



Picture shown with optional trailer

**STANDBY  
PRIME**

**60 Hz**

**100 kW  
90 kW**

## FEATURES

### EPA TIER 3 AND CARB CERTIFIED FOR NON-ROAD MOBILE APPLICATIONS

### SOUND ATTENUATED ENCLOSURE

- The fully weatherproof enclosure incorporates an internally mounted exhaust silencer and is of extremely rugged construction in order to withstand the rough handling common on many construction sites.
- Highly corrosion resistant construction.
  - Body made from sheet steel components pretreated with zinc phosphate prior to polyester powder coating at 200° C (392° F)
  - Black stainless steel padlockable latches.
  - Zinc die cast hinges/grab handles.
- Excellent access for maintenance.
  - Two large doors on each side. Rear door for distribution/control panel.
  - Front panel for air discharge box access.
  - Lube oil and cooling water drains piped to exterior of the enclosure.
- Security and safety.
  - Safety glass control panel viewing window in a lockable access door.
  - Cooling fan and battery charging alternator fully guarded.
  - Fuel fill and battery can only be reached through lockable access doors.
- Transportability.
  - Tested and certified single point lifting eye.
  - Lifting points on baseframe.

### ROBUST DESIGN FOR RENTAL ENVIRONMENT

- Packages designed to survive in a rugged environment.

### MULTI-VOLTAGE DISTRIBUTION PANEL

- Simultaneous 3-phase voltage output: 480/277 volt, 208/120 volt and adjustable for 3-phase 240 volt output.\*

### REAR CUSTOMER ACCESS

- Separate control panel and distribution panel access doors.
- Hinged door over main bus connectors.
- Emergency stop on panel.
- Remote start/stop contacts.

### ENVIRONMENTALLY FRIENDLY DESIGN

- EPA Tier 3 off-highway compliant engine.
- UL double walled fuel tank base with 24 hour minimum fuel supply.
- Sound attenuated enclosure for low noise.

### ELECTRONIC GOVERNING

- Isochronous.
- Fully adjustable.

### OPTIONS

- AH1L – Anti-condensation heater 110-120 volt AC.
- WHL – Coolant heater 110-120 volt AC.
- LOLR – Lube oil make-up system with REN automatic leveller.
- PBC3UL – UL Listed battery charger.
- Tandem Axle Trailers with hydraulic or electric brakes.

\* Refer to distribution panel specifications for details.

## STANDARD FEATURES

### 1. ENGINE

Heavy duty industrial EPA Tier 3 diesel engine.

#### 1.1 Governor

Electronic, compliant with BS5514, Class G2.

#### 1.2 Electrical System

12 volt DC. Energized to run shutdown solenoid. Oil pressure and coolant temperature/level shutdown switches and gauge senders.

#### 1.3 Derates

Genset power derates will be required in accordance with engine manufacturers above 30° C (86° F).

### 2. COOLING RADIATOR

Radiator and cooling fan complete with protection guards, designed to cool the engine in ambient temperatures up to 43° C (110° F) without derate.

### 3. ENGINE FILTRATION SYSTEM

Cartridge type dry air filters with restriction indicator. Dry, 2 stage cyclonic paper element. Cartridge type fuel filters and full flow lube oil filters. All filters have replaceable elements.

### 4. EXHAUST SYSTEM

Critical silencer with flexible connector. All internal pipework lagged.

### 5. ELECTRICAL SYSTEM

12 volt system with 65A battery charging alternator and starter motor on engine, battery rack mounted on the generator set baseframe. Includes a 12V (880 CCA) Cat brand maintenance free battery. Optional battery charger mounted on control panel.

### 6. GENERATOR

Screen protected and drip-proof, self exciting, self-regulating brushless generator with fully interconnected damper windings, IC06 cooling system and sealed-for-life bearings. Simultaneous multi-voltage output.

#### 6.1 Insulation System

The insulation system is Class H. Windings are impregnated in a triple dip thermo-setting moisture, oil and acid resisting polyester varnish. Heavy coat of anti-tracking varnish for additional protection against moisture or condensation.

#### 6.2 Electrical Characteristics

Electrical design in accordance with BS5000 Part 99, IEC60034-1, EN61000-6, NEMA MG-1.22.

