**Features**

- Single source responsibility for the generator set and accessories.
- Prototype and production tested to insure one step load acceptance per NFPA 110.
- Five year limited warranty on generator sets and accessories.
- Unit conforms to CSA, NEMA, EGSA, ANSI and other standards.
- Heavy duty 4 cycle industrial engine for reliability and fuel efficiency.
- Brushless rotating field generator with class H insulation.
- Heavy duty steel base with integral vibration isolators.
- EPA Emissions Certified
- UL 2200 Available
- Customizable to Your Specifications

**RATINGS:** All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor.

**STANDBY RATINGS:** Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271.

**PRIME POWER RATINGS:** Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS5514, AS2789, and DIN 6271. For limited running time and base load ratings consult the factory. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

**GENERAL GUIDELINES FOR DERATION:** Altitude: Derate 0.5% per 100 m (328 ft.) elevation above 1000 m (3279 ft.) Temperature: Derate 1.0% per 10°C (18°F) temperature above 40°C (104°F).
Perkins Diesel Engine
Model 403D-11G

Basic technical data
Number of cylinders: 3
Cylinder arrangement: Vertical in-line
Cycle: Four stroke
Induction system: Naturally aspirated
Compression ratio: 23:1
Bore: 3.0 in. (77 mm)
Stroke: 3.2 in. (81 mm)
Cubic capacity: 69 cu in. (1.13 L)
Direction of rotation: Anti-clockwise when viewed from flywheel
Firing order: 1,2,3

Cooling system
Radiator
Face area: 227.8 in² (0.147 m²)
Number of rows and material: 2, Aluminum
Matrix density and material: 14.5 Aluminum fins per inch
Width of matrix: 13.2 in. (334 mm)
Height of matrix: 17.3 in. (440 mm)
Pressure cap setting: 13 psi (90 kPa)
Fan
Diameter: 12.6 in. (320 mm)
Drive ratio: 1.285:1
Number of blades: 7
Material: Plastic
Type: Pusher

Fuel system
Type of injection: Indirect
Fuel injection pump: Cassette type
Fuel atomizer: Pintle nozzle

Fuel lift pump
Max flow through customer filter: 16.6 gal/hour (63 L/hr.)
Maximum suction head: 0.8 m
Maximum static pressure head: 3.0 m
Governor type: Mechanical

Fuel Consumption Gal/Hr (L/Hr.)

<table>
<thead>
<tr>
<th>Power Rating</th>
<th>110%</th>
<th>100%</th>
<th>75%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed 60Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.8</td>
<td>(3.17)</td>
<td>(3.42)</td>
<td>(3.30)</td>
<td>(3.00)</td>
</tr>
</tbody>
</table>

Lubrication system
Lubricating oil capacity total system: 1.3 gal (4.9 L)
Maximum engine operating angles
Front up, front down, right side or left side: 35°

Lubricating oil pressure
Relief valve opens: 44-73 psi (304-500 kPa)
At maximum no-load speed
Oil temperature (continuous operation): 257° F (125° C)
Oil temperature (maximum intermittent operation)
Oil consumption at full load as a % of fuel consumption

Electrical system
Type: 12 volt negative earth
Alternator voltage: 12V
Alternator output: 15A
Starter motor voltage: 12V
Starter motor power: 1.5 hp (1.1 kW)

Induction system
Maximum air intake restriction
Clean filter: 0.44 psi (3 kPa)
dirty filter: 0.93 psi (6.4 kPa)
Air filter type: Dry element

Exhaust system
Maximum back pressure: 1.5 psi (10.2 kPa)
Exhaust outlet size: 1.3 in. x 1.6 in. (34 mm x 41 mm)

Prime Standby

<table>
<thead>
<tr>
<th>Designation</th>
<th>Units</th>
<th>Prime</th>
<th>Standby</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>60 Hz</td>
<td></td>
</tr>
<tr>
<td>Gross engine power</td>
<td>hp (kWb)</td>
<td>14.3</td>
<td>15.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10.7)</td>
<td>(11.8)</td>
</tr>
<tr>
<td>Electropak net engine power</td>
<td>hp (kWm)</td>
<td>13.8</td>
<td>15.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10.3)</td>
<td>(11.4)</td>
</tr>
<tr>
<td>Brake mean effective pressure</td>
<td>psi (kPa)</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>Engine coolant flow (Water Pump)</td>
<td>gal/min (L/min)</td>
<td>8.6 (32.5)</td>
<td>8.6 (32.5)</td>
</tr>
<tr>
<td>Ratio 1.285:1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combustion air flow (at rated speed)</td>
<td>cfm (m³/min)</td>
<td>31.8 (0.9)</td>
<td>31.8 (0.9)</td>
</tr>
<tr>
<td>Exhaust gas flow (max.)</td>
<td>cfm (m³/min)</td>
<td>78 (2.21)</td>
<td>84.7 (2.4)</td>
</tr>
<tr>
<td>Exhaust gas temperature in manifold Max.</td>
<td>°F (°C)</td>
<td>819 (437)</td>
<td>959 (515)</td>
</tr>
<tr>
<td>Overall thermal efficiency (net)</td>
<td>%</td>
<td>32</td>
<td>31</td>
</tr>
</tbody>
</table>

Santa Rosa, CA 95405
4723 Muirfield Court
Phone: 707 542-2224
Fax: 707 542-2227
Email: sales@generatorjoe.net
Web: www.generatorjoe.net
STANDARDS
Stamford industrial generators meet the requirements of BS EN 60034 and the relevant section of other international standards such as B55000, VDE 0530, NEMA MG1-32, IEC34, CSA C22.2-100, A51359. Other standards and certifications can be considered on request.

