



CATERPILLAR®

3516

Generator Set Diesel Powered 60 Hz Standby Power

1400 - 2000 kW 60 Hz

FEATURES

• CAT® DIESEL GENERATOR SETS

Factory Designed, Certified Prototype Tested with Torsional Analysis . . . Production Tested and delivered to you in a package that is ready to be connected to your fuel and power lines...EPG Designer (Computer sizing) available...Supported 100% by your Caterpillar® Dealer with Warranty — Parts and Labor . . . Extended Warranty available in some areas . . . Generator Set and Components meet or exceed the following specifications: AS1359, AS2789, ABGSM TM3, BS4999, DIN6271, DIN6280, EGSA101P, JEM1359, IEC 34/1, ISO3046/1, ISO DIS 8528, NEMA MG1-22.

• RELIABLE, FUEL EFFICIENT DIESEL

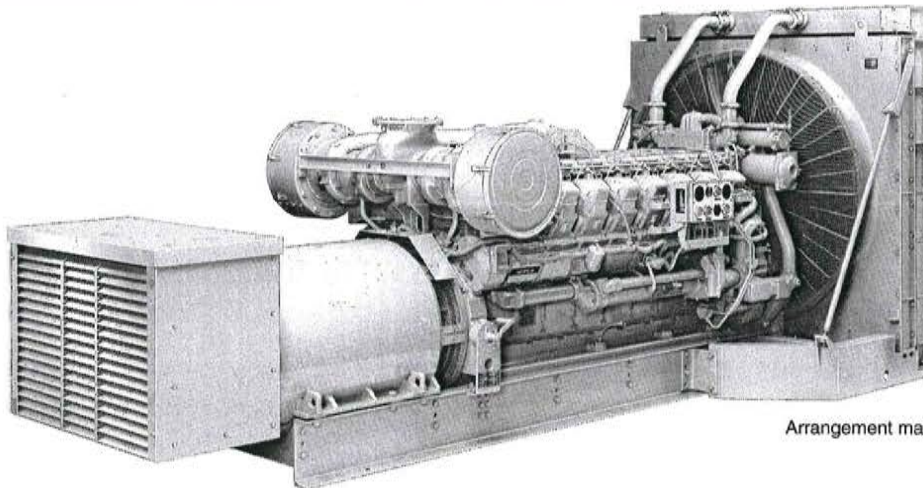
The compact, four-stroke-cycle diesel engine combines durability with minimum weight while providing dependability and economy. The fuel system operates on a variety of fuels.

• THE CATERPILLAR SR4 GENERATOR

Single bearing, wye connected, static regulated, brushless excited generator designed to match the performance and output characteristics of the Caterpillar Diesel Engine that drives it.

• EXCLUSIVE CAT VOLTAGE REGULATOR

Three phase sensing and Volts per Hertz regulation give precise control, excellent Block Loading, and constant voltage in the normal operating range.



Arrangement may be shown with optional equipment.

STANDARD PACKAGE ARRANGEMENT

ENGINE

Aftercooler
Air Cleaner,
Regular Duty on
Dual Turbo
Light Duty on
Quad Turbo
Breather, Crankcase
Cooler, Lubricating Oil
Exhaust Fitting and Flange
Filters, right hand
Fuel, & Lubricating Oil
Flywheel Housing SAE 00
Standard Rotation
Governor,
2301A, Speed Control
Manifold, Exhaust, Dry
on Dual Turbo

Manifold, Exhaust, Dry
on Quad Turbo
Oil Pan, Shallow
Pumps,
Fuel Transfer,
Lubricating Oil, gear driven
Jacket Water, gear driven
Radiator
Rails, Mounting
Shutoff, Manual
Starting, Electric, 24 volt DC
Turbochargers,
Dual or Quad
Vibration Damper

GENERATOR

SR4 Brushless
with VR3 Voltage Regulator
Vibration Isolators (808 Frame)

ELECTRONIC MODULAR CONTROL PANEL (EMCP) Mounted on generator terminal

Standard Generator Controls and Monitoring:

Digital Ammeter, Voltmeter
and Frequency Meter
Ammeter/Voltmeter Phase
Selector Switch
Voltage Adjust Rheostat

Standard Engine Controls and Monitoring:

