

Subject: 3512C / 1476 BHP / 1200 RPM / KATO Generator

3512C LAND ELECTRIC DRILLING ENGINE

*** MEETS NON CURRENT EPA & CARB TIER 2 EMISSIONS LEVELS ***

Engine rating = 1101 bkW (1476 hp) @ 1200 rpm.

REQUIRES: Other Regulated Areas Label or OEM EPA Engine Flex.

After January 1, 2011, the following ratings can only be ordered as an OEM EPA Engine Flex, Other Regulated Areas or as a replacement engine order.

C-SERIES LAND ELECTRIC DRILLING ENGINE ARRANGEMENTS

Complete With The Following Standard Consist As Modified Or Replaced By The “Additional Accessories” Included In This Proposal:

NOTE

Includes one Caterpillar 12-cylinder, direct-injected, turbocharged, aftercooled diesel oilfield engine; 4 cycle, 170 mm bore x 191 mm stroke (6.7 in bore x 7.5 in stroke) with separate-circuit after-cooler and optimized for low emissions. Engine rotation is standard (counter-clockwise as viewed from flywheel end).

AIR INLET SYSTEM

Aftercooler core, corrosion resistant
Air cleaner, regular duty, with soot filter.
Service indicators.

CONTROL SYSTEM

Caterpillar ADEM A3 ECM, LH.
Requires 24V DC 10-amp continuous, 20-amp intermittent, clean electrical power.

COOLING SYSTEM

In order to ensure compliance in use, optional or customer-supplied radiators must be capable of rejecting enough heat to allow proper operation at worst case site conditions, and also must supply 122 deg F (50 deg C) SCAC cooling water to the aftercooler inlet, with an SCAC flow rate of at least 100 GPM (379 l/m) with an ambient temperature of 86 deg F (30 deg C) and at-site conditions (including altitude considerations). Maximum allowable SCAC flow rate is 115 GPM (435 l/m).

RADIATOR COOLED LAND BASED:

Outlet controlled thermostat and housing.
Jacket water pump, gear driven.
Dual outlets:

Subject: 3512C / 1476 BHP / 1200 RPM / KATO Generator

88.9 mm O.D. (3.5 in) elbow hose connections.
Aftercooler fresh water cooling pump (SCAC), gear driven centrifugal
SCAC pump circuit contains a thermostat to keep the aftercooler
coolant from falling below 30 deg C (85 F).

EXHAUST SYSTEM

Exhaust outlet:

292 mm I.D. (11.5 in).

12-10.5 mm dia holes EQ SP, 376 mm bolt hole dia.

Shipped loose:

Exhaust flexible fitting:

318 I.D. mm (12.5 in)

12-14 mm dia. holes EQ SP, 375 mm bolt hole dia.

306.6 mm tall with compressed gasket.

Exhaust adapter:

297 mm I.D. to 340 mm I.D. (11.7 in to 13.4 in).

12-10.5 mm dia. holes EQ SP, 376 mm bolt hole dia.

12-13.8 mm dia. holes EQ SP, 430 mm bolt hole dia.

158.5 mm tall with compressed gasket.

Weldable flange:

360 mm I.D. (14.2 in).

12-13.8 mm dia. holes EQ SP, 430 mm bolt hole dia.

17.4 mm wide with compressed gasket.

Exhaust manifolds, dry.

Dual turbochargers with w/c bearings.

FLYWHEELS & FLYWHEEL HOUSINGS

Flywheel, SAE No. 00

Flywheel housing, SAE No. 00

SAE standard rotation

FUEL SYSTEM

Fuel filter.

Fuel transfer pump

Flexible fuel lines

Fuel priming pump, LH

Electronically-controlled unit injectors.

INSTRUMENTATION

Electronic instrument panel, LH.

Analog gauges with digital display data for:

Engine oil pressure gauge.

Engine water temperature gauge.

Fuel pressure gauge.

System DC voltage gauge.

Subject: 3512C / 1476 BHP / 1200 RPM / KATO Generator

Air inlet restriction gauge.
Exhaust temperature (prior to turbochargers) gauge.
Fuel filter differential pressure gauge.
Oil filter differential pressure gauge.
Service meter (digital display only).
Tachometer (digital display only).
Instantaneous fuel consumption (digital display only).
Total fuel consumed (digital display only).
Engine start-stop (off, auto start, manual start, cooldown timer).

LUBE SYSTEM

Crankcase breather
Oil cooler
Oil filter.
Shallow oil pan
Oil pan drain valve, 2' NPT female connection

MOUNTING SYSTEM

Rails, mounting, floor type, 254 mm (10 in).

POWER TAKE-OFFS

Accessory drive.
Lower LH front (available for PTO usage).
Front housing, two-sided

PROTECTION SYSTEM

ADEM A3 ECM monitoring system provides engine de-rating, or shutdown strategies to protect against adverse operating conditions. Selected parameters are customer-programmable. Status available on engine-mounted instrument panel and can be broadcast through the optional customer communications module or programmable relay control module(s). Initially set as follows:

Safety shutoff protection, electrical:

Oil pressure, water temperature, overspeed, crankcase pressure, aftercooler temperature. Includes air inlet shutoff, activated on overspeed or emergency stop.

