3-POLE, UL, LSI, MO
385-3415	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 2000A, 3-POLE, UL, LSI, MO
385-3416	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 2000A, 3-POLE, UL, LSIG, MO
421-3235	BREAKER AS	SCHNEIDER L-FRAME CIRCUIT BREAKER - 400A, 3-POLE, UL, LSI, MO
421-3237	BREAKER AS	SCHNEIDER L-FRAME CIRCUIT BREAKER - 400A, 3-POLE, UL, LSIG, MO
486-0695	BREAKER AS	SCHNEIDER L-FRAME CIRCUIT BREAKER - 400A, 3-POLE, UL, LSI, MO
585-8063	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 1600A, 3-POLE, UL, LSIG-P, MO
585-8064	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 2000A, 3-POLE, UL, LSIG-P, MO
585-8071	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 1600A, 3-POLE, UL, LSIG-P, MO
585-8072	BREAKER AS	SCHNEIDER R-FRAME CIRCUIT BREAKER - 2000A, 3-POLE, UL, LSIG-P, MO
611-4994	BREAKER AS	SCHNEIDER L-FRAME CIRCUIT BREAKER - 250A, 3-POLE, UL, LSI, MO
641-7115	BREAKER AS	SCHNEIDER L-FRAME CIRCUIT BREAKER - 250A, 3-POLE, UL, LSI, MO
641-7116	BREAKER AS	SCHNEIDER L-FRAME CIRCUIT BREAKER - 400A, 3-POLE, UL, LSIG, MO

SCHNEIDER EASYPACT MVS CIRCUIT BREAKER

PART NUMBER	PART NAME	DESCRIPTION
598-6581	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 1600A, 3-Pole, IEC, LSIG, MO
598-6582	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 2000A, 3-Pole, IEC, LSIG, MO
598-6583	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 2500A, 3-Pole, IEC, LSIG, MO
598-6584	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 1600A, 4-Pole, IEC, LSIG, MO
598-6585	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 2000A, 4-Pole, IEC, LSIG, MO
598-6586	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 2500A, 4-Pole, IEC, LSIG, MO
598-6587	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 1600A, 3-Pole, IEC, LSIG, EO (Paralleling)
598-6588	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 2000A, 3-Pole, IEC, LSIG, EO (Paralleling)
598-6589	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 2500A, 3-Pole, IEC, LSIG, EO (Paralleling)
598-6590	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 1600A, 4-Pole, IEC, LSIG, EO (Paralleling)
598-6591	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 2000A, 4-Pole, IEC, LSIG, EO (Paralleling)
598-6592	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 2500A, 4-Pole, IEC, LSIG, EO (Paralleling)
634-1615	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 3200A, 3-Pole, IEC, LSIG, MO
634-1616	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 3200A, 4-Pole, IEC, LSIG, MO
634-1618	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 3200A, 3-Pole, IEC, LSIG, EO
634-1619	BREAKER AS	Schneider EasyPact MVS Circuit Breaker - 3200A, 4-Pole, IEC, LSIG, EO

ABBREV	COLOR
RD	RED
WH	WHITE
OR	ORANGE
YL	YELLOW
PK	PINK
BK	BLACK
GY	GRAY
PU	PURPLE
BR	BROWN
GN	GREEN
BU	BLUE

SCHNEIDER MASTERPACT NW CIRCUIT BREAKER (IEC_CE & UKCA CERTIFIED)

PART NUMBER	PART NAME	DESCRIPTION
630-0914	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 1600A, 3 POLE, IEC, LSI,MO
630-0916	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 2000A, 3 POLE, IEC, LSI,MO
630-0917	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 2500A, 3 POLE, IEC, LSI,MO
630-0919	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 1600A, 4 POLE, IEC, LSI,MO
630-0920	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 2000A, 4 POLE, IEC, LSI,MO
630-0921	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 2500A, 4 POLE, IEC, LSI,MO
630-0922	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 1600A, 3 POLE, IEC, LSI,EO
630-0923	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 2000A, 3 POLE, IEC, LSI,EO
630-0924	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 2500A, 3 POLE, IEC, LSI,EO
630-0925	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 1600A, 4 POLE, IEC, LSI,EO
630-0926	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 2000A, 4 POLE, IEC, LSI,EO
630-0927	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 2500A, 4 POLE, IEC, LSI,EO
634-1620	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 3200A, 3 POLE, IEC, LSI,MO
634-1621	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 3200A, 4 POLE, IEC, LSI,MO
634-1622	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 3200A, 3 POLE, IEC, LSI,EO
634-1623	BREAKER AS	Schneider Masterpact NW Circuit Breaker - 3200A, 4 POLE, IEC, LSI,EO

SYMBOL	DESCRIPTION
	BLADE, SPADE, RING, OR SCREW TERMINAL
	CIRCUIT CONNECTED
	CIRCUIT NOT CONNECTED
	ELECTRICAL CONNECTION TO VEHICLE STRUCTURE
	INTERNAL ELECTRICAL CONNECTION TO SURFACE OF COMPONENT
	ATCH WIRE, CABLE & COMPONENT
1	CONNECTOR
H#	CIRCUIT GROUPING DESIGNATION
	SPLICE
	MULTI-CONDUCTOR CABLE

CHINT NA8 CIRCUIT BREAKER

PART NUMBER	PART NAME	DESCRIPTION
601-9072	BREAKER AS	Chint NA8 Circuit Breaker - 1600A, 3-Pole, IEC, LSI, MO
601-9075	BREAKER AS	Chint NA8 Circuit Breaker - 2000A, 3-Pole, IEC, LSI, MO
601-9076	BREAKER AS	Chint NA8 Circuit Breaker - 2500A, 3-Pole, IEC, LSI, MO
601-9081	BREAKER AS	Chint NA8 Circuit Breaker - 1600A, 4-Pole, IEC, LSI, MO
601-9082	BREAKER AS	Chint NA8 Circuit Breaker - 2000A, 4-Pole, IEC, LSI, MO
601-9083	BREAKER AS	Chint NA8 Circuit Breaker - 2500A, 4-Pole, IEC, LSI, MO
601-9077	BREAKER AS	Chint NA8 Circuit Breaker - 1600A, 3-Pole, IEC, LSI, EO (Paralleling)
601-9078	BREAKER AS	Chint NA8 Circuit Breaker - 2000A, 3-Pole, IEC, LSI, EO (Paralleling)
601-9080	BREAKER AS	Chint NA8 Circuit Breaker - 2500A, 3-Pole, IEC, LSI, EO (Paralleling)
601-9084	BREAKER AS	Chint NA8 Circuit Breaker - 1600A, 4-Pole, IEC, LSI, EO (Paralleling)
601-9085	BREAKER AS	Chint NA8 Circuit Breaker - 2000A, 4-Pole, IEC, LSI, EO (Paralleling)
601-9086	BREAKER AS	Chint NA8 Circuit Breaker - 2500A, 4-Pole, IEC, LSI, EO (Paralleling)

GROUND WIRE/CABLE LIST

ITEM NUMBER	PART NAME	GROUP	GROUP NAME	DESCRIPTION
604-1871	WIRE AS	604-1870	RELAY GP	GROUND FAULT ANNUNCIATION
603-8121	CABLE AS	603-8118	CABLE GP-ELECTRICAL	NEUTRAL TO GROUND CABLE(CHINT NA8 / SCHNEIDER MVS CIRCUIT BREAKER)
603-8122	CABLE AS	603-8119	CABLE GP-ELECTRICAL	NEUTRAL TO GROUND CABLE(POWER TERMINAL STRIPS)
612-5176	CABLE AS	600-0825	CABLE GP-GROUND	ALTERNATOR GROUND CABLE FOR GCCP 1.2, 1.3 & 1.4
638-3012	CABLE AS	638-2773	CABLE GP-GROUND	ALTERNATOR(3000A,L-2B) GROUND CABLE OF CURRENT SENSING WIRING FOR GCCP 1.2, 1.3 & 1.4
		639-8052	CABLE GP-GROUND	ALTERNATOR(3000A,S-2B) GROUND CABLE OF CURRENT SENSING WIRING FOR GCCP 1.2, 1.3 & 1.4
639-6350	CABLE AS	639-4385	CABLE GP-GROUND	ALTERNATOR(3000A,S-1B) GROUND CABLE OF CURRENT SENSING WIRING FOR GCCP 1.2, 1.3 & 1.4
603-8120	CABLE AS	603-8120	CABLE GP-ELECTRICAL	NEUTRAL TO GROUND CABLE (SCHNEIDER POWERPACT P/R-FRAME - WITHOUT INSTALLED NEUTRAL CT)
603-5912	CABLE AS	603-5912	CABLE GP-ELECTRICAL	NEUTRAL TO GROUND CABLE (SCHNEIDER POWERPACT P/R-FRAME - WITH INSTALLED NEUTRAL CT)

FUSE TABLE

F1	GENERATOR VOLTAGE SENSING T1	7W-0482	2A
F2	GENERATOR VOLTAGE SENSING T2	7W-0482	2A
F3	GENERATOR VOLTAGE SENSING T3	7W-0482	2A
F4	BUS VOLTAGE SENSING T1	416-6246	2A
F5	BUS VOLTAGE SENSING T2	416-6246	2A
F6	BUS VOLTAGE SENSING T3	416-6246	2A
F7	GCCP PANEL DC POWER	3K-8782	10A
F8	TELEMATICS DC POWER	262-0389	4A
F9	ENCLOSURE LIGHTING	567-8871	2A
F10	10A DSE BATTERY CHARGER -L1	3K-8782	10A
F11	GENERATOR ANTI-CONDENSATION HEATER-1	3K-8782	10A
F12	JACKET WATER HEATER PUMP/THERMOSTAT - L1 (S/N PREFIX GSS ONLY)	3K-8782	10A
F13	10A DSE BATTERY CHARGER - L2	3K-8782	10A
F14	GENERATOR ANTI-CONDENSATION HEATER - L2	3K-8782	10A
F15	JACKET WATER HEATER PUMP/THERMOSTAT - L2 (S/N PREFIX GSS ONLY)	3K-8782	10A

ALTERNATOR FRAME LIST

POWER		FREQUENCY	CAT FRAME
(ekW)	(kVA)	(Hz)	
800	1000	60	E3833L4
			E3835L4
1000	1250	60	E3853L4
			E3855L4
1250	1563	60	E3875L4
			E3893L4
800	1000	50	E3855L4
880	1100	50	E3855L4
			E3875L4
1000	1250	50	E3875L4
1120	1400	50	E3893L4
1200	1500	50	
1500	1875	60	E4633L4
			E4634L4
			E4673L4
1340	1675	50	E4634L4
			E4635L4
			E4673L4

NOTE A: CAP SEALS TO BE REMOVED WHEN THE FUEL LEVEL SENSOR HARNESS IS INSTALLED

NOTE B: CUSTOMER TO CONNECT SUPPLY VOLTAGE DIRECTLY TO THE FUSES IN THE AC POWER POWER COMPARTMENT IF LOAD CENTER IS NOT INSTALLED. WITH LOAD CENTER OPTION, TERMINAL BLOCKS ARE INSTALLED INSTEAD OF FUSES.

NOTE C: TERMINAL BLOCK LINKS ARE PROVIDED ONLY WITH THE LOAD CENTER OPTION.

NOTE D: REFER TO THE TABLE OF EASYPACT MVS AND NA8 CIRCUITS BREAKERS ON SHEET 1 FOR PART NUMBER DETAILS.

NOTE E: REFER TO THE TABLE OF ALTERNATORS ON SHEET 1 FOR PART NUMBER DETAILS.

NOTE F: A 120 OHM TERMINATING RESISTOR MUST ALWAYS BE INSTALLED ON THE LAST UNIT CONNECTED TO THE DSENET DATALINK.

NOTE G: ANY SPARE CONFIGURABLE INPUT AND OUTPUT ON THE GCCP CONTROLLER MAY BE USED FOR THE MAINTENANCE MODE WIRING AND CONFIGURATION. USAGE OF DI-H AND DO-F IS SHOWN AS AN EXAMPLE.

NOTE H: PLACE JUMPER ON TRANSDUCER TO L (0-10A) RANGE

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

Caterpillar: Confidential Yellow

PROD X OTHER

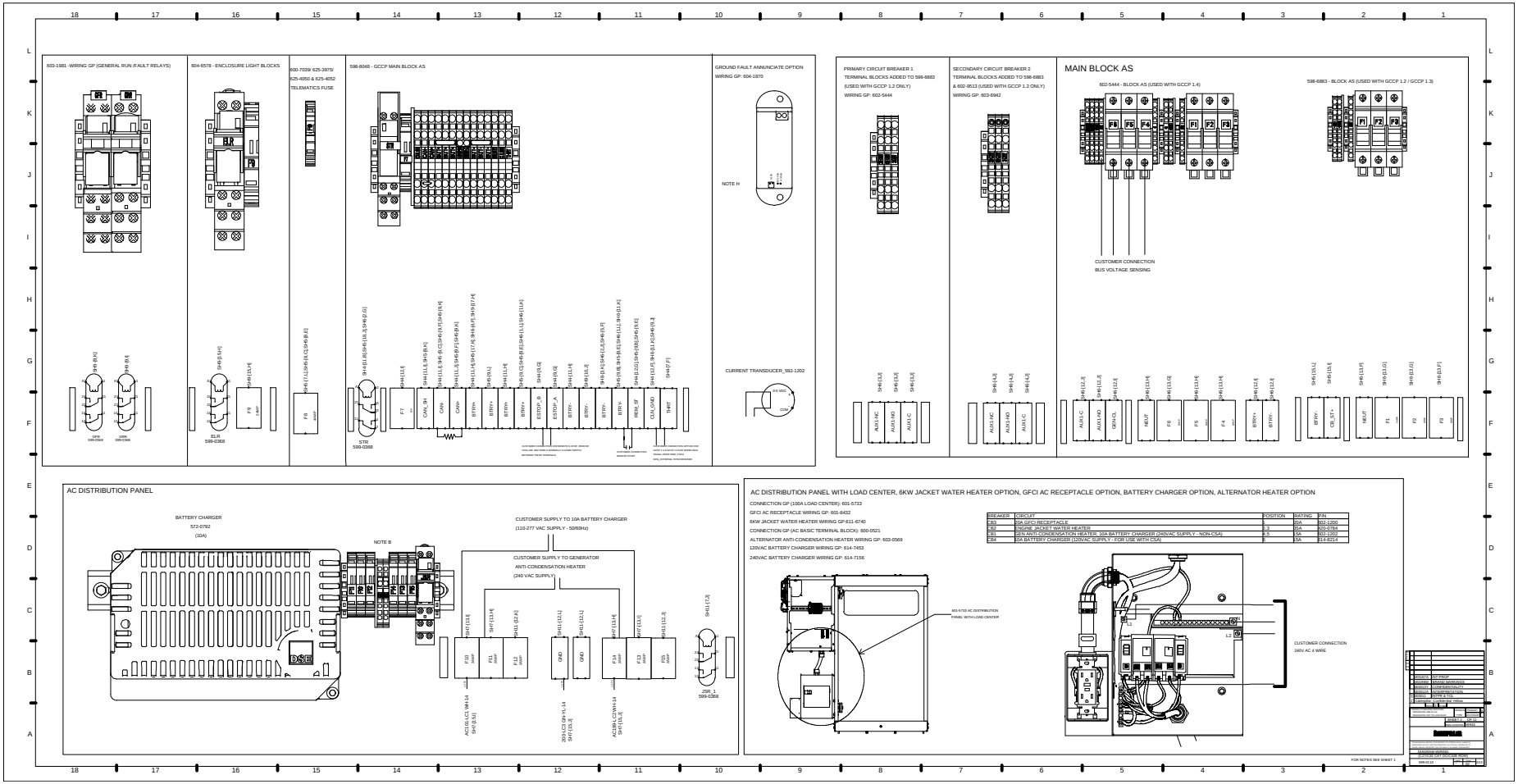
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN mm DIMENSIONS W/O TOL ARE BASIC — VERSION: PRIMARY X — TYPE: SECONDARY