Automatic/Manual Start-Stop
Control

Engine Control Switch for:
Off/Reset, Auto Start,
Manual Start, Stop

Cycle Cranking
Cool Down Timer
Emergency Stop Pushbutton

Safety Shutoff Protection and LED Indicators for:

High Coolant Temperature
Low Oil Pressure
Overcrank
Overspeed
Emergency Stop Pushbutton

GENERAL SPECIFICATIONS - 60 Hz

CAT 3516 ENGINE

Type — Watercooled Diesel
Piston Displacement — 69 liter (4210 cu in)
Compression Ratio — 13.5:1
Cycle — Four Stroke
No of Cylinders — V-16
Bore — 170 mm (6.7 in)
Stroke — 190 mm (7.5 in)

CATERPILLAR SR4 GENERATOR

Type — Brushless, Revolving Field, Solid-State Exciter
Construction — Single Bearing, Close Coupled
Three Phase — Wye Connected
Insulation — Class H with Tropicalization and Antiabrasion
Enclosure — Drip Proof IP 22
Alignment — Pilot Shaft
Overspeed Capability — 150%
Wave Form — Less than 5% Deviation
Paralleling Capability — Standard with adjustable Voltage Droop
Voltage Regulator — 3 Phase Sensing with Volts per Hertz
Voltage Regulation — Less than $\pm 1/2\%$
Voltage Gain — Adjustable to compensate for engine speed droop and line loss
TIF — Less than 50
THF — Less than 3%

CATERPILLAR CONTROL PANEL

24 VOLT DC CONTROL
Terminal Box Mounted
Vibration Isolated
NEMA 1, IP 22 Enclosure
Dead Front
Lockable Hinged Door
Generator Instruments meet ANSI C-39-1

VOLTAGES AVAILABLE — 60 Hz

277/480, 346/600, 380, 4160

(Adjustable a minimum of $\pm 10\%$)

Other Voltages available — Consult your Caterpillar Dealer
Some voltages require derating

STANDBY POWER OPTIONAL EQUIPMENT

ENGINE

Air Cleaners
Charging Systems
Cooling Systems
Fan Drives, Radiators,
Fans, Expansion Tanks
Control Systems
Governor, Woodward 3161,
2301A Load Share
Exhaust System
Fittings, Elbows,
Flanges, Muffler
Fuel System
Lube System
Mounting Systems
Protection Devices
Starting System
Torsional Vibration Damper

GENERATORS

Installation Arrangements
Manual Voltage Controls
RFI Filters -
N Level (VDE 875), BS800
MIL Std 461B
Space Heater Kits

CONTROL PANEL

Attachments for EMCP:

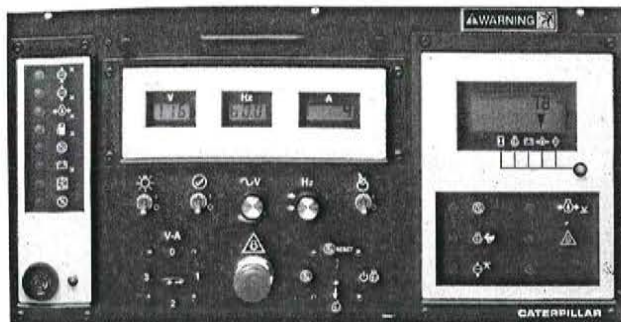
Enclosure, Dust Proof
NEMA 12 / IP 44
Gauges and Instrument Panels
Governor Raise/Lower Switch
Prime Power Alarm Module
Customer Interface Module
Illumination Lights & Switch
Switchgear Conversion
The following attachments meet
NFPA 99 or NFPA 110:
Alarm Module
Remote Annunciator Panel
Battery Charger

Caterpillar® EMCP Electronic Modular Control Panel

The Electronic Modular Control Panel (EMCP) is a generator-mounted control panel, available on all Caterpillar packaged generator sets. It utilizes environmentally sealed, solid-state, microprocessor-based modules for engine control and AC metering. This new application of mature, high-tech electronics to generator monitoring provides more features, accuracy and reliability than present electro-mechanical and many competitive panel systems.

