CATERPILLAR®

Service Manual

Models
TL642
TL943

S/N TBK00100 & After
S/N TBL00100 & After

31200292

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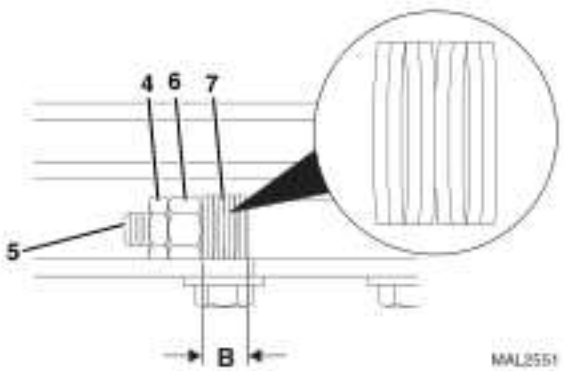
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9. Tighten the retract chain adjustment nut (**6**) until the belleville washers (**7**) become fully compressed to dimension "B" 0.712-0.725 in (18,1-18,4 mm). Do Not Overtighten.
10. Install and temporarily tighten the retract chain lock nut (**4**).
11. Start the machine and at low idle, fully extend and retract the boom three times. Verify boom is fully retracted and level. Shut machine Off.
12. Recheck the Belleville washers (**7**) to verify they are fully compressed to dimension "B" 0.712-0.725 in (18,1-18,4 mm). If required, re-tighten the retract chain adjustment nut (**6**) until dimension "B" is obtained.

Note: *If dimension "B" requires adjustment, continue to step 13. If dimension "B" does NOT require adjustment, continue to step 14.*

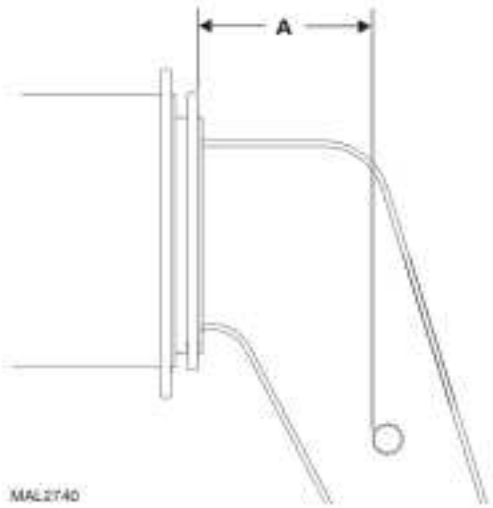
13. Start the machine and at low idle, fully extend and retract the boom three times. Verify boom is fully retracted and level. Shut machine Off.
14. Verify dimension "A" 11.500-11.812 in (292,1- 300,0 mm). Verify dimension "C" is not less than 2.850 in (72,4 mm).

Note: *Re-adjust boom if dimensions "A" & "C" are not met. Contact the local CAT Dealer if the procedure cannot be obtained.*

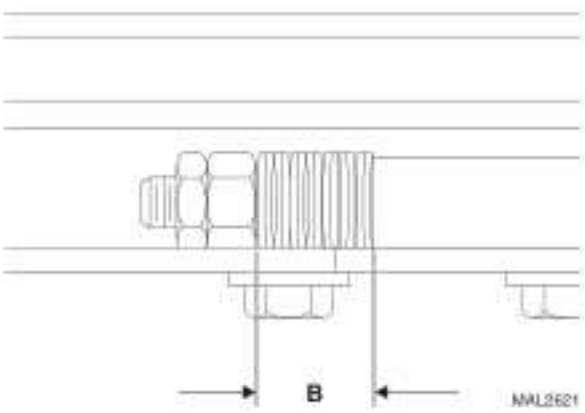
15. Loosen the retract chain lock nut and the extend chain lock nut and apply Loctite® 242™.
16. Torque each retract chain lock nut (**4**) and extend chain lock nut (**1**) without adding any additional spring load. Torque each lock nut to 100 lb-ft (135 Nm).

3.8.3 Chain Tension Inspection—TL943

1. Park machine on level ground. Place transmission control lever in (N) NEUTRAL, engage parking brake and level boom.
2. Place a Do Not Operate Tag on both ignition key switch and steering wheel.
3. Extend the boom 4-5 ft (1,2-1,5 m), then fully retract the boom. Verify boom is level.
4. Measure the following three dimensions; A, B & C.



5. At the boom head, verify dimension "A" is between 17.000-17.312 in (421,8-439,7 mm).



6. At the bottom front of the boom, verify dimension "B" is 1.500-1.512 in (38,1-38,4 mm) of the washer stack on the retract chain clevis.