SHEET 1 OF 11 — DWG CONTROL W943

CATERPILLAR

DIAGRAM-WIRING
(C27/C32 CAT GC/C32B ROW)

599-0110 — VER - — CHG 02 — 2X3



BREAKER	CIRCUIT	POSITION	RATING	P/N
CB3	20A GFCI RECEPTACLE	1	20A	602-1200
CB2	ENGINE JACKET WATER HEATER	2,3	20A	620-0784
CB1	GEN ANTI-CONDENSATION HEATER, 10A BATTERY CHARGER (240VAC SUPPLY - NON-CSA)	4,5	15A	610-1202
CB4	10A BATTERY CHARGER (120VAC SUPPLY - FOR USE WITH CSA)	6	15A	614-8214

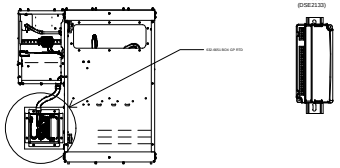
GENERATOR TEMPERATURE MONITORING OPTION (C32B)

BOX GP: 632-6651

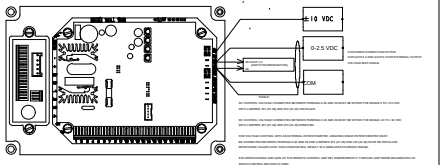
MODULE-CONTROL

466-8300

(DSE2133)

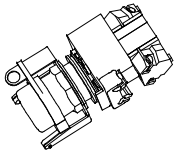


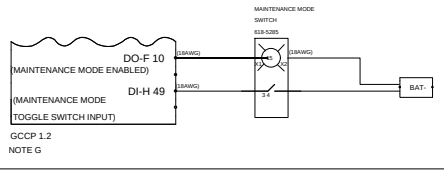
VOLTAGE REGULATOR



ARC FLASH ENERGY REDUCTION MAINTENANCE MODE SWITCH OPTION

SWITCH AS: 618-5285



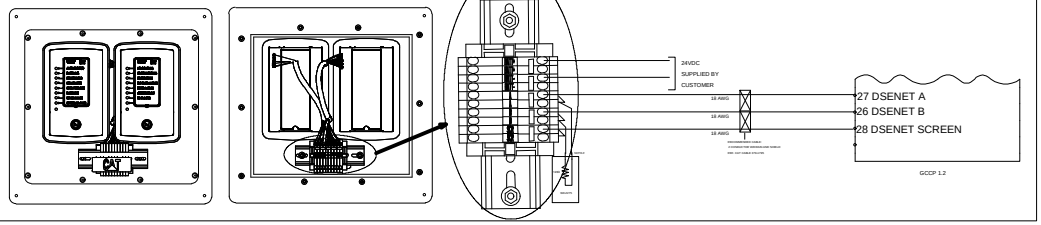


GCCP 1.2

NOTE G

REMOTE ANNUNCIATIOR OPTION

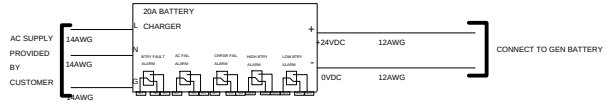
PANEL GP: 578-4983



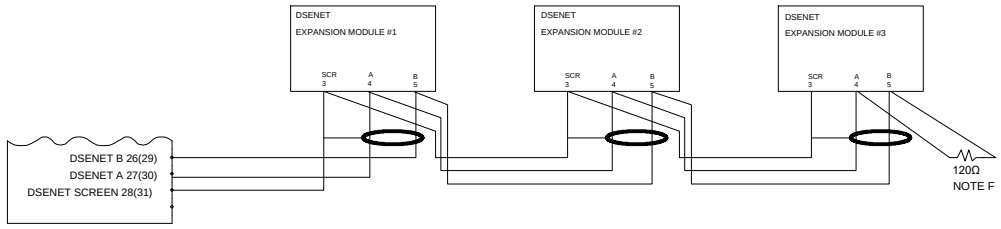
GCCP 1.2

20A BATTERY CHARGER OPTION

286-0177



DSENET WIRING

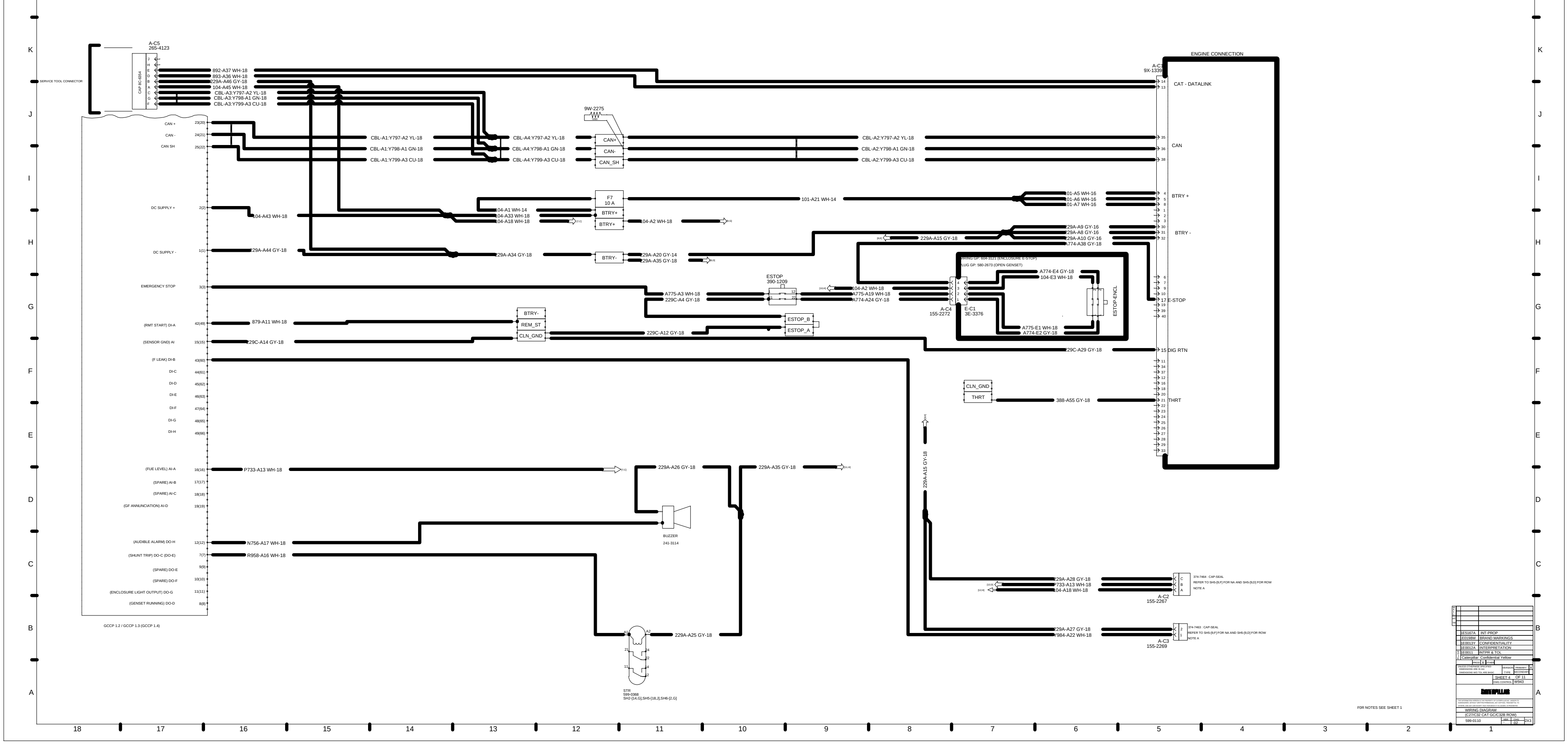


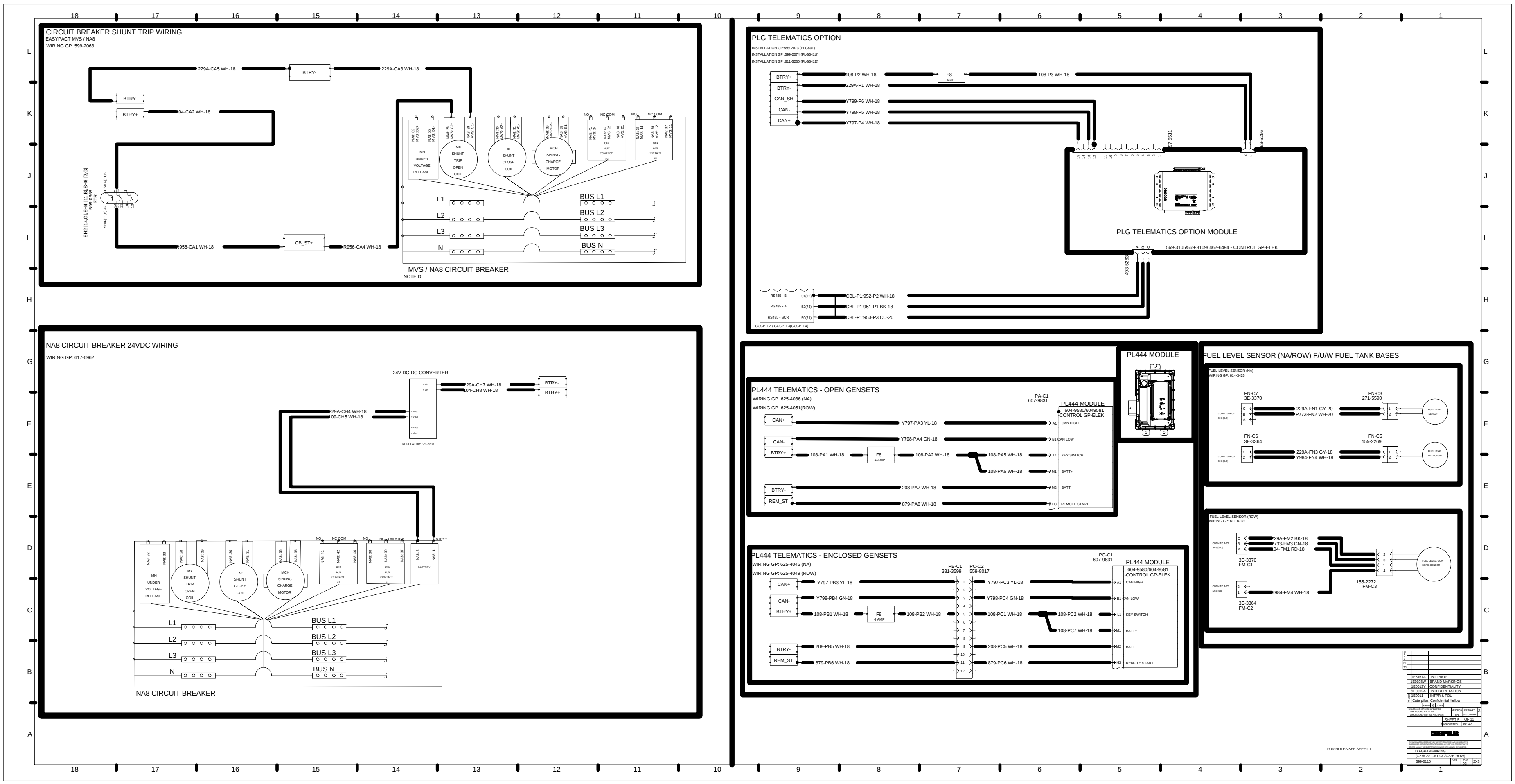
GCCP 1.2/GCCP 1.3 (GCCP 1.4)

