XQ1500 SOUND ATTENUATED POWER MODULE

60 Hz

FEATURES

EMISSIONS

EPA and CARB Emissions Certified for non-road mobile applications.

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. Electric Power Design Pro computer sizing available. Supported 100% by your Caterpillar dealer with warranty on parts and labor. Extended warranty available in some areas. The generator set was designed and manufactured in an ISO 9001 compliant facility. Generator set and components meet or exceed the following specifications: AS1359, AS2789, ABGSM TM3, BS4999, DIN6271, DIN6280, EGSA101P, JEM1359, IEC 34/1, ISO3046/1, ISO8528, NEMA MG1-22.

CATERPILLAR® SR4B GENERATOR

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

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.

CATERPILLAR® COOLING SYSTEM

Sized compatible to rating with energy efficient fan and core.

CATERPILLAR® SWITCHGEAR

Single unit or optional paralleling components. Circuit breakers, bus bars, and connection panel ready to connect.

EXCLUSIVE CATERPILLAR® VOLTAGE REGULATOR

Three-phase sensing and adjustable Volts-per-Hertz regulation give precise control, excellent block loading, and constant voltage in the normal operating range.

SOUND ATTENUATED ISO CONTAINER

For ease of transportation and protection. Meets 70 dBA at 50 ft or below per SAE J1074 measurement procedure.

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Engine	Air cleaner, with service indicator Batteries Filters; fuel, RH with service indicators; lubricating oil Insulated muffler Jacket water heater Pump, fuel priming — RH Radiator Service meter Standard eight-gauge instrument panel Sump pump Governor Electronic ADEM II	
Generator	SR4B brushless, 480 volt, PM excited three-phase with digital voltage regulator, space heater	
Containerized Module	Air intake louvers Bus bar access door Fuel tank — 4730 L (1250 Gal) UL listed Fuel/water separator 110 VAC/24 VDC lighting Sound attenuated (75 dBA @ 50 ft) ISO hi cube container Lockable doors Stainless steel hardware and hinges Vertical radiator and exhaust discharge plenum	
Cooling	Standard cooling provides 110° ambient at prime rating	
Switchgear	Floorstanding switchgear with EMCP II components Automatic start/stop with cooldown timer Battery charger, heavy duty 20A Protection: 32, 59 Circuit breaker, electrically operated Connection terminals, 3-phase and neutral Automatic paralleling Auxiliary power connections for jacket water heater, battery charger, space heaters	Meters: power factor, KW, PF, W/WHM, synchroscope, KVAR Protection: 27, 40, 810, 81U CIM, CCM, remote annunciation Plug and peak shave utility conversion panel

SPECIFICATIONS

CAT SR4B GENERATOR

Type . . . . . Static regulated brushless PM excited
Construction . . . . . Single bearing, close coupled
Three-phase . . . . . Wye connected — 6 lead
Insulation . . . . . Class H — 2 extra dips and bakes on random wound units
Enclosure . . . . . Drip proof
Alignment . . . . . Pilot shaft
Overspeed capability 130%
Voltage regulator . . . . . 3-phase sensing with Volts-per-Hertz
Voltage regulation . . . . . Less than ± 0.5%
Voltage gain . . . . . Adjustable to compensate for engine speed droop and line loss
Wave form . . . . . Less than 5% deviation
TIF. . . . . Less than 50
THD. . . . . Less than 3%