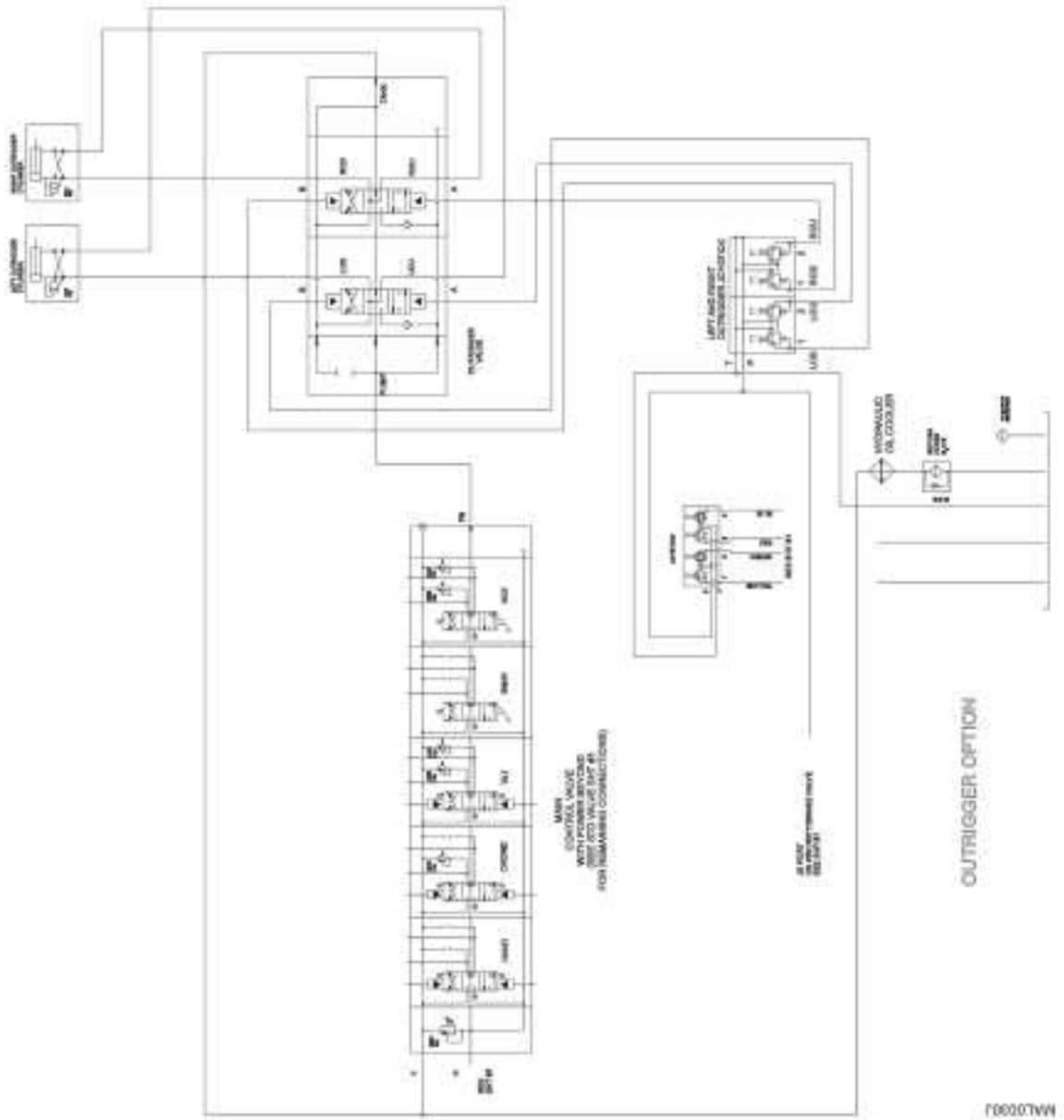
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5.3.7 Axle Assembly and Drive Shaft Troubleshooting

