

# DIESEL GENERATOR SET



## DE33E0

Image shown may not reflect actual package

| O P E R A T I N G R A T I N G S |                     |                     |
|---------------------------------|---------------------|---------------------|
| Generator Voltage - 3 Phase     | Prime*              | Standby*            |
| 400/230 V, 50 Hz                | 30.0 kVA<br>24.0 kW | 33.0 kVA<br>26.4 kW |
| 480V, 60 Hz                     | 33.8 kVA<br>27.0 kW | 37.5 kVA<br>30.0 kW |

\* Refer to ratings definitions on page 4.  
Ratings at 0.8 power factor.

| T E C H N I C A L D E T A I L S              |                             |           |
|--|-----------------------------|-----------|
| Engine Model & Manufacturer                  | Cat® C3.3                   |           |
| Generator Model                              | LC1514F                     |           |
| Control Panel                                | EMCP 4.1                    |           |
| Body Fabrication                             | Heavy Duty Fabricated Steel |           |
| Control Breaker Type                         | 3 Pole MCB / 3 Pole MCCB    |           |
| Frequency                                    | 50 H z                      | 60 H z    |
| Engine Speed : RPM                           | 1500                        | 1800      |
| Fuel Tank Capacity : litres (US gal)         | 161 (42.5)                  |           |
| Fuel Consumption, Prime : l/hr (US gal/hr)   | 7.0 (1.8)                   | 8.1 (2.1) |
| Fuel Consumption, Standby : l/hr (US gal/hr) | 7.7 (2.0)                   | 9.0 (2.4) |

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## ENGINE DATA

|   |                         |
|---|-------------------------|
| <b>Manufacturer:</b>  | Caterpillar             |
| <b>Model:</b>   | C3.3                    |
| <b>Number of Cylinders / Arrangement:</b>                             | 3 / In Line             |
| <b>Cycle:</b>   | 4 Stroke                |
| <b>Intake:</b>  | Naturally Aspirated     |
| <b>Cooling Medium:</b>  | Water                   |
| <b>Governor Type:</b>   | Mechanical              |
| <b>Governor Control:</b>  | ISO 8528 G2             |
| <b>Compression Ratio:</b>   | 19.25:1                 |
| <b>Displacement: l (cu.in)</b>  | 3.3 (201.4)             |
| <b>Bore / Stroke: mm (in)</b>   | 105.0 (4.1)/127.0 (5.0) |
| <b>Mean Effective Pressure: kg m<sup>2</sup> (lb. in<sup>2</sup>)</b> | 1.14 (3896)             |
| <b>Electrical System:</b>   |                         |
| -Voltage / Ground:  | 12/Negative             |
| -Battery Capacity:  | 65                      |
| <b>Weight: kg (lb) - Dry:</b>   | 412 (908)               |
| -Wet:   | 430 (948)               |

| AS                                      | 50 H                | 60 H        |
|---|---------------------|-------------|
| <b>After Treatment:</b>                 | Replaceable Element |             |
| <b>Exhaust Air Flow:</b>                |                     |             |
| m <sup>3</sup> /min (cfm)               | -S: 2.2 (76)        | 2.6 (91)    |
|   | -P: 2.2 (76)        | 2.6 (92)    |
| <b>Maximum Allowable Back Pressure:</b> |                     |             |
| kPa (in H <sub>2</sub> O)               | 6.5 (26.1)          | 6.5 (26.1)  |
| <b>Rated Exhaust Air Flow:</b>          |                     |             |
| m <sup>3</sup> /min (cfm)               | 62.6 (2211)         | 84.8 (2995) |
| <b>Exhaust Back Pressure:</b>           |                     |             |
| Pa (in H <sub>2</sub> O)                | 125 (0.5)           | 125 (0.5)   |

| CS   | 50 H        | 60 H        |
|--|-------------|-------------|
| <b>Cooling System Capacity:</b>                    |             |             |
| l (US gal)   | 10.2 (2.7)  | 10.2 (2.7)  |
| <b>Water Pump Type:</b>                            | Centrifugal |             |
| <b>Heat Radiated from Engine &amp; Alternator:</b> |             |             |
| kW (Btu/min)                                       |             |             |
| -S:  | 18.0 (1024) | 22.0 (1251) |
| -P:  | 16.0 (910)  | 18.0 (1024) |
| <b>Heat Radiated from Engine and Alternator:</b>   |             |             |
| kW (Btu/min)                                       |             |             |
| -S:  | 9.3 (529)   | 9.7 (552)   |
| -P:  | 7.9 (449)   | 8.2 (466)   |
| <b>Rated Fuel:</b>                                 |             |             |
| kW (hp)  | 0.3 (0.4)   | 0.5 (0.7)   |

Cooling system designed to operate in ambient conditions up to 50°C (122°F). Contact your local Cat dealer for power ratings at specific site conditions.