#### 6.3 Automatic Voltage Regulator (AVR)

The fully sealed automatic voltage regulator maintains the voltage within the limits of  $\pm 0.5\%$  at steady state from no load to full load.

Nominal adjustment is by means of a trimmer incorporated in the AVR. The panel door incorporates an additional voltage adjustment potentiometer.

#### 6.3.1 Permanent Magnet Generator

Providing 350% short circuit capabilities, enhanced motor starting and non-linear loading performance.

#### 6.4 Waveform Distortion, THF and TIF Factors

The total distortion of the voltage waveform with open circuit between phases or phase and neutral is in the order of 1.8. On a 3-phase balanced harmonic-free load the total distortion is  $< 4\%$ . Machines are designed to have a THF less than 2% and a TIF less than 50. A 2/3 pitch factor is standard on all stator windings.

#### 6.5 Radio Interference

Suppression is in line with the provisions of EN61000-6.

### 7. MOUNTING ARRANGEMENT

#### 7.1 Baseframe

The complete generator set is mounted on a heavy duty fabricated steel baseframe. The baseframe includes a UL listed dual wall closed top fuel tank and incorporates specially designed lifting points.

#### 7.2 Coupling

The engine and generator are directly coupled by means of an SAE flange so that there is no possibility of misalignment after prolonged use. The engine flywheel is flexibly coupled to the generator rotor and a full torsional analysis has been carried out to guarantee no harmful vibration will occur in the assembly.

#### 7.3 Anti-Vibration Mounting Pads

Captive anti-vibration pads are affixed between engine/generator feet and the baseframe ensuring complete vibration isolation of the rotating assemblies.

#### 7.4 Safety Guards

The fan, fan drive and optional battery charging alternator drive are fully guarded for personnel protection. Heat guards protect personnel from the exhaust pipe. All guards are to OSHA standards.

### 8. FUEL SYSTEM

Fuel feed and return lines to the engine are terminated at the baseframe mounted 24 hour extended capacity fuel tank. 3-way valves allow connection of auxiliary fuel tank.

#### 8.1 Primary Fuel Filters

Primary fuel filters in addition to cartridge type fuel filters.

### 9. CONTROL SYSTEM

#### 9.1 Control Panel

EMCP 3.1 in a vibration isolated NEMA 1 sheet steel enclosure with a hinged lockable door.

#### 9.2 DC and AC Wiring Harnesses

DC and AC wiring harnesses utilizing industrial type multi-pin connectors to permit fast fault finding.

### 10. DISTRIBUTION PANEL

#### 10.1 Dual Bus Connections

NEMA 1 enclosure with hinged lockable door and main bus connection studs enclosed with hinged transparent cover for easy access and operator safety.

#### 10.2 Circuit Breakers, Two

3-pole UL/CSA listed molded case circuit breaker with solid neutral (4 wire) and integral trip unit.

#### 10.3 Multiple power receptacles

Receptacles accept industry standard male plugs. Each receptacle is protected by a circuit breaker which also acts as an on/off switch.

### 11. DOCUMENTATION

A full set of operation and maintenance manuals, circuit wiring diagrams, and instruction leaflets is provided.

### 12. SOUND ATTENUATED ENCLOSURES

A noise reducing enclosure surrounds the entire generator set. Combined with a critical engine silencer this provides an overall noise reduction from 65 to 68 dBA at 23 feet through the range.

### 13. FACTORY TESTS

The generator set is load tested before dispatch. All protective devices, control functions and site load conditions are simulated; the generator and its systems checked, proved and then passed for dispatch.

### 14. EQUIPMENT FINISH

All sheet metal components including the enclosure and the base tank are fully degreased, phosphated and chromated for anti-corrosive protection prior to painting with polyester powder. The powder is cured at a temperature of 200° C (392° F) to ensure maximum scuff resistance and durability. All fasteners are electroplated.

### 15. STANDARDS

The equipment meets the following standards: BS4999, BS5000, BS5514, IEC60034, EN61000-6, NEMA MG-1.22.

### 16. WARRANTY

Full manufacturer's warranty.

**XQ100**

Materials and specifications are subject to change without notice.

