



Quotation

Power Generation Ent. LLC

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Posting Date: 10/11/2013
Delivery Type: Container
Source Plant: 88
Status: Started/ No

Contact Person: Victor Seropian

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Your Reference Number: G3520C-4160V-PGM

Your Description: G3520C-4160V-PGM

Product Consist: NOTE

The following equipment is included as standard on Caterpillar G3520C Packaged Gen Sets.

GENERAL INFORMATION

Engine

G3520C - Low Emissions Engine

"C" Series electronics

Caterpillar Gas Engine Control Module (GECM)

(Based upon ADEM III Module)

Features include:

Fuel/air ratio control

Start/stop logic:

Gas purge cycle

Staged shutdown

Engine Protection Systems*:

Detonation Sensitive Timing

High exhaust temperature shutdown

(For a complete listing check sales technical or service literature.)

Governor (See Governor below.)

Transient Richening and Turbo Bypass Control

Ignition (See Ignition below.)

AIR INLET SYSTEM

Two-element single-stage air cleaner with enclosure, service indicator (shipped loose).

-Does not include any enclosure mounting brackets or piping from air cleaner to turbo(s).

CONTROL PANELS

EMCP II+ control panel (gen mount is standard for low and medium voltage; wall mount is standard for high voltage):

- HV--Mandatory Option--Choice of 2E or 3E kW transducer is mounted

- in wall mount EMCPII+ panel and choice of 3 wiring harness lengths.
- For LV and MV--Mandatory Option--Choice of 2E or 3E transducer shipped loose.
- For both LV and MV, customer-supplied wiring is needed to connect the kW transducer).
- 24-volt DC control.
- NEMA12, IP44 dust-proof enclosure
 - *Lockable hinged door
 - *Generator terminal box (mounted rear facing).
- Single-location customer connection
 - *Panel illuminating lights
- Auto start/stop control switch
- Voltage adjustment potentiometer
- True RMS AC metering, 3 phase
- Purge cycle and staged shutdown logic
- Digital indication for:
 - Rpm
 - Operating hours
 - Oil pressure
 - Coolant temperature
 - DC volts
 - L-L volts, L-N volts, phase amps, Hz
 - ekW, kVA, kVAR, kWhr, %kW, PF
- Engine Initiated Shutdowns with discreet codes displayed for:
 - Low oil pressure
 - High coolant temperature
 - Overspeed
 - Emergency stop
 - Failure to start (overcrank)
 - High oil temperature

(For a complete listing, check technical sales or service literature.)
- Programmable protective relaying functions
 - Under and over voltage
 - Under and over frequency
 - Reverse power
 - Over current (phase and total)
- 3 spare indicator LEDs (programmable)
- 4 spare alarm/shutdown inputs
- *Does not apply to HV wall-mount EMCP II+ Panel.

COOLING SYSTEM

- See TMI for heat rejection data and pump performance
- JW and SCAC engine-driven pumps
- JW and SCAC thermostats
- Flange connections; JW inlet and outlet - ANSI 6 in/DN150;
- 2nd stage SCAC - Cat flange

EXHAUST SYSTEM

- Dry exhaust manifold, insulated and shielded
- Cat-flanged face outlet on turbocharger
- Individual exhaust port and turbocharger outlet (2 on 60 Hz) wired to Integrated Temperature Sensing Module (ITSM) with Gas ECM providing alarms and shutdowns.

FUEL SYSTEM

- Engine-installed electronic fuel metering valve with 8-inch tube

8-bolt ANSI flange.
Throttle plate, electronically controlled 24V DC actuator;
controlled by Gas Engine Control Module.
Required but not provided as standard: 24V DC Energized-To-Run (ETR)
Gas Shutoff Valve.
Fuel filter is required: customer may provide or see optional
fuel filters.
Fuel system is sized for 31.5 to 47.2 MJ/nM3 (800 to 1200
btu/cu ft) dry pipeline natural gas with pressure of 10.2 to
34.5 kPa (1.5 psi to 5 psi) to the engine fuel control valve.
Gas pressure regulator not supplied; recommend pressure to fuel
control valve to be steady within +/-0.25 psi.