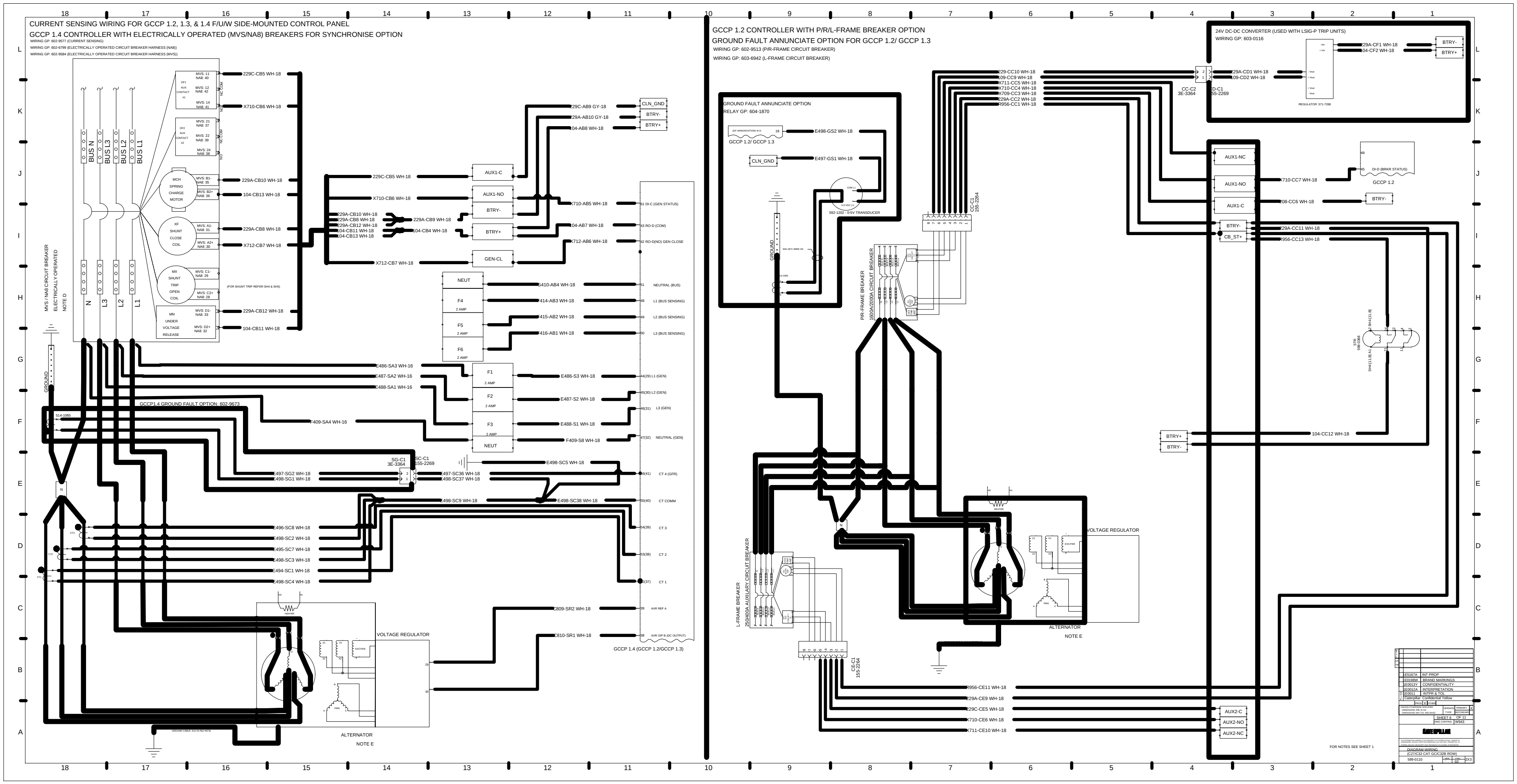
FOR NOTES SEE SHEET 1

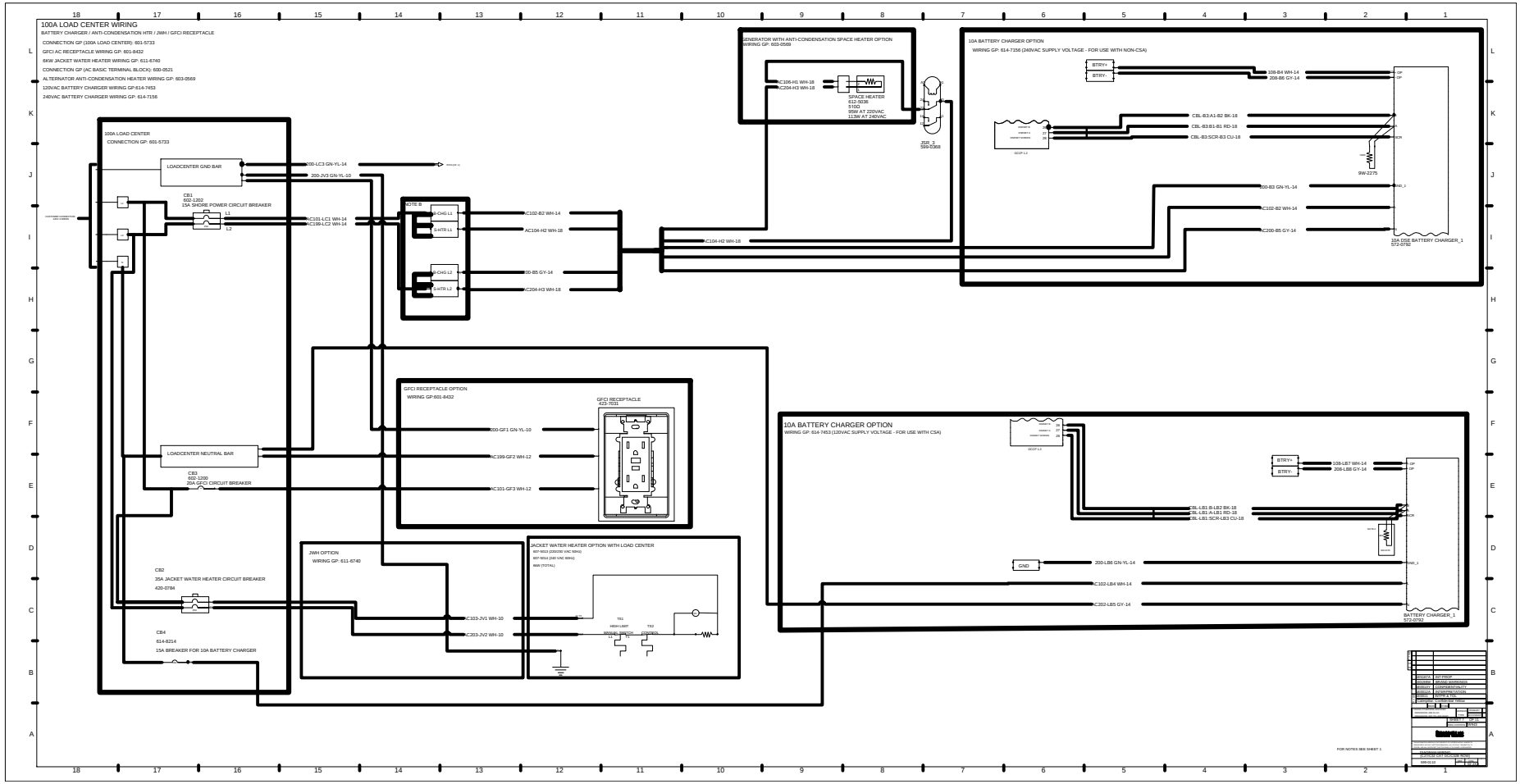
MAIN WIRING HARNESS

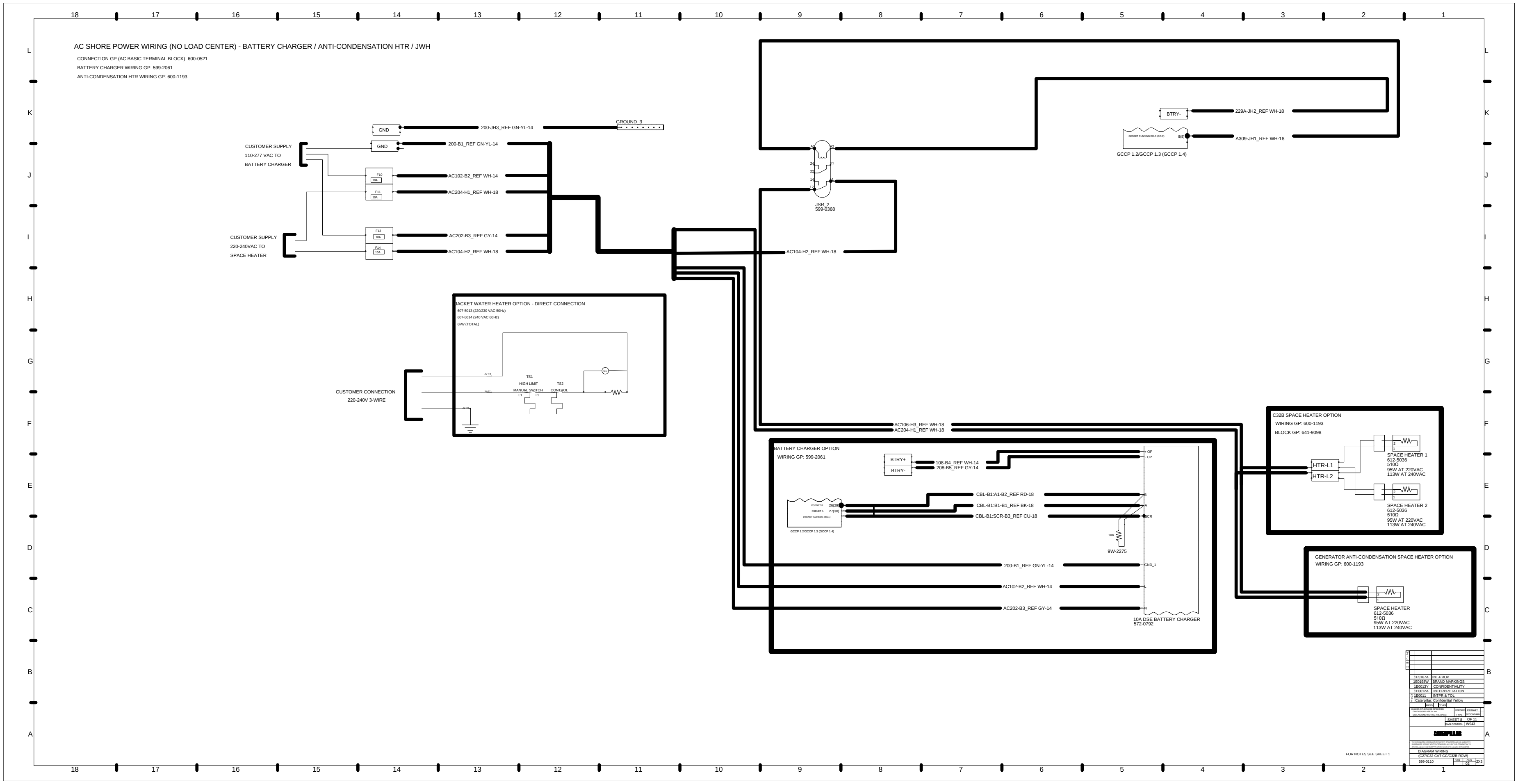
CONTROL GP: 598-8045
CONTROL GP: 602-5465
CONTROL GP: 606-3823



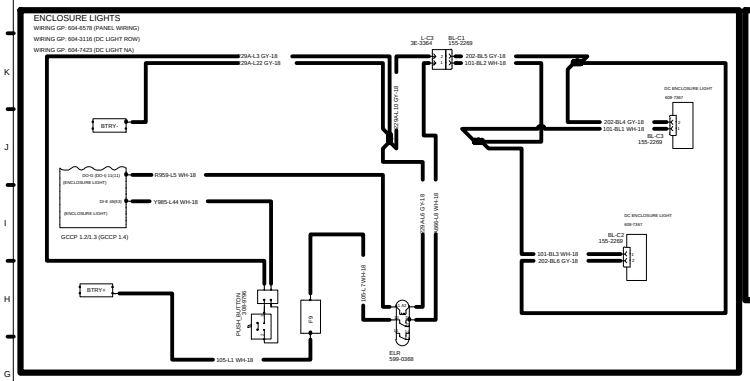

CIRCUIT BREAKER SHUNT TRIP WIRING
EASYPACT MVS / NA8
WIRING GP: 599-2063
229A-CA5 WH-18
BTRY-
229A-CA3 WH-18
BTRY+
104-CA2 WH-18
R956-CA1 WH-18
CB_ST+
R956-CA4 WH-18
MN UNDER VOLTAGE RELEASE
MX SHUNT TRIP OPEN COIL
XF SHUNT CLOSE COIL
MCH SPRING CHARGE MOTOR
L1
L2
L3
N
BUS L1
BUS L2
BUS L3
BUS N
MVS / NA8 CIRCUIT BREAKER
NOTE D
NA8 CIRCUIT BREAKER 24VDC WIRING
WIRING GP: 617-6962
24V DC-DC CONVERTER
229A-CH7 WH-18
104-CH8 WH-18
229A-CH4 WH-18
109-CH5 WH-18
REGULATOR: 571-7286
BATTERY
NA8 CIRCUIT BREAKER
PLG TELEMATICS OPTION
108-P2 WH-18
229A-P1 WH-18
Y799-P6 WH-18
Y798-P5 WH-18
Y797-P4 WH-18
F8
108-P3 WH-18
BTRY+
BTRY-
CAN_SH
CAN-
CAN+
PLG TELEMATICS OPTION MODULE
569-3105/569-3109/ 462-6494 - CONTROL GP-ELEK
RS485 - B
RS485 - A
RS485 - SCR
CBL-P1:952-P2 WH-18
CBL-P1:951-P1 BK-18
CBL-P1:953-P3 CU-20
PL444 MODULE
FUEL LEVEL SENSOR (NA/ROW) F/U/W FUEL TANK BASES
PL444 TELEMATICS - OPEN GENSETS
WIRING GP: 625-4036 (NA)
WIRING GP: 625-4051(ROW)
PA-C1
607-9831
PL444 MODULE
604-9580/6049581
CONTROL GP-ELEK
Y797-PA3 YL-18
Y798-PA4 GN-18
108-PA1 WH-18
F8
4 AMP
108-PA2 WH-18
108-PA5 WH-18
108-PA6 WH-18
208-PA7 WH-18
879-PA8 WH-18
CAN+
CAN-
BTRY+
BTRY-
REM_ST
CAN HIGH
CAN LOW
KEY SWITCH
BATT+
BATT-
REMOTE START
FN-C7
3E-3370
FN-C3
271-5590
229A-FN1 GY-20
P773-FN2 WH-20
FN-C6
3E-3364
FN-C5
155-2269
229A-FN3 GY-18
Y984-FN4 WH-18
229A-FM2 BK-18
Y733-FM3 GN-18
104-FM1 RD-18
3E-3370
FM-C1
155-2272
FM-C3
3E-3364
FM-C2
Y984-FM4 WH-18
PL444 TELEMATICS - ENCLOSED GENSETS
WIRING GP: 625-4045 (NA)
WIRING GP: 625-4049 (ROW)
PB-C1
331-3599
PC-C2
559-8017
PC-C1
607-9831
PL444 MODULE
604-9580/604-9581
CONTROL GP-ELEK
Y797-PB3 YL-18
Y798-PB4 GN-18
108-PB1 WH-18
108-PB2 WH-18
208-PB5 WH-18
879-PB6 WH-18
Y797-PC3 YL-18
Y798-PC4 GN-18
108-PC1 WH-18
108-PC2 WH-18
108-PC7 WH-18
208-PC5 WH-18
879-PC6 WH-18
FOR NOTES SEE SHEET 1
CATERPILLAR

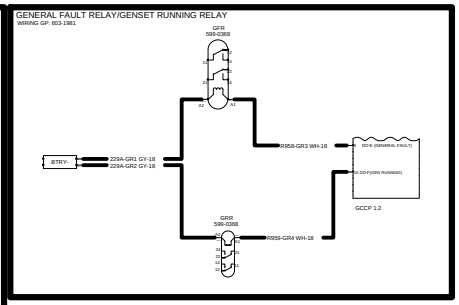

CURRENT SENSING WIRING FOR GCCP 1.2, 1.3, & 1.4 F/U/W SIDE-MOUNTED CONTROL PANEL
GCCP 1.4 CONTROLLER WITH ELECTRICALLY OPERATED (MVS/NA8) BREAKERS FOR SYNCHRONISE OPTION
GCCP 1.2 CONTROLLER WITH P/R/L-FRAME BREAKER OPTION
GROUND FAULT ANNUNCIATE OPTION FOR GCCP 1.2/ GCCP 1.3
WIRING GP: 602-9513 (P/R-FRAME CIRCUIT BREAKER)
WIRING GP: 603-6942 (L-FRAME CIRCUIT BREAKER)
24V DC-DC CONVERTER (USED WITH LSIG-P TRIP UNITS)
WIRING GP: 603-0116
GROUND FAULT ANNUNCIATE OPTION
RELAY GP: 604-1870
GCCP1.4 GROUND FAULT OPTION: 602-9673
VOLTAGE REGULATOR
ALTERNATOR
NOTE E
GCCP 1.4 (GCCP 1.2/GCCP 1.3)
FOR NOTES SEE SHEET 1

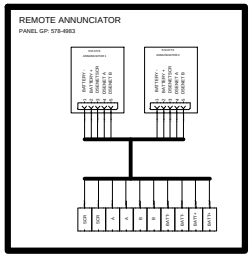

100A LOAD CENTER WIRING
BATTERY CHARGER / ANTI-CONDENSATION HTR / JWH / GFCI RECEPTACLE
CONNECTION GP (100A LOAD CENTER): 601-5733
GFCI AC RECEPTACLE WIRING GP: 601-8432
6KW JACKET WATER HEATER WIRING GP: 611-6740
CONNECTION GP (AC BASIC TERMINAL BLOCK): 600-0521
ALTERNATOR ANTI-CONDENSATION HEATER WIRING GP: 603-0569
120VAC BATTERY CHARGER WIRING GP:614-7453
240VAC BATTERY CHARGER WIRING GP: 614-7156
100A LOAD CENTER
CONNECTION GP: 601-5733
LOADCENTER GND BAR
CB1
600-1202
15A SHORE POWER CIRCUIT BREAKER
LOADCENTER NEUTRAL BAR
CB3
600-1200
20A GFCI CIRCUIT BREAKER
CB2
35A JACKET WATER HEATER CIRCUIT BREAKER
420-0784
CB4
614-8214
15A BREAKER FOR 10A BATTERY CHARGER
200-LC3 GN-YL-14
200-JV3 GN-YL-10
AC101-LC1 WH-14
AC199-LC2 WH-14
NOTE B
AC-CHG L1
G-HTR L1
AC-CHG L2
G-HTR L2
AC102-B2 WH-14
AC104-H2 WH-18
200-B5 GY-14
AC204-H3 WH-18
GENERATOR WITH ANTI-CONDENSATION SPACE HEATER OPTION
WIRING GP: 603-0569
AC106-H1 WH-18
AC204-H3 WH-18
SPACE HEATER
612-5036
1000W
950W AT 220VAC
113W AT 240VAC
JSR_3
599-0368
C104-H2 WH-18
10A BATTERY CHARGER OPTION
WIRING GP: 614-7156 (240VAC SUPPLY VOLTAGE - FOR USE WITH NON-CSA)
BTRY+
BTRY-
108-B4 WH-14
208-B6 GY-14
CBL-B3-A1-B2 BK-18
CBL-B3-B1-B1 RD-18
CBL-B3-SCR-B3 CU-18
SCR
9W-2275
200-B3 GN-YL-14
AC102-B2 WH-14
AC200-B5 GY-14
10A DSE BATTERY CHARGER_1
572-0782
GFCI RECEPTACLE OPTION
WIRING GP:601-8432
GFCI RECEPTACLE
420-7031
200-GF1 GN-YL-10
AC199-GF2 WH-12
AC101-GF3 WH-12
10A BATTERY CHARGER OPTION
WIRING GP: 614-7453 (120VAC SUPPLY VOLTAGE - FOR USE WITH CSA)
108-LB7 WH-14
208-LB8 GY-14
CBL-LB1-B-LB2 BK-18
CBL-LB1-A-LB1 RD-18
CBL-LB1-SCR-LB3 CU-18
GND
200-LB6 GN-YL-14
AC102-LB4 WH-14
AC202-LB5 GY-14
BATTERY CHARGER_1
572-0792
JWH OPTION
WIRING GP: 611-6740
C103-JV1 WH-10
C203-JV2 WH-10
JACKET WATER HEATER OPTION WITH LOAD CENTER
TS1
HIGH LIMIT
MANUAL SWITCH
TS2
CONTROL
FOR NOTES SEE SHEET 1

