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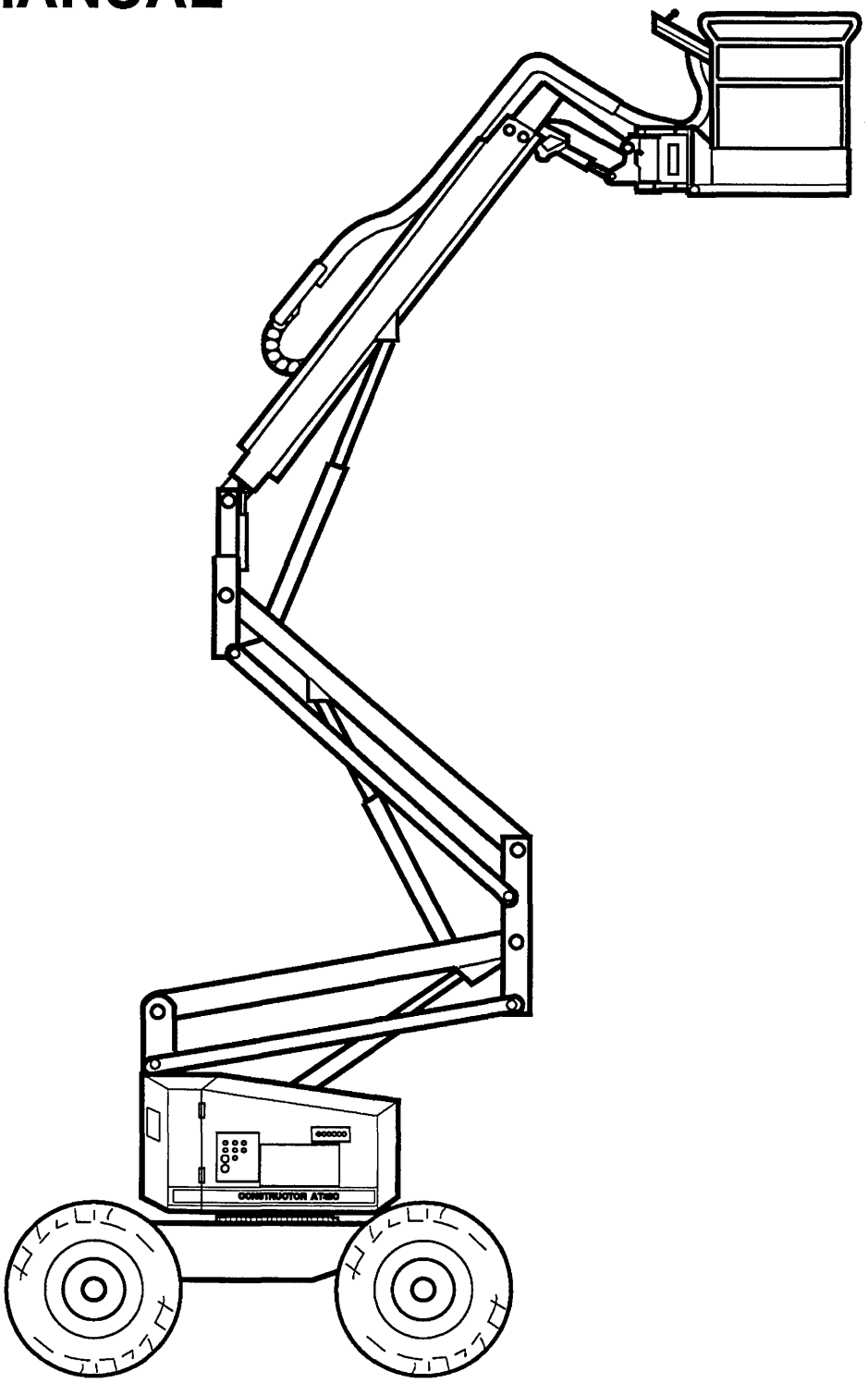
CONSTRUCTOR
AT40C

89-444007

SIMON

SERVICE MANUAL



REVISION B

HYDRAULIC FLUID RECOMMENDATION AND MAINTENANCE

CONTAMINATION CHECKS

A. Comply with contamination analysis and recommendations. Use the following as a guide to determine when to analyze the fluid and what is necessary to achieve a clean contamination free hydraulic system.