GENERATORS AND GENERATOR ATTACHMENTS

Generator
SR4B
3-phase brushless, salient pole
Permanent magnet excited, form wound, optimum pitch
6 lead
Caterpillar's Digital Voltage Regulator (CDVR) 3-phase sensing;
includes KVAR/PF control
Class H insulation, Class F temperature rise @ 40 deg C ambient
(105 deg C rise)(LV)(MV)
Class F insulation, Class F temperature rise @ 40 deg C ambient
(105 deg C rise)(HV)
Reactive droop
Bus bar connections
Winding temperature detectors
Anti-condensation space heaters
820 frames: 120/240 VAC, 1200 W
HV generators: 120/240 VAC, 2000 W
Extension box and bearing temperature detectors (standard on HV)

GOVERNING SYSTEM

Electronic speed governor with 4 to 20 ma (0V to 5V) speed input.
Governor is part of Gas Engine Control Module (GECM).
Provides transient richening and turbo bypass control.
(Controls for signaling these features are contained in
engine or PKG control.)
Electronically-controlled 24V DC actuator connected to
throttle shaft.

IGNITION SYSTEM

Electronic Ignition System (controlled by GECM)
Individual cylinder Detonation Sensitive Timing (DST)

LITERATURE

English (CD Rom with product documentation)

LUBE SYSTEM

Lubricating oil option.
Gear type lube oil pump.
Oil filter, filler and dipstick.
Integral lube oil cooler.
Oil drain valve.
Crankcase breather.

MOUNTING SYSTEM

330 mm structural steel rails
 Spring-type anti-vibration mounts; shipped loose

STARTING/CHARGING SYSTEM

Jacket water heater is required;
 Customer can provide or see JW heater options
 in the Starting/Charging System section
 60-amp, 24V charging alternator (standard on 60 Hz 1800 rpm only)
 24V starting motors
 Battery with rack and cables (shipped loose)
 Battery disconnect switch

GENERAL

Paint--Caterpillar Yellow except rails & radiators Gloss Black
 RH service
 Damper guard
 Note: "Stationary Use Only Label": Effective January 2004, the US
 EPA Nonroad Mobile SI rule restricts the use of SI gas engines
 in the United States. Caterpillar's Gas Engines are not certi-
 fied for mobile applications within the US and are to be used
 in "stationary use only" applications. All gas engines will have
 this label attached regardless of the dealer placing the order.

50 HERTZ; 1500 RPM; 3 PHASE: 415/400/380 VOLT; PM EXCITED

Legend details

Less Off (LO):
 Y/N (Yes/No). Material removals are necessary in some cases included DTO requests.
 All items are included unless otherwise noted.

Assembly Indicators (A/I):
 I=Installed, N=Not Installed, S=Shipped Loose, O=Outsourced, P=Partially Installed
 All items are installed unless otherwise noted.

Price TBD:
 The price for this item has not been determined.Contact your Account Coordinator or A&I Engineer.

Missing Date:
 The item's effective date for pricing has not been set.

Caterpillar Corporate Pricing periodically announces new price actions.
 Final invoice price is determined based on the price effective at the date of shipment.

Order details

Item	Product	Qty	Unit	Description	A/I	LO
100	G3520CPGL	1	EA	G3520C GAS GENSET PACKAGE	I	01/01/2014
	520GE10	1		G3520C 1800RPM PKG JW-90C 10	I	L
	60 HERTZ, 1800 RPM, 3 PHASE, 480 VOLT (WYE), PM EXCITED 2050 ekW, JW Temp = 90 C, AC Temp 1st/2nd = 85C/54C					

Item	Product	Qty	Unit	Description	A/I	Date
Generator Argt = 144-1828, Frame = 827, Pitch = .6667 Winding = Form Wound, No. of Leads = 6, No. of Bearings = 2 Ratings are w/o fan or radiator. NOTE: Factory approval is required before submitting orders for applications not paralleled to the utility grid.						
60H4160		1		60HZ 4160 VOLTS	I	
TECHNICAL: Wye connection.						
ACLRM06		1		AIR CLEANER REMOVAL	I	L
Removes standard, ship loose air cleaner.						
ACTEMP		1		85C/54C TWO STAGE	I	0.00 USD
BARGP01		1		ENGINE BARRING GROUP	I	L
Installed. Used to manually turn engine crankshaft.						
BAT2417		1		24 VOLT BATT SET-DRY- 2600CCA	S	L
BATRM01		1		STANDARD BATTERY REMOVAL	I	L
TECHNICAL: Removes standard batteries. Rack and cables provided.						
CAACBX2		1		CABLE ACCESS BOX	I	L
TECHNICAL: Gives more room for cable bending. Allows cable entry from the top or bottom. Mounts on RH side as viewed from rear of generator.						
CONTINU		1		CONTINUOUS APPLICATION	I	
For application at Continuous rating.						
DPX0001		1		DOMESTIC PACK-EXPORT CONTAINER	I	
NOTE: CONTAINER SHIPMENTS - Charge per container will be included in freight forwarding invoice.						