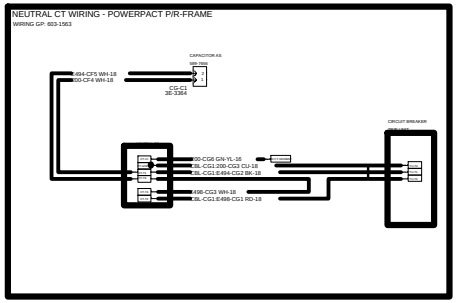

AC SHORE POWER WIRING (NO LOAD CENTER) - BATTERY CHARGER / ANTI-CONDENSATION HTR / JWH
CONNECTION GP (AC BASIC TERMINAL BLOCK): 600-0521
BATTERY CHARGER WIRING GP: 599-2061
ANTI-CONDENSATION HTR WIRING GP: 600-1193
CUSTOMER SUPPLY
110-277 VAC TO
BATTERY CHARGER
CUSTOMER SUPPLY
220-240VAC TO
SPACE HEATER
GND
200-JH3_REF GN-YL-14
GROUND_3
200-B1_REF GN-YL-14
AC102-B2_REF WH-14
AC204-H1_REF WH-18
AC202-B3_REF GY-14
AC104-H2_REF WH-18
JSR_2
599-0368
AC104-H2_REF WH-18
BTRY-
229A-JH2_REF WH-18
A309-JH1_REF WH-18
GCCP 1.2/GCCP 1.3 (GCCP 1.4)
JACKET WATER HEATER OPTION - DIRECT CONNECTION
CUSTOMER CONNECTION
220-240V 3-WIRE
TS1
HIGH LIMIT
MANUAL SWITCH
TS2
CONTROL
AC106-H3_REF WH-18
AC204-H1_REF WH-18
C32B SPACE HEATER OPTION
WIRING GP: 600-1193
BLOCK GP: 641-9098
HTR-L1
HTR-L2
SPACE HEATER 1
612-5036
510Ω
95W AT 220VAC
113W AT 240VAC
SPACE HEATER 2
612-5036
510Ω
95W AT 220VAC
113W AT 240VAC
BATTERY CHARGER OPTION
WIRING GP: 599-2061
BTRY+
BTRY-
108-B4_REF WH-14
208-B5_REF GY-14
CBL-B1:A1-B2_REF RD-18
CBL-B1:B1-B1_REF BK-18
CBL-B1:SCR-B3_REF CU-18
GCCP 1.2/GCCP 1.3 (GCCP 1.4)
9W-2275
200-B1_REF GN-YL-14
AC102-B2_REF WH-14
AC202-B3_REF GY-14
10A DSE BATTERY CHARGER
572-0792
GENERATOR ANTI-CONDENSATION SPACE HEATER OPTION
WIRING GP: 600-1193
SPACE HEATER
612-5036
510Ω
95W AT 220VAC
113W AT 240VAC
FOR NOTES SEE SHEET 1
1E5167A INT-PROP
1E0198W BRAND MARKINGS
1E0013Y CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL
Caterpillar: Confidential Yellow
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN mm
DIMENSIONS W/O TOL ARE BASIC
SHEET 8 OF 11
DWG CONTROL W943
DIAGRAM WIRING
(C27/C32 CAT GC/C32B ROW)
599-0110
CHG 02
2X3

ADDITIONAL OPTIONS





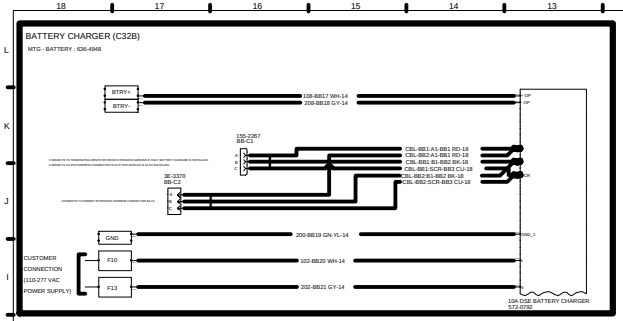




FOR NOTES SEE SHEET 1

BATTERY CHARGER (C32B)

MTG - BATTERY : 636-4948

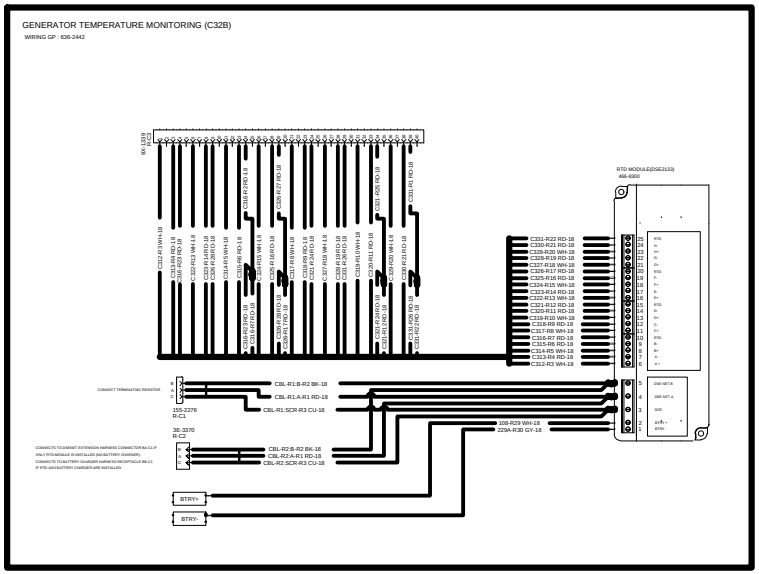


DSENET EXTENSION HARNESS (C32B)

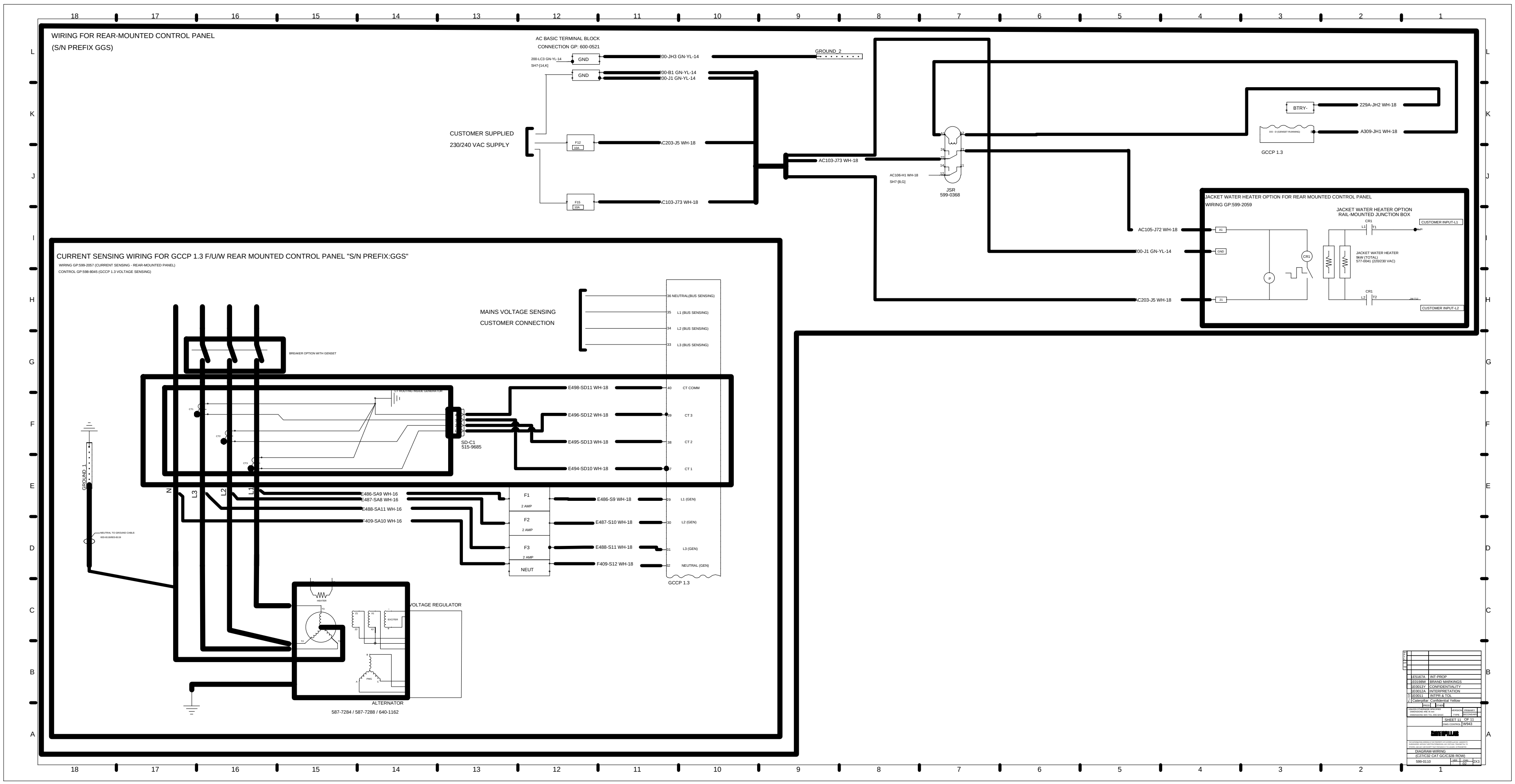
WIRING GP : 636-4949

GENERATOR TEMPERATURE MONITORING (C32B)

WIRING GP : 636-2442



FOR NOTES SEE SHEET 1


WIRING FOR REAR-MOUNTED CONTROL PANEL
(S/N PREFIX GGS)
AC BASIC TERMINAL BLOCK
CONNECTION GP: 600-0521
GND
GND
200-JH3 GN-YL-14
GROUND_2
200-B1 GN-YL-14
200-J1 GN-YL-14
CUSTOMER SUPPLIED
230/240 VAC SUPPLY
AC203-J5 WH-18
AC103-J73 WH-18
AC103-J73 WH-18
JSR
599-0368
BTRY-
229A-JH2 WH-18
A309-JH1 WH-18
GCCP 1.3
JACKET WATER HEATER OPTION FOR REAR MOUNTED CONTROL PANEL
WIRING GP:599-2059
JACKET WATER HEATER OPTION
RAIL-MOUNTED JUNCTION BOX
CUSTOMER INPUT L1
CUSTOMER INPUT L2
AC105-J72 WH-18
200-J1 GN-YL-14
AC203-J5 WH-18
JACKET WATER HEATER
CURRENT SENSING WIRING FOR GCCP 1.3 F/U/W REAR MOUNTED CONTROL PANEL "S/N PREFIX:GGS"
WIRING GP:599-2057 (CURRENT SENSING - REAR-MOUNTED PANEL)
CONTROL GP:598-8045 (GCCP 1.3 VOLTAGE SENSING)
MAINS VOLTAGE SENSING
CUSTOMER CONNECTION
NEUTRAL(BUS SENSING)
L1 (BUS SENSING)
L2 (BUS SENSING)
L3 (BUS SENSING)
BREAKER OPTION WITH GENSET
E498-SD11 WH-18
E496-SD12 WH-18
E495-SD13 WH-18
E494-SD10 WH-18
CT COMM
CT 3
CT 2
CT 1
SD-C1
515-9685
GROUND_1
N
L3
L2
L1
E486-SA9 WH-16
E487-SA8 WH-16
E488-SA11 WH-16
F409-SA10 WH-16
F1
2 AMP
F2
2 AMP
F3
2 AMP
NEUT
E486-S9 WH-18
E487-S10 WH-18
E488-S11 WH-18
F409-S12 WH-18
L1 (GEN)
L2 (GEN)
L3 (GEN)
NEUTRAL (GEN)
GCCP 1.3
VOLTAGE REGULATOR
ALTERNATOR
587-7284 / 587-7288 / 640-1162
1E5167A INT-PROP
1E0198W BRAND MARKINGS
1E0013Y CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL
Caterpillar: Confidential Yellow
SHEET 11 OF 11
DWG CONTROL W943
DIAGRAM-WIRING
(C27/C32 CAT GC/C32B ROW)
599-0110
02
2X3

Yancey Power Systems
259 Lee Industrial Blvd.
Austell, GA 30168-7406
770.941.2424 tel
770.941.2411 fax
877.278.6235 toll free
www.YanceyPower.com

Generator Accessories

Circuit Breakers

L Frame

P Frame

R Frame

Molded Case Circuit Breakers

C27 – C32 North America built packages (60 Hz)

L-Frame
250A-400A (UL)

P-Frame
1200A (UL)

R-Frame
1600-2000A (UL)

Features

Design Specifications:

- 100% rated breakers
- 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

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
CSA 22.2 No 5-02
Federal Specification W-C-375B/GEN
NEMA AB1
NMX J-266

Standard Features

Standards

- UL-CSA
  - o L-Frame
  - o P-Frame
  - o R-Frame

Shunt trip

- The shunt trip provides a means of tripping the circuit breaker electronically
- Shunt trip ratings
  - o Voltage: 24VDC
  - o Coil Burden (Holding/Inrush): 4.5/200 VA
  - o 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, 50/60 Hz

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

Extension bus bars or mechanical lugs are provided for installation of load cables.

Cat® Part Number	Frame and Rating (Amps)	IEC/UL	No. Poles	Operation	Trip Unit	Circuit Breaker Characteristics	Options	Instantaneous Override (kA RMS) +/- 10%
611-4994	250A L-Frame MCCB	UL	3	MO	3.3S LSI	Table 3	1 Aux Contact, Shunt Trip	–
421-3235	400A L-Frame MCCB	UL	3	MO	3.3S LSI	Table 3	1 Aux Contact, Shunt Trip	–
421-3237	400A L-Frame MCCB	UL	3	MO	6.3A LSIG	Table 3	1 Aux Contact, Shunt Trip	–
244-9774	1200A P-Frame MCCB	UL	3	MO	5.0A LSI	Table 1	1 Aux Contact, Shunt Trip	24
244-9864	1600A R-Frame MCCB	UL	3	MO	5.0A LSI	Table 2	1 Aux Contact, Shunt Trip	57
244-9868	2000A R-Frame MCCB	UL	3	MO	5.0A LSI	Table 2	1 Aux Contact, Shunt Trip	57
244-9778	1200A P-Frame MCCB	UL	3	MO	6.0A LSIG	Table 1	1 Aux Contact, Shunt Trip	24
244-9865	1600A R-Frame MCCB	UL	3	MO	6.0A LSIG	Table 2	1 Aux Contact, Shunt Trip	57
244-9869	2000A R-Frame MCCB	UL	3	MO	6.0A LSIG	Table 2	1 Aux Contact, Shunt Trip	57
244-9790	1200A P-Frame MCCB	UL	3	MO	6.0P LSIG-P	Table 1	1 Aux Contact, Shunt Trip, Modbus	24
585-8063	1600A R-Frame MCCB	UL	3	MO	6.0P LSIG-P	Table 2	1 Aux Contact, Shunt Trip, Modbus	57
585-8064	2000A R-Frame MCCB	UL	3	MO	6.0P LSIG-P	Table 2	1 Aux Contact, Shunt Trip, Modbus	57

Note: Arc flash energy reduction maintenance mode switch kit shipped loose for 1200A breakers.