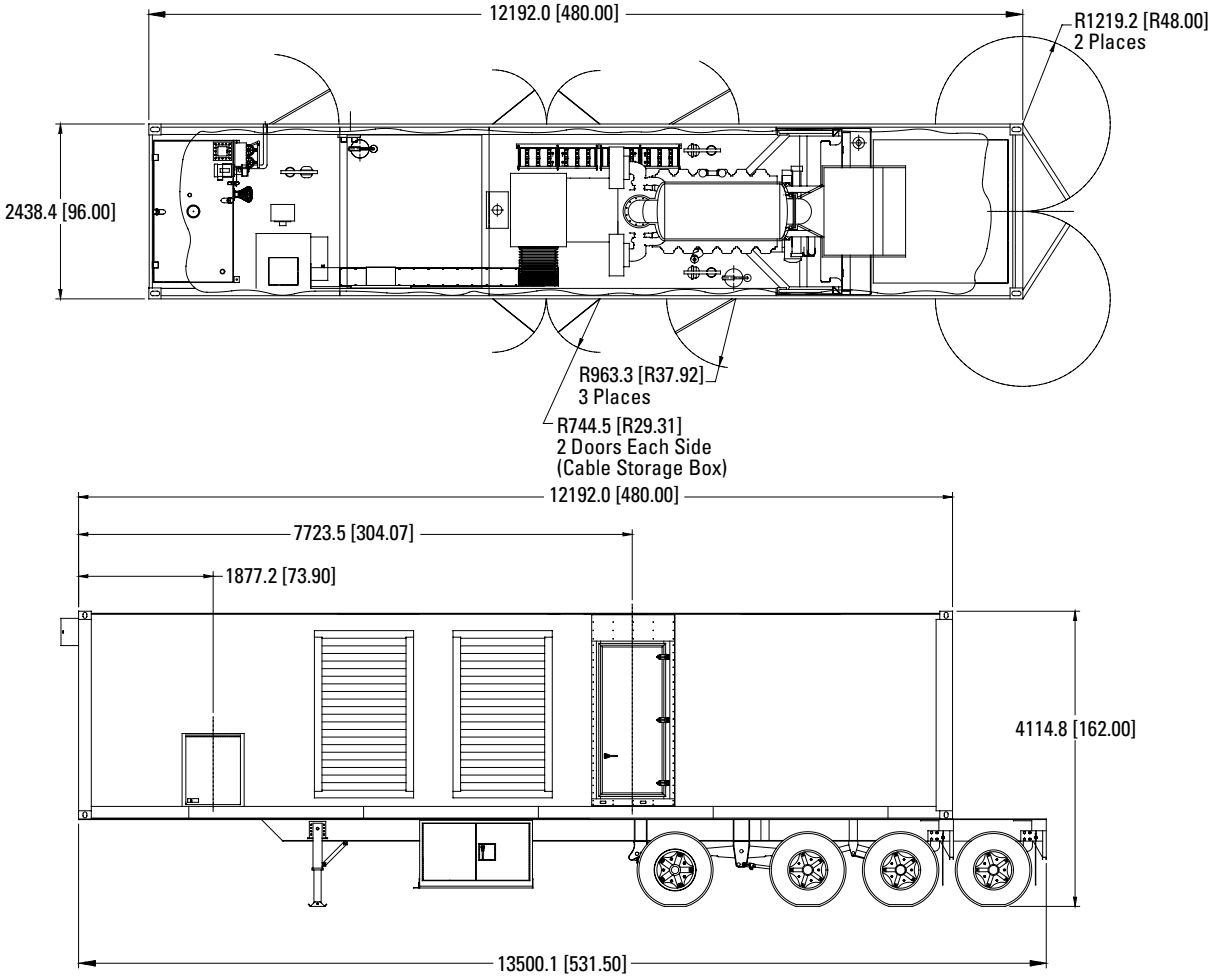
CAT® 3512B ENGINE

V-12, 4-stroke-cycle diesel
Bore — mm (in) 170 (6.7)
Stroke — mm (in) 190 (7.5)
Displacement — L (cu in) 51.8 (3158)
Aspiration . . . . . Turbocharged-Aftercooled

TECHNICAL DATA

Power Rating		**Standby**	**Prime**
60 Hz	ekW	1500	1360
Engine and Container Information			
Engine Model		3512B	
Container size	m (ft)	12 (40)	
Container dimensions		see below	
Fuel Capacity Hours of Operation at 60% Load Factor			
4732 L (1250 Gal) Standard 12 m (40 ft)	hours	11	12
9464 L (2500 Gal) Optional 12 m (40 ft)	hours	22	24
Approximate Weight (Dry) — Container with Generator Set and Switchgear			
Including Container	kg (lb)	22 680 (50,000)	
With Undercarriage	kg (lb)	26 765 (59,000)	

Container Dimensions



The power module must have support under the center when set on the ground.

Dimensions		
Length	12192.0 mm	480.00 in
Width	2438.4 mm	96.00 in
Height	4114.8 mm	162.00 in

STANDARD CONTROLS

12 m (40 ft) CONTAINERS 480V/60 Hz

Floorstanding switchgear includes the following functions and features:

ELECTRONIC MODULAR CONTROL PANEL (EMCP II) COMPONENTS

GENERATOR SET CONTROL (GSC)

Monitoring

Sequentially rotating, backlit LCD display of engine hours, engine rpm, DC battery voltage, oil pressure, and water temperature. Includes pushbutton to hold display on any single parameter.

