

*Exclusively from your Caterpillar® dealer*



**STANDBY 105 ekW**  
**PRIME 96 ekW**  
**60 Hz**

## FEATURES

### EPA & CARB CERTIFIED FOR NON-ROAD MOBILE APPLICATIONS

### SOUND ATTENUATED ENCLOSURE

- The fully weatherproof enclosures incorporate internally mounted exhaust silencers and are of extremely rugged construction in order to withstand the rough handling common on many construction sites. They are designed on modular principles with many interchangeable components permitting on site repair.
- Highly corrosion resistant construction.
  - Body made from galvanized steel.
  - Black stainless steel padlockable latches.
  - Zinc die cast hinges/grab handles.
  - Sheet steel components pre-treated with zinc phosphate prior to polyester powder coating.

- 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.
  - Emergency stop button on enclosure exterior.
  - 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 rugged and maintenance starved 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

- Access through two doors.
- Separate control panel access.
- Separate connection console.
- Hinged door over main connectors.
- Emergency stop on panel.

### ENVIRONMENTALLY FRIENDLY DESIGN

- EPA off-highway compliant engine.
- UL double walled fuel tank base with 24 hour minimum fuel supply.
- Containment area for oil, coolant and fuel spill.

### 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

\* Refer to distribution panel specifications for details.

**S T A N D B Y   1 0 5   e k W**  
**P R I M E            9 6   e k W**  
**6 0   H z**

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## STANDARD FEATURES

### 1. ENGINE

Perkins Engine Co. heavy duty industrial EPA compliant diesel engine.

#### 1.1 Governor

Electronic, compliant with BS5514, Class A1.

#### 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 49°C (120°F).

### 3. ENGINE FILTRATION SYSTEM

Cartridge type dry air filters with restriction indicator. Racor Fuel Filter in addition to engine filter. 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 battery charging alternator, and starter motor on engine, battery rack mounted on the generator set baseframe and battery charger mounted on control panel.

Battery rack will accept a variety of battery sizes.

### 6. ALTERNATOR

Screen protected and drip-proof, self exciting, self-regulating brushless alternator 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. All windings are impregnated in either a triple dip thermo-setting moisture, oil and acid resisting polyester varnish or vacuum pressure impregnated with a special polyester resin. 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, VDE0530, 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 including cold to hot variations at any power factor between 0.8 lagging and unity and

inclusive of a speed variation of 4.5%. 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 in the order of 3.5%. 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 BSEN55014 and VDE Class G and N.

### 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 closed top fuel tank and incorporates specially designed lifting points.

#### 7.2 Coupling

The engine and alternator 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 alternator 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/alternator feet and the baseframe ensuring complete vibration isolation of the rotating assemblies and enabling the machine to be placed on an uneven surface without detrimental effects.

#### 7.4 Safety Guards

The fan, fan drive and 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. The entire fuel system is surrounded by a catchment area to prevent leakage. 3-way valves to allow connection of auxiliary fuel tank.

### 9. CONTROL SYSTEM

#### 9.1 Control Panel

Set mounted autostart panel in a vibration isolated NEMA 1 sheet steel enclosure with a hinged lockable door.

#### a. DC and AC Wiring Looms

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

#### 9.2 Circuit Breakers, Two

3 Pole UL CSA listed molded case circuit breaker mounted on the generator set in a vibration isolated NEMA 1 distribution panel.

9.3 Small power receptacles housed in a NEMA 1 distribution panel. Receptacles accept industry standard male plugs. Each receptacle is protected by a miniature circuit breaker which also acts as an On/Off switch.

### 10. DOCUMENTATION

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

### 11. 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.

### 12. FACTORY TESTS

The generator set is load tested before dispatch. All protective devices, control functions and site load conditions are simulated and the generator and its systems checked, proved and then passed for dispatch. A test certificate can be provided upon request.

### 13. 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. The engine and alternator are thoroughly cleaned and finished in temperature controlled ovens with industrial high gloss polyurethane paint.

### 14. STANDARDS

The equipment meets the following standards: BS4999, BS5000, BS5514, IEC60034, VDE0530, NEMA MG-1.22.

### 15. WARRANTY

12 month warranty from start-up (18 months from shipment).

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PRIME 96 ekW  
60 Hz

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## XQ105

Materials and specifications are subject to change without notice.