VOLTAGE REGULATORS
SX460 AVR
With this self excited control system the main stator supplies power via the Automatic Voltage Regulator (AVR) to the exciter stator. The high efficiency semiconductors of the AVR ensure positive build-up from initial low levels of residual voltage. The exciter rotor output is fed to the main rotor through a three phase full wave bridge rectifier. This rectifier is protected by a surge suppressor against surges caused, for example, by short circuit.

(Optional) AS440 AVR
With this self-excited system the main stator provides power via the AVR to the exciter stator. The high efficiency semi-conductors of the AVR ensure positive build-up from initial low levels of residual voltage. The exciter rotor output is fed to the main rotor through a three-phase full-wave bridge rectifier. The rectifier is protected by a surge suppressor against surges caused, for example, by short circuit or out-of-phase paralleling. The AS440 will support a range of electronic accessories, including a droop Current Transformer (CT) to permit parallel operation with other AC generators.

WINDINGS & ELECTRICAL PERFORMANCE
All generator stators are wound to 2/3 pitch. This eliminates triplen (3rd, 9th, 15th ...) harmonics on the voltage waveform and is found to be the optimum design for trouble-free supply of non-linear loads. The 2/3 pitch design avoids excessive neutral currents sometimes seen with higher winding pitches, when in parallel with the mains. A frilly connected damper winding reduces oscillations during paralleling. This winding, with the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

SHAFT
The generator rotor is dynamically balanced to better than B56861:Part 1 Grade 2.5 for minimum vibration in operation.

INSULATION/IMPREGNATION
The insulation system is class H. All wound components are impregnated with materials and processes designed specifically to provide the high build required for static windings and the high mechanical strength required for rotating components.

AC Alternator Specifications

Digital Control Panel
The DGC-2020 digital GenSet controller provides integrated engine-GenSet control, protection, and metering. Microprocessor based technology allows for exact measurement, set point adjustment, and timing functions. Front panel 3 position controls and indicators enable quick and simple operation. The panel is also equipped with an emergency stop button and an Alarm Horn with silence button. A wide temperature-range liquid crystal display (LCD) with backlighting can be viewed under a wide range of ambient light and temperature conditions down to 40° C.

Features SAE J1939 Engine ECU communications, Multilingual capability, Remote RS-485 communications for Optional RDP-110 Remote Annunciator, Extremely rugged, fully encapsulated design with 4 programmable contact inputs and 10 contact outputs (2 ADC rated). It also features Modbus Communications with RS-485, Battery Backup for Real Time Clock, UL recognized, CSA certified, CE approved, HALT (Highly Accelerated Life Tests) tested, IP 54 Front Panel rating with integrated gasket, and NFPA 110 Level 1 Compatible.

Analog Top Mount Controller
This Generator control panel has analog instruments to monitor AC voltage, AC frequency, percent of load and, run time/hour meter. Safety shutdowns provide red LED indication for overspeed, overcrank, low oil pressure, and high coolant temperature. Provide green LED indication of engine running. Control switch is provided for local and remote starting with 3 position run/off/remote switch. There is also an engine mounted emergency by-pass key switch with mechanical oil pressure and coolant temperature gauge.

Analog End Mount Controller
This Generator control panel has analog instruments to monitor AC voltage, AC frequency, and percent of load. The analog engine instruments monitor oil pressure, water temperature, battery voltage, fuel level, and run time/hour meter. Safety shutdowns provide red LED indication for overspeed, overcrank, low oil pressure, and high coolant temperature. Provide green LED indication of engine running. Control switch is provided for local and remote starting with 3 position run/off/remote switch. There is also an engine mounted emergency by-pass key switch.

Dyna Gen Controller
The DYNA-GEN GSC300 Digital GenSet Controller provides control and protection in the operation of the generator set. The controller allows starting and stopping of the engine and indicates status and fault conditions. Unit Safety Shutdowns and Alarms are High Water Temperature, Low Oil Pressure, Overcrank, Overspeed, Low Battery Voltage Alarm, and Unit Not In Auto Alarm. The panel controls automatic start/stop of the unit as well as pre-heating of the engine. The Back Lit Digital Display provides monitoring of the Battery Voltage, Hour Meter, Frequency, and Fuel Level. The panel is also equipped with analog voltmeter and percent of load meter.
Standard Features and Optional Accessories

### Standard Features

- Heavy duty steel base
- Vibration isolators
- Oil drain valve with extension
- Battery rack
- Battery cables
- Water jacket heater
- Owners manual

### Optional Accessories

- Critical Exhaust Silencer
- Flex Exhaust Connector
- Top Mount Analog Control Panel
- End Mount Analog Control Panel
- DGC2020 Digital Control Panel
- Dyna Gen Digital Control Panel
- Modem for DGC2020
- Enhanced Gen Protection for DGC2020
- Surface Mount Remote Annunciator Panel for DGC2020
- Flush Mount Remote Annunciator Panel for DGC2020
- Remote Mount Break Glass E-Stop Switch
- Line Circuit Breaker
- Generator strip heater
- Radiator duct flange for open unit
- Weather Enclosure with external muffler
- Weather Enclosure with internal muffler
- Sound Attenuated weather enclosure
- Oil Pan Heater
- Battery
- Battery Charger
- Battery Heaters
- Sub-Base Fuel Tank
- Flexible Fuel Lines
- Customizable to Your Specifications

### Weights and Dimensions

Overall Size, L x W x H, in.: 48 in. x 30 in. x 33 in.
Weight (Wet): 543 lbs.

Note: Dim and weights reflect standard open unit with no options

Note: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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