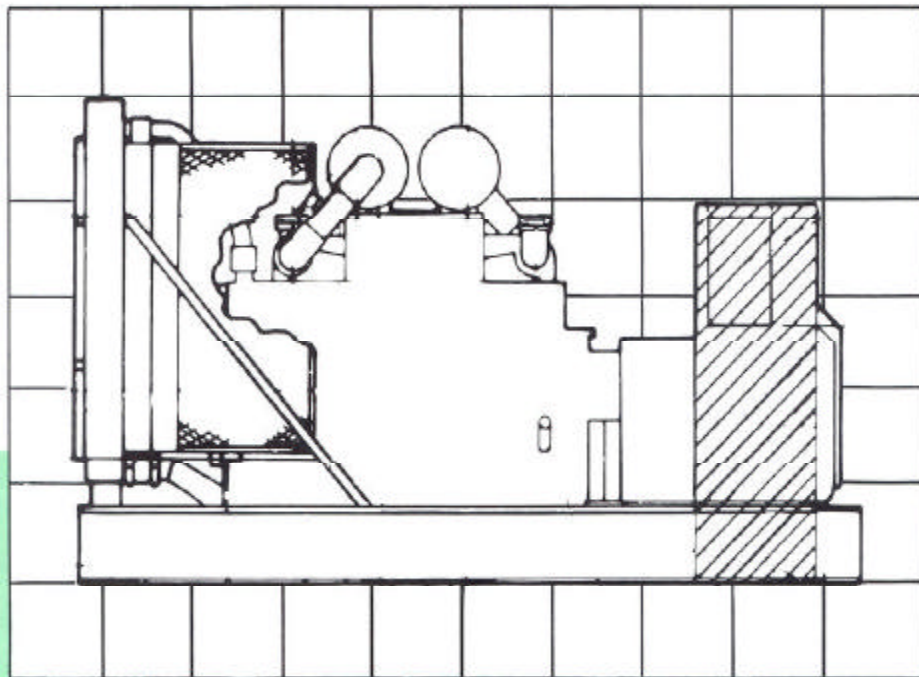


750 DFZ

GenSet

Diesel

Standby Power
Prime Power
Paralleling
Peak Shaving



- **Prototype Test Supported (PTS)** to ensure reliability
- **Revolving Field, Brushless Alternator**
- **Torque-Matched** voltage excitation system for superior motor starting
- **Isochronous Governing** provides precise frequency regulation
- **50 or 60 hertz** models available
- Complete line of **Factory Options and Accessories**
- Backed by a **Worldwide Sales & Service** network

- ✓ *Specifying Data*
- ✓ *Dimensional Outline*
- ✓ *Ordering Information*

GenSet Performance

One step load acceptance: 100% of nameplate kW rating. Meets requirements of NFPA 110 paragraph 5-13.2.6

Voltage recovery after acceptance of 100% of rated load in one step: **sec**

Voltage regulation under varying loads from 0 to 100% load $\pm 2\%$ max.

Random voltage variation: Will not exceed $\pm 1\%$ of its mean value for constant loads from no load to full load.

Frequency regulation under varying loads from 0 to 100% load: **Isochronous**

Random frequency variation: Will not exceed $\pm 0.25\%$ of its mean value for constant loads from no load to full load

Continuous Standby Rating: The unit will operate at the stated rating for the duration of normal utility power interruptions.

- **Electromagnetic Interference Attenuation** meets requirements of most industrial and commercial applications.
- **Total Harmonic Content** of the AC waveform is less than 5%
- **Telephone Influence Factor (TIF)** less than 50 per NEMA MG1-22.43.
- **Alternator Temperature Rise** at rated load is within NEMA MG1-22.40, BS 4999 part 32, and IEC 34-1.
- **Waveform Deviation Factor**, less than 0.04 line-to-line, reduces risk of overheating and of interference with sensitive communication equipment.