Circuit Breakers Characteristics

TABLE 1

Model			P-Frame
Number of Poles			3
Rated Current (Amps)			1200A (UL)
Voltage Rating (VAC)			600UL/ 690 IEC
Interrupt Rating (UL/CSA) (60 Hz) – kA RMS		240V	65
		480V	35
		600V	18
IEC 60947-2 Rating (50/60 Hz) – kA RMS	Icu	240V	50
		380/415V	35
	Ics	240V	25
		380/415V	20

TABLE 2

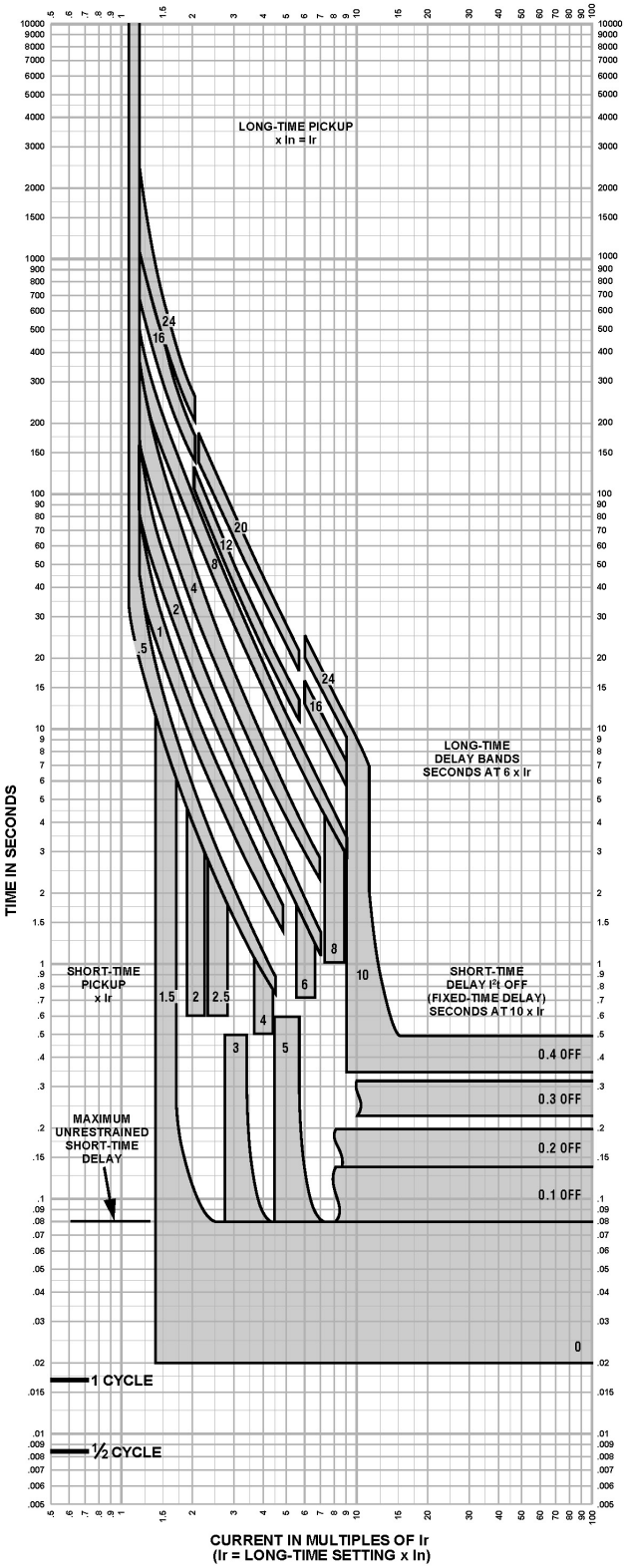
Model			R-Frame
Number of Poles			3
Rated Current (Amps)			1600A – 2000A (UL
Voltage Rating (VAC)			600UL/ 690 IEC
Interrupt Rating (UL/CSA) (60 Hz) – kA RMS		240V	65
		480V	35
		600V	18
IEC 60947-2 Rating (50/60 Hz) – kA RMS	Icu	240V	50
		380/415V	35
	Ics	240V	25
		380/415V	20

TABLE 3

Model			L-Frame
Number of Poles			3
Rated Current (Amps)			250A – 400A (UL
Voltage Rating (VAC)			600UL/ 525 IEC
Interrupt Rating (UL/CSA) (60 Hz) – kA RMS		240V	65
		480V	35
		600V	18
IEC 647-2 Rating (50/60 Hz) – kA RMS	Icu	240V	50
		380/415V	35
	Ics	240V	25
		380/415V	20

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

CURRENT IN MULTIPLES OF Ir (Ir = Long-time setting x In)



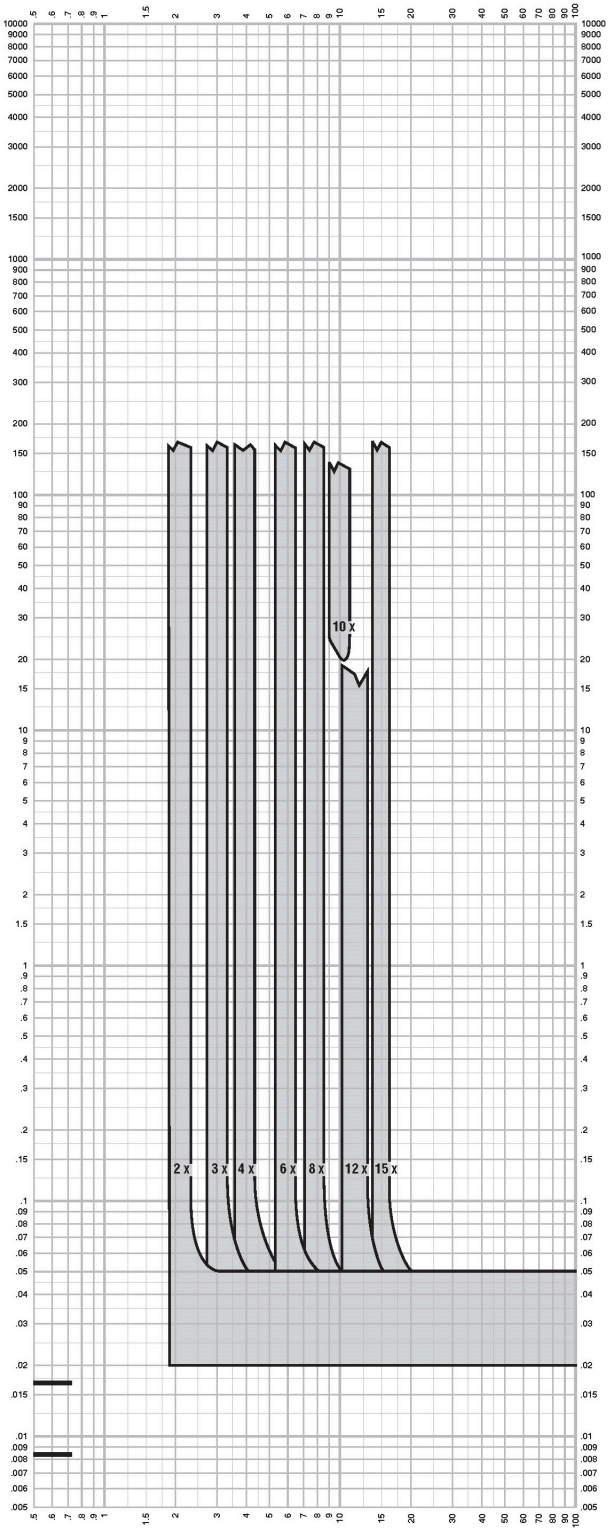
Long-time Pickup and Delay Short-time Pickup and I²t OFF Delay

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 thermalimaging.
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.
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.

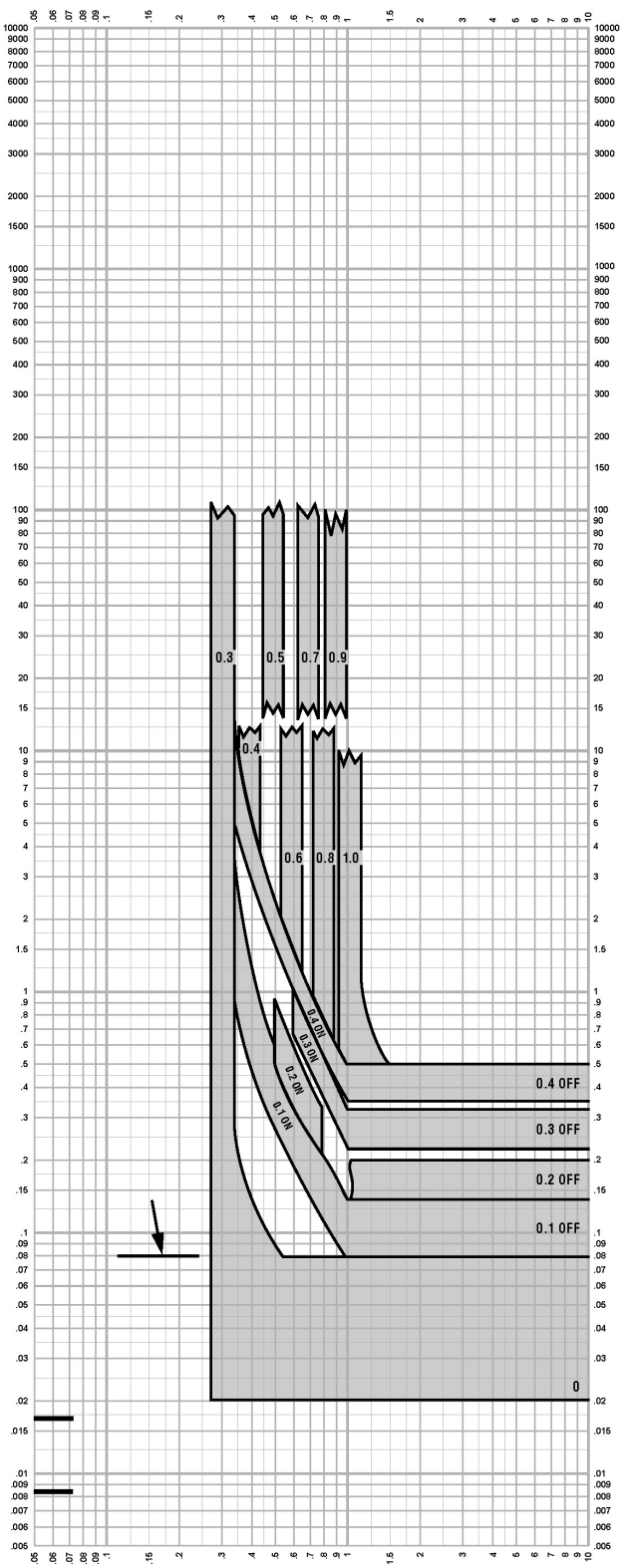
Curves apply from -30° to +60°C ambient temperature.

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. \

P, R, NS-Frame Ground 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° to +60°C ambient temperature.

LET'S DO THE WORK.™

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LEHE20289-02 (02/24)

Cat® Batteries

Cat Batteries – Greater Starting Power – Lower Maintenance – Longer Life

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

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

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

Caterpillar. The difference counts.™

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 investments.

CATERPILLAR®

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 and have the industries highest cold cranking amps (CCA)
- Popular BCI group 31 Maintenance Free 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 available for truck, marine or recreational usage

Specifications for Cat Premium High Output Batteries – Available Worldwide

								BCI Overall Dimensions				Nominal Weight	
BCI Group Size	Part No.	Cold Cranking Amps"	Reserve Capacity Minutes'	Volts	Amp Hr. Capacity @ 20 Hrs.	Construction	Add Water Maintenance Check Hours	Length In (mm)	Width In (mm)	Height In (mm)	Wet Lb (kg)	Dry Lb (kg)	Nominal Acid to Fill Qt (liter)
8D	153-5720	1500	465	12	210	C	MF	20.47 (520)	10.8 (275)	9.76 (248)	132 (60)	–	–
8D	101-4000	1400	400	12	190	LAC+	1000	20.7 (526.5)	10.96 (278)	9.76 (248)	132 (60)	86 (39)	18.0 (17.0)
4D	153-5710	1400	425	12	200	C	MF	20.47 (520)	8.58 (218)	9.76 (248)	119 (54)	–	–
4D	153-5700	1125	305	12	145	C	MF	20.47 (520)	8.58 (218)	9.76 (248)	101 (46)	–	–
4D	9X-9730	1300	400	12	190	LAC+	1000	20.75 (527)	8.58 (218)	9.76 (248)	119 (54)	81 (37)	14.8 (14.0)
4D	9X-9720	1000	275	12	140	LAC+	1000	20.75 (527)	8.58 (218)	9.76 (248)	101 (46)	59 (27)	15.9 (15.0)
31	175-4390	1000	180	12	90	C/S	MFA	12.9 (328.4)	6.74 (171.2)	9.29 (236)	60 (27)	–	–
31	175-4370	825	190	12	100	C/S**	MFA	12.9 (328.4)	6.74 (171.2)	9.29 (236)	60 (27)	–	–
31	175-4360	710	185	12	100	C/S***	MFA	12.9 (328.4)	6.74 (171.2)	9.29 (236)	60 (27)	–	–
31	**250-0480**	710	185	12	100	C/SDT***	MF	12.9 (328.4)	6.74 (171.2)	9.29 (236)	60 (27)	–	–
31	115-2422	1000	170	12	90	C SAE	MFA	12.9 (328.4)	6.74 (171.2)	9.46 (240.3)	60 (27)	–	–
31	115-2421	950	170	12	90	C SAE +	MFA	12.9 (328.4)	6.74 (171.2)	9.46 (240.3)	60 (27)	44 (20)	6.6 (6.2)
31	9X-3404	950	165	12	100	C SAE	MF	13 (330.2)	6.77 (172)	9.46 (240.3)	58 (26)	–	–
31	3T-5760	750	165	12	100	C SAE	MF	13 (330.2)	6.77 (172)	9.46 (240.3)	55 (25)	–	–
24	153-5656	650	110	12	52	SC	MF	10.98 (278.9)	6.85 (174)	9.0 (229.1)	39 (18)	–	–
65	230-6368	880	140	12	80	SC	MF	11.9 (303.4)	7.5 (190.8)	7.5 (191.4)	45.5 (21)	–	–
74	153-5660	650	110	12	52	SC*	MF	10.98 (278.9)	7.0 (178.2)	8.15 (206.9)	39 (18)	–	–
58	175-4280	500	70	12	35	SC	MF	9.96 (253.1)	7.2 (182.5)	6.9 (176)	31 (14)	–	–
2	153-5690	765	210	6	90	LAC+	1000	10.24 (260)	6.8 (173)	8.72 (221.6)	37 (17)	22 (10)	4.8 (4.5)

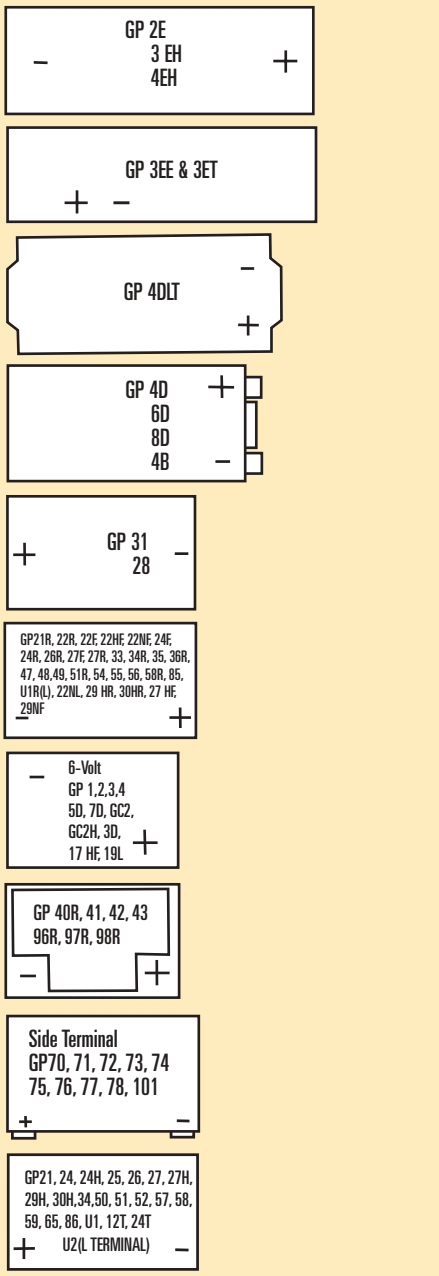
Construction Notes:
LAC = Low Maintenance, Hybrid Construction
C = Calcium Lead Alloy Grid Design
MF = Maintenance Free
MFA = Maintenance Free with Accessible Vent Caps
S = Stud Terminals
+ = Shipped Dry Only
* = Side Terminals
** = Starting and Deep Cycle Battery
*** = Deep Cycle and Starting Battery
" = For 30 seconds at 0° F (-18° C)
' = Minimum of 25 amp output at 80° F (27° C)
SAE = Uses SAE Posts
SDT = Dual, Top mounted Terminals, Stud and SAE Post, Marine Deep Cycle/Starting Battery
SC = Silver (Ag) Calcium Alloy Grids for resistance to high underhood temperatures

Rugged Design – Built Tough – Reliable Starting

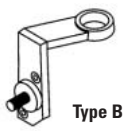
- Positive and Negative plates are anchored to container bottom and locked at the top of cell element for maximum vibration resistance.
- Heavy-duty forged terminal post bushings provide maximum strength and resistance to acid seepage.
- Hefty full-frame grids, no sharp edges, optimum acid/paste combination 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.

