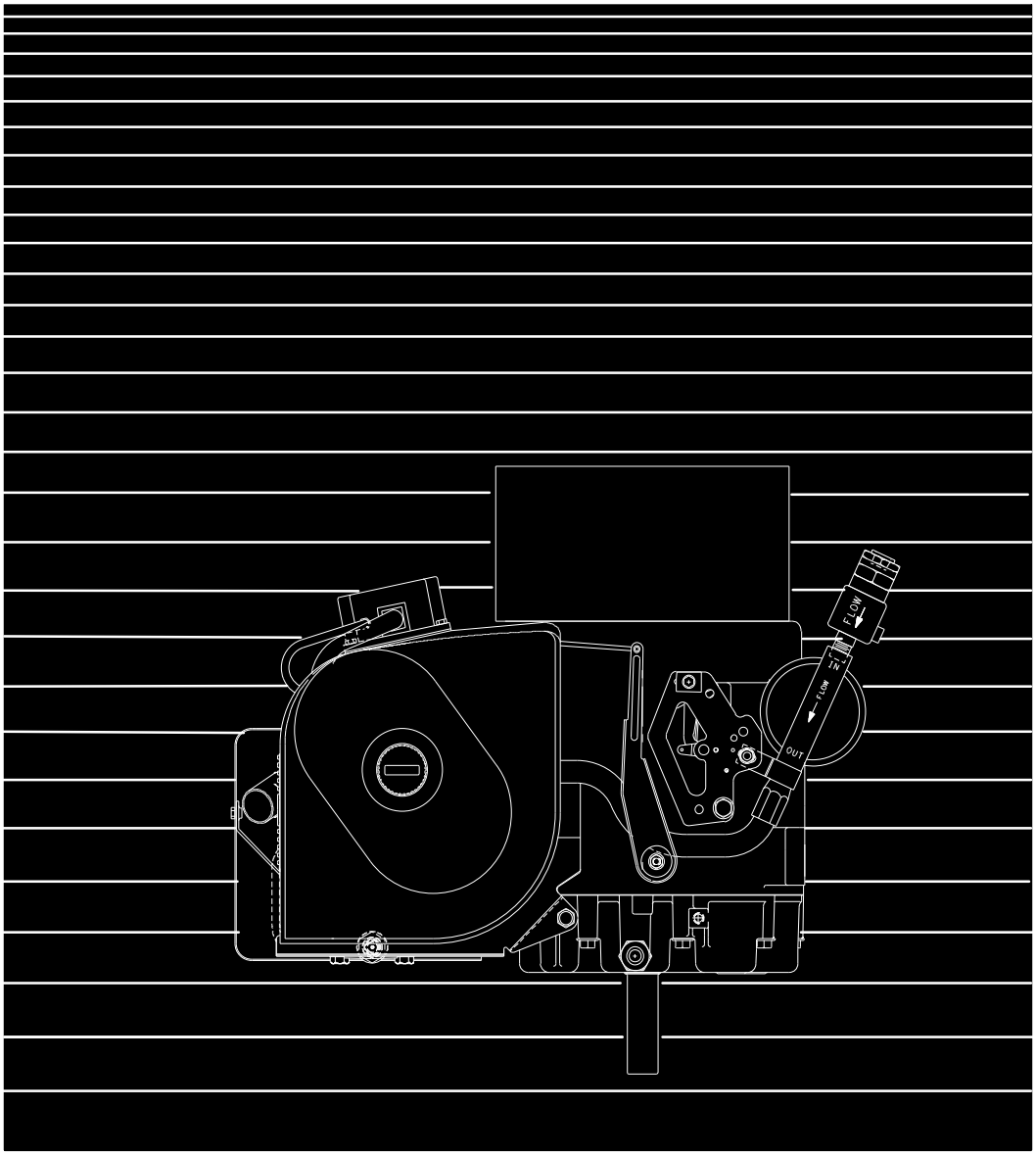
Onan

Engine

Service Manual

E124V, E125V, E140V

Elite Series



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Safety Precautions

Thoroughly read the OPERATOR'S MANUAL before operating the engine. Safe operation and top performance can be obtained only with proper operation and maintenance.