Engine Detail

Model: Cummins KTA38-G1

Design: 12 cyl-60° Vee-4 cycle

Aspiration: Turbocharged and aftercooled

Bore: 6.25 in. (158.8 mm)

Stroke: 6.25 in. (158.8 mm)

Piston Displacement: 2300 in³ (38 L)

Compression Ratio: 14.5 to 1

Radiator Cooling:

Coolant capacity — 55 gal (208 L)

Lube Oil Capacity: 35 gal (132 L)

Fuel System:

Number 2 diesel fuel recommended

Fuel filters

Fuel transfer pump

fuel lift 5 ft (1.52 m)

Automatic electric fuel shutoff

Cummins PT injection system

Dry element air cleaners with service indicators

Cylinder Block: Cast iron, replaceable wet liners

Valves: Dual overhead intake and exhaust valves

Replaceable valve seat inserts

Starting: 24-volt, negative ground

Governor: Electronic with electric actuator.

Speed droop externally adjustable from isochronous to 5%

Alternator Detail

Design: Revolving field, 4-pole, brushless, drip-proof construction

Stator: Skewed to minimize heating and voltage harmonics

12-lead bus bar system

Twice impregnated with varnish conforming to MIL-I-24092, Grade CB, Class 155°C

Rotor: Dynamically balanced

Amortisseur windings improve the AC waveform and act as a stabilizer for paralleling

Permanently aligned to engine by a flexible disc coupling

Windings vacuum impregnated with solid epoxy resin for improved cooling and environmental protection

Exciter: 3-phase, full-wave rectified with silicon diodes mounted on the rotor shaft

Field circuit breaker, manual reset

Sized for maximum motor starting

Voltage Regulator: Onan Torque Match-2™ provides torque matched operation for improved motor starting and reduces engine stalling in overload situations.

Asynchronous operation provides immunity to SCR tracking.

Insulation: Class F per NEMA MG1-1.65

Bearing: Double sealed, prelubricated ball bearing

Cooling: Direct drive centrifugal blower

Control Detail

Unit Mounted Console with Panel Lighting

Detector 2 Control

Run-Stop-Remote switch

Remote starting, 24-volt, 2-wire

Oil pressure gauge

Coolant temperature gauge

Battery charge rate ammeter

Running time meter

Exciter circuit breaker

Fault reset switch

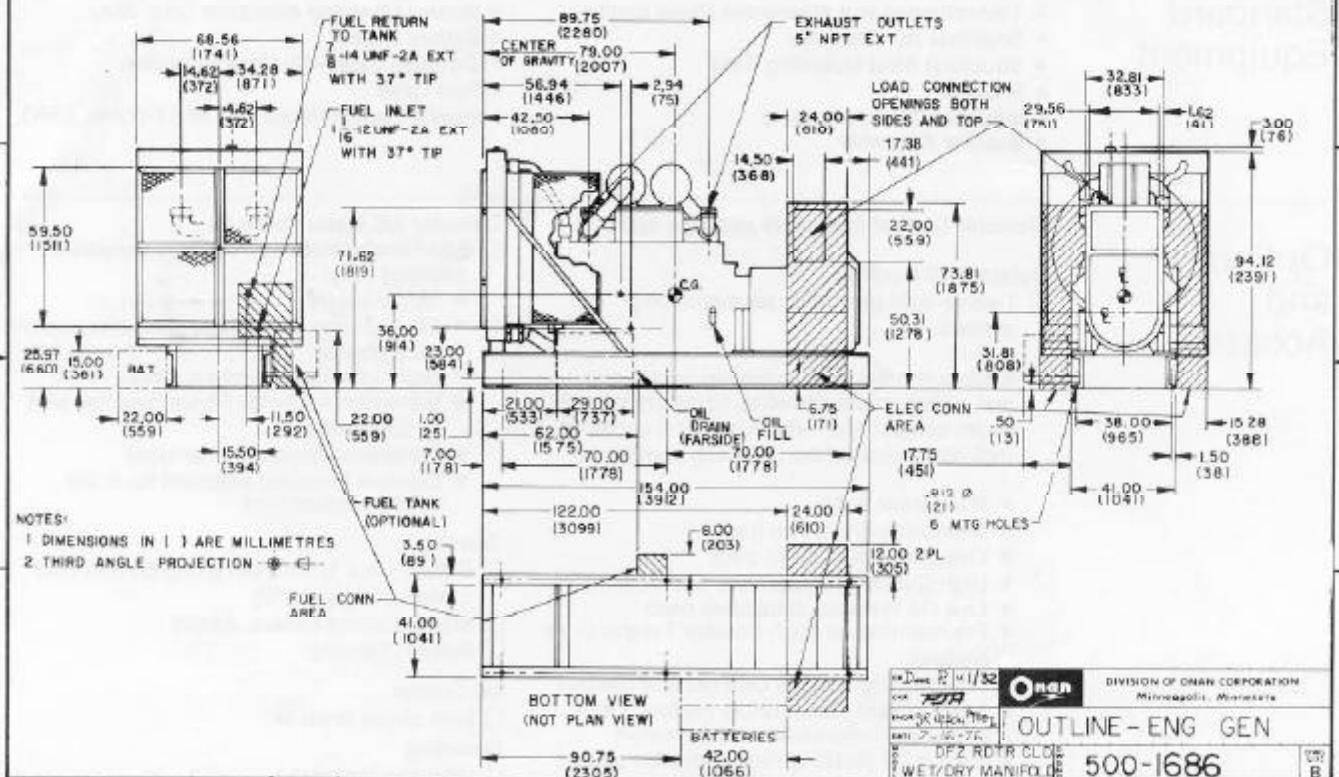
Run light (green)