Battery Information

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



Type B

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
Digital Battery Analyzer – Part # 177-2330
Battery Voltmeter – Part # 4C-6600
Battery Load Tester – Part # 4C-4911
Booster Cable 12' (3.66 m) – Part # 4C-4933
Booster Cable 20' (6.00 m) – Part # 4C-4937
Heavy Duty Commercial Fast Charger (110V) – Part # 4C-4921
Heavy Duty Commercial Fast Charger (220V) – Part # 4C-4910
Extra Vent Caps (6) for Dry Batteries – Part # 7N-0060

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

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

Cat Batteries

World Wide Application Flexibility

Marine Commercial Vessels
Maintenance Free 4D, 8D and Group 31 Batteries. General Service Line Line valve regulated (VRLA) Gel batteries. High Marine Cranking Amps (MCA) and Deep Cycling capabilities.

Automotive-Truck-Bus & RV
A wide selection of popular BCI group sizes. Maintenance Free, Severe Service and Deep Cycle models. Application Specific Group 31 Truck Batteries.

Commercial & Recreational
A wide selection of premium batteries in most BCI group sizes for light commercial, recreational, agricultural and industrial applications.

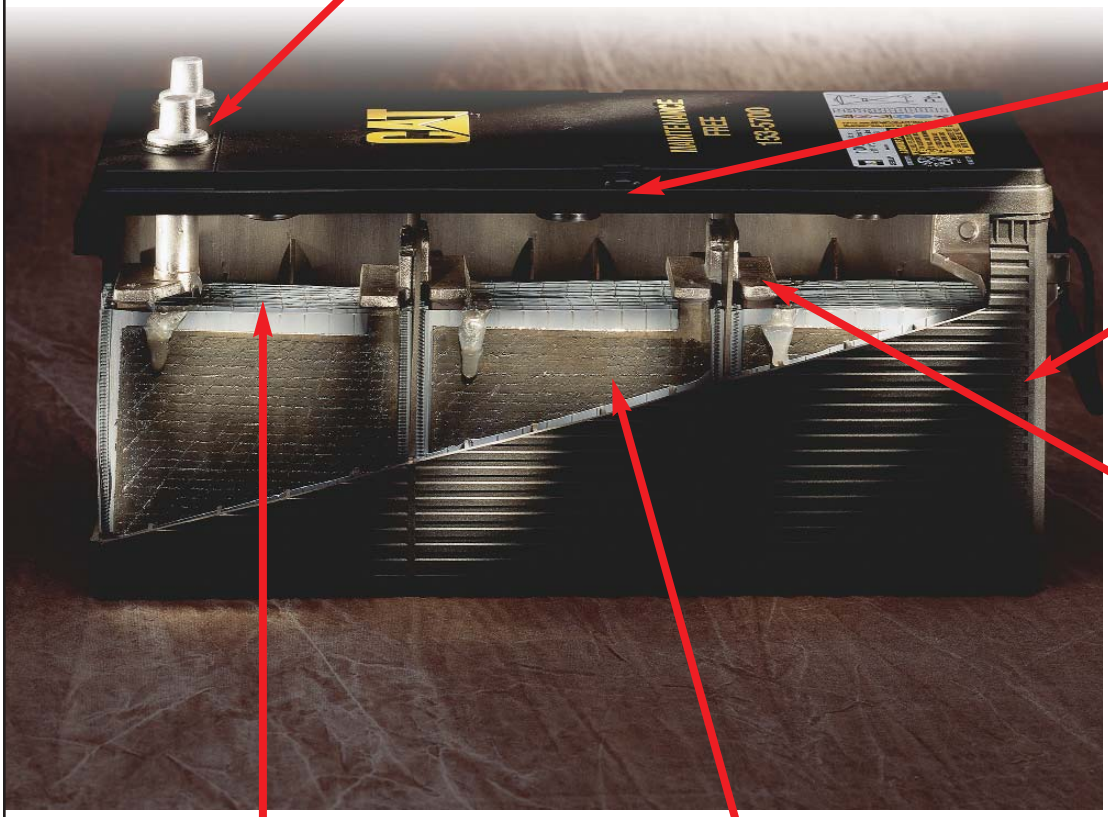
Marine Pleasure Craft
Premium High Output BCI Group 31, Dual Terminal Deep Cycle Batteries. General Service Line BCI group 24M, 27M and 8V sizes.

Electric Power Generation
Premium High Output Maintenance Free and Accessible batteries in BCI group 4D, 8D, & 31 sizes. High Cold Cranking Amp (CCA) Capability. General Service Line valve regulated (VRLA)
AGM batteries for UPS or stationary power applications.

Construction & Mining
Premium High Output Maintenance Free batteries. BCI group 4D, 8D and 31 Sizes. Industry leading cold cranking amps (CCA) and maximum vibration resistance.

Cat Batteries

Heavy-duty Forged Terminal Post Bushings



Built-in Flame Arrestor

Robust Reinforced Case

Vibration Resistant Plates & Elements

Heavy-duty Grids

Rugged Separators

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 microporous polyethylene envelope separators protect against “shorts” and vibration damage. Deep Cycle batteries utilize double insulated Glass mat separators for longer cycling life.
- Maintenance Free 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.

For more information, see us today or visit our web site at www.cat.com

Caterpillar. The difference counts.™

CATERPILLAR®

PEHJ0073-01 Printed in the U.S.A.

Attachments

Image shown might not reflect actual configuration.

BATTERY CHARGER

The intelligent battery charger has been developed with safety, usability, optimised battery performance and maximum battery lifetimes in mind.

A comprehensive range of input and output protections ensures a continued safe charging environment also enabling the use of the charger as a power supply.

FEATURES

- Intelligent two, three and four stage charging profiles
- Configurable to suit most battery types (12V/24V)
- Adjustable current limit
- Can be used as a battery charger, power supply or both at the same time
- Automatic or Manual boost and storage charge functions to help maintain battery condition
- Digital Microprocessor Technology
- Temperature compensation for battery charging
- Low Output Ripple and superb line regulation
- Three LED Indicators
- AC input Under voltage
- AC input Over voltage
- Battery charger output Over voltage
- Battery charger output Over current
- Optional battery temperature compensation with over temperature protection
- Output short circuit and Inversion polarity with auto recovery
- Configurable charge termination
- UL1236 /UL1564 Compliant

Automatic Boost Mode
- Boosts and equalises cell charge improving battery performance and life

Power Save Mode
- Once the battery is fully charged the chargers switch to Eco-Power to save energy

Communication
- Can be integrated into external systems through MODBUS RTU using RS485
- Fully configurable via PC Software

BENEFITS

- Fully flexible to maximise the life of the battery
- Suitable for a wide range of battery types
- Switched mode design
- Minimum 86% efficiency throughout full operating range
- No external intervention for boost mode
- Multiple chargers can be linked together to provide larger current output
- Can be permanently connected to battery and mains (utility) supply. No need to disconnect through high load conditions.

SPECIFICATION

AC SUPPLY
VOLTAGE RANGE 90 V to 305 V (L-N)

FREQUENCY RANGE
48 Hz to 64 Hz (L-N)

DC OUTPUT RATING
10 A DC at 24 V DC

RIPPLE AND NOISE
<1%

EFFICIENCY
>86%

REGULATION LINE
<0.5%

LOAD
2%

TEMPERATURE SENSOR INPUT
PT1000

PROTECTIONS
Short Circuit
DC Over Voltage
DC Over Current
Reverse Polarity
Over Temperature
AC Under & Over Voltage

CHARGE FAILURE RELAY
3 A at 30 V DC volt free relay

DIMENSIONS OVERALL
70 mm x200 mm x 130 mm
2.7" x 7.9" x 5.1"

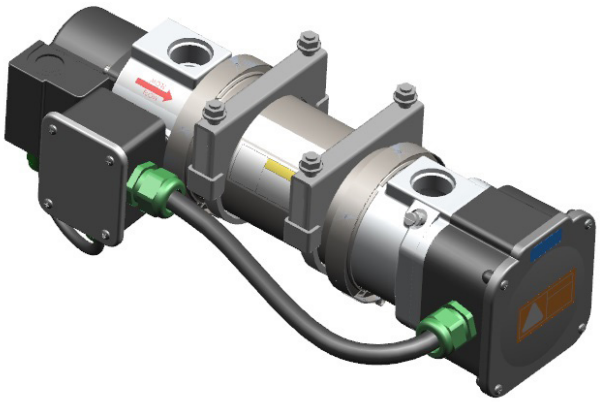
WEIGHT
0.75 kg

OPERATING TEMPERATURE RANGE
-30 °C to +80 °C
-22 °F to +176 °F

STORAGE TEMPERATURE RANGE
-30 °C to +80 °C
-22 °F to +176 °F

www.cat.com/electricpower

Jacket Water Heater



Features

Factory Installed

- Complete with Hoses, Thermostat (Control and Hi-Limit) and Pump
- Base Frame mounting minimizes Engine induced vibration
- Temperature Controlled Pump operation
- Supplied with UL, C (UL) US and CE recognized components
- Control Thermostat is Factory preset to 49°C (120°F)

Heater Design Description

- Jacket Water Heater Package is designed to efficiently preheat the engine by circulating the heated coolant onto engine
- This design results in following benefits
- Increase life of Heater Hoses, Engine Seals and Heating Elements
- Improves Heat Transfer efficiency from Elements to Engine Coolant
- Uniform Engine temperature distribution
- Application of Thermostat with a reduced thermal differential
- Lower Customer utility costs and increased Heater reliability
- Heater's Control Thermostat set point is preset

Jacket Water Heater with Pump

C27 and C32

Caterpillar offers a factory installed Jacket Water Heater for improved Engine Cold-Starting capability

This Jacket Water Heater is a Thermostatically controlled Heater with an integrated pump, built in bleed screw and High Limit Thermostat that can be manually reset

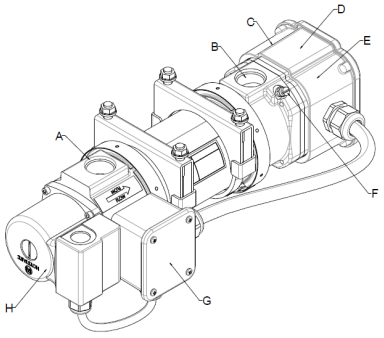
Forced circulation of the coolant delivers uniform heating throughout the entire engine, reduces wear from Cold spots and offers significant reduction of Electrical consumption

Heater Operation

A 34 L/pm (9 GPM) Pump is located at the Heater Inlet to push the coolant through the Heater
A Control Thermostat is located inside a Plastic Enclosure near the Inlet of Heater and responds to the temperature of coolant entering the tank
A High Limit Thermostat is located inside a Plastic Element Enclosure near the Outlet of Heater opens and cuts off supply to Heating Element, if tank attains 96°C (205°F). This Thermostat can be manual reset to close position.

Temperature Controlled Pump Operation – Pump runs only with Heating Elements.

Air release valve (Bleed Screw) provided to allow vent air from Heater, prior to energizing the Heater.



A. Suction Port (SAE Dash 16)

B. Discharge Port (SAE Dash 16)

C. Power in Wiring Entrance

D. Element Assembly

E. High-limit Thermostat with manual reset (in Element assembly)

F. Air Release Valve

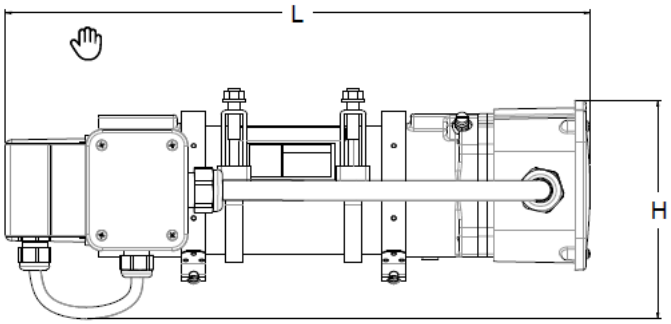
G. Control Thermostat (in enclosure)

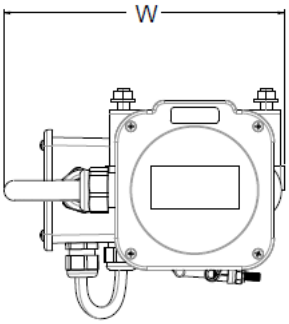
H. Pump/Motor

Jacket Water Heater

Specifications

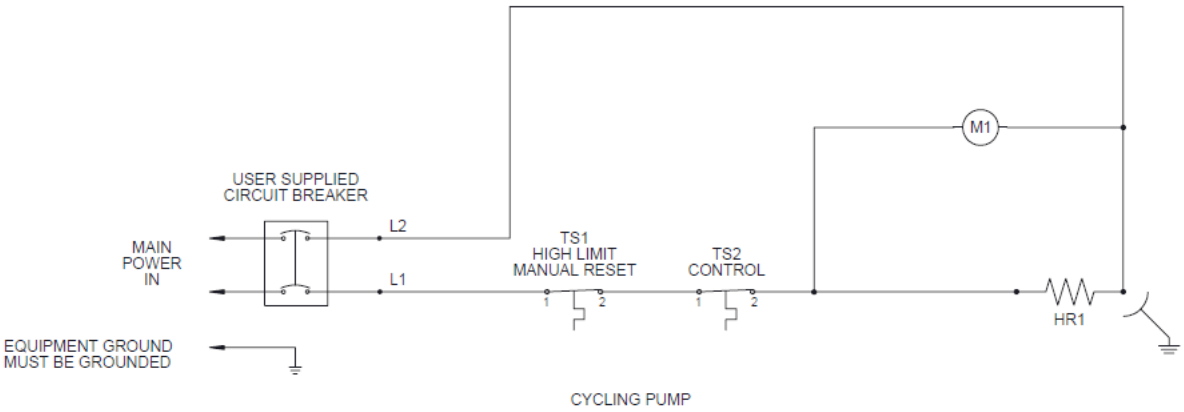
	Voltage	
	240	**220**
Heater Power	6kW	6kW
Frequency	60	50
Phase	Single	Single
Amps	25A	26A
Flow Rate	34 L/pm (9 GPM)	
Pump Rating	230 VAC 97W	230 VAC 70W
Control Thermostat (Set Point)	38°C – 49°C (100°F – 120°F)	
High Limit Thermostat (Set Point)	96°C (205°F), Manual Reset	
Length	466 mm (18.3")	
Width	216 mm (8.5")	
Height	183 mm (7.2")	
Weight	6.5 Kg	





Jacket Water Heater

Wiring Diagram



LEHE20214-01 (02/24)

Cat® ELC

Extended Life Coolant for Caterpillar and original equipment manufacturer (OEM) diesel and gasoline engines

50/50 Premix

Recommended Use

Cat ELC meets or exceeds the requirements of the following specifications and guidelines:

- Cat EC-1
- TMC RP-329
- TMC RP-338
- ASTM D-3306
- ASTM D-6210
- SAE J1034

Cat ELC also meets the performance requirements of Cummins, Detroit Diesel, International, Mack and Volvo.

