GRADALL®

LOED® MATERIAL HANDLER

MODEL 534A

Service Manual

PART NO. 9020-5896

This manual describes the LOED Handler as origionally designed and built by the LOED Corporation. The LOED Handler product line was purchased October 15, 1982 by The Warner & Swasey Co., a subsidiary of The Bendix Corporation. Descriptions and specifications shown herein are subject to change without notice.

IMPORTANT

READ AND UNDERSTAND THIS MANUAL BEFORE STARTING, OPERATING OR PERFORMING MAINTENANCE PROCEDURES ON THIS MACHINE.

KEEP THESE MANUAL IN CAB

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TROUBLESHOOTING GUIDE FOR GEAR TYPE HYDRAULIC PUMPS

IDENTIFICATION			CAUSE	CORRECTIVE CHECKS
1. Sandblasted band around pressure plate bores 2. Angle groove on face of pressure plate 3. Lube groove enlarged and edges rounded 4. Dull area on shaft at root of tooth 5. Dull finish on shaft in bearing area 6. Sandblasted gear bore in housing			I. Abrasive wear caused by fine particles. 1. Dirt (fine contaminants, not visible to the eye)	1. Was clean oil used? 2. Was filter element change period correct? 3. Were correct filter elements used? 4. Cylinder rod wiper seals in good condition? 5. Cylinder rods dented or scored? 6. Was system flushed properly after previous failure?
1. Scored pressure plates 2. Scored shafts 3. Scored gear bore			II. Abrasive wear caused by metal particles 1. Metal (coarse) contaminants, visible to the eye	1. Was system flushed properly after previous failure? 2. Contaminants generated elsewhere in hydraulic system? 3. Contaminants generated by wearing pump components?
1. Any external damage to pump 2. Damage on rear of drive gear and rear pressure plate only			III. Incorrect Installation	1. Did shaft bottom in mating part? 2. Any interference between pump and machine?
1. Eroded pump housing 2. Eroded pressure plates			IV. Aeration – Cavitation 1. Restricted oil flow to pump inlet 2. Aerated oil	1. Tank oil level correct? 2. Oil viscosity as recommended? 3. Restriction in pump inlet line? 4. Air leak in pump inlet line? 5. Loose hose or tube connection near or above oil level in tank? 6. Excessive operation of relief valve?
1. Heavy wear on pressure plate 2. Heavy wear on end of gear			V. Lack of Oil	1. Was oil level correct? 2. Any leaks in piping inside tank? 3. Any oil returning above oil level?
1. Housing scored heavily 2. Inlet peened and battered 3. Foreign object caught in gear teeth			VI. Damage caused by metal object	1. Metal object left in system during initial assembly or previous repair? 2. Metal object generated by another failure in system?
1. Pressure plate black 2. O-rings and seals brittle 3. Gear and journals black			VII. Excessive Heat	1. Was a valve stuck? 2. Was relief valve too low? 3. Was oil viscosity correct? 4. Was oil level correct?
1. Broken shaft 2. Broken housing or flange			VIII. Over Pressure	1. Relief valve setting correct? 2. Did relief valve function?

FIGURE 43

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BEARING REPLACEMENT-INSPECTION OF PARTS

BEARING REPLACEMENT

MOBIL-MASTER SERIES 20 & 25

Mobil-Master Series 20 and 25 Pumps are built with the highest capacity bearings available. However, if the pump is run on a system with contaminant present in the oil, or under certain other conditions, bearing failure may be experienced. In the event of bearing failure the bearings may be replaced if the gears have not cut a track in the housing deeper than .015 inches.

To remove the old bearings, disassemble the pump and place the body in a vise. Clamp on the sides of the body using cardboard to prevent marring by the vise jaws.

Using the small keyhole type hack saw, cut through the bearing opposite the oil groove. Be sure the saw cuts completely through the bearing shell, but cuts as little as possible into the aluminum bore.

After the cut is made, grip the bearing with vise-grip pliers and remove with a twisting motion (body bearings). Flange bearings can be wedged out with a screw driver. Take care not to damage the bores. After removal, wash the parts thoroughly in solvent. Press in the body bearings so that they protrude above the surface . 220/. 230. Press flange bearings in . 090 below surface. The split in the bearing goes in the same location as was the oil groove in the bronze bearings.

Install the remaining parts of the repair kit and replace on the machine. No break-in is necessary and the unit is ready to operate at full capacity.

INSPECTION OF PARTS

1. Visually inspect all parte. There will be a gear track on the inside of the pump body. Measure the depth of this gear track. If the groove is deeper than .005 (five thousandths) of an inch, the body should be rejected for further use. If the track is less than .005, the body is all right for reassembly provided it is not cracked or damaged otherwise.

2. Examine the pressure plates. They should not show excessive wear on the bronze side. If deep curved wear marks are visible, reject them.

