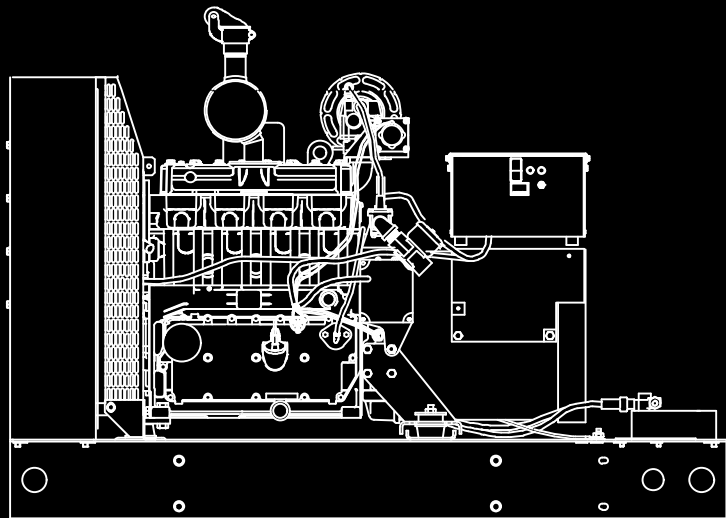


Service Manual

Generator Sets



Models
GNAA, GNAB, GNAC

Table of Contents

SECTION	TITLE	PAGE
	SAFETY PRECAUTIONS	iii
1	INTRODUCTION	1-1
	About this Manual	1-1
	Test Equipment	1-1
	Fuel Recommendations	1-1
	Engine Oil Recommendations	1-2
2	SPECIFICATIONS	2-1
3	GENERATOR SET CONTROL—MANUAL	3-1
	Prestart Checks	3-1
	Operation	3-1
	Engine Shutdown Switches	3-2
	Control Logic	3-3
	<i>Troubleshooting</i>	3-4
4	GENERATOR SET CONTROL—REMOTE/ATS	4-1
	Prestart Checks	4-1
	Operation	4-1
	Engine Shutdown Switches	4-2
	Control Logic (Beginning Spec B)	4-3
	Control Logic (Spec A)	4-4
	Dry Contact Module (Optional)	4-6
	<i>Troubleshooting</i>	4-7
5	GENERATOR SET CONTROL—DETECTOR	5-1
	Prestart Checks	5-1
	Operation	5-1
	Control Panel	5-2
	Detector Control Box (Spec A)	5-4
	Engine Control Monitor (Ecm)	5-5
	Auxiliary Relay Board (Optional)	5-7
	Start-Stop Time Delay Module	5-9
	Electronic Overspeed/Start Disconnect Module	5-10
	Coolant Temperature Gauge Assembly	5-11
	Relays K11 and K12 (Spec A)	5-12
	Engine Gauge Senders and Shutdown Switches	5-13
	Sequence of Operation	5-14
	<i>Troubleshooting</i>	5-15
6	VOLTAGE REGULATOR	6-1
	Principle of Generator Operation	6-1
	Voltage Regulator	6-2
7	GENERATOR	7-1
	Voltage Regulation	7-1
	Generator Connections	7-1
	Testing the Generator	7-2
	Generator Disassembly	7-8
	Generator Reassembly	7-9
	<i>Troubleshooting</i>	7-10

8	ENGINE	8-1
	<i>Troubleshooting</i>	8-1
	Engine Disassembly and Reassembly	8-3
	Dimensions of Wearing Parts	8-8
	Engine Block Systems	8-8
	The Lubricating System	8-29
	Cooling System	8-31
	Crankcase Breather System	8-33
	Ignition System	8-34
	Fuel System	8-37
	Electronic Governor	8-39
9	MAINTENANCE	9-1
	General Inspection	9-2
	Engine Oil	9-3
	Cooling System	9-4
	Air Cleaner	9-4
	Fuel Filter	9-6
	Fan Belt	9-5
	Batteries	9-6
A	SPEC A WIRING DIAGRAMS	A-1
	Generator Connection Diagrams	A-1
	Detector Control—DC Connections	A-2
	Detector Control—DC Installation	A-3
	Detector Control—Voltage Regulator Connections	A-4
	Detector Control—Voltage Regulator Installation)	A-5
	Detector Control—AC Connections	A-6
	Detector Control—AC Installation With Meters	A-7
	Remote/ATS Control—Schematic and Connection Diagrams	A-8
	Manual Control—Schematic and Connection Diagrams	A-9
B	BEGINNING SPEC B WIRING DIAGRAMS	B-1
	Generator Connection Diagrams	B-1
	Detector Control—Sheet 1, DC Connections	B-2
	Detector Control—Sheet 2, DC Connections	B-3
	Detector Control—Engine Harness	B-4
	Detector Control—AC Control	B-5
	Detector Control—Installation, Voltage Regulator	B-6
	Remote/ATS Control—Schematic Diagram	B-7
	Remote/ATS Control—Connection Diagram	B-8
	Manual Control—Schematic and Connection Diagrams	B-9
C	MISCELLANEOUS WIRING DIAGRAMS	C-1
	Detector Control Connections	C-1
	Detector Control—Auxiliary Relay Board Connections	C-2
	Manual and Remote/ATS—Meter Panel Wiring	C-3

Safety Precautions

Thoroughly read the **OPERATOR'S MANUAL** before operating the generator set. Safe operation and top performance can be obtained only 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, fuel, exhaust, moving parts and batteries present hazards which can result in severe personal injury or death.

GENERAL PRECAUTIONS

- Keep ABC fire extinguishers handy.
- Make sure all fasteners are secure and torqued properly.
- Keep the generator set and its compartment clean. Excess oil and oily rags can catch fire. Dirt and gear stowed in the compartment can restrict cooling air.
- Let the engine cool down before removing the coolant pressure cap or opening the coolant drain. Hot coolant under pressure can spray out and cause severe burns.
- Before working on the generator set, disconnect the negative (-) battery cable at the battery to prevent starting.
- Use caution when making adjustments while the generator set is running—hot, moving or electrically live parts can cause severe personal injury or death.

- Used engine oil has been identified by some state and federal agencies as causing cancer or reproductive toxicity. Do not ingest, inhale, or contact used oil or its vapors.
- Do not work on the generator set when mentally or physically fatigued or after consuming alcohol or drugs.
- Carefully follow all applicable local, state and federal codes.

GENERATOR VOLTAGE IS DEADLY!

- Generator output connections must be made by a qualified electrician in accordance with applicable codes.
- The generator set must not be connected to the public utility or any other source of electrical power. Connection could lead to electrocution of utility workers, damage to equipment and fire. An approved switching device must be used to prevent interconnections.
- Use caution when working on live electrical equipment. Remove jewelry, make sure clothing and shoes are dry and stand on a dry wooden platform on the ground or floor.

FUEL IS FLAMMABLE AND EXPLOSIVE

- Keep flames, cigarettes, sparks, pilot lights, electrical arc-producing equipment and switches and all other sources of ignition well away from areas where fuel fumes are present and areas sharing ventilation.
- Fuel lines must be secured, free of leaks and separated or shielded from electrical wiring.
- Leaks can lead to explosive accumulations of gas. Natural gas rises when released and can accumulate under hoods and inside housings and buildings. LPG sinks when released and can accumulate inside housings, basements, sumps and other below-grade spaces. Prevent leaks and the accumulation of gas.
- Use approved non-conductive flexible fuel hose for fuel connections at the generator set.

BUY NOW

**Then Instant Download
the Complete Manual
Thank you very much!**