Generator Set Technical Data – 1800 rpm/60 Hz		Standby		Prime	
<b>Power Rating</b>	kW (kVA)	100 (125)		90 (112.5)	
<b>Lubricating System</b> Type: full pressure Oil filter: spin-on, full flow Oil cooler: water cooled Oil type required: API CF-4 Total oil capacity Oil pan	L (U.S. gal) L (U.S. gal)	8.0 (2.1) 7.0 (1.8)		8.0 (2.1) 7.0 (1.8)	
<b>Fuel System</b> Generator set fuel consumption 100% load 75% load 50% load Fuel tank capacity	L/hr (gal/hr) L/hr (gal/hr) L/hr (gal/hr) L (U.S. gal)	29.1 (7.7) 23.5 (6.2) 17.6 (4.6) 634 (167)		26.9 (7.1) 21.8 (5.8) 16.4 (4.3) 634 (167)	
<b>Running Time @ 75%</b>	hours	27		29	
<b>Cooling System</b> Radiator system capacity including engine	L (U.S. gal)	17.1 (4.49)		17.1 (4.49)	
<b>Air Requirements</b> Combustion air flow Maximum air cleaner restriction Radiator cooling air (within enclosure) Generator cooling air	m³/min (cfm) kPa (in H <sub>2</sub> O) m³/min (cfm) m³/min (cfm)	8.4 (297) 8.0 (32.2) 230 (8,135) 26.4 (933)		8.5 (300) 8.0 (32.2) 230 (8,135) 26.4 (933)	
<b>Exhaust System</b> Exhaust flow at rated kW Exhaust temperature at rated kW – dry exhaust	m³/min (cfm) °C (°F)	17.5 (618) 522 (972)		16 (572) 524 (975)	
<b>Generator Set Noise Rating*</b> [with enclosure at 7 meters (23 feet)]	dBA	68.2		68.0	

\*dBA levels are for guidance only

**SPECIFICATIONS**

**GENERATOR**

Voltage regulation . . . . . ± 0.5% at steady state from no load to full load  
 Frequency regulation . . . . . ± 0.25% for constant load from no load to 100% load  
 Waveform distortion . . . . . THD < 4%  
 Radio interference . . . . . Compliance with EN61000-6  
 Telephone interference . . . . . TIF < 50, THF < 2%  
 Overspeed limit . . . . . 2250 rpm  
 Insulation . . . . . Class H  
 Temperature rise . . . . . Within Class H limits  
 Available voltages . . . . . Simultaneous 3-phase voltage output:  
 480/277 volt, 208/120 volt and adjustable for 3-phase 240 volt output  
 Deration . . . . . Consult factory for available outputs  
 Ratings . . . . . At 30° C (86° F), 152.4 m (500 ft) 60% humidity, 0.8 pf

**ENGINE**

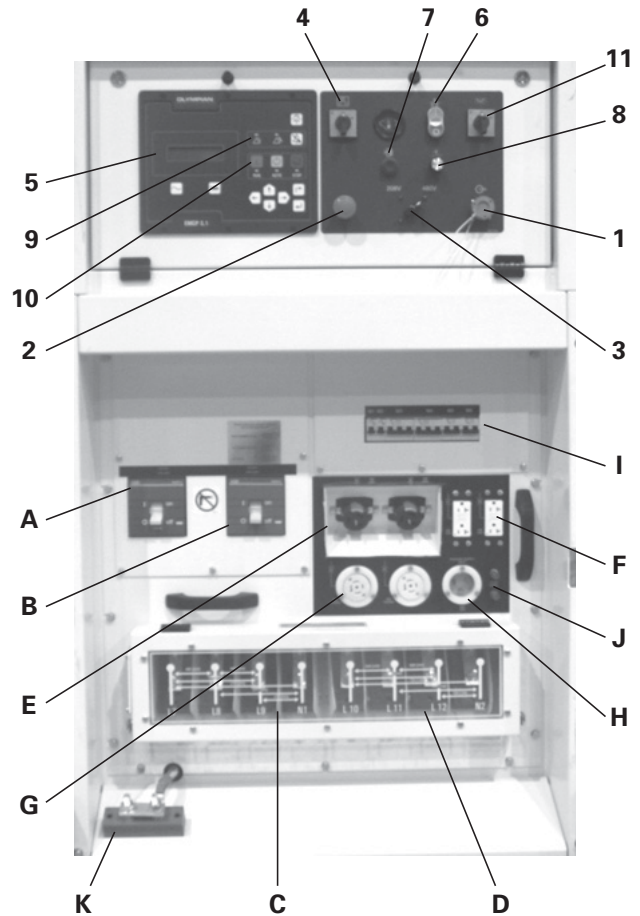
Manufacturer . . . . . Caterpillar  
 Model . . . . . C 4.4  
 Type . . . . . 4-cycle  
 Aspiration . . . . . Turbocharged  
 Cylinder configuration . . . . . In-line 4  
 Displacement – L (cu in) . . . . . 4.4 (269)  
 Bore – mm (in) . . . . . 105 (4.13)  
 Stroke – mm (in) . . . . . 127.0 (5.0)  
 Compression ratio . . . . . 18.3:1  
 Governor  
 Type . . . . . Fully Electronic  
 Class . . . . . ISO 8528-5 G2  
 Piston speed – m/sec (ft/sec) . . . . . 7.62 (25.0)  
 Engine speed – rpm . . . . . 1800  
 Maximum power at rated rpm – kW (hp)  
 Standby . . . . . 117.0 (156.0)  
 Prime . . . . . 106.0 (142.0)  
 BMEP – kPa (psi)  
 Standby . . . . . 1612 (233)  
 Prime . . . . . 1771 (257)  
 Regenerative power – kW (hp) . . . . . 13.8 (18.5)