Discover the Difference

Cat ELC is developed, tested and approved by Caterpillar to meet the same high standards as all Genuine Cat Parts.

- Factory-Fill—Used as standard factory-fill for all Cat machine cooling systems.
- Lower Maintenance Costs—Reduces engine coolant and additive costs by as much as 500% compared to conventional coolants. It eliminates the need for supplemental coolant additives, extends coolant change-out intervals and reduces disposal requirements.
- Advanced Metal Protection—Incorporates an advanced formula technology with organic acid additive corrosion inhibitors, such as a combination of mono and dicarboxylates for maximum protection of copper, solder, brass, steel, cast iron and aluminum.

CATERPILLAR®

Cat ELC for Maximum Coolant Life

Cat DEAC™

3000 Hour Life or
333,000 km (200,000 miles)
Cat Supplemental Coolant Additives Every 250 Hours
or 25,000 km (15,000 miles)

Cat ELC (Machines and Commercial Engines)

Cat Extender Every 6000 Hours*

12,000 Hour Life or 6 Years**
(whichever comes first)

Cat ELC (Truck Engines)

Cat Extender Every 500,000 km (300,000 miles)* **1,000,000 km (600,000 miles) or 6 Years****
(whichever comes first)

* Or one-half of the coolant service life.

** These coolant change intervals are only possible with annual S•O•S Level 2 coolant sampling and analysis.

Typical Characteristics*

Color	Strawberry Red
Boiling protection with 15 psi (1 bar) radiator cap	
50% Cat ELC/50% water	129°C (265°F)
60% Cat ELC/40% water (ELC concentrate added)	132°C (270°F)
Freezing protection	
50% Cat ELC/50% water	-37°C (-34°F)
60% Cat ELC/40% water (ELC concentrate added)	-52°C (-62°F)
Nitrite (50% solution)	500 ppm
Molybdate (50% solution)	530 ppm

*The values shown are typical values and should not be used as quality control parameters to either accept or reject product. Specifications are subject to change without notice.

S•O•S℠ services for early problem detection

Protect your investment with Cat S•O•S Coolant Analysis, the ultimate detection and diagnostic tool for your equipment. We recommend S•O•S Level 1 Coolant Analysis according to the engine's Operation and Maintenance Manual, and Level 2 Coolant Analysis annually for all your Cat equipment.

Cat ELC Extender for Longer Life

- Exceeds Cat EC-1 performance requirements
- Protects against cylinder liner/block pitting and cavitation erosion
- Should be added at 500,000 km (300,000 miles) for Cat powered on-highway trucks and 6,000 hours for commercial engines
- Extender is only necessary once during the life of the coolant
- Ensures Cat ELC performance to 1,000,000 km (600,000 miles) or 12,000 hours

Cat ELC Extender and Flush Intervals

Cat ELC Extender should be added after 6,000 hours or 300,000 miles (500,000 km) of operation, and the system should be drained and flushed with clean water after 12,000 hours or 600,000 miles (1,000,000 km). No cleaning agents are needed. If S•O•S℠ Services are used regularly, safe operation with Cat ELC may extend beyond 12,000 hours.

Health and Safety

Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. Always observe good hygiene measures. Read and understand the Material Safety Data Sheet (MSDS) before using this product. For a copy of the MSDS, visit us on the web at www.catmsds.com.

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 can help you maximize your equipment investment.

PEHJ0067-02
www.cat.com

CATERPILLAR®
TODAY'S WORK. TOMORROW'S WORLD.™

GROUND FAULT RELAY (GFR)

Picture shown may not reflect actual configuration

GENERAL DESCRIPTION

GFR is a microprocessor-based ground-fault relay for resistance- and solidly-grounded systems.
In addition to common systems, it is uniquely suited for use on systems with significant harmonic content.
GFR can provide main-plant protection, feeder-level protection, or individual-load protection.
Proper current transformer selection provides the desired pickup range. The output contacts can be connected for use in protective tripping circuits or in alarm indication circuits. The analog output can be used with a PLC or a meter.

FEATURES & BENEFITS

Benefits

- Trip setting based on input CT primary, allows use with any CT. Minimum 50 mA with EFCT Series.
- Adjustable trip delay allows quick protection and system coordination
- Form A and Form B ground-fault output contacts for operation of separate annunciation and trip circuits
- Alarms when CT is not connected
- Compatible with variable-speed drives
- Eliminates nuisance tripping
- Retains trip state while de-energized to simplify troubleshooting
- No calibration required, saves on maintenance cost
- Allows operation in application where one side of PT is faulted, provides flexibility for numerous applications

Features

- Adjustable pickup (1-99%)
- Adjustable time delay (50 ms - 2.5 s)
- Output contacts
- Analog output (0 - 5 V)
- CT-Loop monitoring
- Selectable DFT or peak detection filtering
- Harmonic filtering
- Non-volatile trip memory
- Microprocessor based
- Universal power supply

FRONT-PANEL CONTROLS

Ground-fault trip level

The % CT PRIMARY selector switches are used to set the ground-fault trip level as a percentage of the CT-primary rating.
In tripping systems, a ground-fault trip level of 10 to 20% of the prospective ground-fault current is often used. In alarm-only systems, a value of 50% of the prospective ground-fault current is often used. To avoid sympathetic tripping, the trip level must be above the charging current of the protected feeder.
A 0% selection provides protection at 1%.

Ground-fault trip time

GFR has a definite-time trip characteristic. The TIME (s) selector switch is used to set the ground-fault trip delay time for coordination with upstream and downstream ground-fault devices. Coordination requires the same trip level for all ground-fault devices in a system and the trip time to progressively increase upstream. The amount of equipment removed from the system will be a minimum if the first ground-fault device to operate is the one immediately upstream from the fault.

Reset

If the Reset Mode switch is in the LATCHING position, a trip remains latched until the RESET button is pressed or the remote-reset terminals are momentarily connected. In the non-fail-safe mode, cycling the supply voltage will also reset the GFR.
If the Reset Mode switch is in the AUTORESET position, a trip will reset when the fault is removed. The reset circuit responds only to a momentary closure so that a jammed or shorted button will not prevent a trip. The front-panel RESET button is inoperative when the remote-reset terminals (6 and 7) are connected

Test

The TEST button is used to test the ground-fault circuit, the indication, and the output relay. When the TEST button is pressed for one second, a test signal is applied to the ground-fault-detection circuit, the circuit will trip, the TRIP LED will light, and the output relay will operate. If high-current inhibit has been selected, the INHB LED will light.

Front-panel indication

- **Power**
  The green LED labelled PWR indicates the presence of supply voltage.

- **Trip**
  The red LED labelled TRIP indicates a trip. A solid red LED indicates a ground-fault trip. A flashing LED indicates a trip initiated by a CT fault. Two fast flashes indicate a diagnostic trip.

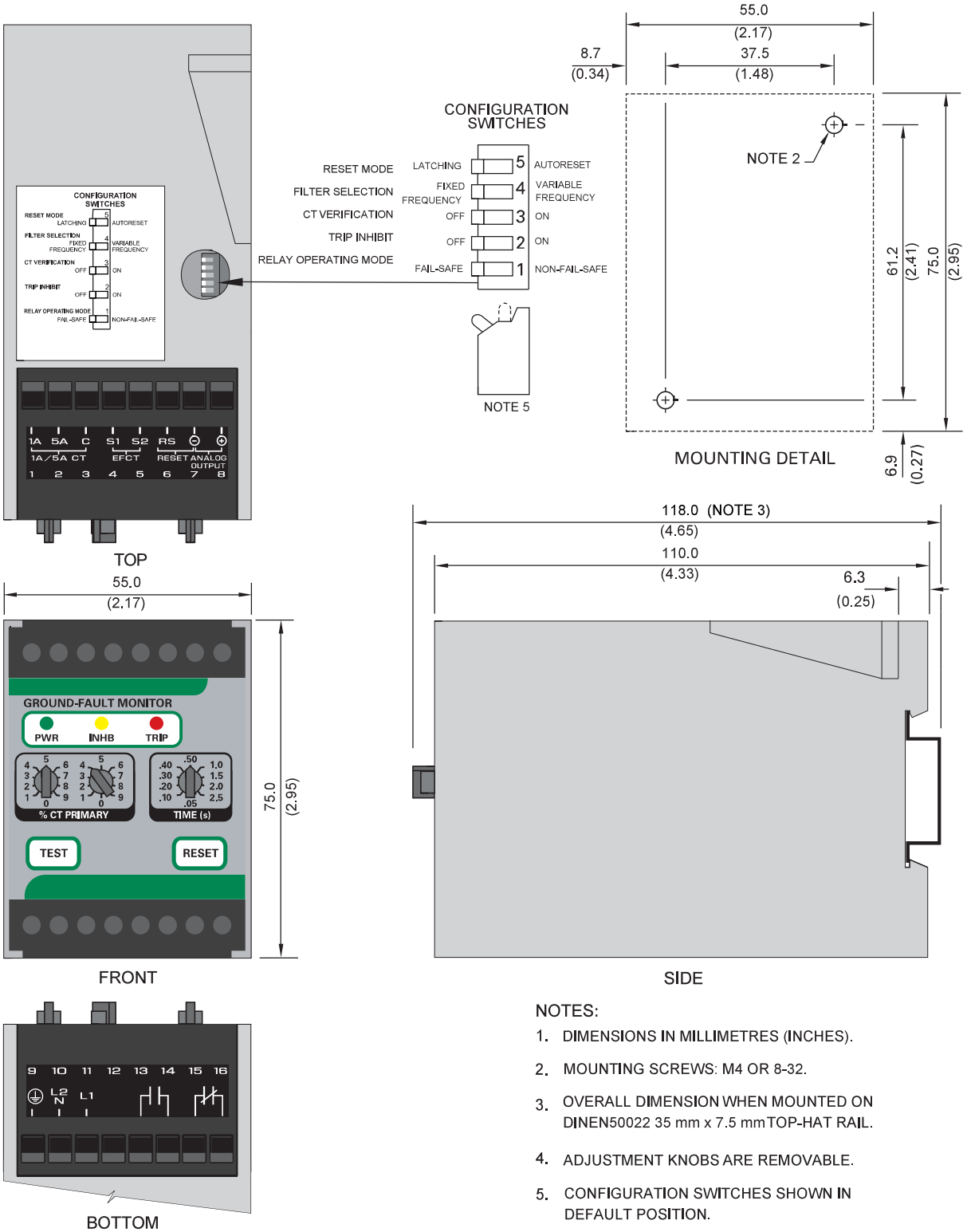
  Self diagnostics
  A diagnostic trip is indicated by two fast flashes of the TRIP LED. It can be caused by a diagnostic problem detected by the watchdog timer or from an incorrect reading from non-volatile memory. Press RESET or cycle supply voltage.

- **Trip inhibit**
  The yellow LED labelled INHB indicates that output relay operation was inhibited during a high-current ground fault. When a ground-fault trip occurs during a high-current ground fault, both the TRIP and INHB LED's will be ON. Inhibit indication is reset when the ground-fault trip is reset. Inhibit operation and indication will not respond if the trip-inhibit switch is in the OFF position.

SPECIFICATIONS

- IEEE Device Numbers - Ground fault (50G/N, 51G/N)
- Dimensions
  - H 75 mm (3.0")
  - W 55 mm (2.2")
  - D 115 mm (4.5")
- Trip Level Settings - 1-99% CT-Primary Rating
- Trip Time Settings - 0.05-2.5 s
- Contact Operating Mode - Selectable fail-safe or non-fail-safe
- Output Contacts Isolated Form A and Form B
- Approvals CSA certified, UL Listed (E340889), CE (European Union), C-Tick (Australian)
- Analog Output 0-5 V

OUTLINE AND MOUNTING DETAILS



NOTES:

1. DIMENSIONS IN MILLIMETRES (INCHES).
2. MOUNTING SCREWS: M4 OR 8-32.
3. OVERALL DIMENSION WHEN MOUNTED ON DINEN50022 35 mm x 7.5 mm TOP-HAT RAIL.
4. ADJUSTMENT KNOBS ARE REMOVABLE.
5. CONFIGURATION SWITCHES SHOWN IN DEFAULT POSITION.

Picture shown may not reflect actual configuration

Electric Starting Motor

for C27, C32, 3512, 3516, C175-16 and C175-20

U.S. Sourced

Electric Starting Motors are used for improved engine start capability.
Battery-powered electric motors utilize low voltage direct current and provide fast, convenient, pushbutton starting with lightweight, compact, engine-mounted components.

Design

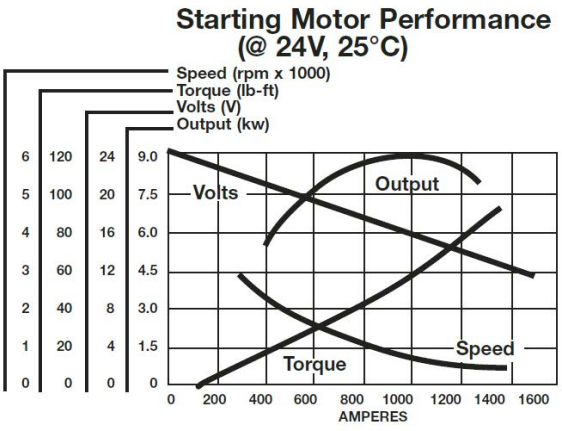
- Splash-proof and environmentally protected.
- Seamless one-piece solenoid case is sealed for corrosion protection.
- Positive-engagement shift mechanism assures pinion–to-ring gear engagement prior to cranking, minimizing milled ring gears and pinions.
- Epoxy impregnation and glass banding give starter armature exceptional rotation strength.
- Positive spring retention in the six wide, one-piece brushes gives uniform pressure and brush wear for extended service life.
- Extra-large brush leads are used to handle the high current experienced during the cranking of high-power diesel engines.
- Rotatable drive housing, with 12 positions, allows easy repositioning of the solenoid switch.
- Totally Enclosed Shift mechanism.
- Bearing Lubrication and Sealing: Three sintered-bronze bearing extra-large oil reservoirs.

Specifications

- System Voltage: 24 V
- Rotation: Clockwise
- Polarity: Insulated
- Mounting: SAE #3
- Pinion Data:
  - No Teeth/Pinion Blank: 11/12
  - Pitch: 6/8
- Output: 24V: 9.0 kW
- Weight: 34 kg (75 lbs)
- Operation temperature range
  - - 25°C to +121°C
- Pressure Angle: 20°
- Oil Sealed: ± 6 PSI
- Water Sealed: ± 6 PSI and 3500 PSI Pressure Wash

Option

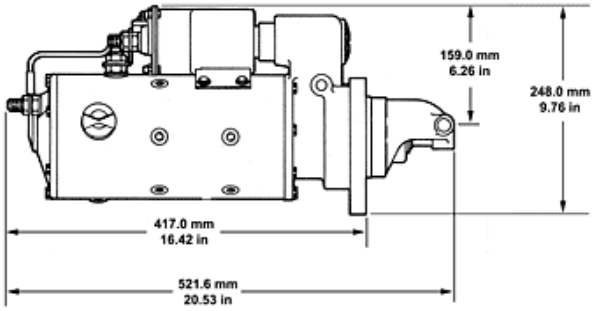
- Heavy-Duty Applications: Two or more units can be tandem-mounted for starting large engines.