Generator Set Technical Data — 1800 rpm/60 Hz		Standby	Prime
Power Rating	ekW (kVA)	105 (131.3)	96 (120)
Lubricating System 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)	16.1 (4.3)	16.1 (4.3)
	L (U.S. Gal)	13.1 (3.5)	13.1 (3.5)
Fuel System Fuel filter type: replaceable element Recommended fuel: #2 diesel Generator set fuel consumption 100% load 75% load 50% load Fuel tank capacity			
	L/hr (g/hr)	30.3 (8.0)	27.63 (7.29)
	L/hr (g/hr)	23.42 (6.18)	—
	L/hr (g/hr)	16.95 (4.47)	—
	L (U.S. Gal)	730 (190)	730 (190)
Engine Electrical System Voltage/ground: 12/Negative Battery charging alternator ampere rating			
	amps	55	55
Cooling System Water pump type: centrifugal Radiator system capacity including engine Maximum coolant static head Minimum temperature to engine Temperature rise across engine Heat rejected to coolant at rated power Radiator fan load			
	L (U.S. Gal)	29.8 (7.85)	29.8 (7.85)
	m H <sub>2</sub> O (ft H <sub>2</sub> O)	8.0 (26.2)	8.0 (26.2)
	°C (°F)	70 (158)	70 (158)
	°C (°F)	7.3 (45.1)	7.3 (45.1)
	kW (Btu/min)	80 (4549)	72 (4094)
	kW (hp)	5.6 (7.5)	5.6 (7.5)
Air Requirements Combustion air flow Maximum air cleaner restriction Radiator cooling air (within enclosure) Alternator cooling air			
	m <sup>3</sup> /min (cfm)	7.79 (275)	7.38 (260)
	kPa (in H <sub>2</sub> O)	5.0 (20)	5.0 (20)
	m <sup>3</sup> /min (cfm)	204 (7210)	204 (7210)
Exhaust System Exhaust backpressure (measured) Exhaust flow at rated kW Exhaust temperature at rated kW — dry exhaust			
	kPa (in wg)	2.6 (10.43)	—
	m <sup>3</sup> /min (cfm)	22.5 (794)	20 (704)
	°C (°F)	580 (1076)	540 (1004)
Generator Set Noise Rating* [with enclosure at 7 meters (23 feet)]	dBA	68.7	68.3

\*dBA levels are for guidance only

## SPECIFICATIONS



### GENERATOR

Voltage regulation . . . . . ± 0.5% at steady state from no load to full load including cold to hot variations at any power factor between 0.8 lagging and unity. Nominal adjustment is by means of a trimmer incorporated in the AVR.

Frequency . . . . . ± 0.25% for constant load from no load to 100% load

Waveform distortion . . . . . THD <1.8%, at no load

Radio interference . . . . . Suppression is in line with British Standard BSEN55014 and VDE Class G&N

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 . . . . . Perkins

Model . . . . . 1006-6T

Type . . . . . 4-Cycle

Aspiration . . . . . Turbocharged

Cylinder configuration . . . . . In-line 6

Displacement — L (cu. in.) . . . . . 5.99 (365)

Bore — mm (in.) . . . . . 100 (3.94)

Stroke — mm (in) . . . . . 127.0 (5.0)

Compression ratio . . . . . 16:1

Governor

Type . . . . . Electronic

Class . . . . . Class A1

Air cleaner type . . . . . Dry, replaceable paper element, type with restriction indicator

Piston speed — m/sec (ft/sec) . . . . . 7.62 (25.0)

Engine speed — rpm . . . . . 1800

Maximum power at rated rpm — kW (hp)

Standby . . . . . 124 (166)

Prime . . . . . 112 (151)

BMEP — kPa (psi)

Standby . . . . . 1393 (202)

Prime . . . . . 1253 (181)

Regenerative power — kW . . . . . 16.2

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## CONTROL PANEL — 4000 XQ

- NEMA 1 steel enclosure with hinged lockable door with viewing window.
- Manual Run/Off/Auto control switch.
- Separate Pre-Heat pushbutton.
- Red emergency stop pushbutton.
- Lamp test/reset pushbutton/activates fuel gauge.
- AC instrumentation: 2-voltmeter, 2-ammeter, 1-frequency meter.
- Engine gauges for: Oil pressure, Coolant Temperature, Battery Volts, Fuel Level.
- Fuel level display with momentary activation.
- Battery Charger, 3 Amp float/equalize, UL listed.
- Hours run meter.
- Voltage adjust potentiometer.
- Speed adjust potentiometer.
- Cycle cranking with 3 adjustable time crank/rest periods.
- 2 — 7 Position voltmeter phase selector switch.
- 2 — 4 Position ammeter phase selector switch.
- Shutdowns: High Coolant temperature/Low Coolant level, Low Oil pressure, Overcrank, Overspeed.
- Low Fuel level/Fuel tank leak, Low Battery volts alarms.
- Printed circuit board control logic.
- Panel Light.

## DISTRIBUTION PANEL

- NEMA 1 steel enclosure with hinged lockable door.
- 2 — 3 Pole MCCB's with solid neutral (4 Wire). UL/CSA listed with shunt trip.
- Integral trip unit for thermal and magnetic overload protection on MCCB's.
- Main bus connection studs enclosed with hinged transparent cover for easy access and operator safety.
- Separate bus connection studs for 480/277 Volt and 208/120 Volt, 3 phase simultaneous output.\*
- 240/139 Volt, 3 phase available from 208/120 Volt bus bar connections with voltage adjustment.\*\*



- 2 — Single phase — California style Twistlocks, 50 Amps @ 208 Volt phase to phase, 120 Volt phase to ground or 240 Volt phase to phase, 139 Volt phase to ground.
- 2 — Single phase — GFCI Duplex receptacles, 20 Amps @ 120 Volts.\*\*\*
- 2 — Three phase — NEMA locking receptacles, 20 Amps @ 208/120 Volts.\*\*\*
- 1 — Single phase — NEMA locking inlet receptacle for 125 Volt, 30 Amp rated auxiliary supply.
- Individual circuit breaker protection for receptacles. Also act as on/off switches.
- Two wire remote start connection terminals.

\* 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.

Model	Length mm (in)	Width mm (in)	Height mm (in)	Weight	
				With Lube Oil kg (lbs)	With Lube Oil & Coolant kg (lbs)
XQ105	3170 (124.8)	1130 (44.5)	1870 (73.6)	2636 (5799)	2666 (5865)

## 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 alternator on the generator set is peak prime rated (as defined in ISO8528-3) at 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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