



Service Manual

Cummins **Onan**

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Hydraulic Generator Set

RBAA (Spec A-C)

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Safety Precautions

Thoroughly read *Operation and Installation* before operating the genset. Safe operation and top performance can be only be attained when equipment is operated and maintained properly.

The following symbols in this manual alert you to potential hazards to the operator, service person and equipment.

⚠ DANGER alerts you to an immediate hazard which will result in severe personal injury or death.

⚠ WARNING alerts you to a hazard or unsafe practice which can result in severe personal injury or death.

⚠ CAUTION alerts you to a hazard or unsafe practice which can result in personal injury or equipment damage.

Electricity, moving parts, batteries and high-pressure hydraulic fluid present hazards which can result in severe personal injury or death.

GENERAL PRECAUTIONS

- Make sure all fasteners are secure and torqued properly.
- Do not work on the genset when mentally or physically fatigued or after consuming alcohol or drugs.
- You must be trained and experienced to make adjustments while the genset is running—hot, moving or electrically live parts can cause severe personal injury or death.
- Keep multi-class ABC fire extinguishers handy. Class A fires involve ordinary combustible materials such as wood and cloth; Class B fires, combustible and flammable liquid fuels and gaseous fuels; Class C fires, live electrical equipment. (ref. NFPA No. 10)

- Genset installation and operation must comply with all applicable local, state and federal codes and regulations.

GENERATOR VOLTAGE IS DEADLY!

- Generator electrical output connections must be made by a trained and experienced electrician in accordance with applicable codes.
- Use caution when working on live electrical equipment. Remove jewelry, make sure clothing and shoes are dry, stand on a dry wooden platform or rubber insulating mat and use tools with insulated handles.

BATTERY GAS IS EXPLOSIVE

- Wear safety glasses.
- Do not smoke.
- To reduce arcing when disconnecting or reconnecting battery cables, always disconnect the negative (-) battery cable first and reconnect it last.

MOVING PARTS CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

- Do not wear loose clothing or jewelry near moving parts such as PTO shafts, fans, belts and pulleys.
- Keep hands away from moving parts.
- Keep guards in place over fans, belts, pulleys, and other moving parts.

HYDRAULIC FLUID UNDER PRESSURE CAN CAUSE SEVERE PERSONAL INJURY

- Always shut down the engine that drives the hydraulic pump before loosening or tightening fittings.
- The high pressure spray from a leak or fitting in a hydraulic line can penetrate the skin, leading to possible blood poisoning. Wear safety glasses. Do not delay getting proper medical attention if exposed to high pressure oil spray.

Specifications

	6 kW Models ¹		
	Spec A	Spec B	Spec C
GENERATOR: 2-Pole Revolving Field, 1-Bearing, Self-Excited, 1-Phase, Electronic Voltage Regulation			
Frequency	60 Hertz	60 Hertz	60 Hertz
Voltage (3-Wire)	120 / 240 volts	120 / 240 volts	120 / 240 volts
Current	50 / 25 amps	50 / 25 amps	50 / 25 amps
Speed	3600 rpm	3600 rpm	3600 rpm
DC SYSTEM:			
Battery Voltage	12 volts	12 volts	12 volts
Control Circuit Fuse (F1)	20 amp blade-type	20 amp blade-type	20 amp blade-type
INSTALLATION: Hydraulic Pump			
Min – Max Pump Speed	850 – 3000 rpm	900 – 3200 rpm	900 – 3200 rpm
SAE Flange	B2	B	B
SAE Spline Shaft	B2	B	B
SAE Straight Key Shaft	B2	7/8 inch B	7/8 inch B
Flow	8 gpm	8 gpm	8 gpm
Maximum Pressure	5000 psi	4000 psi	4000 psi
Hydraulic Fluid	Dextron III	Dextron III	Dextron III
Weight	70 lb (32 Kg)	58 lb (27 Kg)	58 lb (27 Kg)
Max Power Draw on Engine	22.4 hp	22.4 hp	22.4 hp
INSTALLATION: Hydraulic Hose & Fittings			
Pump to Motor	#8, 4000 psi Hose; 37° Fittings	#8, 4000 psi Hose; 37° Fittings	#8, 4000 psi Hose; 37° Fittings
Genset to Oil Reservoir	#8, 200 psi Hose; 37° Fittings	#8, 200 psi Hose; 37° Fittings	#8, 200 psi Hose; 37° Fittings
Pump Case to Oil Reservoir	#8, 200 psi Hose; 37° Fittings	#8, 200 psi Hose; 37° Fittings	#8, 200 psi Hose; 37° Fittings
Oil Reservoir to Pump Hose Fitting at Reservoir Fitting at Pump	#20 (Min), 200 psi 37° Fitting SAE Size 32, Code 61 Flange Head at Pump	#20 (Min), 200 psi 37° Fitting 37° Fitting	#20 (Min), 200 psi 37° Fitting 37° Fitting
INSTALLATION: Generator Module			
Noise	72 dB(A) ²	72 dB(A) ²	72 dB(A) ²
Weight	179 lb (81 Kg)	179 lb (81 Kg)	179 lb (81 Kg)
Dimensions (L x W x H)	31.0 x 15.8 x 13.7 in (764 x 402 x 348 mm)	31.0 x 15.8 x 13.7 in (764 x 402 x 348 mm)	31.08 x 15.96 x 13.79 in (789.4 x 405.38 x 350.33 mm)
Cooling Air Flow	1450 cfm	1450 cfm	1450 cfm
Max Ambient Temperature			
Continuous Full Load	120°F (49°C)	120°F (49°C)	120°F (49°C)
Intermittent Load	140°F (60°C)	140°F (60°C)	140°F (60°C)
1 – Rated @ 1.0 PF			
2 – Rated @ 10 ft (3 m), before installation, under full load.			