Available Options

Model	Single	Dual	Quadruple
C27		+	
C32		+	
3512	+	+	
3512B	+	+	
3512C	+	+	
3516		+	
3516B		+	
3516C		+	
C175-16		+	+
C175-20		+	+

Dimensions Drawing



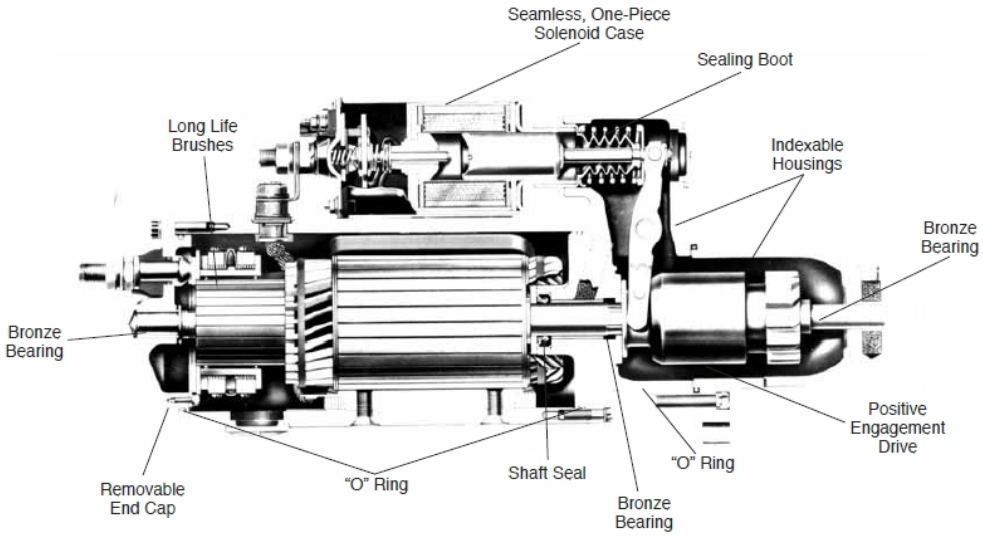


Image shown may not reflect actual configuration.

Remote Emergency Stop Button

Features and Benefits

- Enclosure degree of protection – IP 69K (NEMA 6)
- UL Listed (NKCR)
- Assembled enclosure with shroud
- 40 mm mushroom emergency stop
- Twist release
- 2NC – horizontally mounted

Dimensions

- Net Width: 0.065 m
- Net Height: 0.078 m
- Net Depth: 0.065 m
- Net Weight: 0.124 kg

Image shown may not reflect actual configuration.

20A Tamper-Resistant, Weather-Resistant GFCI Receptacles

Features and Benefits

- Automatically tests the GFCI every time the reset button is pushed in. The GFCI will not reset if the GFCI circuit is not functioning properly.
- By blocking reset of the GFCI if protection has been compromised, SmartLockPRO reduces the possibility of end-users incorrectly assuming that a reset GFCI outlet is providing ground fault protection when it actually is not.
- A line-load reversal diagnostic feature is provided which prevents the GFCI from being reset and stops power from being fed to the GFCI receptacle face or through to downstream devices. A green LED indicator on the GFCI's face also illuminates to alert the installer to the line-load wiring reversal.

Weather-Resistant GFCIs

- Meet UL 498 requirements for weather-resistant receptacles.

Tamper-Resistant GFCIs

- Shutter mechanism inside the receptacle blocks access to the contacts unless a two-prong plug is inserted, helping ensure foreign objects will be locked out.

Product Features

- Grounding: GFCI ground fault
- Feature: Weather and tamper-resistant
- Amperage: 20 Amp
- Voltage: 125 Volt
- NEMA: 5-20R
- Trip Level: Class A, 5mA plus or minus 1mA
- Pole: 2
- Wire: 3
- Color: White

Standards and Certifications

- NEMA: WD-6
- ANSI: C-73
- UL498: File E13399
- CSA C22.2 No. 42: File LR-57811
- NOM: 057
- UL 943: File E48380

Receptacles contained in a weather resistant box and in-use cover.

Yancey Power Systems
259 Lee Industrial Blvd.
Austell, GA 30168-7406
770.941.2424 tel
770.941.2411 fax
877.278.6235 toll free
www.YanceyPower.com

Warranty & Certifications

Effective with sales to the first user on or after August 1, 2018

CATERPILLAR LIMITED WARRANTY

Industrial, Petroleum, Locomotive, and Agriculture Engine Products and Electric Power Generation Products

Worldwide

Caterpillar Inc. or any of its subsidiaries ("Caterpillar") warrants new and remanufactured engines and new and rebuild electric power generation products sold by it (including any products of other manufacturers packaged and sold by Caterpillar), to be free from defects in material and workmanship.

This warranty does not apply engines sold for use in on-highway vehicle or marine applications; engines in machines manufactured by or for Caterpillar; C175, 3500 and 3600 series engines used in locomotive applications; 3000 Family engines, C0.5 through C4.4 and ACERT™ (C6.6, C7, C7.1, C9, C9.3, C11, C13, C15, C18, C27, and C32) engines used in industrial, mobile agriculture and locomotive applications; or Cat® batteries; or Electric Power Generation Products manufactured or assembled in India. These products are covered by other Caterpillar warranties.

This warranty is subject to the following:

Warranty Period

- For industrial engines, engines in a petroleum applications or Petroleum Power Systems (excluding petroleum fire pump application), or engines in a Locomotive application, or Uninterruptible Power Supply (UPS) systems, the warranty period is 12 months after date of delivery to the first user.
- For engines used in petroleum fire pump and mobile agriculture applications the warranty period is 24 months after date of delivery to the first user.
- For controls only (EPIC), configurable and custom switchgear products, and automatic transfer switch products, the warranty period is 24 months after date of delivery to the first user.
- For new CG132, CG170 and CG260 series power generation products the warranty period is 24 months after date of delivery to first user, but not to exceed 36 months from shipment from the Caterpillar place of manufacture.
- For electric power generation products other than CG132, CG170 and CG260 series in prime or continuous applications the warranty period is 12 months. For standby applications the warranty period is 24 months/1000 hours. For emergency standby applications the warranty period is 24 months/400 hours. All terms begin after date of delivery to the first user.
- For Caterpillar rebuild electric power generation products the warranty period is 12 months, but not to exceed 24 months from shipment of rebuilt electric power generation product from Caterpillar.
- For all other applications the warranty period is 12 months after date of delivery to the first user.

Caterpillar Responsibilities

If a defect in material or workmanship is found during the warranty period, Caterpillar will, during normal working hours and at a place of business of a Cat dealer or other source approved by Caterpillar:

- Provide (at Caterpillar's choice) new, Remanufactured, or Caterpillar approved repaired parts or assembled components needed to correct the defect.

Note: New, remanufactured, or Caterpillar approved repaired parts or assembled components provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product in which installed as if such parts were original components of that product. Items replaced under this warranty become the property of Caterpillar.

- Replace lubricating oil, filters, coolant, and other service items made unusable by the defect.
- Provide reasonable and customary labor needed to correct the defect, including labor to disconnect the product from and reconnect the product to its attached equipment, mounting, and support systems, if required.

For new 3114, 3116, and 3126 engines and, new and Caterpillar rebuild electric power generation products (which includes the following: any new products of other manufacturers packaged and sold by Caterpillar)

- Provide travel labor, up to four hours round trip, if in the opinion of Caterpillar, the product cannot reasonably be transported to a place of business of a Cat dealer or other source approved by Caterpillar (travel labor in excess of four hours round trip, and any meals, mileage, lodging, etc. is the user's responsibility).

For all other products:

- Provide reasonable travel expenses for authorized mechanics, including meals, mileage, and lodging, when Caterpillar chooses to make the repair on-site.

User Responsibilities

The user is responsible for:

- Providing proof of the delivery date to the first user.
- Labor costs, except as stated under "Caterpillar Responsibilities," including costs beyond those required to disconnect the product from and reconnect the product to its attached equipment, mounting, and support systems.
- Travel or transporting costs, except as stated under "Caterpillar Responsibilities."
- Premium or overtime labor costs.
- Parts shipping charges in excess of those that are usual and customary.
- Local taxes, if applicable.
- Costs to investigate complaints, unless the problem is caused by a defect in Caterpillar material or workmanship.
- Giving timely notice of a warrantable failure and promptly making the product available for repair.
- Performance of the required maintenance (including use of proper fuel, oil, lubricants, and coolant) and items replaced due to normal wear and tear.
- Allowing Caterpillar access to all electronically stored data.

Limitations

Caterpillar is not responsible for:

- Failures resulting from any use or installation that Caterpillar judges improper.
- Failures resulting from attachments, accessory items, and parts not sold or approved by Caterpillar.
- Failures resulting from abuse, neglect, and/or improper repair.
- Failures resulting from user's delay in making the product available after being notified of a potential product problem.
- Failures resulting from unauthorized repairs or adjustments, and unauthorized fuel setting changes.
- Damage to parts, fixtures, housings, attachments, and accessory items that are not part of the engine, Cat Selective Catalytic Reduction System or electric power generation product (including any products of other manufacturers packaged and sold by Caterpillar).
- Repair of components sold by Caterpillar that is warranted directly to the user by their respective manufacturer. Depending on type of application, certain exclusions may apply. Consult your Cat dealer for more information.

(Continued on reverse side…)

This warranty covers every major component of the products. Claims under this warranty should be submitted to a place of business of a Cat dealer or other source approved by Caterpillar. For further information concerning either the location to submit claims or Caterpillar as the issuer of this warranty, write Caterpillar Inc., 100 N. E. Adams St., Peoria, IL USA 61629.

Caterpillar's obligations under this Limited Warranty are subject to, and shall not apply in contravention of, the laws, rules, regulations, directives, ordinances, orders, or statutes of the United States, or of any other applicable jurisdiction, without recourse or liability with respect to Caterpillar.

A) For products operating outside of Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands and Tahiti, the following is applicable:

NEITHER THE FOREGOING EXPRESS WARRANTY NOR ANY OTHER WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED, IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXCEPT CATERPILLAR EMISSION-RELATED COMPONENTS WARRANTIES FOR NEW ENGINES, WHERE APPLICABLE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISION OF MATERIAL AND SERVICES, AS SPECIFIED HEREIN.

CATERPILLAR IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS EXCLUDED IN ITS ENTIRETY.

For personal or family use engines or electric power generation products, operating in the USA, its territories and possessions, some states do not allow limitations on how long an implied warranty may last nor allow the exclusion or limitation of incidental or consequential damages. Therefore, the previously expressed exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary by jurisdiction. To find the location of the nearest Cat dealer or other authorized repair facility, call (309) 675-1000. If you have questions concerning this warranty or its applications, call or write:

In USA and Canada: Caterpillar Inc, 100 N.E. Adams St., Peoria, IL USA 61629, Attention: Customer Service Manager, Telephone 1 (309) 675-1000, outside the USA and Canada: Contact your Cat dealer.

B) For products operating in Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands and Tahiti, the following is applicable:

T**HIS WARRANTY IS IN ADDITION TO WARRANTIES AND CONDITIONS IMPLIED BY STATUTE AND OTHER STATUTORY RIGHTS AND OBLIGATIONS THAT BY ANY APPLICABLE LAW CANNOT BE EXCLUDED, RESTRICTED OR MODIFIED ("MANDATORY RIGHTS"). ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED (BY STATUTE OR OTHERWISE), ARE EXCLUDED. WITHOUT LIMITING THE FOREGOING PROVISIONS OF THIS PARAGRAPH, WHERE A PRODUCT IS SUPPLIED FOR BUSINESS PURPOSES, THE CONSUMER GUARANTEES UNDER THE CONSUMER GUARANTEES ACT 1993 (NZ) WILL NOT APPLY.**

NEITHER THIS WARRANTY NOR ANY OTHER CONDITION OR WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED (SUBJECT ONLY TO THE MANDATORY RIGHTS), IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

IF THE MANDATORY RIGHTS MAKE CATERPILLAR LIABLE IN CONNECTION WITH SERVICES OR GOODS, THEN TO THE EXTENT PERMITTED UNDER THE MANDATORY RIGHTS, THAT LIABILITY SHALL BE LIMITED AT CATERPILLAR'S OPTION TO (a) IN THE CASE OF SERVICES, THE SUPPLY OF THE SERVICES AGAIN OR THE PAYMENT OF THE COST OF HAVING THE SERVICES SUPPLIED AGAIN AND (b) IN THE CASE OF GOODS, THE REPAIR OR REPLACEMENT OF THE GOODS, THE SUPPLY OF EQUIVALENT GOODS, THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT GOODS.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

CATERPILLAR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES UNLESS IMPOSED UNDER MANDATORY RIGHTS.

IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS EXCLUDED IN ITS ENTIRETY.

C) For products supplied in Australia:

IF THE PRODUCTS TO WHICH THIS WARRANTY APPLIES ARE:

- **I. PRODUCTS OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION; OR**
- **II. PRODUCTS THAT COST AUD 40,000 OR LESS,**

WHERE THOSE PRODUCTS WERE NOT ACQUIRED FOR THE PURPOSE OF RE-SUPPLY OR FOR THE PURPOSE OF USING THEM UP OR TRANSFORMING THEM IN THE COURSE OF PRODUCTION OR MANUFACTURE OR IN THE COURSE OF REPAIRING OTHER GOODS OR FIXTURES, THEN THIS SECTION C APPLIES.

THE FOLLOWING MANDATORY TEXT IS INCLUDED PURSUANT TO THE AUSTRALIAN CONSUMER LAW AND INCLUDES REFERENCES TO RIGHTS THE USER MAY HAVE AGAINST THE DIRECT SUPPLIER OF THE PRODUCTS: OUR GOODS COME WITH GUARANTEES THAT CANNOT BE EXCLUDED UNDER THE AUSTRALIAN CONSUMER LAW. YOU ARE ENTITLED TO A REPLACEMENT OR REFUND FOR A MAJOR FAILURE AND COMPENSATION FOR ANY OTHER REASONABLY FORESEEABLE LOSS OR DAMAGE. YOU ARE ALSO ENTITLED TO HAVE THE GOODS REPAIRED OR REPLACED IF THE GOODS FAIL TO BE OF ACCEPTABLE QUALITY AND THE FAILURE DOES NOT AMOUNT TO A MAJOR FAILURE. THE INCLUSION OF THIS TEXT DOES NOT CONSTITUTE ANY REPRESENTATION OR ACCEPTANCE BY CATERPILLAR OF LIABILITY TO THE USER OR ANY OTHER PERSON IN ADDITION TO THAT WHICH CATERPILLAR MAY HAVE UNDER THE AUSTRALIAN CONSUMER LAW.

TO THE EXTENT THE PRODUCTS FALL WITHIN THIS SECTION C BUT ARE NOT OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION, CATERPILLAR LIMITS ITS LIABILITY TO THE EXTENT IT IS PERMITTED TO DO SO UNDER THE AUSTRALIAN CONSUMER LAW TO, AT ITS OPTION, THE REPAIR OR REPLACEMENT OF THE PRODUCTS, THE SUPPLY OF EQUIVALENT PRODUCTS, OR THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT PRODUCTS.

THE WARRANTY SET OUT IN THIS DOCUMENT IS GIVEN BY CATERPILLAR INC. OR ANY OF ITS SUBSIDIARIES, 100 N. E. ADAMS ST, PEORIA, IL USA 61629, TELEPHONE 1 309 675 1000, THE USER IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH MAKING A CLAIM UNDER THE WARRANTY SET OUT IN THIS DOCUMENT, EXCEPT AS EXPRESSLY STATED OTHERWISE IN THIS DOCUMENT, AND THE USER IS REFERRED TO THE BALANCE OF THE DOCUMENT TERMS CONCERNING CLAIM PROCEDURES, CATERPILLAR RESPONSIBILITIES AND USER RESPONSIBILITIES.

TO THE EXTENT PERMISSIBLE BY LAW, THE TERMS SET OUT IN THE REMAINDER OF THIS WARRANTY DOCUMENT (INCLUDING SECTION B) CONTINUE TO APPLY TO PRODUCTS TO WHICH THIS SECTION C APPLIES.