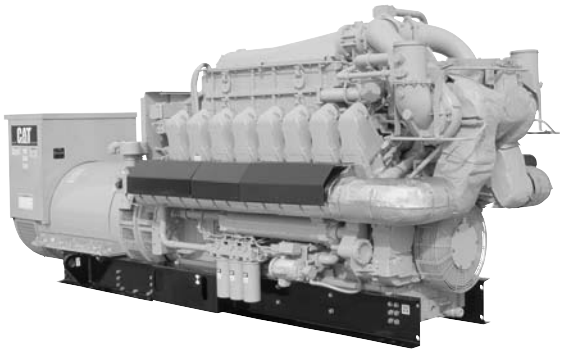
GAS GENERATOR SET

GeneratorJoe CATERPILLAR®



Shown with
Optional Equipment

CONTINUOUS
1660 ekW @ 1800 RPM
60 Hz

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

FEATURES

EMISSIONS
- Meets most worldwide emissions requirements down to 0.5 g/bhp-hr NO_x level without after treatment

FULL RANGE OF ATTACHMENTS
- Wide range of bolt-on system expansion attachments, factory designed and tested

SINGLE-SOURCE SUPPLIER
- **Fully Prototype Tested** with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT
- With over 1,800 dealer branch stores operating in 166 countries, you're never far from the Caterpillar part you need.
- 99.5% of parts orders filled within 48 hours. The best product support record in the industry.
- Caterpillar dealer service technicians are trained to service every aspect of your electric power generation system.
- Customer Support Agreements offer back-to-back services from scheduled inspections and preventive maintenance to before-failure overhauls and Total Cost-Per-Hour Guarantees.

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CAT® G3516C GAS ENGINE
- Robust high speed diesel block design provides prolonged life and lower owning and operating costs
- Designed for maximum performance on low pressure pipeline natural gas
- Simple open chamber combustion system for reliability and fuel flexibility
- Leading edge technology in ignition system and air/fuel ratio control for lower emissions and higher engine efficiency
- One electronic control module handles all engine functions: ignition, governing, air fuel ratio control, and engine protection
- Factory-designed systems built at Caterpillar ISO 9001:2000 certified facilities.

CAT SR4B GENERATOR
- Designed to match performance and output characteristics of Caterpillar engines
- Optimum winding pitch for minimum total harmonic distortion and maximum efficiency
- Segregated low voltage (AC/DC) accessory box provides single point access to accessory connections

CAT CONTROL MODULE
- Designed to meet individual customer needs:
  Gas Engine Control Module provides full-featured, engine management and control functions, purge cycle, staged shutdown logic, plus programmable protective relaying functions
- Remote control and monitor capability options

