

ENGINE

Caterpillar Model G3520C, V20 cylinder, 12.1:1 Compression Ratio, 6.7" Bore x 7.5" Stroke, 5270 cubic inch displacement, 1800RPM, See attached Tech Data for Emissions
Air Fuel Ratio Controller factory installed

STANDARD EQUIPMENT

Air cleaner, single stage dry type

Breather, crankcase

Cooler, lube oil

Lube oil filter(s)

Lubricating oil

Exhaust, manifold dry type

Paint, Caterpillar Yellow

Jacket water pump (Not included on CHP units)

Flexible fuel line

Governor, electronic type, with speed control module, allowing a frequency regulation of +/-0.25% no load to full load steady state

Voltage Regulator, digital type, regulation of +/- 0.5% no load to full load steady state

Vibration isolators - mounted between the formed steel base and the engine generator set

Formed steel base with coolant and oil drain valve connections.

COOLING SYSTEM

Std. mechanical driven JW and AC water pumps, mounted and piped for future JW heat recovery.

Remote split stacked core radiator, JW/AC cooling, horizontal core, vertical discharge, 3 x 7.5HP motors, 900RPM Direct Drive Fans, galvanized dual chamber surge tank with sight glasses and low water level switches, motor panel with disconnect, motor starters and Honeywell temperature control, predicted 73dBA @ 23ft. Skid base provided for bolting to front of enclosure skid. All piping and wiring pre-fabricated for ease of installation. Radiator skid base will be shipped loose for assembly at the jobsite. This will require additional pad length for

installation of the generator package and radiator cooling system on a common pad. This will eliminate a separate pad for the radiator cooling system, field piping and wiring.

INLET GAS FUEL TRAIN

Per NFPA37, Gas Filter with Aluminum Housing, Flanges DN125 PN16, Ball valve, Double solenoid valve 24VDC, High/Low Pressure Switch, High Pressure Switch, Normally Open Valve, End Switch, Flexible Hose, Pressure Regulator. SS Flexible fuel connection supplied. Mounted, piped and wired.

EXHAUST SILENCER

Critical exhaust silencer mounted on roof of generator Sound Attenuated Enclosure Flexible exhaust connection installed

ELECTRIC STARTING SYSTEM

Dual HD starting motors

24 volt DC, with battery charging alternator

Battery consisting of four heavy-duty 12 volt batteries with acid, rack and cables

Battery Charger, 120/240volt AC input, 24VDC output, dual rate, rated at 20 ampere and includes a low voltage alarm relay, complies with NFPA110 mounted and wired.

JACKET WATER HEATER

Thermostatically controlled, AC single phase, with isolation valves, mounted and wired

LUBE OIL REGULATOR SYSTEM

Engine mounted lube oil regulator, mounted and piped for gravity feed 25 gallon lube oil reservoir

GENERATOR FEATURES

Generator anti-condensing heater w/thermostat

Generator excitation- PMG permanent magnet type with 300% short circuit

Generator circuit breaker NOT included, to be provided in paralleling switchgear

CONTROL PANEL, CATERPILLAR EMCP II+ GENERATOR MOUNTED in NEMA 1 ENCLOSURE includes:

Digital graphical display for power metering, protective relaying, engine and generator controls, diagnostics and operating information. All information available via the control panel keypads. A 33 x 132 pixel, 3.8 inch graphical display denotes text alarm, event descriptions, set points, engine and generator monitoring.

Real time clock allows for date and time stamping of diagnostics and events, as well as service maintenance requirements based on engine operating hours or calendar days. Up to 40 diagnostic events are stored in the non-volatile memory. Three levels of operator security. To include:

GENERATOR MONITORING

Voltage (L-L, L-N)
Current (3 Phase & Total)
Volt, Amp, Frequency
KW (Total & per Phase)
KVAR, KVA (Total)
KW-HR, KVAR-HR (Total)
Frequency
Excitation voltage and current (with CDVR)
Generator stator and bearing temp (with optional module)
GENERATOR PROTECTION
Over/under voltage
Over/under frequency
Generator phase sequence
Reverse power (real and reactive)
Over current (timed and inverse)
ENGINE MONITORING
Coolant temperature
Oil temperature
Oil pressure
L/R Exhaust Manifold Temperature
Engine speed (RPM)
Battery voltage
Run hours
Crank attempt and successful start counter
Enhanced engine monitoring (with electronic engines)
ENGINE PROTECTION
Control switch not in auto (alarm)
High coolant temp (alarm and shutdown)
Low coolant temp (alarm)
High engine oil temp (alarm and shutdown)
Low, high, and week battery voltage
Overspeed
Overcrank

CONTROL
Run/Auto/Stop control
Speed and voltage adjust
Local and remote emergency stop
Remote start/stop
Cooldown timer
Cycle crank
INPUTS AND OUTPUTS

Spare lights 3/spare inputs 4

Customer programmable shutdown or alarm to spare alarm or fault LED's

COMMUNICATIONS

RS-232 annunciator data link via CAT Customer Communication Module CCM and PC compatibility

PL1000 converts CAT Data Link to Modbus interface

ADEM III GAS ENGINE CONTROL MODULE GECM

Provides engine speed governing, ignition control, air/fuel ratio control, start/stop sequencing and engine monitoring and protection. Fuel quality compensation oxygen sensor, ramp speed rate, monitoring for cylinder exhaust temperature, turbo inlet/outlet temperature, average L/R cylinder bank temperature, and cylinder misfire detection.