The EMCP provides these standard control and monitoring features, many of which are options on other panels:

- Automatic/manual start-stop engine control with programmable safety shutdowns and associated flashing LED indicators for low oil pressure, high coolant temperature, overspeed, overcrank and emergency stop.
- Cycle cranking . . . adjustable 1-60 second crank/rest periods.
- Cooldown timer . . . adjustable 0-30 minutes.
- Energized to run or shut down fuel control systems.
- LCD digital readout for: Engine Oil Pressure; Coolant Temperature; Engine RPM; System DC Volts; Engine Running Hours; Eight System Diagnostic Codes; Generator AC Volts; Generator AC Amps; and Generator Frequency.
- Engine Control Switch.
- Ammeter-Voltmeter Phase Selector Switch.
- Emergency Stop Pushbutton.
- Indicator/Display Test Switch.
- Voltage Adjust Potentiometer.
- Rugged NEMA 1/IP 22 Cabinet.



TECHNICAL DATA

3516 Standby Power Generator Sets			60 Hz-1800 RPM			
Rating Information	Power Rating @ 0.8 PF with Fan	kW	1400	1500	1750	2000
	Power Rating @ 0.8 PF with Fan	kV•A	1750	1875	2188	2500
	Engine hp with Fan		2018	2151	2518	2847
	Aspiration		Quad TA	Quad TA	Quad TA	Dual TA
Package Dimensions	Length	mm in	5726 225	5743 226	5819 229	5926 233
	Width	mm in	2319 91.3	2319 91.3	2319 91.3	2319 91.3
	Height	mm in	2545 100.2	2545 100.2	2545 100.2	2663 104.8
	Shipping Weight	kg lb	12 485 27,525	12 850 28,330	13 235 29,120	13 695 30,130
	Generator Frame Size		805	806	807	808
	Lubrication & Cooling Systems	Engine Lubricating Oil Capacity	L qts	470 497	470 497	470 497
Engine Coolant Capacity with Radiator		L gal	440 116	440 116	440 116	440 116
Standard Radiator Arrangement Data: Air Flow (Max @ Rated Speed)		m³/min cfm	2295 81,000	2295 81,000	2295 81,000	2295 81,000
Air Flow Restriction (after radiator)		kPa in H2O	0.12 0.5	0.12 0.5	0.12 0.5	0.12 0.5
Ambient Temperature Capability(TMI)		Deg. C Deg. F	52 125	50 122	41 106	41 106
Radiator Size			46/CV	46/CV	46/CV	46/CV
Exhaust System		System Backpressure (Max Allowable)	kPa in H2O	6.7 27	6.7 27	6.7 27
	Exhaust Flange Size (Internal Diameter)	mm in	203 8.0	203 8.0	203 8.0	292 11.5
	Dual for 203 mm (8 in)					
Engine Performance Data @ Rated Conditions	Fuel Consumption (100% load) with Fan Per ISO3046/1: +5%, -0% tolerance	L/Hr gph	357.7 94.5	399.5 105.5	456.2 120.6	504.7 133.4
	Fuel Consumption (75% load) with Fan	L/Hr gph	275.6 72.8	299.4 79.1	345.1 91.2	378.1 99.9
	Fuel Consumption (50% load) with Fan	L/Hr gph	192.3 50.7	213.0 56.3	240.1 63.4	264.6 69.9
	Combustion Air Inlet Flow Rate	m³/min cfm	115 4064	125 4415	147 5184	163 5759
	Exhaust Gas Flow Rate	m³/min cfm	319 11,271	360 12,708	416 14,700	454 16,037
	Heat Rejection to Coolant (total)	kW BTU/min	784 44,568	891 50,671	1029 58,519	1138 64,718
	Heat Rejection to Exhaust (total)	kW BTU/min	1517 86,272	1702 96,793	1988 113,057	2131 121,190
	Heat Rejection to Atmosphere from Engine	kW BTU/min	137 7791	139 7906	142 8076	145 8246
	Heat Rejection to Atmosphere from Generator	kW BTU/min	66.0 3755	65.8 3745	74.8 4255	81.2 4620
	Exhaust Gas Stack Temperature	Deg. C Deg. F	482 900	505 941	567 1053	553 1027
	Deration for Engine: Altitude-3% per 305m (1000 ft) above	m ft	950 3120	840 2755	800 2625	1375 4510
	Temperature-1.9% per 5.5 C (10 F) above at sea level or per degree above standard ambient at altitude above 760 m (2500 ft).	Deg. C Deg. F	55 131	55 131	55 131	55 131

