GAS GENERATOR SET

Natural Gas Continuous
2055 ekW 60 Hz 1800 rpm
480 Volts

Caterpillar® is leading the power generation market place with power solutions engineered to deliver unmatched performance, reliability, durability and cost-effectiveness.

BENEFITS

EMISSIONS
• Meets most worldwide emissions requirements down to 0.5 g/bhp-hr NOx level without after-treatment.

FULL RANGE OF ATTACHMENTS
• Wide range of bolt-on system expansion attachments, factory designed and tested

PROVEN SYSTEM
• Fully prototype tested
• Field proven in a wide range of applications worldwide
• Certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT
• Caterpillar dealers have over 1,600 dealer branch stores operating in 200 countries.
• Comprehensive post-sales support including maintenance and repair agreements that a re-tailored to your specific equipment application.
• High skilled technicians are trained to service every aspect of your electric power generation system.
• The Cat® SOS™ Service monitors and tracks internal engine component condition providing the capability to maximize product performance and minimizing owning and operating costs.

CAT G3520C GAS ENGINE
• Robust high speed block design provides prolonged life and lower owning and operating costs.
• Designed for maximum performance on low pressure pipeline natural gas
• Simple open chamber combustion system for reliability and fuel flexibility
• Leading edge technology in ignition system and air/fuel ratio control for lower emission and engine efficiency.
• One electronic control module handles all engine functions: ignition, governing, air/fuel ratio control and engine protection

CAT® SR4B GENERATOR
• Designed to match performance and output characteristics of Caterpillar gas engines
• Industry leading mechanical and electrical design
• High efficiency

CAT EMCP II-CONTROL PANEL
• Simple user friendly interface and navigation
• Digital monitoring, metering and protection settings
• Fully-featured power metering and protective relaying
• UL 508A Listed
• Remote control and monitor capability options
## Factory Installed Standard & Optional Equipment

<table>
<thead>
<tr>
<th>System</th>
<th>Standard</th>
<th>Optional</th>
</tr>
</thead>
</table>
| **Gas Engine Control Module (GECM)** | Fuel/air ratio control;  
Start/stop logic: gas purge cycle, staged shutdown;  
Engine Protection System: detonation sensitive timing, high exhaust temperature shutdown;  
Governor: Transient richening and turbo bypass control;  
Ignition. | | |
| **Air Inlet**                      | Two element, single-stage air cleaner with enclosure and service indicator | Air cleaner with precleaner;  
Mounting stand | |
| **Control Panel**                 | EMCP II+                                                                 | Local alarm module;  
Remote annunciator;  
Communications Module (PL1000T, PL1000E)  
Synchronizing module;  
Engine failure relay | |
| **Cooling**                        | Engine driven water pumps for jacket water and aftercooler;  
Jacket water and SCAC thermostats;  
ANSI/DN customer flange connections for JW inlet and outlet | Remote radiator for JW and SCAC circuits;  
level switch included but not wired;  
coolant level drain line with valves, fan with guard;  
Inlet/Outlet connections.  
Cat flanges on SCAC circuit | |
| **Exhaust**                        | Dry exhaust manifolds, insulated and shielded;  
Center section cooled turbocharger with Cat flanged outlet;  
Individual exhaust port and turbocharger outlet wired to  
Integrated Temperature Sensing Module (ITSM) with GECM providing alarms and shutdowns. | Flange;  
Exhaust expander;  
Elbow;  
Flexible fitting;  
Muffler and spark-arresting muffler with companion flanges. | |
| **Fuel**                           | Electronic fuel metering valve;  
Throttle plate, 24V DC actuator, controlled by GECM;  
Fuel system is sized for 31.5 to 47.2 MJ/NM3 (800 to 1200 Btu/cu ft) dry pipeline natural gas with pressure of 10.2 to 34.5 kPa (1.5 to 5 psi) to the engine fuel control valve. | Fuel filter;  
Gas pressure regulator;  
Gas shutoff valve, 24V, ETR (Energized-To-Run) | |
| **Generator**                      | SR4B generator, includes:  
Caterpillar’s Digital Voltage Regulator (CDVR) with 3-phase sensing and KVAR/PF control;  
Reactive droop;  
Bus bar connections;  
Winding temperature detectors;  
Anti-condensation space heater. | Medium and high voltage generators and attachments;  
Low voltage extension box;  
Cable access box;  
Air filter for generator;  
Bearing temperature detectors;  
Manual voltage control;  
European bus bar. | |
| **Governing**                      | Electronic speed governor as part of GECM;  
Electronically-controlled 24V DC actuator connected to throttle shaft. | Woodward load sharing module | |
| **Ignition**                       | Electronic Ignition System controlled by GECM;  
Individual cylinder Detonation Sensitive Timing (DST) | | |
| **Lubrication**                    | Lubricating oil;  
Gear type lube oil pump;  
Oil filter, filler and dipstick  
Integral lube oil cooler;  
Oil drain valve;  
Crankcase breather. | Oil level regulator;  
Prelube pump;  
Positive crankcase ventilation system | |
| **Mounting**                       | 330 mm structural steel base (for low and medium voltage units);  
Spring-type anti-vibration mounts (shipped loose) | | |
| **Starting / Charging**            | 24V starting motors;  
Battery with cables and rack (shipped loose);  
Battery disconnect switch;  
60A, 24V charging alternator (standard on 60Hz 1800rpm only) | Charging alternator;  
Battery charger;  
Oversized battery;  
Lacket water heater;  
| |
| **General**                        | Paint – Caterpillar Yellow except rails & radiators;  
Damper guard;  
Operation and Maintenance Manuals;  
Parts Book. | Crankcase explosion relief valve;  
Engine barring group;  
EEC D.O.I and other certifications | |
# SPECIFICATIONS