3. Examine the gears. If excessive wear is visible on the journals, sides or face of the gears, or at the point where it rotates in the seal, reject them.

4. If any of the internal parts show excessive wear, replace all the parts with the cartridge kit.

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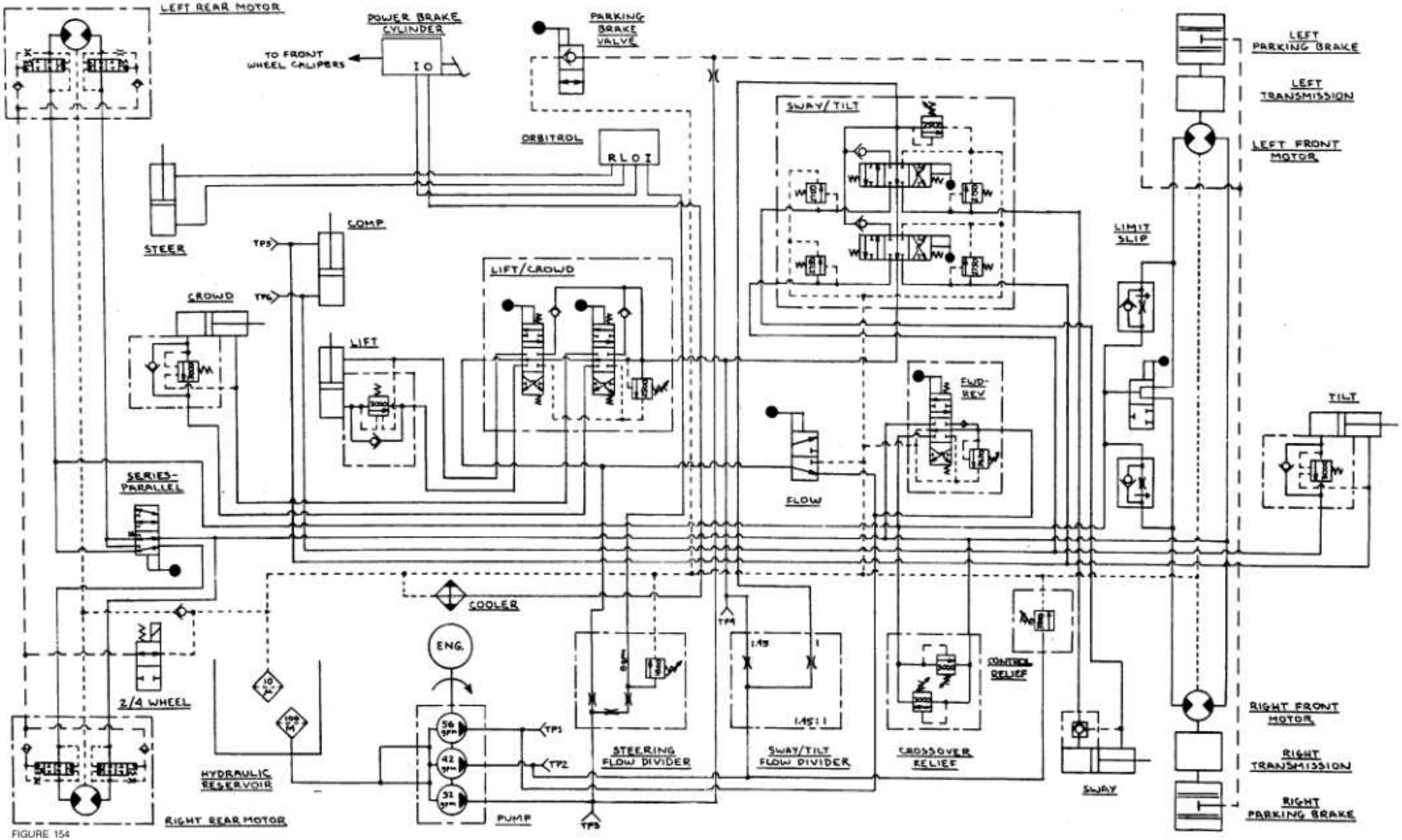


FIGURE 154

- SERIES-PARALLEL VALVE SHOWN IN PARALLEL POSITION (1ST & 3RD GEAR)
- 2-WHEEL/4-WHEEL SOLENOID VALVE SHOWN IN 4-WHEEL POSITION
- LIFT/CROWD VALVE SHOWN WITH BOTH LEVERS IN NEUTRAL
- PARKING BRAKE VALVE SHOWN WITH BRAKES OFF
- SWAY/TILT VALVE SHOWN WITH BOTH LEVERS IN NEUTRAL
- FLOW VALVE SHOWN IN HIGH-FLOW (3RD & 4TH GEAR)
- FORWARD-REVERSE VALVE SHOWN IN NEUTRAL
- LIMIT SLIP VALVE SHOWN IN OFF POSITION

HYDRAULIC SCHEMATIC
MODEL 534 BEFORE S/N 237

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