**CONTROL PANEL – EMCP3.1**

- 1 Electronic Service Tool Link.
- 2 Red emergency stop push button.
- 3 AC sensing selector switch.
- 4 Panel on/off switch.
- 5 Digital display for AC/DC metering.
- 6 EMCP Disconnect Switch.
- 7 Fuel View Switch.
- 8 Voltage adjust potentiometer.
- 9 Shutdowns: high coolant temperature/low coolant level, low oil pressure, overcrank, overspeed.
- 10 Run/auto/stop pushbuttons.
- 11 Panel light on/off switch.

**DISTRIBUTION PANEL**

- A 400 amp main circuit breaker for 208/120 volt bus connections.
- B 125 amp main circuit breaker for 480/227 volt bus connections.
- C Separate bus connection studs for 480/277 volt and 208/120 volt, 3-phase simultaneous output.\*
- D 240/139 volt, 3-phase available from 208/120 volt bus bar connections with voltage adjustment.\*\*
- E 2 – single phase – California style Twistlocks, 50 amps @ 208 volt phase to phase, 120 volt phase to neutral or 240 volt phase to phase, 139 volt phase to neutral.
- F 2 – single phase – GFCI Duplex receptacles, 20 amps @ 120 volts.\*\*\*
- G 2 – three phase – NEMA locking receptacles, 20 amps @ 208/120 volts.\*\*\*
- H 1 – single phase – NEMA locking inlet receptacle for 125 volt, 30 amp rated auxiliary supply.
- I Individual circuit breaker protection for receptacles. Also act as on/off switches.
- J Two wire remote start connection terminals.
- K Neutral ground connection.



\* Either set of bus bars is capable of supplying up to full rating. Total load from bus bars and receptacles cannot exceed rating of generator set. Generator is wye connected in all cases.

\*\* High voltage bus connections not useable with low voltage adjusted to 240 volts.

\*\*\* Receptacles not for use with low voltage adjusted to 240 volts.

**STANDBY**  
**PRIME**  
**60 Hz**

**100 kW**  
**90 kW**



Model	Length mm (in)	Width mm (in)	Height mm (in)	Weight	
				With Lube Oil and Coolant kg (lb)	With Fuel, Lube Oil and Coolant kg (lb)
<b>XQ100</b>	3280 (129.1)	1130 (44.5)	1870 (73.6)	2495 (5,501)	3032 (6,684)
<b>XQ100 w/trailer</b>	4974 (195.8)	1943.1 (76.5)	2435 (95.6)	3214 (7,086)	3751 (8,269)

## RATING DEFINITIONS

**Standby** – Applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. The generator on the generator set is peak prime rated (as defined in ISO8528-3) at 30° C (86° F).

**Prime** – Applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and the generator set can supply 10% overload power for 1 hour in 12 hours.

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**CATERPILLAR®**

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