**CAT GAS ENGINE**
- G3520C SCAC 4-stroke-cycle watercooled gas engine
- Number of Cylinders: V20
- Bore: 170 mm (6.7 in)
- Stroke: 190 mm (7.5 in)
- Displacement: 86.3 L (5266 cu in)
- Compression Ratio: 11.3:1
- Aspiration: Turbocharged Separate Circuit Aftercooled
- Cooling Type: Two stage aftercooler, JW + O/C + A/C 1 combined
- Fuel System: Low Pressure
- Governor Type: Electronic (ADEM * III)

**CAT SR4B GENERATOR**
- Frame size: 827
- Excitation: Permanent Magnet
- Pitch: 0.667
- Number of poles: 4
- Number of bearings: 2
- Number of leads: 6
- Insulation: Class H
- IP rating: Drip proof IP22
- Alignment: Pilot shaft
- Overspeed capability: 125% of rated
- Waveform deviation line to line, no load: less than 2.0%
- Paralleling kit droop transformer: Standard
- Voltage regulator: CDVR
- Voltage regulation: +/- 0.5%
- Telephone Influence Factor (TIF): less than 50
- Total Harmonic Distortion (THD): less than 3.0%

Consult your Caterpillar dealer for available voltage

**CAT EMCPII+ CONTROL PANAL**
- Power by 24 volts DC
- NEMA 12, IP44 dust-proof enclosure
- Lockable hinged door
- Single-location customer connection
- Auto start/stop control switch
- Voltage adjustment potentiometer
- True RMS AC metering, 3 phase
- Pruge cycle and staged shutdown logic
- Digital indication for:
  - RPM
  - Operating hours
  - Oil pressure
  - Coolant temperature
  - DC voltage
  - L-L volts, L-N volts, phase amps, Hz, ekW, kVA, kVAR, kWhr, %kW, pf
  - System diagnostic codes
  - Shutdown with indicating lights:
    - Low oil pressure
    - High coolant temperature
    - High oil temperature
    - Overspeed
    - Overcrank
    - Emergency stop
    - High inlet air temperature (for TA engine only)
    - Detonation sensitive timing (for LE engine only)
  - Programmable protective relaying functions:
    - Under / Over voltage
    - Under / Over frequency
    - Overcurrent
    - Reverse power
    - Spare indicator LEDs
    - Spare alarm/shutdown inputs

