UpRight
Product Support

SERVICE BULLETIN

Outrigger Cylinder Replacement SB97.1

Machines/Models: TL49 Serial Nos.: 1057-1120

THIS BULLETIN IS **MANDATORY**.

DATE: February 1, 1997

PURPOSE: To replace the present pin lock plates, banjo bolts, dowty washers, and outrigger limit switches with current specifications. Also, the outrigger cylinders are being replaced and will have a more improved performance and better operating characteristics.

OPERATION REQUIRED: Replacement of outrigger cylinders, limit switches, and hardware.

PARTS REQUIRED:

08 ea. 058056-000 Pin Lock Plates
08 ea. 058188-000 Banjo Bolts
16 ea. 057124-000 Dowty Washers
04 ea. 058733-000 Outrigger Cylinders
04 ea. 058269-000 Outrigger Limit Switches -
01 ea. Hydraulic Drain Hose Assembly (tool)

REIMBURSEMENT: Cylinder replacement will take approximately two hours. UpRight will reimburse the owner of record for two hours of labor at $30.00 per hour; and for travel (up to 100 miles) at $0.25 per mile. Reimbursement will be made upon receipt by UpRight of your completed warranty claim form and the cylinders, lock plates, banjo bolts, dowty washers, and outrigger limit switches you removed from service.

PROCEDURE: Read all instructions thoroughly and refer to figures 1, 2, and 3 before starting.

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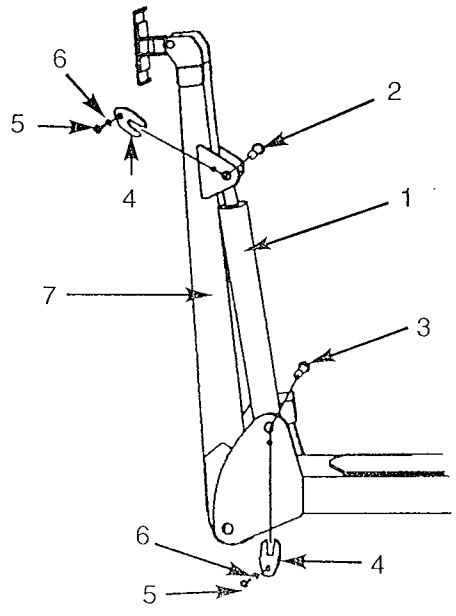
REPLACEMENT PROCEDURE

Removal

1. Ensure that the TL-49 is on a firm level surface and not raised, i.e. it is supported by its wheels and also that the outriggers are extended until they touch the ground but that they bear no load. The procedure written below are the steps to replace one cylinder and repeated for each of the other three.
2. Disconnect the hoses from the cylinder and plug them to avoid spillage. Tag each hose for reference during reassembly.
3. Remove the securing bolts #5 and washers #6 from the cylinder lock plates. (fig. 1)
4. Remove the lock plates #4 (fig. 1).
5. While supporting the outrigger cylinder, remove the body end pin #3 (fig. 1).
6. While supporting the outrigger cylinder, remove the rod end pin #2 (fig. 1).
7. Remove the cylinder #1 (fig. 1).
8. Remove the outrigger cylinder limit switch cover and disconnect wires. Remove the cable connector and wire from limit switch. Remove limit switch.



1. Outrigger Cylinder
2. Rod End Pin
3. Body End Pin
4. Lock Plate
5. Lock Plate Bolt
6. Washer
7. Outrigger

Figure 1

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Installation

Note: It is imperative to replace the banjo bolts, dowty washers, pin lock plates and outrigger limit switches with those supplied.

Outrigger Limit Switch Installation

1. Attach the two wire terminals onto the bottom two contacts on the TI-U12-ATT outrigger limit switch, contacts 23 and 24 (fig. 2).
2. Tighten the cable connector.
3. Attach limit switch to quadrant plate.

Outrigger Cylinder Installation

Note: Take care in aligning the outrigger cylinder pins with the holes so that the pin can be pushed in by hand. If the pin is forced in, the bushings may be damaged.

4. Install supplied outrigger cylinder #1 on chassis and install rod end pin #2 (fig. 1).
5. Install body end pin #3 (fig. 1).
6. Install supplied lock plates #4 (fig. 1).
7. Apply medium strength thread lock to lock plate securing bolt, install bolt #5 and washer #6 (fig. 1). Torque to 25 ft. lbs.

Note: It is imperative that before re-fitting the hoses, they should be flushed of hydraulic oil (by operating the outrigger extend and retract function for a period of 2 to 3 minutes while collecting waste oil in a bucket) so as to avoid contamination. Following the flushing and refitting of hoses, check the machines hydraulic oil level, fill as required.

8. Install supplied banjo bolt and washers, torque to 25 ft. lbs.

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Installation (Cont.)