Alarms, electrical:

ECM voltage, oil pressure, water temperature (low and high), overspeed, crankcase pressure, aftercooler temperature, low water level (sensor is optional attachment), air inlet restriction, exhaust stack temperature, filter differential pressure (oil and fuel).

Derate, electrical:

Subject: 3512C / 1476 BHP / 1200 RPM / KATO Generator

High water temperature, crankcase pressure, aftercooler temperature, air inlet restriction, altitude, exhaust temperature.

Emergency stop push button, located on instrument panel.

Alarm switches (oil pressure and water temperature), for connection to customer-supplied alarm panel. Unwired.

STARTING SYSTEM

Air starting motor, RH, 620 to 1034 kPa (90 to 150 psi), LH control
Air silencer

GENERAL

Paint, Caterpillar Yellow
Vibration damper and guard
Lifting eyes

WITH THE FOLLOWING ADDITIONAL ACCESSORIES INCLUDED:

EUROPEAN DIRECTIVE ENGINE DOI

TECHNICAL: Provides Declaration of Incorporation document per 2006/42/EC (Machinery Safety Directive), and 2006/95/EC (Low Voltage Safety Directive). The Declaration of Incorporation allows free movement of goods in the EU per the Machinery Safety Directive, 2006/42/EC, and references demonstrated compliance to other applicable directives. This is required by OEM manufacturers when the subject product is installed in a more complex installation.

OTHER REGULATED AREAS LABEL

For use in areas other than those requiring EPA or EU certification. Meets non-current EPA Tier 3 /EU Stage IIIa emission levels.

GOVERNOR CONVERSION

TECHNICAL: Converts engine to direct rack controls requiring 0-200 MA DC control.

WATER/FUEL SEPARATOR-TRIPLE-ABS

Installed at Dealer.

Water/fuel separator - triple with metal bowl and individual shut off valves.
ABS Certified.

PRIMARY FUEL FILTER

Installed at Dealer.

TECNICAL: Cleanable media.

FUMES DISPOSAL - B SERIES

Installed at Dealer.

Subject: 3512C / 1476 BHP / 1200 RPM / KATO Generator

Carries crankcase fumes to the air stream in front of the radiator. Includes two hoses and two tubes.

LUBRICATING OIL, 500 HR PAN

Initial Service Only.

TECHNICAL: 500 hour oil change interval (333 L) SAE 15W40, Caterpillar DEO (CI4).

FLEXIBLE COUPLING

NOT MARINE SOCIETY APPROVED.

Viscous damped. Partially installed when driven equipment is not provided. Includes flywheel guard.

COUPLING HUB - 127 MM DIA MAX

NOT MARINE SOCIETY APPROVED

Installed at Dealer.

EXHAUST FITTING REMOVAL.

TECHNICAL: 318 I.D. mm (12.5 in),
12-14 mm dia. holes EQ SP, 375 mm bolt hole dia.
306.6 mm tall with compressed gasket

ENGINE BARRING GROUP

Installed unless additional LH electric starting motor is selected. Used to manually turn engine crankshaft.

KATO GENERATOR

Installed at Dealer.

Synchronous Brushless Revolving Field Generator, with a direct connected rotating brushless exciter, in accord with the following specifications:

Code: 6P6-3300

Type: 6 Pole, 1200 RPM

Electrical Rating: 1365 KW, 1950 KVA, 0.7 P.F., 3 Phase, 60 Hertz, 600 Volts

Connection: 4 Wire, Wye

Temperature Rise: 80°C/40°C Amb. By RES

Duty: Continuous

Insulation: Class H

Bearing Design: 2 Regreasable Anti-Friction

Enclosure: IP-23 Open Dripproof

Net Weight (approx.): 11,500 Lbs / 5,216 Kg

Drawing No. (tentative): 102-60778-13

Generator is of independent Two Bearing design, with shaft extension suitable for direct drive.

The Following Features & Accessories Are Included:

»Stand-Off Terminal Connectors, mounted in outlet box.

Subject: 3512C / 1476 BHP / 1200 RPM / KATO Generator

»Six - 100 ohm RTD's embedded in stator windings for temperature monitoring, 2 per phase.

»Commercial Space Heater, Single Phase 250v or less.

»FORMED Stator Coils with 100% solid epoxy vacuum pressure impregnation of all windings.

Stator coils shall utilize Mica Insulation and be fully wrapped with Armor Tape. All windings

include a Red epoxy overspray including rotor and stator iron.

»Warranty: Two(2) years from in service date provided proper Kato Engineering storage procedures are used with a maximum of six(6) months storage. The Current Kato Engineering Terms and Conditions of Sale shall apply.

»Kato Std Tests & Documentation incl. (1) Instr. Manual per Order on CD only. Tests to include but not limited to: Ins. Res., AC High Pot., Winding Res., Vibration, Open Sat., Phase Rot., Volt/Current Balance, Short Cir.Capability, AVR Tests if AVR offered

»Kato Engineering is quoting Design, Manufacturing, Testing, and Quality to Nema MG1, IEEE 115, IEC 60034, and ISO 9001

SHOP TEST:

Performed at Dealer.

Test package at Dealer's shop for one hour (customer witnessed if required).

SKID BASE:

Fabricated at Dealer.

Tubular sub-base to accommodate engine and generator - includes three point mounting provisions to Master skid. Also includes labor to mount and align engine and generator.