Item	Product	Qty	Unit	Description	A/I	Date
20 ft. standard containers -- \$360 NET FOR USE WITH: Engines not boxed.						
EMCAM07		1		ALARM MODULE - NFPA 110 07	I	L
TECHNICAL: Provides flashing LEDs and horn to annunciate high coolant temperature alarm, low coolant temperature alarm, low oil pressure alarm, low DC volts alarm, system not in automatic, plus battery starter malfunction which requires customer provided switches. This panel meets requirements of NFPA 110. REQUIRES: Low or medium voltage generator.						
EMCEFR1		1		RELAY GP	I	L
TECHNICAL: Provides 3-pole double-throw 10-amp relay contacts use. Relay activates on any oil pressure, coolant temperature, (optional) coolant loss, overspeed, overcrank, emergency stop or EMCP II diagnostic shutdowns. REQUIRES: EMCP II+ Control Panel.						
EMCMETU		1		METRIC DISPLAY UNITS	I	
Used on control panel digital display for engine oil pressure and coolant temperature.						
EMISS12		1		1.0 G/BHP-HR NOX	I	0.00 USD
Standard Low Emissions TECHNICAL: 1 g/bhp hr NOx						
ESCNONE		1		No Extended Service Coverage	I	0.00 USD
No Extended Service Coverage						
EXRVL16		1		EXPLOSION RELIEF VALVE	I	L
FSREG02		1		REGULATOR-GAS	S	L
JWTEMP1		1		90C JACKET WATER OUTLET	I	
CANNOT BE USED WITH: COOLGP1						
KWW2050		1		2050 EKW W/O FAN	I	
LANENGO		1		ENGLISH LANGUAGE OPTION	I	

Item	Product	Qty	Unit	Description	A/I	Date
MSCEC70		1		ENERGY UTILITIES (NON-NUCLEAR) ELECTRIC UTILITY, GAS UTILITY, ENERGY SERVICES.	I	
MSEPGGN		1		DIESEL or GAS EPG (non-rental)	I	
<p>All diesel and gas powered generator sets utilized in the generation of electrical power for general, residential, commercial, and construction applications including energy utilities, communications, commercial and residential buildings, agricultural, construction, mining, manufacturing, public and civil services. This category should not be used for petroleum, locomotive or marine electric power applications.</p>						
MWCODEN		1		CONTINUOUS (BASE LOAD)	I	0.00 USD
<p>Other than load management or quality power, any application within EPG where the engine powers an electric generator, the term "Continuous" denotes engines in regular, planned, and everyday use as a main power source and output available without varying load.</p>						
NGASFUE		1		NATURAL GAS FUEL	I	0.00 USD
NOEUCRT		1		NO EU CERT REQUEST-SEE DETAILS	I	0.00 USD
<p>TECHNICAL: If full CE certification (Declaration of Conformity, complete gensets) or Declaration of Incorporation (partially completed gensets) is not selected then this product cannot be legally placed on the market in the EU / EEA or any country where the product would otherwise be subject to national legislation implementing the requirements of the machinery directive (2006/42/EC) (collectively "the Region"). If shipped to an address in the Region without the necessary certification/documentation, the buyer has undertaken that the product will then be exported from the Region.</p>						
NOLUB01		1		NO LUBRICATING OIL DESIRED	I	0.00 USD
<p>TECHNICAL: Engine shipped dry.</p>						
NOPLPMP		1		NO PRELUBE PUMP	I	L
NSPSNUS		1		NSPS NON - U.S. GENSET	I	0.00 USD
<p>Non - U.S. Genset</p>						
<p>Application - gas generator sets used outside of the United States of America. The SI</p>						

Item	Product	Qty	Unit	Description	A/I	Date

				NSPS rule does not apply.		
	OGNPM9F	1		GEN 827 FRAME PM 2 BRG 9F	I	L
				1800 RPM, 4160 VOLT @ 60 HZ, 3 PHASE Nominal Frame Size Generators TECHNICAL: 4160 Volts @ 60 Hertz Generator Argt = 144-2004 Winding = Form Wound, No. of Leads = 6 Excitation = Permanent Magnet, Pitch = .6667		
	PARGRID	1		PARALLEL-TO- GRID MODE	I	
				Technical: Application is paralleled-to-large utility grids. Caution: This product CURRENTLY has limited capability to accept load changes when not connected to the large utility grid (referred to as standby mode). Maximum load and unload steps are 5% in the no-load to 80% of full-load range and with a +/-25% frequency/voltage variation. It is the Dealer's responsibility to match the customers' needs to the product's capability.		
	RPA0223	1		827 FRAME GENERATOR REMOVAL	I	L
				Removes 827 frame generator 144-1828 and generator length rails. REQUIRES: Optional generator. FOR USE WITH: 60 Hz only.		
	RTD0003	1		BEARING TEMPERATURE RTD 03	I	L
				TECHNICAL: Platinum RTD (100 ohm) 2 bearing; 820 Med voltage gens.		
	SOV2403	1		SOLENOID VALVE	S	L
	SWP0001	1		SHRINK WRAP PROTECTION	I	N
	TRSGEN1	1		GENERATOR TEST REPORT	I	N
				Test will be performed in accordance with 3L-0436 and must be requested prior to factory build. The test takes about one hour. There is no assurance that the engine will be tested at the rating specified in the order. Test results reported are: throttle position setting, full load BHP, turbocharger boost (if applicable), fuel rate at full load, lube oil pressure, RPM at rated speed and high idle.		
	TRSGEN7	1		PGS TEST REPORT @ 0.8 PF	I	N