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	2 element, single stage air cleaner with enclosure, service indicator, horizontal mount (shipped loose)	2 elements with enclosure vertical mount (shipped loose). Stand to mount horizontal or optional vertical air cleaner. Heavy duty air cleaner w/precleaner, horizontal mount (shipped loose)
Cooling	Engine driven water pumps for jacket water or aftercooler circuit, jacket water and SCAC thermostats Cat flange connections on jacket water inlet ANSI type flanged outlet on jacket water outlet ANSI/DIN flanges on 2nd stage AC (shipped loose)	Remote radiator for JW and SCAC circuits, water level switch included but not wired, coolant level drain line with valve, 400/480V electric driven fans with guard, motor control and disconnect switch
Engine Control Module	Fuel/air ratio control transient richening and turbo bypass control Start/stop logic: gas purge cycle, staged shutdown Engine Protection Systems: detonation sensitive timing, high jacket water temperature, low oil pressure, failure to start overcrank, overspeed, high oil temperature, emergency stop	
Exhaust	Dry exhaust manifolds, Cat flanged outlet Individual exhaust port and turbocharger outlet wired to integrated Temperature Sensing Module with Gas ECM providing alarms and shutdowns	15 dBA muffler, 18 dBA muffler, 25 dBA muffler with ANSI style flanges. Spark arresting muffler with ANSI style flanges.
Fuel	Electronic air fuel ratio control (Engine Control Module) ADEM™ III based, electronic fuel control valve, throttle plate; hydraulically actuated and electronically control by ECM, low pressure pipeline natural gas fuel supply 0.5-5 psi (35-350 mbar). Sized for 800 to 1200 Btu/cu ft (31.5 to 47.2 MJ/N•m³) dry pipeline natural gas.	Gas Shutoff Valve, 24 Volt Energized-to-Run (ETR) Fuel filter (non-coalescent) Knockdown regulator
Ignition	ECM provides electronic ignition, individual cylinder timing and individual cylinder detonation control (through the use of one detonation sensor per 2 cylinders)	
Integrated Thermo Sensing Module (ITSM)	24 thermocouples to input individual exhaust port temperatures and inlet and outlet temperatures of both turbochargers	CCM transfers Cat DataLink information through RS232 to customer terminal
Generator	Permanent magnet excitation, 105° C rise, two bearing, six lead, 3-phase sensing, platinum stator RTDs, Class H Insulation, Caterpillar's® Digital Voltage Regulator with adjustable 1:1 or 2:1 volt/Hz and PF control, bus bar termination, extension box, segregated low voltage wiring panel, winding temperature detectors, anti-condensation space heaters	Oversize and premium generators Bearing temperature detector Low voltage cable extension box
Governor	Electronic (ADEM™ III), ProAct actuator	Electronic load sharing
Control Panels	EMCP II+	Local alarm and remote annunciator modules Synchronizing module
Lube	Lubricating oil and filter, oil drain valve, crankcase breathers, gear type lube oil pump, integral lube oil cooler, filler/dipstick	Closed Crankcase ventilation system, prelube pump
Mounting	13 inches (330 mm) structural steel rails, spring-type anti-vibration mounts (shipped loose)	
Starting/Charging	24 volt starting motor, batteries with rack and cables, batteries disconnect switch	Battery charger, 24V charging alternator, air starting system, jacket water coolant heaters, 9 kW (480V/3 phases with 240V/1 phase pump, include isolation valves) oversize batteries
General	Damper	Manual barring device, certifications, crankcase explosion relief valve

SPECIFICATIONS

GeneratorJoe

CAT SR4B GENERATOR

Frame size 825
Excitation . . . . . Permanent magnet
Pitch 0.6667
Number of poles 4
Number of bearings 2
Number of leads 6
Insulation . . . . . UL 1446 Recognized Class H Insulation
IP rating . . . . . Drip proof IP22
Alignment . . . . . Pilot shaft
Overspeed capability 125%
Wave form . . . . . Less than 5% deviation
Paralleling kit droop transformer . . . . . Standard
Voltage regulator . . . . . 3-phase sensing with adjustable 1:1 or 2:1 Volts/Hz, UL 508A Listed
TIF . . . . . Less than 50
THD . . . . . Less than 3%

Consult your Caterpillar dealer for available voltages.

CAT ENGINE

G3516C SCAC, 4-stroke-cycle watercooled Gas
Bore — mm (in) 170 (6.7)
Stroke — mm (in) 190 (7.5)
Displacement — L (cu in) 69 (4210)
Compression ratio 11.3:1
Aspiration . . . . . Turbocharged Separate Circuit Aftercooled
Fuel system . . . . . Low Pressure
Governor type . . . . . Electronic (ADEM™ III)

CAT CONTROL PANEL

24 Volt DC Control
NEMA 1, IP22 enclosure
Electrically dead front
Lockable hinged door
Generator instruments meet ANSI C-39-1
Terminal box mounted
Single location customer connector point
EC compliant — segregated AC/DC connections and wiring