PRE-ALARM PANEL

Control Panel local mounted complies with NFPA110

SPECIAL SOUND ATTENUATED WALK-IN GENERATOR SET ENCLOSURE 75-80dBA @ 23Ft. DESIGN SPEC

- Level 2 enclosure quoted to meet an average of 75-80 dBA at 23 feet in free field conditions. The below quoted enclosure is based on our Aluminum Frame design.

Approx. Base Frame Dimensions 549"L x 168"W x 10"H Radiator Base Frame 290"L x 144"W x 10"H

ENCLOSURE TO HAVE REMOVABLE END WALL FOR ENGINE EXTRACTION.

- Walk-in design enclosure.

- Provide a UL2200 Weather Resistive Enclosure - This enclosure is constructed of powder painted, .080

Aluminum panels secured to a 6063 T52 welded aluminum frame secured with 3m high grade double sided

tape. The enclosure is support by a 6" aluminum C-channel base frame for easy enclosure lifting.

The roof will be constructed of .125 aluminum fully welded one piece roof. (roofs are normally not painted but

can be at addition cost)

Door frames, roof gutters and trim to be of aluminum construction.

- 3" Mineral wool sound attenuated and thermal insulation installed throughout the interior of the enclosure and

covered with perforated galvanized steel sheeting.

- 1 INTAKE HOOD ON EITHER SIDE WITH SOUND SPLITTERS. (2) INTAKE HOODS TOTAL. And 1 Discharge Hood SHIP LOOSE INSTALLED BY OTHERS

- 1 DISCHARGE HOOD.

- ONE DOUBLE maintenance access doors on each side OF ENGINE ROOM.. Doors with interior emergency

release handle allowing door to be opened from inside when locked. All fitted with watertight rubber seals, drip ledges and all fitted with heavy duty refrigeration style chrome plated steel hinges and keyed-alike lockable handles. Handles are also pad lockable. Doors will be fitted with a door-hold-back latch and bulb seals. Doors to be located and provide complete engine access for spark plug maintenance.

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ONE SINGLE EGRESS DOOR ON EACH SIDE OF SWITCHGEAR ROOM.

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ONE SINGLE DOOR INTERIOR FROM SWITCHGEAR ROOM TO ENGINE ROOM.

- Inlet and exhaust air handling shall be designed so as to maintain a combined total maximum static pressure drop of 0.5 inches of water gauge through the enclosure.
- Sloped roof construction.
- Wind rated up to 100mph. Certification available at additional cost.

Exhaust

- Carbon Steel Critical Grade Silencer Externally mounted sized to suit the above sound attenuation (if any) and fitted with a stainless steel flexible connector to engine. Exhaust mounted roof to outside of enclosure with rain cap fitted.

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SHIP LOOSE INSTALLED BY OTHERS.

Electrical

- PROVIDE INSTALL:

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-100A, 120 / 208 volt, three-phase, basic circuit breaker type load center (distribution panel) with a main circuit breaker and branch circuit breakers (all circuit breakers are clip-on models) for the enclosures electrical accessories and for the basic engine accessories. All wiring to and from electrical accessories is installed in electrical metallic tubing (EMT) and liquid tight flexible conduit. Shore power to be provided by customer.

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-480V 3 PHASE PANEL BOARD

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-4 EMERGENCY LIGHTS

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-5 120 VAC interior, 48" fluorescent light fixtures with protective guard includes two wall mounted switches and two GFCI duplex receptacles.

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-4 24VDC interior, incandescent, vapor proof light fixtures complete with 30 min timer switch and all wired to generator set battery package.

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-1 30 KVA XFORMER W/DISCONNECT

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-1 FAN VENTILATOR CONTRLLER

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-1 FIRE EXTINGUISHER

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-4 EXTERIOR WALL PACK LIGHTS

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-1 EACH GAS AND HEAT DETECTOR W/CONTROLLER

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-MOUNT AND WIRE CUSTOMER SUPPLIED SWITCHGEAR

• YES TO wire customer supplied basic engine accessories to genset terminal strip: jacket water heater, batteries, battery charger and alternator strip heater if applicable.

Subbase

• ENCLOSURE SUB BASE FRAME 549" X 192" X 10"

Heavy duty steel design subbase frame with welded 2" rain guard (Yancey design).

Electrical stub-up area included (position to be advised).

Four point lift. Lifting lugs are welded to subbase fuel tank and rated to lift complete package.

Painted with a two coat black finish.

• RAD SUB BASE FRAME 290" X 144" X 10"

Heavy duty steel design SUB BASE frame with four point lift. Lifting lugs are welded to this frame and rated

to lift RAD.

Painted with a two coat black finish.