Problem	Cause	Remedy
1. Excessive axle noise while driving.	1. Oil level too low.	1. Fill oil to correct level. Refer to Section 2.4, "Fluids and Lubricant Capacities."
	2. Axle and/or wheel end housings filled with incorrect oil or oil level low.	2. Drain axle and/or wheel end housings and fill to correct level with hydraulic oil. Refer to Section 2.4, "Fluids and Lubricant Capacities."
	3. Incorrect alignment of ring and pinion gears.	3. Correct alignment by adding or removing shims as needed.
	4. Incorrect pinion (input) shaft bearing preload.	4. Correct bearing preload by adding or removing shims as needed.
	5. Worn or damaged bearings.	5. Replace bearings as needed.
	6. Worn or broken gear teeth.	6. Replace gears as needed.
	7. Contamination in the axle.	7. Drain axle and/or wheel end housings and fill to correct level with hydraulic oil. Refer to Section 2.4, "Fluids and Lubricant Capacities."
	8. Axle housing damaged.	8. Replace damaged parts.
2. Intermittent noise when traveling.	1. Universal joint(s) worn or damaged.	1. Repair or replace universal joints as needed.
	2. Differential ring and/or pinion gears damaged.	2. Determine cause and repair as needed.
3. Vibration or intermittent noise when traveling.	1. Drive shaft universal joint assembly(ies) incorrectly tightened.	1. Tighten capscrews to correct torque.
	2. Drive shaft universal joint(s) worn or damaged.	2. Repair or replace universal joints as needed.
	3. Drive shaft(s) damaged/ unbalanced.	3. Replace drive shaft(s) as needed.

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8.4.3 Hydraulic Schematic - TL642 (Continued)



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ASSEMBLY

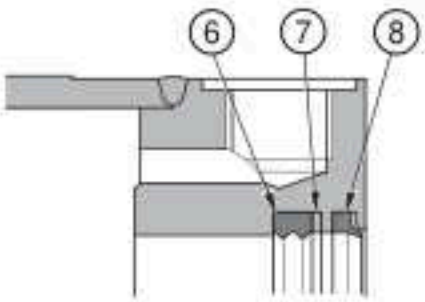


FIGURE 15: After applying grease, install the sealing ring (6) of the shaft, the anti-extrusion ring (7) and the scraper ring (8) inside the cylinder (3).

⚠CAUTION

Thoroughly check that positioning of the anti-extrusion ring (7) is correct.

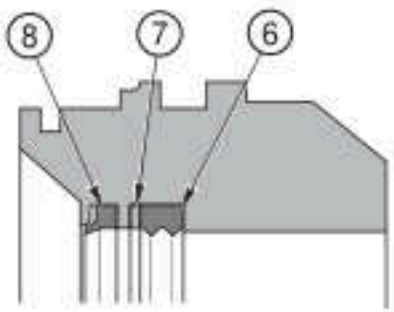


FIGURE 16: After applying grease, install the sealing ring (6) of the shaft, the anti-extrusion ring (7) and the scraper ring (8) in the head (2).

⚠CAUTION

Thoroughly check that positioning of the anti-extrusion (7) ring is correct.

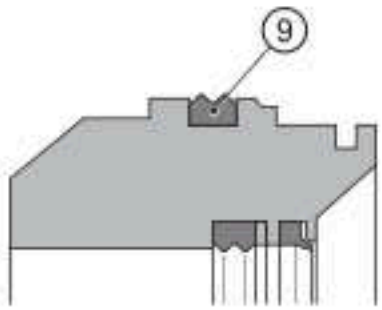


FIGURE 17: Fit the seal (9) onto the outside of the head (2).

⚠CAUTION

1 - In order to facilitate assembly, apply grease to the outer surface of the piston.

2 - Do not roll the seal (9) up.

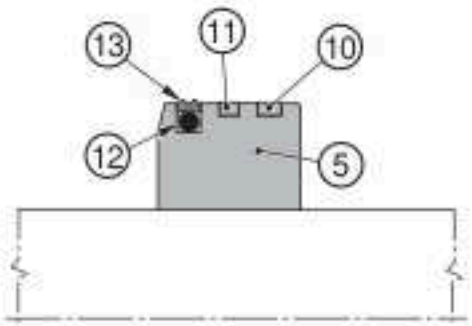


FIGURE 18: Prepare the piston (5) by fitting it with the guide ring (10), the magnetic ring (11), the o-ring (12) and the seal (13).

⚠CAUTION

1 - In order to facilitate assembly, apply grease.

2 - If a centering sensor is not fitted, then the magnetic ring (11) should be replaced by another guide ring (10).

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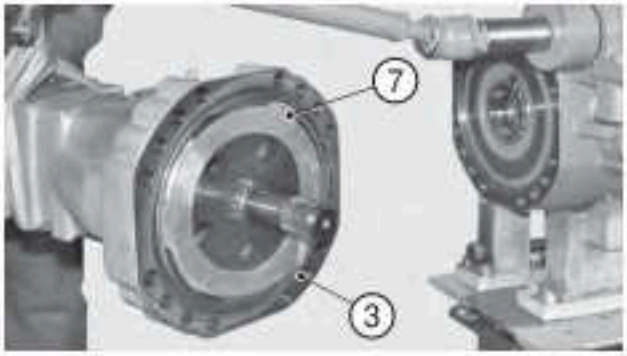


FIGURE 6: Remove the arm (3) together with the pack of the braking disks (7).
Place the arm on a bench.