	8 kW Models¹		
	Spec A	Spec B	Spec C
GENERATOR: 2-Pole Revolving Field, 1-Bearing, Self-Excited, 1-Phase, Electronic Voltage Regulation			
Frequency	60 Hertz	60 Hertz	60 Hertz
Voltage (3-Wire)	120 / 240 volts	120 / 240 volts	120 / 240 volts
Current	50 / 25 amps	50 / 25 amps	50 / 25 amps
Speed	3600 rpm	3600 rpm	3600 rpm
DC SYSTEM:			
Battery Voltage	12 volts	12 volts	12 volts
Control Circuit Fuse (F1)	20 amp blade-type	20 amp blade-type	20 amp blade-type
INSTALLATION: Hydraulic Pump			
Min – Max Pump Speed	850 – 3000 rpm	900 – 3200 rpm	900 – 3200 rpm
SAE Flange	B2	B	B
SAE Spline Shaft	B2	B	B
SAE Straight Key Shaft	B2	7/8 inch B	7/8 inch B
Flow	8 gpm	8 gpm	8 gpm
Maximum Pressure	5000 psi	4000 psi	4000 psi
Hydraulic Fluid	Dextron III	Dextron III	Dextron III
Weight	70 lb (32 Kg)	58 lb (27 Kg)	58 lb (27 Kg)
Max Power Draw on Engine	22.4 hp	22.4 hp	22.4 hp
INSTALLATION: Hydraulic Hose & Fittings			
Pump to Motor	#8, 4000 psi Hose; 37° Fittings	#8, 4000 psi Hose; 37° Fittings	#8, 4000 psi Hose; 37° Fittings
Genset to Oil Reservoir	#8, 200 psi Hose; 37° Fittings	#8, 200 psi Hose; 37° Fittings	#8, 200 psi Hose; 37° Fittings
Pump Case to Oil Reservoir	#8, 200 psi Hose; 37° Fittings	#8, 200 psi Hose; 37° Fittings	#8, 200 psi Hose; 37° Fittings
Oil Reservoir to Pump Hose Fitting at Reservoir Fitting at Pump	#20 (Min), 200 psi 37° Fitting SAE Size 32, Code 61 Flange Head at Pump	#20 (Min), 200 psi 37° Fitting 37° Fitting	#20 (Min), 200 psi 37° Fitting 37° Fitting
INSTALLATION: Generator Module			
Noise	72 dB(A) ²	72 dB(A) ²	72 dB(A) ²
Weight	179 lb (81 Kg)	179 lb (81 Kg)	179 lb (81 Kg)
Dimensions (L x W x H)	31.0 x 15.8 x 13.7 in (764 x 402 x 348 mm)	31.0 x 15.8 x 13.7 in (764 x 402 x 348 mm)	31.08 x 15.96 x 13.79 in (789.4 x 405.38 x 350.33 mm)
Cooling Air Flow	1450 cfm	1450 cfm	1450 cfm
Max Ambient Temperature Continuous Full Load Intermittent Load	120°F (49°C) 140°F (60°C)	120°F (49°C) 140°F (60°C)	120°F (49°C) 140°F (60°C)
1 – Rated @ 1.0 PF			
2 – Rated @ 10 ft (3 m), before installation, under full load.			