1. Any time the engine driven hydraulic pump is replaced.

2. If fluid discoloration is noticed in the hydraulic reservoir sight tube.

3. If after the first 50 hours of operation, the hydraulic filter elements are plugged.

4. Any time the hydraulic filter elements show signs of metal content.

5. If valve spools at either operators' stations have continuous sticking problems which can not be corrected by lubrication.

6. Have hydraulic oil analyzed every six (6) months under normal operating conditions.

B. Following the above guide will prevent premature component failure including pumps, cylinder seals, and drive motors. Therefore it will prevent unnecessary unit down time.

C. The hydraulic oil analysis must be done by a qualified laboratory. To insure they provide you with accurate recommendations about the oil being analyzed, provide the following information with the oil sample.

1. Type of oil. (See lubrication chart)

2. Model and Serial Number of unit having oil analyzed.

3. Purpose of analysis, i.e. pump failure, discolored, etc.

4. Type of analysis, i.e. Complete to show additive breakdown, acid buildup, viscosity, type and percent of contaminants. Comparison to new oil and recommendations.

D. If system flushing and replacement of fluid is recommended, refer to the following flushing procedure.

HYDRAULIC SYSTEM FLUSHING PROCEDURE

A. With the boom down and fully retracted (stowed position), drain main hydraulic tank into a clean container. This can be done with an oil filter cart so the oil may be reused if analysis of oil is good.

B. When the hydraulic tank is empty, remove hydraulic hoses between the tank and pump (suction hoses). Remove hoses between pump and main valve bank also. These hoses should be flushed out when removed. The hydraulic oil filters should also be removed and the filter bodies and attaching hoses flushed out. Discard old filter elements and replace with new elements. Drain main lines from pump to motor of drive circuit and drain pump case and motor case. Connect all drive circuit hoses.

C. With the hoses removed from the hydraulic tank, open the tank bottom drain and flush out the tank. When this is completed, all the hoses removed in the previous steps should be properly installed except the system return to tank hose. This hose should be lengthened to drain into a clean empty container (55 gal.).

D. If the hydraulic oil previously removed from the hydraulic tank is good, it can now be pumped (through a filter cart) back into the hydraulic tank. If it is not usable, fill hydraulic tank with new filtered oil.

SWING SYSTEM TROUBLESHOOTING

PROBLEM:

Swing motor will not run in either direction using engine powered pump.

CHECKS:

A. Shut down engine and try swing motor using emergency pump. If swing functions with emergency pump, check lift system power switch valve at manifold.

PROBABLE CAUSE:

1. The mechanical swing stop is preventing rotation in one direction.

SOLUTION:

Operate swing function in the opposite direction.

2. Swing pinion shaft is broken.

SOLUTION:

Remove and disassemble worm drive swing reducer and replace pinion shaft.