TECHNICAL DATA

Generator Set — 1800 rpm/60 Hz/480 Volts			DM5763		DM5762	
G3516C LE Gas Generator Set						
Emission level (NO_x)	g/bhp-hr		0.5		1	
Aftercooler SCAC	Deg C	Deg F	54	130	54	130
Package Performance (1)						
Electrical Efficiency @ 1.0 pf (5)			37.1%		38.3%	
Power rating @ 1.0 pf	ekW		1682		1682	
Power rating @ 0.8 pf	ekW		1660		1660	
	kVA		2075		2075	
Mechanical Power with 2 engine driven pumps	bkW	hp	1723	2311	1723	2311
Fuel Consumption (2)						
Low Heat Value (LHV) Fuel Input (ISO3046/1)	kW	Btu/min	4533	257,767	4386	248,340
100% load without fan	$N•m^3/hr$	scf/hr	459	17,114	442	16,491
75% load without fan	$N•m^3/hr$	scf/hr	358	13,349	345	12,862
50% load without fan	$N•m^3/hr$	scf/hr	251	9360	242	9019
Altitude Capability (3)						
At 25° C/77° F ambient	m	ft	365	1198	670	2199
Cooling System						
Ambient air temperature	Deg C	Deg F	25	77	25	77
Jacket water temperature (maximum outlet)	Deg C	Deg F	99	210	99	210
Exhaust System						
Combustion air inlet flow rate	$N•m^3/min$	scfm	131	5028	124	4793
Exhaust gas stack temperature	Deg C	Deg F	498	928	499	930
Exhaust gas flow rate	$N•m^3/min$	cfm	139	13,986	132	13,352
Exhaust flange size (internal diameter)	mm	in	360	14	360	14
Heat Rejection (4)						
Heat Rejection to jacket water (includes JW, oil cooler, and A/C — stage 1)	kW	Btu/min	957	54,445	997	50,465
Heat Rejection to exhaust (LHV to 350° F)	kW	Btu/min	1236	59,757	1182	57,161
Heat Rejection to A/C — stage 2	kW	Btu/min	163	9288	150	8556
Heat Rejection to atmosphere from engine	kW	Btu/min	138	7856	138	7856
Heat Rejection to atmosphere from generator	kW	Btu/min	58	3278	58	3278
Generator						
Motor starting capability @ 30% voltage dip*	skVA		4675		4675	
Frame			825		825	
Temperature rise over 40° C ambient	Deg C		105		105	
Lube System						
Refill volume with filter change for standard sump	L	Gal	401	104	401	104
Emissions**						
NO_x	g/bhp-hr		0.5		1	
CO	g/bhp-hr		2.17		2.46	
HC (total)	g/bhp-hr		4.4		3.61	
HC (non-methane)	g/bhp-hr		0.66		0.55	
Exhaust O_2 (dry)	%		9.4		9.1	

*Assume synchronous driver.

**Emissions data measurements are consistent with those described in EPA CFR 40 Part 89 Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NO_x. Data shown is based on steady state engine operating conditions of 25° C (77° F), 96.28 kPa (28.43 in Hg) and fuel having an LHV of 35.6 MJ/ $N•m^3$ (905 Btu/cu ft) at 101.60 kPa (30.00 in Hg) absolute and 0° C (32° F). Emission data shown is subject to instrumentation, measurement, facility, and engine fuel system adjustments.

RATING DEFINITIONS AND CONDITIONS

Continuous — Output available without varying load for an unlimited time.

(1) Ratings are based on pipeline natural gas having an LHV of 35.6 MJ/$N•m^3$ (905 Btu/cu ft) and 80 Methane Number. For values in excess of the altitude, temperature, inlet/exhaust restriction, or for natural gas compositions different from the conditions listed, contact your local Caterpillar dealer.

(2) Ratings and fuel consumption are based on ISO3046/1 standard reference conditions of 25° C (77° F) and 100 kPa (29.61 in Hg) with 0,+5% fuel tolerance.

(3) Altitude capability is based on 2.5 kPa inlet and 5.0 kPa exhaust restriction.

(4) Heat Rejection — values based on ISO3046/1 with fuel tolerance of ±2.5% and 2.5 kPa inlet and 5.0 kPa exhaust restriction.

(5) Efficiency of standard generator is used. For higher efficiency generators contact your local Caterpillar dealer.