|  |                      |
|--|----------------------|
| <b>Lubrication System:</b>             |                      |
| <b>Oil Filter:</b>                     | Spin-On, Full Flow   |
| <b>Total Oil Capacity: l (US gal):</b> | 8.3 (2.2)            |
| <b>Oil Pressure: (US gal):</b>         | 7.8 (2.1)            |
| <b>Oil Type:</b>                       | API CG4 / CH4 15W-40 |
| <b>Cooling Medium:</b>                 | Water                |

| P                               | 50 H          | 60 H          |
|---------------------------------|---------------|---------------|
| <b>Engine Speed: RPM</b>        | 1500          | 1800          |
| <b>Generator Power: kW (hp)</b> |               |               |
| -S:                             | 31.0 (42.0)   | 36.5 (49.0)   |
| -P:                             | 28.2 (38.0)   | 33.1 (44.0)   |
| <b>BMEP: kPa (psi)</b>          |               |               |
| -S:                             | 752.0 (109.0) | 738.0 (107.0) |
| -P:                             | 684.0 (99.2)  | 669.0 (97.0)  |
| <b>Rated Fuel Power: kW</b>     | 7.0           | 9.0           |

|   |                            |           |           |           |
|---|----------------------------|-----------|-----------|-----------|
| <b>Filter System:</b>                     |                            |           |           |           |
| <b>Filter Type:</b>                       | Replaceable Element        |           |           |           |
| <b>Recommended Fuel:</b>                  | Class A2 Diesel or BSEN590 |           |           |           |
| <b>Fuel Consumption: l/hr (US gal/hr)</b> |                            |           |           |           |
|   | 110% L                     | 100% L    | 75% L     | 50% L     |
| <b>Power:</b>                             |                            |           |           |           |
| 50 Hz                                     | 7.7 (2.0)                  | 7.0 (1.8) | 5.2 (1.4) | 3.8 (1.0) |
| 60 Hz                                     | 9.0 (2.4)                  | 8.1 (2.1) | 6.2 (1.6) | 4.7 (1.2) |
| <b>Speed:</b>                             |                            |           |           |           |
| 50 Hz                                     | 7.7 (2.0)                  | 5.7 (1.5) | 4.1 (1.1) |           |
| 60 Hz                                     | 9.0 (2.4)                  | 6.8 (1.8) | 5.0 (1.3) |           |

(based on diesel fuel with a specific gravity of 0.85 and conforming to BS2869, Class A2)

| ES  | 50 H         | 60 H         |
|---|--------------|--------------|
| <b>System Type:</b>                         | Industrial   |              |
| <b>System Model &amp; Quantity:</b>         | EXSY1 (1)    |              |
| <b>Pressure Differential:</b>               |              |              |
| Static Pressure: kPa (in Hg)                | 1.80 (0.532) | 2.00 (0.591) |
| <b>System Noise:</b>                        |              |              |
| L <sub>1</sub> : dB                         | 20           | 19           |
| <b>Maximum Allowable Back Pressure:</b>     |              |              |
| kPa (in. Hg)                                | 8.0 (2.4)    | 10.0 (3.0)   |
| <b>Engine Governor:</b>                     |              |              |
| m <sup>3</sup> /min (cfm)                   |              |              |
| -S:   | 5.8 (205)    | 6.6 (233)    |
| -P:   | 5.7 (201)    | 6.4 (226)    |
| <b>Engine Governor Temperature: °C (°F)</b> |              |              |
| -S:   | 520 (968)    | 530 (986)    |
| -P:   | 500 (932)    | 520 (968)    |

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## Generator Parameters

| Description          | 50 H           |                                  |                      |          | 60 H                 |                      |                      |       |                      |       |
|----------------------|----------------|----------------------------------|----------------------|----------|----------------------|----------------------|----------------------|-------|----------------------|-------|
|                      | 415/240V       | 400/230V<br>230/115V<br>200/115V | 380/220V<br>220/110V | 220/127V | 480/277V<br>240/139V | 380/220V<br>220/110V | 240/120V<br>208/120V |       | 440/254V<br>220/127V |       |
| Maximum Capacity, VA | 72             | 68                               | 63                   | 78       | 78                   | 55                   | 63                   | -     | 69                   |       |
| Short Circuit %      | -              | -                                | -                    | -        | -                    | -                    | -                    | -     | -                    |       |
| Reactances:<br>P.U.  | X              | 2.298                            | 2.474                | 2.741    | 2.045                | 2.323                | 3.706                | 3.092 | -                    | 2.764 |
|                      | X <sub>d</sub> | 0.143                            | 0.153                | 0.170    | 0.127                | 0.144                | 0.230                | 0.192 | -                    | 0.171 |
|                      | X <sub>q</sub> | 0.071                            | 0.077                | 0.085    | 0.063                | 0.072                | 0.115                | 0.096 | -                    | 0.086 |

Reactances shown are applicable to prime ratings.  
\*Based on 30% voltage dip at 0.6 power factor.

