SERVICE MANUAL

S60-120E (C004)



FORM 599763 Rev. 07/97

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SERVICE MANUAL CONTENTS

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PART NO. 599763

Rev. Unknown

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Legend for Figure 2

NOTE: LEECE-NEVILLE NOT AVAILABLE, SIMILAR TO THOSE SHOWN.

A. DELCO TYPE A (SMALL CAPACITY LIFT TRUCKS)
B. DELCO TYPE B
C. MOTOROLA TYPE A
D. DELCO TYPE A (LARGE CAPACITY LIFT TRUCKS)

1. BATTERY
2. KEY SWITCH
3. FUSE
4. RESISTOR
5. INDICATOR LIGHT OR AMMETER
6. VOLTAGE REGULATOR
7. ROTOR FIELD
8. STATOR
9. DIODE BRIDGE
10. DIODE SET
11. FIELD TERMINAL
12. REGULATOR TERMINAL
13. OUTPUT (BAT) TERMINAL
14. VOLTAGE ADJUSTMENT

The direct current from the diodes of the diode bridge flows to the output or BAT terminal. A capacitor between the BAT terminal and the electrical ground removes any remaining alternating current from the direct current. The capacitor also protects the diodes from high voltages. The voltage is controlled by the amount of current flowing through the field winding in the alternator and the rpm of the rotor. The voltage regulator, inside the housing, contains a transistor, diodes, resistors, and capacitor. The voltage regulator cannot be repaired.

NOTE: On some large capacity lift trucks, the alternator has an external voltage adjustment.

The voltage regulator controls the alternator to charge the battery. The voltage is set by the manufacturer and is not usually adjustable. Battery voltage decreases as the starting circuit and other circuits take energy from the battery. When the key switch is put in the **IGN** position, the voltage regulator is energized. A positive current flows to the field terminal (F or 1) on Type A alternators and (L) on Type B alternators. The battery sends a positive current to the regulator terminal (Type A R or 2) and the BAT terminal. The regulator senses a decrease in battery voltage and increases the alternator output to charge the battery.

Alternator Repair

ALTERNATOR TYPE A

Remove and Disassemble

WARNING

Always disconnect the battery ground cable before making repairs to prevent possible damage and injury. Install a tag on the battery terminal so that no one connects the cable on the terminal.

NOTE: Use Troubleshooting and General Check and Adjustment, Low Output Check (Type A or Type B), High Output Check (Type A or Type B), Brushes Circuit Check, Diodes Check, Diode Bridge Check, Rotor Field Winding Check, Stator Windings Check, and Voltage Regulator Check procedures of this SRM before starting any repair procedures. Make sure that repair or replacement of that part is necessary before removal, disassembly, or replacement of the part.

NOTE: There are some checks of the alternator that are done with the alternator on the engine. See General Check and Adjustment, Low Output Check (Type A or Type B), High Output Check (Type A or Type B), Brushes Circuit Check, Diodes Check, Diode Bridge Check, Rotor Field Winding Check, Stator Windings Check, and Voltage Regulator Check procedures of this SRM before starting any removal or repair procedures.

NOTE: Many parts of the Leece-Neville alternator can be replaced without disassembling the alternator. See Figure 5. The alternator must be disassembled to replace only the diode bridge, filter capacitor, rotor, stator, or bearings.

1. Disconnect the battery ground cable. See Figure 3, Figure 4, and Figure 5. Install labels and disconnect the wires at the alternator. Loosen the alternator mount capscrews and remove the drive belt. Remove the capscrews that hold the alternator to the engine.

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PROBLEM	POSSIBLE CAUSE	PROCEDURE OR ACTION
Engine does not run correctly.	Ignition timing is not correct.	Perform proper timing procedures. See Ignition Timing Adjustment.
	New spark plugs are needed.	Replace spark plugs. See Spark Plugs Replacement.
	High voltage wires are damaged.	Perform high voltage wire checks. See High Voltage Wires Check.
	Moisture or dirt in the distributor cap.	Clean and dry distributor cap.
	Distributor cap is damaged.	Replace distributor cap.
	Centrifugal mechanism is damaged.	Replace centrifugal mechanism. See Distributor Repair.
	Ignition coil is damaged.	Replace ignition coil. See Ignition Coil Replacement.
	Sensing coil is damaged.	Replace Sensing Coil. See Sensing Coil Replacement.
	The electronic module is damaged.	Replace electronic module. See Electronic Module Replacement.

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