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

<table>
<thead>
<tr>
<th>G3520C Gas Generator Set</th>
<th>DM 3194</th>
<th>DM 3195</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission level (NOx)</td>
<td>mg/N.M3</td>
<td>g/bhp-hr</td>
</tr>
<tr>
<td>Aftercooler SCAC (Stage 2)</td>
<td>Deg C</td>
<td>Deg F</td>
</tr>
<tr>
<td>Power Rating @ 0.8 pf (w/ 2 water pumps and w/o fan)</td>
<td>ekW</td>
<td>Continuous</td>
</tr>
<tr>
<td>Power Rating @ 0.8 pf (w/ 2 water pumps and w/o fan)</td>
<td>kVA</td>
<td>Continuous</td>
</tr>
<tr>
<td>Power Rating @ 1.0 pf (w/ 2 water pumps and w/o fan)</td>
<td>ekW</td>
<td>Continuous</td>
</tr>
<tr>
<td>Electric Efficiency @ 1.0 pf (ISO 3046/1)</td>
<td>%</td>
<td>38.4</td>
</tr>
<tr>
<td>Mechanical Power (w/ 2 water pumps and w/o fan)</td>
<td>bkW</td>
<td>bhp</td>
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<tr>
<td>Fuel Consumption (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% load w/o fan</td>
<td>NM3/hr</td>
<td>scf/hr</td>
</tr>
<tr>
<td>75% load w/o fan</td>
<td>NM3/hr</td>
<td>scf/hr</td>
</tr>
<tr>
<td>50% load w/o fan</td>
<td>NM3/hr</td>
<td>scf/hr</td>
</tr>
<tr>
<td>Altitude Capability (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At 25 Deg C (77 Deg F) ambient, above sea level</td>
<td>M</td>
<td>ft</td>
</tr>
<tr>
<td>Cooling System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient air temperature</td>
<td>Deg C</td>
<td>Deg F</td>
</tr>
<tr>
<td>Jacket water temperature (Maximum outlet)</td>
<td>Deg C</td>
<td>Deg F</td>
</tr>
<tr>
<td>Exhaust System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combustion air inlet flow rate</td>
<td>NM3/min</td>
<td>SCFM</td>
</tr>
<tr>
<td>Exhaust stack gas temperature</td>
<td>Deg C</td>
<td>Deg F</td>
</tr>
<tr>
<td>Exhaust gas flow rate</td>
<td>NM3/min</td>
<td>CFM</td>
</tr>
<tr>
<td>Exhaust flange size (internal diameter)</td>
<td>mm</td>
<td>in</td>
</tr>
<tr>
<td>Heat Rejection (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat rejection to jacket water and oil cooler and AC - Stage 1</td>
<td>kW</td>
<td>Btu/min</td>
</tr>
<tr>
<td>Heat rejection to AC - Stage 2</td>
<td>kW</td>
<td>Btu/min</td>
</tr>
<tr>
<td>Heat rejection to exhaust (LHV to 350 Deg F)</td>
<td>kW</td>
<td>Btu/min</td>
</tr>
<tr>
<td>Heat rejection to exhaust (LHV to 120 Deg C)</td>
<td>kW</td>
<td>Btu/min</td>
</tr>
<tr>
<td>Heat rejection to atmosphere from engine</td>
<td>kW</td>
<td>Btu/min</td>
</tr>
<tr>
<td>Heat rejection to atmosphere from generator</td>
<td>kW</td>
<td>Btu/min</td>
</tr>
<tr>
<td>Generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frame</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature rise</td>
<td>Deg C</td>
<td>Deg F</td>
</tr>
<tr>
<td>Motor starting capability @ 30% voltage dip (6)</td>
<td>skVA</td>
<td>5226</td>
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<tr>
<td>Lubrication System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard sump refill with filter change</td>
<td>L</td>
<td>gal</td>
</tr>
<tr>
<td>Emissions (7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOx @ 5% O2 (dry)</td>
<td>mg/N.M3</td>
<td>g/bhp-hr</td>
</tr>
<tr>
<td>CO @ 5% O2 (dry)</td>
<td>mg/N.M3</td>
<td>g/bhp-hr</td>
</tr>
<tr>
<td>THC @ 5% O2 (dry)</td>
<td>mg/N.M3</td>
<td>g/bhp-hr</td>
</tr>
<tr>
<td>NMHC @ 5% O2 (dry)</td>
<td>mg/N.M3</td>
<td>g/bhp-hr</td>
</tr>
<tr>
<td>Exhaust O2 (dry)</td>
<td>%</td>
<td>1.77</td>
</tr>
</tbody>
</table>
DEFINITIONS AND CONDITIONS

(1) **Continuous** --- Maximum output available for an unlimited time

  **Ratings** are based on pipeline natural gas having a Low Heat Value (LHV) of 35.6 MJ/NM3 (905 Btu/ft3) and 80 Caterpillar Methane Number. For values in excess of altitude, ambient temperature, inlet/exhaust restriction, or different from the conditions listed, contact your local Caterpillar dealer.

(2) **Efficiency** of standard generator is used. For higher efficiency generators, contact your local Caterpillar dealer.

(3) **Ratings and fuel consumption** are based on ISO3046/1 standard reference conditions of 25 deg C (77 deg F) of ambient temperature and 100 kPa (29.61 in Hg) of total barometric pressure, 30% relative humidity with 0, +5% fuel tolerance.

(4) **Altitude** capability is based on 2.5 kPa air filter and 5.0 kPa exhaust stack restrictions.

(5) **Heat Rejection** --- Values based on nominal data with fuel tolerance of +/-2.5% and 2.5 kPa inlet and 5.0 kPa exhaust restrictions.

(6) Assume synchronous driver

(7) **Emissions data** measurements are consistent with those described in EPA CFR 40 Part 89 Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state engine operating conditions of 25 deg C (77 deg F), 96.28 kPa (28.43 in Hg) and fuel having a LHV of 35.6 MJ/NM3 (905 Btu/cu ft) and 80 Caterpillar Methane Number at 101.60 kPa (30.00 in Hg) absolute and 0 deg C (32 deg F). Emission data shown is subject to instrumentation, measurement, facility, and engine fuel system adjustment.
Continuous 2055 ekW 60 Hz 1800 RPM 480V

### DIMENSIONS

<table>
<thead>
<tr>
<th>Package Dimensions</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>6367.1 mm</td>
<td>250.67 in</td>
</tr>
<tr>
<td>Width</td>
<td>1996.5</td>
<td>78.6</td>
</tr>
<tr>
<td>Height</td>
<td>2340.4 mm</td>
<td>92.14 in</td>
</tr>
<tr>
<td>Shipping Weight</td>
<td>18 350 kg</td>
<td>40 437 lb</td>
</tr>
</tbody>
</table>

Note: Do not use for installation design. See general dimension drawings for detail (Drawing # 234-1955).

Performance Number: DM3194, DM3195
Feature Code: 520GE10
Generator Arrangement: 144-1828