



Add approx 1-in (25.4 mm) to overall dimensions for Heat Exchanger Cooled Models. Approx net weights: Raw Water Cooled 770-lb (349.27 kg). Heat Exchanger Cooled 790-lb (358.34 kg). Operation

Angle—30° in all directions. Onan Sound Shield overall dimensions: L 56.06-in (1423.9 mm), W 25.06-in (636.5 mm), H 28.5-in (723.9 mm); approx net weight: 100-lb (45.36 kg).

ONAN MDJF DIESEL ENGINE

Design: 4-cycle, 4-cylinder, vertical inline design; 3.5-in (88.90 mm) bore; 3.625-in (92.07 mm) stroke; 140-in³ (2294 cm³) piston displacement; 19 to 1 compression ratio; 1087-fpm (5522 mm/s) piston speed and 33.3-bhp (24.83 kW) maximum at 1800-rpm.

Cooling System: Water cooled; neoprene impeller circulating pump; 4-gpm (15.14 lit/min) flow rate thru engine. Thermostat temperature control. High water temperature safety shutdown. Water-cooled exhaust manifold and exhaust elbow.

Combustion System: Precombustion chamber in cylinder head reduces smoke and combustion noise.

Fuel System: Fuel metering distributor injection pump. Pintle injection nozzle. Mechanical fuel transfer pump with hand primer; 6-ft (1.83 m) fuel lift. Mounted primary and secondary fuel filters. Air intake silencer (resonator). Combustion air required 64-cfm (1.81 m³/min).

Fuel: Fuel recommended is number 2 diesel fuel. Average fuel consumption at rated 60-hertz load—1.7-gph (6.44 L/h).

Governor: Gear driven governor, adjustable, mechanical flyball. Stability is within ± 0.33 percent at rated load. Speed regulation 5 percent no load to rated load. Pressure lubricated.

Lubrication System: Positive displacement, lube oil pump. Full pressure lubrication to main and connecting rod bearings. Spin-on, full flow, lube oil filter with bypass. Oil pressure gauge; dipstick. Capacity: 6.5-qt (6.15 L) includes filter. Low oil pressure shutdown.

Starting System: Remote; 3-wire, negative ground. Solenoid shift starter. Glow plugs and intake air preheater. Starting batteries recommended: 135 A.h minimum.

Bearings: Three main bearings are steel-backed bronze sleeves; replaceable precision inserts. Connecting rod bearings are Trimetal, replaceable precision inserts.

Connecting Rods: Steel forging. Rifle drilled for positive piston pin lubrication and piston crown heat reduction.

Cylinders-Crankcase: Single unit cast alloy iron. Cylinders water jacketed. Cast aluminum oil base.

Cylinder Head: Cast iron; water jacketed.

Crankshaft: Ductile iron, 80-60-03 alloy; shot peened fillets.

Pistons: High silicon alloy aluminum; free floating piston pin.

Valves: Overhead; free to rotate. Intake valves and exhaust valves have hard chrome-cobalt alloy facing. Intake and exhaust seats are replaceable hard chrome-cobalt alloy inserts.

ONAN BRUSHLESS ALTERNATOR

Design: Revolving field, 4-pole alternator rigidly coupled to the engine, permanently aligned. Drip proof construction. Amortisseur windings and skewed stator minimize field heating and voltage harmonics. Segmented stator laminations are welded in the heavy gauge steel frame. Dynamically balanced rotor; windings impregnated with 100 percent solid epoxy resin for improved cooling and complete environmental protection.

Brushless, broad range, reconnectable 3-phase alternators with twelve leads brought out. User reconnect to obtain required voltage.

Bearing: Double sealed, prelubricated ball bearing.

Cooling: Direct drive centrifugal blower. Single opening air outlet, 160-cfm (4.53 m³/min), easily ducted.

Exciter System: Brushless exciter with 8 pole stator mounted in endbell. Encapsulated rotating rectifier assemblies protected from adverse environments and easily accessible through endbell. Permanent magnet embedded in exciter stator field pole ensures alternator voltage buildup.

Voltage Regulator: Solid state voltage regulator. Silicon controlled rectifiers with phase controlled sensing circuit. The voltage reference is a temperature compensated zener diode.

Voltage Waveform: The voltage waveform deviation factor is less than .06 per NEMA MG1-22.42. Telephone influence factor (TIF) is less than 40 per NEMA MG1-22.43.

Temperature Rise: At rated load, temperature rise is within NEMA MG1-22.40 definition.

Insulation System: Class F per NEMA MG1-1.65 definition. Insulating varnish conforms to MIL-I-24092, Type M, Class 155.

UNIT PERFORMANCE

Battery Charging Output: 12-Volt DC, 2 to 5 amp, adjustable. Negative battery ground only.

Frequency Regulation: Governor droop 3-hertz maximum, no load to rated load. Recovery to stable operation is less than two seconds on application or removal of rated load in one step.

Voltage Regulation: Plus or minus 3-percent, no load to rated load. Voltage variation is plus or minus 1-percent of the mean value for constant loads from no load to rated load. Regulator matched to engine characteristics provides maximum reserve overload capacity.

Electromagnetic Interference Level: Meets requirements of SAE-J-551 for radiated interference and MIL-STD-461-IIIB for conductive interference.