3. Hydraulic swing motor shaft is broken or siezed.

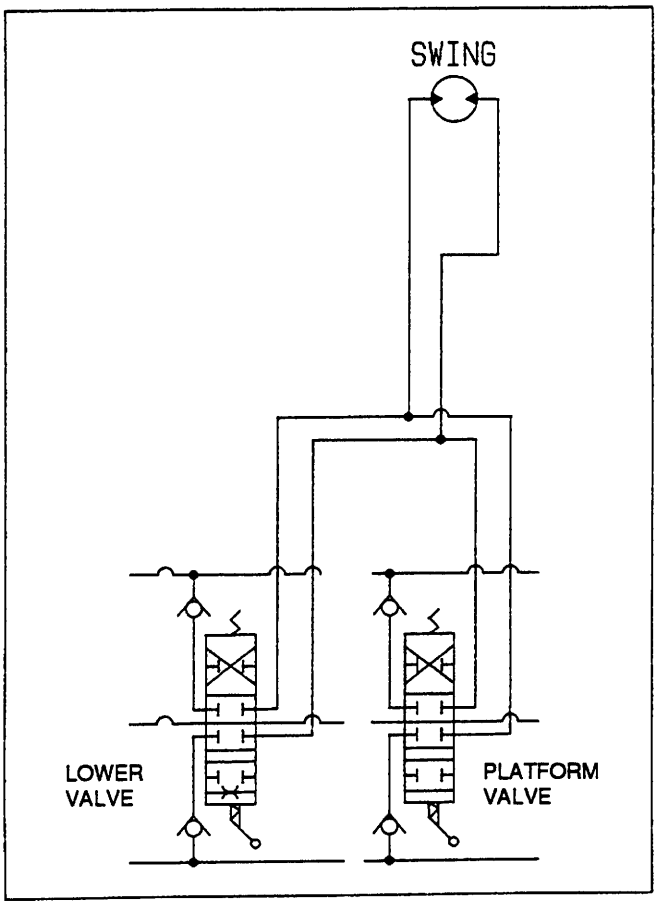
SOLUTION:

Remove and replace swing motor.

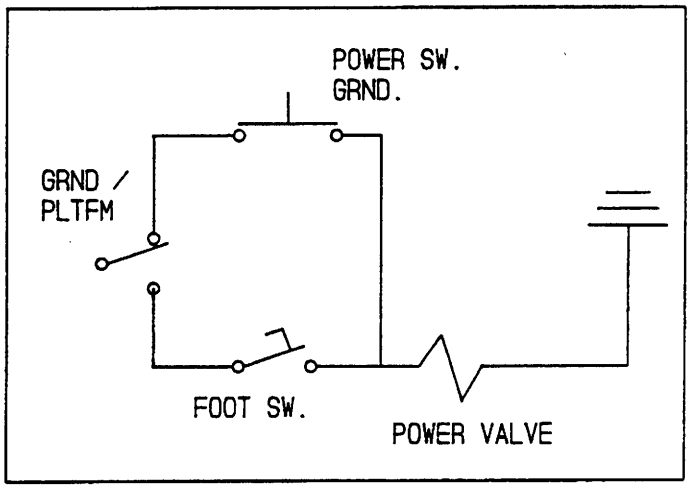
4. Swing motor pinion key to gear box sheared off.

SOLUTION:

Removed and replace key.



Hydraulic Schematic

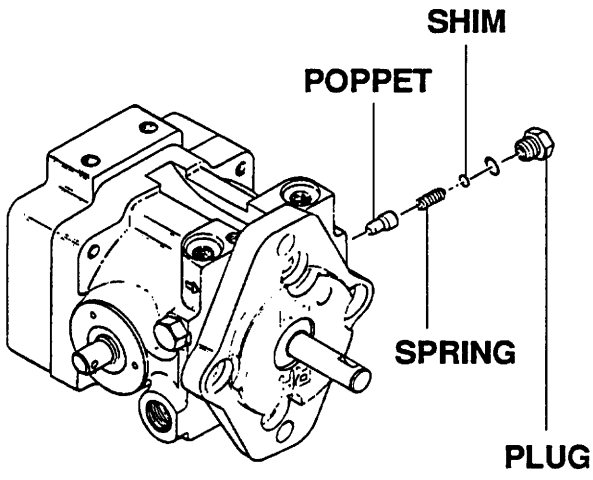


Electrical Schematic

INSPECTING CHARGE RELIEF VALVE

Remove plug, then slide the spring and poppet out of the housing. Do not alter the shims or interchange parts with another valve. Inspect the poppet and seat in housing for damage and remove any foreign material in the valve area. Replace parts as required and install into housing bore.