Item	Product	Qty	Unit	Description	A/I	Date

All other inspection agencies. Specify agency name, address, contact, and phone number.						
101	5N9599	1	EA	VOLTAGE INDICATOR 4160V, 60HZ	I	0.00 USD
102	9Y8164	1	EA	CONTINUOUS POWER APPLICATION	I	0.00 USD
103	5N9999	1	EA	===STANDARD SETTING REQUEST===	I	0.00 USD
104	LE6536	1	EA	G3520C 60 HZ KOW VOLT GEN SET	I	0.00 USD
105	1441828	1	EA	GEN AR-SR4B-827- PM-FW-4P-2B	I	0.00 USD
119	1441828	1	EA	GEN AR-SR4B-827- PM-FW-4P-2B	N LO	0.00 USD
106	LA4306	1	EA	G3520C 1800RPM PKG, 90C LH JW	I	0.00 USD
107	2603694	1	EA	ENGINE ARR - G3520C	I	0.00 USD
109	0V1065	1	EA	END USE: GENERAL EPG	I	0.00 USD
110	CA0866	1	EA	LANGUAGE MARKINGS- ENGLISH	I	0.00 USD
118	LE6538	1	EA	827 FRAME GEN REMOVAL FOR THE	I	0.00 USD
149	1441828	1	EA	GEN AR-SR4B-827- PM-FW-4P-2B	I LO	0.00 USD
120	3573040	1	EA	BOX GP-MTG (CABLE	I	0.00 USD

Item	Product	Qty	Unit	Description	A/I	Date
				ACCESS) (EC)		
121	LE0615	1	EA	BEARING TEMPERATURE RTD	I	0.00 USD
125	0P7607	1	EA	SHRINK WRAP PROTECTION - 3516	I	0.00 USD
126	0P7824	1	EA	DOMESTIC PACK-EXPORT CONTAINER	I	0.00 USD
128	LA3782	1	EA	G3520C FUEL REGULATOR	I	0.00 USD
129	LA3784	1	EA	FUEL SHUTOFF VALVE FOR G3520C	I	0.00 USD
131	LE0176	1	EA	OVERSIZE BATTERY - 2600CCA	I	0.00 USD
132	LE0952	1	EA	REMOVAL AR, BATTERIES, CABLES,	I	0.00 USD
134	LA5867	1	EA	CHARGING ALTERNATOR 60 AMP	I	0.00 USD
139	LA4224	1	EA	BARRING GP-RIGHT HAND	I	0.00 USD
140	LA5575	1	EA	G3520 C/E EXPLOSION RELIEF VALVES F/U/W	I	0.00 USD
143	3571662	1	EA	CERTIFICATION GP (EU)	I	0.00 USD
144	1214714	1	EA	METRIC DISPLAY UNITS	I	0.00 USD
145	1341157	1	EA	ENGINE FAILURE RELAY	I	0.00 USD

Item	Product	Qty	Unit	Description	A/I	Date
146	LE0305	1	EA	ALARM MODULE - 8 LIGHTS	I	0.00 USD
147	LE6563	1	EA	827 FRAME 4160V GENERATOR	I	0.00 USD
148	1442004	1	EA	GENERATOR AR-PWR(A756)	I	0.00 USD
150	LE6570	1	EA	AIR CLEANER REMOVAL	I	0.00 USD
151	0P1793	1	EA	***GEN SET TEST CHG @ 0.8 PF**	I	0.00 USD
152	0P1530	1	EA	GENERATOR TEST REPORT	I	0.00 USD
153	LE7795	1	EA	LUBE OIL - DRAIN PRIOR TO SHIP	I	0.00 USD
154	LA5523	1	EA	G3520C NO PRELUBE COVER GROUP & BYPASS	I	0.00 USD

Caterpillar terms and conditions apply.

Currency Shown:USD

Exchange Rate:1.00000