Fault light (red) with common alarm contact (manual reset) indicates engine shutdown for:

- Overcrank
- Overspeed
- High coolant temperature
- Low oil pressure

Detector 12 and Detector AC Meter packages are optional (see Options and Accessories).

500-1686



Caution: This drawing supplied for reference only and should not be used for installation.

Weight: 16,500 lb (7,491 kg)

Operating Data 750 DFZ

| Hertz | Engine Power Min Shp (kW) | Piston Speed fpm (mm/s) | Engine Cooling Air-FP/m (m ³ /min) | Max. Heat Rejection (Engine to coolant) Btu/min (MJ/min) | Coolant Pumpage gpm (L/min) | Combustion Requirement Air-FP/m (m ³ /min) | Generator Cooling Air-FP/m (m ³ /min) | Heat Radiated to Room (Engine and Generator) Btu/min (MJ/min) | Motor Starting Three-Phase | | Average Fuel Consumption #2 Diesel, gph (L/h) at load | | | |
|-----------------|---------------------------------|-------------------------------|---|---|-----------------------------------|---|--|--|-------------------------------|------|--|-----|-----|-----|
| | | | | | | | | | kW | kVA | 1/4 | 2/4 | 3/4 | 4/4 |
| 60 (1800 r/min) | 1100 847 | 1070 (925) | 31000 (16142) | 22010 (31) | 411 (1556) | 2100 (77.9) | 3000 (89) | 12000 (12.7) | 700 | 2000 | 17 | 30 | 42 | 54 |
| 50 (1500 r/min) | 940 (701) | 1562 (7940) | 40990 (1161) | 24440 (25.8) | 342 (1296) | 7800 (28.3) | 2500 (70.8) | 10050 (10.8) | 640 | 1610 | 15 | 25 | 34 | 44 |

Model Selection

60-Hz
1800 r/min

- 750 DFZ-4R
3-phase, 4-wire
120/208V 2930A
Rated 750 kW Continuous Standby, 937.5 kVA at 0.8 PF
- 750 DFZ-5DR
3-phase, 4-wire
120/240V 2255A
Rated 750 kW Continuous Standby, 937.5 kVA at 0.8 PF
- 750 DFZ-7R
3-phase, 4-wire
220/360V 1424A
Rated 750 kW Continuous Standby, 937.5 kVA at 0.8 PF
- 750 DFZ-7XR
3-phase, 4-wire
240/416V 1301A
Rated 750 kW Continuous Standby, 937.5 kVA at 0.8 PF
- 750 DFZ-6DR
3-phase, 4-wire
240/480V 1128A
Rated 750 kW Continuous Standby, 937.5 kVA at 0.8 PF
- 750 DFZ-4XR
3-phase, 4-wire
277/480V 1128A
Rated 750 kW Continuous Standby, 937.5 kVA at 0.8 PF
- 750 DFZ-9XR
3-phase, 4-wire
347/600V 900A
Rated 750 kW Continuous Standby, 937.5 kVA at 0.8 PF