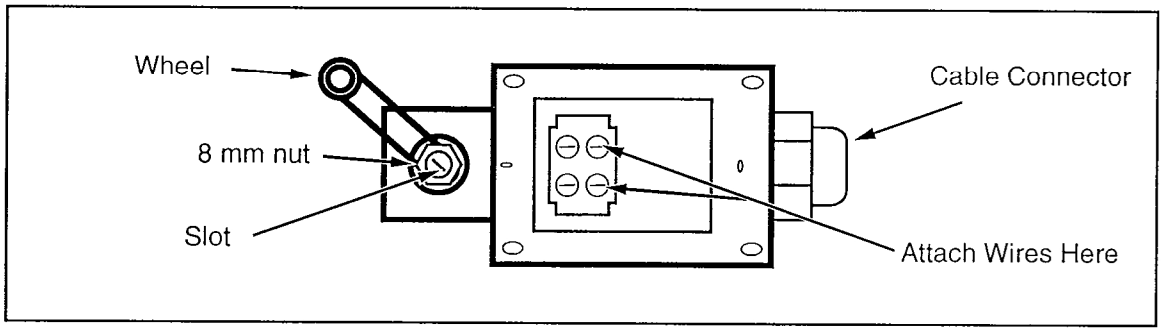

Figure 2

Outrigger Limit Switch Adjustment

9. Tie back 3 of the outrigger limit switches as if they were activated.
10. Fully extend all four outriggers.
11. Adjust shaft on 4th switch using a small screwdriver in the slot turning away from the outrigger until the outrigger alarm stops, while keeping the wheel of the limit switch tight against the end of the cylinder (fig. 2).
12. Tighten 8mm nut on limit switch (fig. 2).
13. Test the outrigger to ensure it switches off the alarm when the outrigger takes load and also switches the alarm back on when the load is taken off of the outrigger.
14. Repeat steps 11, 12, 13 for the remainder of the three switches.
15. Following the above procedures, test to ensure that the changes have been implemented correctly. The testing procedure is provided in the following section.

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Test Procedure

1. Position the machine on firm level surface and fully cycle each of the outriggers 5 times.
2. Deploy each of the outriggers to their maximum stroke. Care should be taken here, as it is important that the last movement of the cylinder be an extension so as to equalize the pressure in each of the four outrigger cylinders.
3. Attach a tie wrap around the cylinder rod 3/4 inch from the cylinder barrel, securing it tightly. Measure the distance accurately on each cylinder.
4. Place 475 lbs. test weight in the platform and elevate the boom to a sufficient height to allow complete turret rotation and extend upper boom for maximum outreach.
5. Rotate the turret so that the platform is directly over any outrigger. Allow machine to remain in this position for a minimum of 15 minutes. Measure distance between cylinder barrel and tie wrap installed in step 3. Maximum allowable retraction of the outrigger cylinder is 3/16 inch. Minimum allowable distance between the tie wrap and cylinder barrel is 9/16 inch. If outrigger cylinder retraction exceeds 3/16 inch, the cylinder should be bled per the attached "Bleeding Procedure for TL-49 Outrigger Cylinders and retested. Please consult the upright Product Support Department in Selma if you have difficulty in achieving results outlined above.
6. Repeat step 5 for the remaining 3 outrigger cylinders.

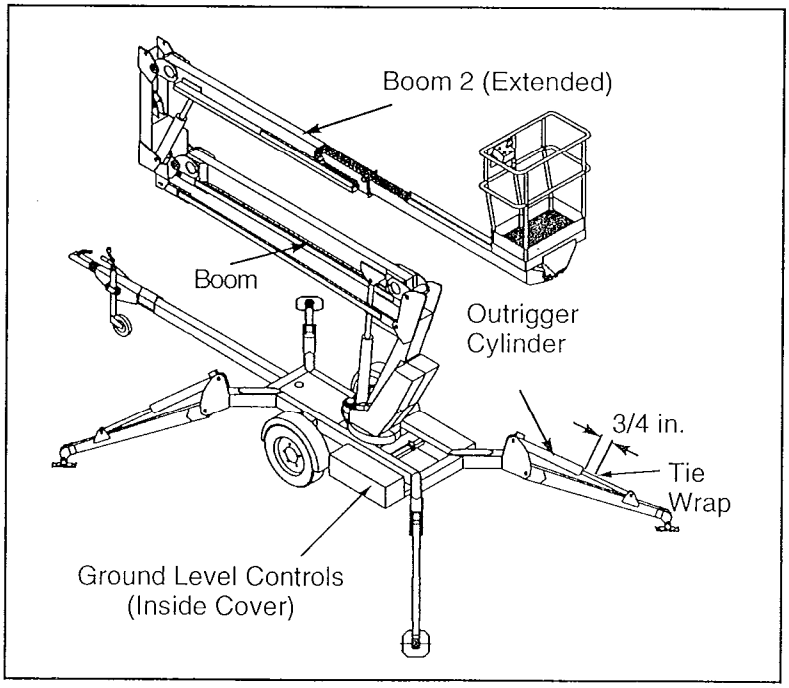

Figure 3

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Bleeding Procedure for TL-49 Outrigger Cylinders

1. Retract both lift cylinders and allow booms to descend into boom rests.
2. Locate the two plugs in the cylinder block, marked G1 and G2 (at the sides of the block).
3. With the outrigger fully extended, unplug G2 and connect the hydraulic drain hose supplied from it to a bucket to collect the waste oil (drain hose with 3/16 fitting).
4. Retract the cylinder completely. The waste oil will collect in a bucket. A white/ bubbly color is an indication of air in the oil.
5. Disconnect the hose and re-plug G2. Now unplug G1 and connect the drain hose to it.
6. Extend the cylinder completely, again waste oil will collect in the bucket.
7. Disconnect the hose and plug G1. Unplug G2 and connect the drain hose to it once again.
8. Retract the cylinder once more, the waste oil should be almost completely clean, at the very last part of the stroke, you may get a final bit of air/aerated oil. Do not omit this important step.
9. Disconnect the hose and plug G2. Check that both plugs in G1 and G2 are correctly tightened.
10. Re-test the cylinder and proceed to bleed the other cylinders as required.

Note:

- **Do not re-use waste oil to refill the hydraulic tank.**
- **When topping up the tank take care not to aerate the fluid.**
- **Do not disconnect the machine hoses at any stage in the bleeding process (i.e. do not remove the banjo fittings from ports V1 and V2).**

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