	10 kW Models ¹	15 kW Models ¹
GENERATOR: 2-Pole Revolving Field, 1-Bearing, Self-Excited, 1-Phase, Electronic Voltage Regulation		
Frequency	60 Hertz	60 Hertz
Voltage (3-Wire)	120 / 240 volts	120 / 240 volts
Current	83 / 42 amps	125 / 62.5 amps
Speed	3600 rpm	3600 rpm
DC SYSTEM:		
Battery Voltage	12 volts	12 volts
Control Circuit Fuse (F1)	20 amp blade-type	20 amp blade-type
INSTALLATION: Hydraulic Pump		
Min – Max Pump Speed	850 – 3000 rpm	850 – 3000 rpm
SAE Flange	B	C
SAE Spline Shaft	B	C
SAE Straight Key Shaft	1–1/4 inch C	1–1/4 inch C
Flow	10.5 gpm	17 gpm
Maximum Pressure	5000 psi	5000 psi
Hydraulic Fluid	Dextron III	Dextron III
Weight	70 lb (32 Kg)	70 lb (32 Kg)
Max Power Draw on Engine	28 hp	35 hp
INSTALLATION: Hydraulic Hose & Fittings		
Pump to Motor	#8, 4000 psi Hose; 37° Fittings	#10, 4000 psi Hose; 37° Fittings
Genset to Oil Reservoir	#10, 200 psi Hose; 37° Fittings	#12, 200 psi Hose; 37° Fittings
Pump Case to Oil Reservoir	#8, 200 psi Hose; 37° Fittings	#10, 200 psi Hose; 37° Fittings
Oil Reservoir to Pump Hose Fitting at Reservoir Fitting at Pump	#20 (Min), 200 psi 37° Fitting SAE Size 32, Code 61 Flange Head at Pump	#20 (Min), 200 psi 37° Fitting SAE Size 32, Code 61 Flange Head at Pump
INSTALLATION: Generator Module		
Noise	72 dB(A) ²	72 dB(A) ²
Weight	190 lb (86 Kg)	225 lb (102 Kg)
Dimensions (L x W x H)	31.08 x 15.96 x 13.79 in (789.4 x 405.38 x 350.33 mm)	39.2 x 15.8 x 13.7 in (995 x 402 x 348 mm)
Cooling Air Flow	1450 cfm	1600 cfm
Max Ambient Temperature Continuous Full Load Intermittent Load	120°F (49°C) 140°F (60°C)	120°F (49°C) 140°F (60°C)
1 – Rated @ 1.0 PF		
2 – Rated @ 10 ft (3 m), before installation, under full load.		

Introduction

ABOUT THIS MANUAL

This is the service manual for the hydraulic generator sets (gensets) listed on the front cover. It includes Specifications, Operation, Maintenance and Troubleshooting.

See the Parts manual for part identification numbers and required quantities. Genuine Cummins®/Onan® replacement parts are recommended for best results. Be ready to provide the model and serial numbers on the genset nameplate when calling for parts.

PRODUCT DESCRIPTION

The genset consists of several components or modules that are installed at various locations on the vehicle. The components are interconnected electrically and hydraulically as shown on Page 25, 26 or 27, respectively.

- **Genset** – The genset is an AC generator driven by an hydraulic motor. An automatic voltage regulator maintains nominal output voltage (120 / 240 VAC) under varying generator loads. An integral oil-to-air heat exchanger cools the

oil (hydraulic fluid) before it is returned to the reservoir.

- **Hydraulic Pump** – The hydraulic pump powers the generator motor and is driven by a power takeoff on the vehicle transmission. The pump maintains constant flow, and thus nominal generator frequency (60 Hz), by automatically adjusting piston stroke as engine speed varies in response to other concurrent tasks, such as vehicle propulsion or pumping.
- **Oil Reservoir** – The oil reservoir has a three gallon oil capacity. It is equipped with a full-flow 6 micron oil filter, oil level sight glass, filter pressure gauge, breather filter and oil fill cap.
- **Generator Display Module** – The generator display module displays generator output voltage, frequency and current. It also displays the temperature of the oil returning to the oil reservoir and the number of hours run.
- **Generator ON / OFF Switch** – The vehicle builder provides the generator ON / OFF switch.
- **Hydraulic Fluid** – The genset is designed for use only with Dextron III hydraulic fluid (oil).

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