50-Hz
1500 r/min

- 625 DFZ-519R
3-phase, 4-wire
110/180V 2374A
115/200 2255A
Rated 625 kW Continuous Standby, 781.25 kVA at 0.8 PF
- 625 DFZ-520R
3-phase, 4-wire
230/380V 1187A
230/400 1128
Rated 625 kW Continuous Standby, 781.25 kVA at 0.8 PF
- 625 DFZ-521R
3-phase, 4-wire
120/208V 2169A
127/220 2050
Rated 625 kW Continuous Standby, 781.25 kVA at 0.8 PF
- 625 DFZ-522R
3-phase, 4-wire
240/416V 1094A
254/490 1025
Rated 625 kW Continuous Standby, 781.25 kVA at 0.8 PF

CSA Certification Pending.
Ratings and performance per ISO-3046 conditions, and with number 2 diesel fuel.
Contact an authorized Onan representative for operating characteristics at other than stated conditions.
Continuous rating per BS 5514 and DIN 6270 is 711 kW for the 750 DFZ (60 Hz) and 589 kW for the 625 DFZ (50 Hz).

Standard Equipment

- Turbocharged and Aftercooled Diesel Engine
- Brushless AC Alternator
- Structural Steel Mounting Base
- Radiator
- Mounted Control Console
- Bus Bar Assembly
- Battery Charging Alternator (24V, 35A)
- Battery Cables
- Oil Drain Valve with Hose Extension
- Fuel Lines
- Engine Coolant Heater (2, 4 kW, 1-phase, 230V)

Options and Accessories

Detector Control (complete package options)

Detector 12 Control

- Twelve-light generator set monitoring system.

Engine monitor with individual lights, lamp test switch, cycle cranking, common external alarm contact and individual alarm contacts indicating each of the following conditions—

- Run (green light)
- Overcrank Shutdown (red)
- Overspeed Shutdown (red)
- High Coolant Temperature Shutdown (red)
- Low Oil Pressure Shutdown (red)
- Pre-warning for High Coolant Temperature (yellow)
- Pre-warning for Low Oil Pressure (yellow)
- Low Coolant Temperature (yellow light - indicates inoperative coolant heater)
- Switch Off (flashing red - indicates genset not in automatic start mode)
- Low Fuel (yellow)
- Two customer selected faults (red)

Detector AC Meter Package

- Additional meters and controls (complete package only)
- AC Voltmeter
 - AC Ammeter (dual range indicates current each phase)
 - High/Low Meter Scale Indicator
 - Voltmeter/Ammeter Phase Selector with an Off Position
 - Frequency Meter (pointer type)
 - Console Mounted Rheostat for $\pm 5\%$ Voltage Adjustment

Starting

- Battery - four 12-volt, BCI group 8D (975 cold cranking amps at 0°F)
- Engine coolant heaters, 4000W
- Battery Chargers

AC Output

- Line circuit breaker

Mounting

- Vibration Isolators
- Alarm Annunciator - 24V

Onan Design Integrity



This seal certifies that the **design integrity** of Onan Electric Generating Sets has been verified by comprehensive prototype testing. Prototypes are subjected to rigorous tests with typical and atypical loads and transients well above rated performance.

Prototype Testing Typically Includes:

- Reserve Capacity, Overload and Recovery
- Failure Mode Variance Analysis
- Simulation of Actual In-Service Load
- Multiple Consecutive Short Circuits
- Endurance, Resonance
- Circuit Disturbances
- Protective System Safety Margin
- and Fatigue
- Environmental Extremes
- Alternator Temperature Rise by Multiple Embedded Temperature Sensors
- Component (Prototype tested units are never sold as new equipment.)

Production units earn the PTS seal only after individual testing at rated load and *power factor* in addition to demonstrating acceptable performance relative to criteria established by the Prototype Test Program.

Onan Builds Complete Power Systems of precisely matched components including all transfer switches, controls and monitors to assure smooth, continuous operation. Expertise and engineering services available from Onan will provide guidance in selecting the most reliable emergency electric power protection for your investment.

Parts and Service are available worldwide for all of Onan's generating sets, more than 1,000 models ranging from 1.75 kW to 4000 kW.

Manufacturers Limited Warranty to original users is one year. See your Onan distributor for information or complete documents on available Manufacturers Two-Year and Five-Year Warranties.

See Your Onan Distributor:

Backfeed to utility system can cause electrocution or property damage. Do not connect to any building electrical system except through an approved device and after building main switch is opened.

Onan Corporation

1400 73rd Avenue N.E.
Minneapolis, MN 55432

Telephone
612 574-5000

Telex 275477

TWX 910 576-2833
Cable ONAN