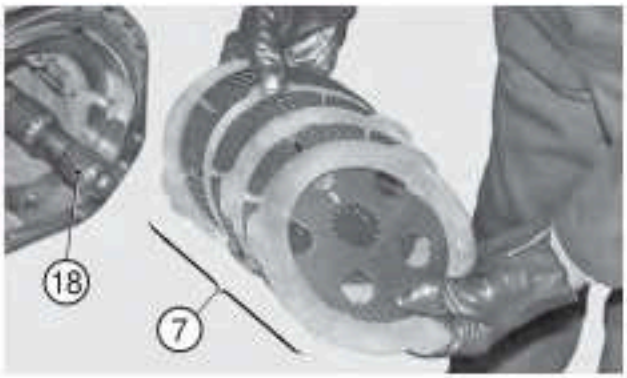


FIGURE 7: Remove the braking disks (7) and write down their order of assembly.

NOTE:

1 - If the disks do not need replacing, avoid switching their position.

2 - Extract the u-joint (18).

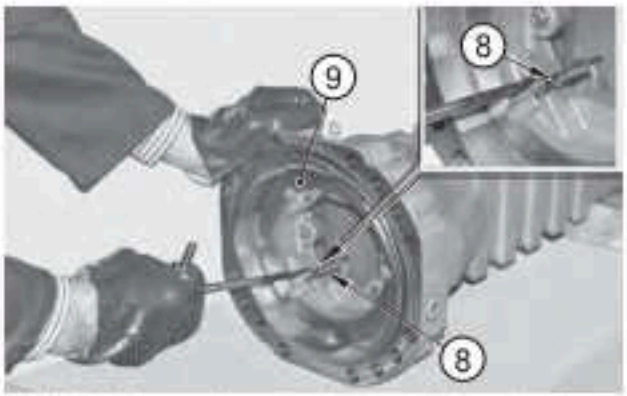


FIGURE 8: Remove the reversal springs (8) from the piston (9).

NOTE:

If the springs (8) are weak or deformed they must be replaced.

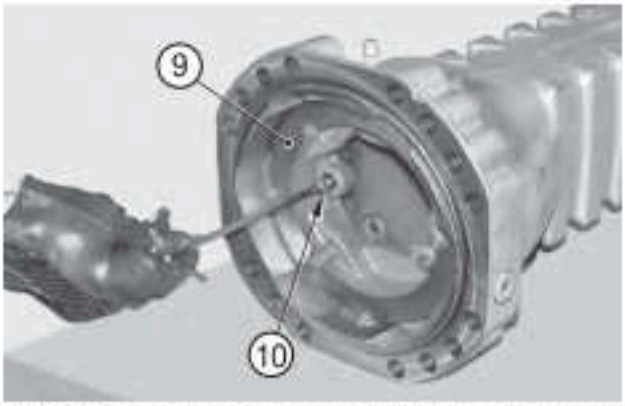


FIGURE 9: Remove the pin screws (10) guiding the piston (9).

⚠CAUTION

If the screws are to be replaced, write down the different colors for the different brake gap.

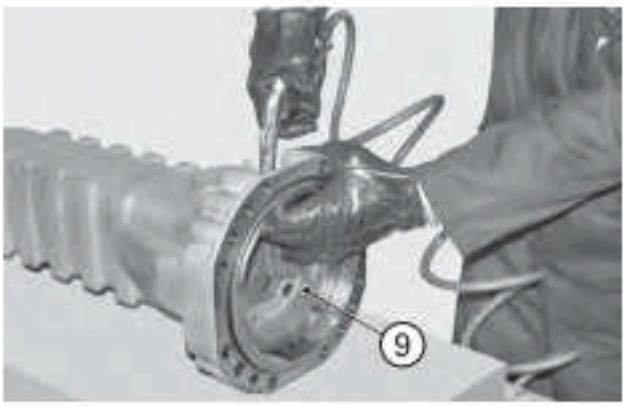


FIGURE 10: Slowly introduce compressed air through the connection of the braking circuit in order to extract the entire piston.

⚠CAUTION

Hold on to the piston as it may be suddenly ejected and damaged.

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