## Generator Technical Data

|                               |         |
|-------------------------------|---------|
| Prime Power                   |         |
| Control Panel                 |         |
| Model                         | LC1514F |
| Number of Poles               | 1       |
| Insulation Class              | H       |
| Winding Pattern - Connections | 2/3 - 6 |
| Winding                       | 12      |
| Insulation Protection Rating  | IP23    |
| Excitation System             | SHUNT   |
| AVR Model                     | R220    |

|                                     |   |           |
|-------------------------------------|---|-----------|
| Rated Speed                         | 2250 RPM  |           |
| Voltage Regulation (% at full load) | +/- 1.0%  |           |
| Winding Factor NEMA = TIF           | 50  |           |
| Winding Factor IEC = THF            | 2.0%  |           |
| Temperature Rise Class LL/LN        | 5.0%  |           |
| Reliability                         | Suppression is in line with European Standard EN61000-6 |           |
| Rated Harmonic W (B <sub>h</sub> )  | -50 Hz:   | 3.3 (188) |
|                                     | -60 Hz:   | 3.7 (210) |

# DIESEL GENERATOR SET



## TABLE D

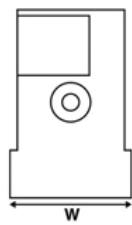
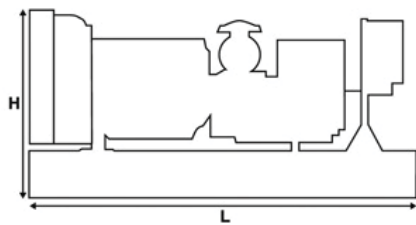
| V<br>50 H | P <sub>prime</sub> |      | S    |      |
|-----------|--------------------|------|------|------|
|           | VA                 | W    | VA   | W    |
| 415/240V  | 30.0               | 24.0 | 33.0 | 26.4 |
| 400/230V  | 30.0               | 24.0 | 33.0 | 26.4 |
| 380/220V  | 30.0               | 24.0 | 33.0 | 26.4 |
| 230/115V  | 30.0               | 24.0 | 33.0 | 26.4 |
| 220/127V  | 30.0               | 24.0 | 33.0 | 26.4 |
| 220/110V  | 30.0               | 24.0 | 33.0 | 26.4 |
| 200/115V  | 30.0               | 24.0 | 33.0 | 26.4 |
|           |                    |      |      |      |
|           |                    |      |      |      |
|           |                    |      |      |      |
|           |                    |      |      |      |

| V<br>60 H | P <sub>prime</sub> |      | S    |      |
|-----------|--------------------|------|------|------|
|           | VA                 | W    | VA   | W    |
| 480/277V  | 33.8               | 27.0 | 37.5 | 30.0 |
| 220/127V  | 33.8               | 27.0 | 37.5 | 30.0 |
| 380/220V  | 33.8               | 27.0 | 37.5 | 30.0 |
| 240/120V  | 33.8               | 27.0 | 37.5 | 30.0 |
|           |                    |      |      |      |
| 440/254V  | 33.8               | 27.0 | 37.5 | 30.0 |
| 220/110V  | 33.8               | 27.0 | 37.5 | 30.0 |
| 208/120V  | 33.8               | 27.0 | 37.5 | 30.0 |
| 240/139V  | 33.8               | 27.0 | 37.5 | 30.0 |
|           |                    |      |      |      |
|           |                    |      |      |      |
|           |                    |      |      |      |
|           |                    |      |      |      |

## WEIGHT & DIMENSIONS

| W <sub>gross</sub> : kg (lb)                  |            |
|---|------------|
| N <sub>gross</sub> (+ fuel tank)              | 827 (1823) |
| W <sub>gross</sub> (+ fuel tank & alternator) | 840 (1852) |
| F <sub>gross</sub> & alternator               | 976 (2153) |

| D <sub>gross</sub> : mm (in) |             |
|------------------------------|-------------|
| L <sub>gross</sub>           | 1540 (60.6) |
| W <sub>gross</sub>           | 970 (38.2)  |
| H <sub>gross</sub>           | 1361 (53.6) |



N<sub>gross</sub>: General configuration not to be used for installation. See general dimension drawings for detail.

## DESCRIPTION

### Standby Rating

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

### Prime Rating

Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated kW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

## Standard Configuration

Note: Standard reference conditions 25°C (77°F) air inlet temp, 100m (328ft) A.S.L. 30% relative humidity. Fuel consumption data at full load with diesel fuel with specific gravity of 0.85 and conforming to BS2869: 1998, Class A2.

## GENERAL DATA

### Description

A full set of operation and maintenance manuals and circuit wiring diagrams.

### Qualifications

The equipment meets the following standards: IEC60034-1, IEC60034-22, ISO3046, ISO8528, NEMA MG 1-32, NEMA MG 1-33, 2004/108/EC, 2006/42/EC, 2006/95/EC.

Performance No.: P2490A, P2490B

Feature Code: C03DE23, C03DE24, C03DE25, C03DE26, C03DE57,

C03DE58, C03DE59, C03DE60

Gen. Arr. Number: 459-4399

Source: European or China Sourced

LEHE0690-00 (08/14)

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