Protection

Shutdowns:

Overspeed, overcrank, high water temperature, low oil pressure, and emergency stop. With LED indicator for each condition.

Alarms:

Low coolant level

AC Metering

Three-phase volts (L-L), amperes and frequency with phase select pushbutton, on backlit LCD. Metering accuracy is 0.5%.

Control

Automatic starting with field adjustable cycle crank, failure to start (overcrank), and cooldown timer.

Programming and Diagnostics

Includes field programmable set-points for engine control and monitoring variables and self diagnosis of EMCP II system component and wiring failures.

ALARM MODULE

Flashing LED warnings for: low coolant temperature, high coolant temperature (pre-alarm), low oil pressure (pre-alarm), engine control switch not in automatic, and low DC voltage. Includes alarm horn and acknowledge pushbutton.

ENGINE CONTROL SWITCH

Snap action rotary switch, four-position — off/reset, automatic, manual, stop/cooldown. Off/reset for engine shutdown and resetting faults, automatic for remote starting by customer contact closure, manual for local starting and manual paralleling, stop/cooldown for manual operation cooldown.

ALARM ACKNOWLEDGE/LAMP TEST SWITCH

Three-position, spring return to center switch for alarm acknowledge and lamp test of all discrete indicating lamps. Lamp test shall also sound the alarm horn.

ANNUNCIATION CIRCUITS

Upon receipt of an alarm or shutdown condition, the horn shall sound and an LED shall flash. Upon acknowledgement from alarm acknowledge/lamp test switch, the horn shall be silenced and the lamp steadied. LED shall be extinguished when ECS is placed in the off/reset position if the alarm condition has been corrected. Circuits are recurring such that the LED shall flash and the horn sound, should another fault occur even prior to correction of the initial fault.

EMERGENCY STOP PUSHBUTTON

Mushroom head, twist to reset, causes engine shutdown and tripping of the generator circuit breaker. Prevents engine starting when depressed.

MANUAL PARALLELING

Controls consisting of reverse power relay, synchronizing lights, and switch. Reverse power condition causes tripping of the generator circuit breaker, immediate engine shutdown, flashing of indicating lamp, and sounding of alarm horn.

CIRCUIT BREAKER

Fixed mounted, three-pole, manually operated, molded case circuit breaker with solid state trip unit for overload (time overcurrent) and fault (instantaneous) protection. Includes DC shunt trip coil activated on any generator set monitored fault. Circuit breaker is sized for full load capacity of the generator set at 0.8 power factor.

LOAD SHARE GOVERNOR

Electronic load sharing governor with speed adjust potentiometer, idle/rated switch, and isochronous/droop switch.

VOLTAGE REGULATOR

Standard Caterpillar generator-mounted digital voltage regulator with voltage adjust rheostat mounted in the floorstanding switchgear.

STANDARD CONTROLS (Continued)

CURRENT TRANSFORMERS (3)

Five-ampere secondary with shorting terminal strips

POTENTIAL TRANSFORMERS (3)

120 VAC secondary with primary and secondary fuse protection, two connected to the generator side of the circuit breaker, one connected to the load side of the circuit breaker.

BUS BARS

Three-phase plus fully rated neutral bus bars with NEMA standard hole pattern for connection of customer load cables and generator cables. Bus bars are sized for full load capacity of the generator set at 0.8 power factor. Also includes ground bus, connected to the generator frame ground and container frame with holes for connection of field ground cable. Bus bars are accessible from outside of the power module via hinged, lockable cable access door.

ACCESSORY POWER

3500 Power Modules

Three 230 VAC (50 Hz units) or 120 VAC (60 Hz units) shore power connections for jacket water heaters, generator space heater, and battery charger.

BATTERY CHARGER

24 VDC/20A battery charger with float/equalize modes and charging ammeter.

4160V POWER MODULES

Similar to 480V units except for the following:

All bus bars are silver plated copper

Generator circuit breaker, 3-pole, vacuum type, manually operated with 24 VDC shunt trip. Sized for generator voltage and current ratings. Includes draw-out overcurrent relay, with instantaneous setting, ANSI device 50/51.

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LEHX0533 (10-00)

Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.