LIP SEAL REPLACEMENT



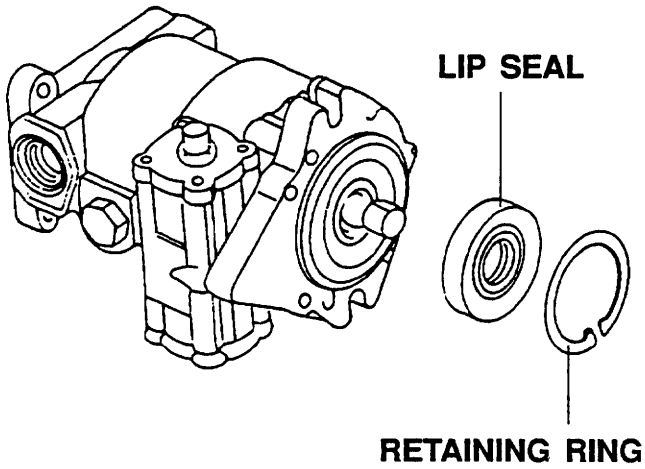
CHARGE RELIEF VALVE

Lip type seals are used throughout the transmission. These seals can be replaced without disassembling of the transmission; however, replacement of either the input or output seal requires removal of the transmission from the machine.

1. Pry the seal carefully out of the housing bore, using care not to distort the housing or damage the bore or the shaft. Once removed, the seal is not re-usable.

2. Prior to installing the new seal, polish the shaft extension, wrap it in thin plastic and lubricate with hydraulic oil to insure that the seal is not damaged during assembly. Slide the seal over the shaft and press it into the housing bore.

3. In the case of trunnion shaft seals, it is necessary that the retaining rings and washers be removed before removing the seals. The washer should be replaced if it is noticeably bent or distorted.



LIP SEAL

CHARGE PUMP REMOVAL AND INSTALLATION

1. Note the orientation of the charge pump housing to adjacent housing and either scribe a line or make punch marks to insure proper location. Clean shaft extension to remove all sharp edges, burrs and abrasive residue to prevent shaft seal damage.

2. Remove hex head screws and slide the housing assembly over shaft holding the charge pump (gerotor) cartridge and remove drive pin. Remove shaft seal and bearing from housing only if replacement is necessary.

3. Examine the wear surfaces of pump cartridge for excessive scratching or heavy wear patterns. Replace both parts of this cartridge if necessary. Do not replace or interchange individual parts within the cartridge. The drive pin should always be replaced. Visually inspect bearing, O-ring, and shaft seal and replace as required.

2. Drive Shaft Installation.

a. Position the drive shaft. The two U-joints must be positioned "in phase".

b. Align drive shaft.

c. Install two (2) 'U-bolts' and four (4) nuts.

d. Tighten four (4) nuts.

e. Repeat the procedure for the opposite end.

D. Brake/Gear Reducer

The brake and gear reducer is one unit.