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GAS GENERATOR SET
CONTINUOUS POWER
1660 ekW @ 1800 RPM – 60 Hz

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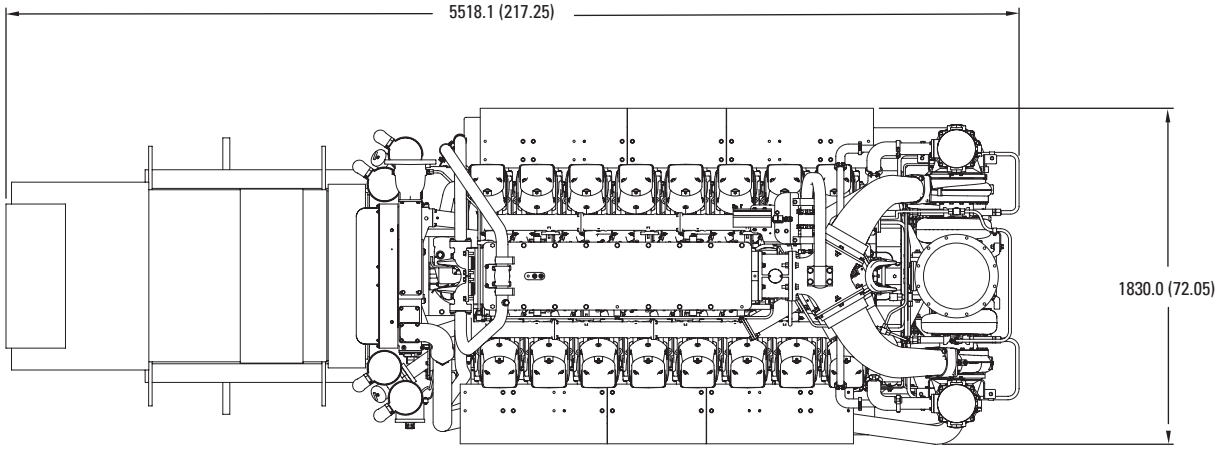
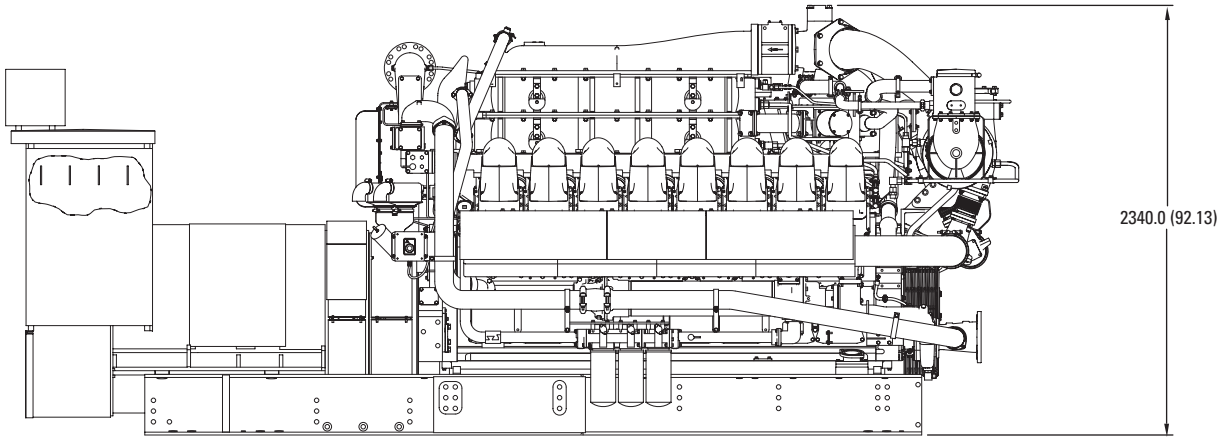
OPEN GENERATOR SET PACKAGE — TOP VIEW



OPEN GENERATOR SET PACKAGE — SIDE VIEW



Package Dimensions		
Length	5518.1 mm	217.25 in
Width	1830.0 mm	72.05 in
Height	2340.0 mm	92.13 in
Shipping Weight	15 640 kg	34,500 lb

Note: Do not use for installation design.
See general dimension drawings
for detail (Drawing # 255-1320).

TMI Reference No.: DM5763, DM5762

Lafayette sourced

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