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 engine and its compartment clean. Excess oil and oily rags can catch fire. Dirt and gear stowed in the compartment can restrict cooling air.
- Before working on the engine, disconnect the negative (–) battery cable at the battery to prevent starting.
- Use caution when making adjustments while the engine 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.
- Benzene and lead in some gasolines have been identified by some state and federal agencies as causing cancer or reproductive toxicity. Do not to ingest, inhale or contact gasoline or its vapors.
- Do not work on the engine when mentally or physically fatigued or after consuming alcohol or drugs.
- Carefully follow all applicable local, state and federal codes.

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.
- Do not fill the fuel tank while the engine is running.
- Use approved flexible fuel hose for connections at the engine. If there is a possibility that the hose could become a path for battery currents, it must be of the non-conductive type.
- LPG fuel connections must be made only to the *vapor withdrawal* fitting on the LPG container.
- The fuel line must have a manual shutoff valve.
- LPG leaks into an inadequately ventilated space can lead to explosive accumulations of gas. LPG sinks when released into the air and can accumulate inside basements and other below-grade spaces. Precautions must be taken to prevent gas leaks and the accumulation of gaseous fuel in the event of a leak.

ENGINE EXHAUST IS DEADLY!

- Learn the symptoms of carbon monoxide poisoning in this Manual.
- Inspect the exhaust system every time the engine is started and after every eight hours of operation. If exhaust noise changes, shut down the engine immediately and have it inspected.
- The integral exhaust system must not be modified in any way.
- Do not use engine cooling air to heat a room or compartment.
- Make sure there is ample fresh air when operating the engine in a confined area.

BATTERY GAS IS EXPLOSIVE

- Wear safety glasses and do not smoke while servicing batteries.
- When disconnecting or reconnecting battery cables, always disconnect the negative (–) battery cable first and reconnect it last to reduce arcing.

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, etc.

Section 1. Introduction

⚠WARNING ***Improper service or replacement of parts can result in severe personal injury or death. Service personnel must be qualified to perform electrical and mechanical service.***

ABOUT THIS MANUAL

This is the service manual for the Elite series of vertical-shaft engines. They are 1-cylinder, 4-stroke cycle, spark-ignited, overhead-valve (OHV), air-cooled engines. Table 3-1 summarizes other features of these engines.

Sections 2 (*Tolerances and Clearances*) and 3 (*Assembly Torques*) provide information necessary for proper reassembly of the engine. They are referenced throughout the manual.

Section 4 (*Troubleshooting*) provides a way to systematically locate engine problems.

Sections 5 through 9 cover service of major subsystems of the engine.

Section 10 (*Engine Block Assembly*) covers the complete overhaul of the engine block assembly.

See the separate Operator's Manual for engine operation, maintenance and storage and for fuel and lubricating oil recommendations.

See the separate Parts Manual for part identification numbers and required quantities and for exploded views of the engine subassemblies.

MODEL NUMBER

Genuine Onan replacement parts are recommended for best results. When ordering parts, always give the complete model and serial numbers appearing on the engine nameplate. See Table 3-2 for a breakdown of the engine model number.

TABLE 3-1. ENGINE FEATURES

Displacement	390 cm^3 (23.7 $inch^3$)
Bore	84.2 mm (3.31 inch)
Stroke	70 mm (2.76 inch)
Compression Ratio	8.5:1
Minimum Cylinder Compression Test Pressure	483 kPa (70 psi)
Oil Capacity (with filter)	1.4 liter (1.5 quart)
Minimum Oil Pressures @ 1500/3300 rpm	New: 80/138 kPa (13/20 psi) Worn: 62/103 kPa (9/15 psi)
Ignition Timing (nonadjustable)	23° BTDC

TABLE 3-2. ENGINE MODEL NUMBER

E	124	V	L	111531	F
1	2	3	4	5	6

1. Model Letter
2. Rated Power or number of cylinders and displacement:
   "140" designates 14.0 bhp (brake horse power)
   "125" designates12.5 bhp
   "124" designates that the engine has "1" cylinder and displacement of "24" cubic inches
3. Shaft Orientation—"V" designates vertical shaft.
4. Engine Fuel—"N" designates gasoline, "L", LPG and "D", dual fuel.
5. Optional Equipment Code—designates muffler, fuel tank, electric starter, etc. or combinations thereof.
6. Spec Letter—designates production modifications.