1. Gear Reducer.

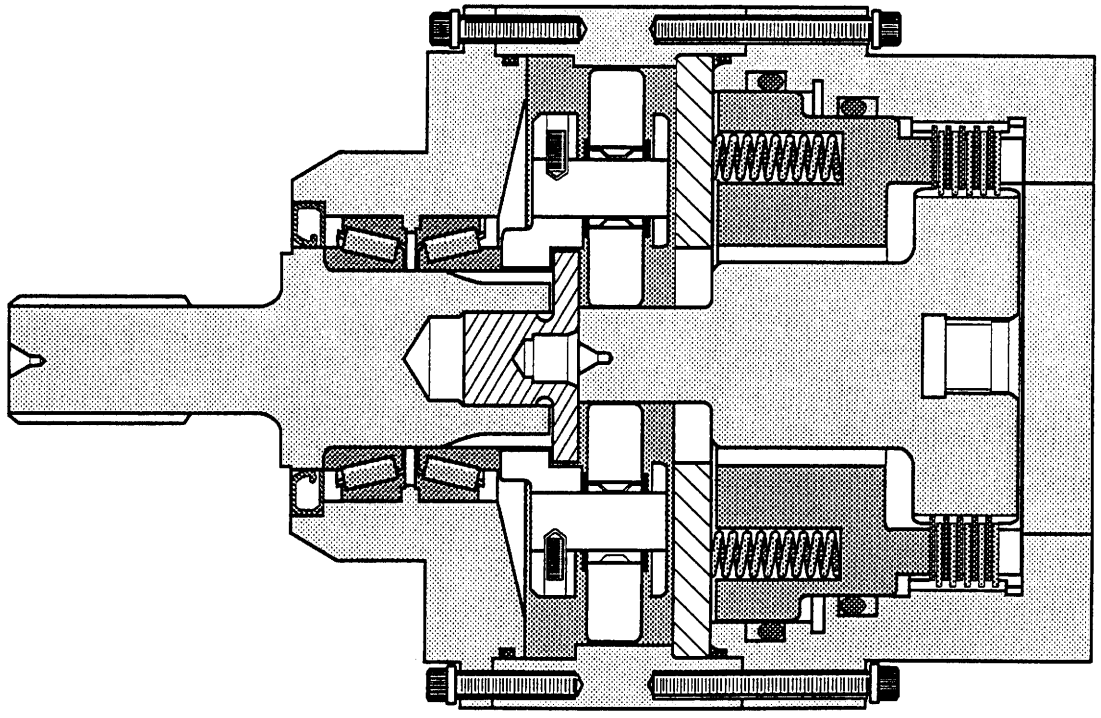
The planetary gear reducer is located next to the transfer case separated by the steel mounting wall. Check the gear reducer for security and oil leakage. Check the gearbox oil level. Top off with EP 90W oil, if necessary.

2. Brake.

The brake is located between the drive motor and the gear reducer in the gear reducer housing. System checks include damaged gaskets, clogged breather plugs and worn out discs. The brake is operated at 525 PSI but for maintenance and disc alignment, it can be released using pressure as low as 150 PSI.

⚠ WARNING

AFTER SERVICING AND/OR BRAKE REPLACEMENT, TEST THE BRAKES AND BLEED THE BRAKELINE.



BRAKE/GEAR REDUCER

7. Refer to "Drive will not operate properly".

PROBLEM: FAST DRIVE WITH UPPER STAGE ELEVATED.

1. Check limit switch for correct operation.

2. Check low speed valve at manifold.

3. Refer to "Drive will not operate properly".

PROBLEM: NO "EMERGENCY STOP" FACILITY.

1. Check that the "Emergency Stop" button is operating correctly.

SEMI - ANNUAL CHECKLIST

DATE _____ **INSPECTED BY** _____

MODEL NUMBER _____ **SERIAL NUMBER** _____

GENERAL INFORMATION

1. Keep inspection records up-to-date.
2. Report all discrepancies to your supervisor.
3. A dirty machine can not be properly inspected. Keep your Simon Constructor clean.

INSPECTION & MAINTENANCE LIST

THIS CHECKLIST MUST BE USED AT THE INTERVALS INDICATED, FAILURE TO DO SO COULD ENDANGER THE LIFE OF THE OPERATOR. ALWAYS REMEMBER, A LITTLE PREVENTIVE MAINTENANCE CAN SAVE MUCH MORE THAN IT COSTS.

INITIAL

_____ 1. Have fluid sample analyzed in a test laboratory. Follow the recommendations of test results.

If fluid has been regularly maintained, it should only require an oil change once every year. This depends on maintenance, temperature, application, amount of use, and atmospheric condition.

_____ 2. Inspect the entire machine for damage and condition of welds.

_____ 3. Check operating speeds to ensure they are within specified limits.

_____ 4. Check emergency power system.

_____ 5. Check all decals for legibility.

_____ 6. Clean and lubricate all push button switches with an electrical contact cleaner and ensure that the switches have no sticky moments.