

1150H CRAWLER

Service Manual

7-16200

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Section 1002

1002

FLUIDS AND LUBRICANTS

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Section 2001

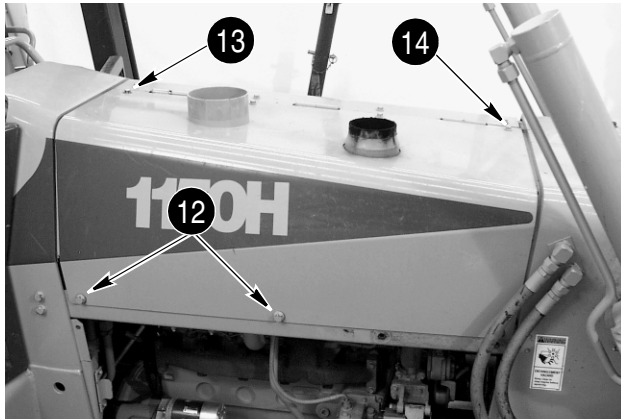
STALL TESTS

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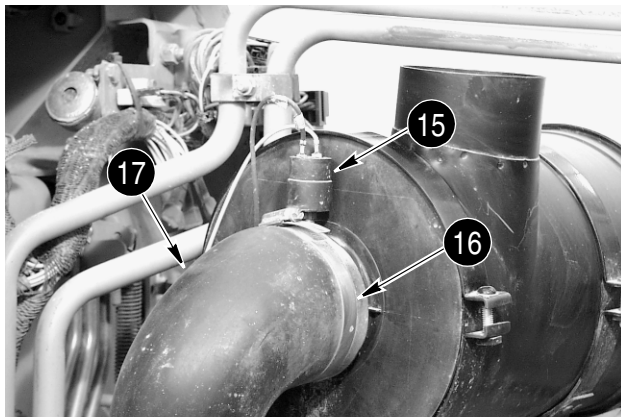
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STEP 12

BD00H013

Loosen the lower bolts (12). Remove the lock nut, bolt (13), and washer from the rear of the RH engine hood. Remove the lock nut, washers, plate, and bolt (14) from the front of the RH engine hood. Remove the RH and LH engine hoods as an assembly.

STEP 13

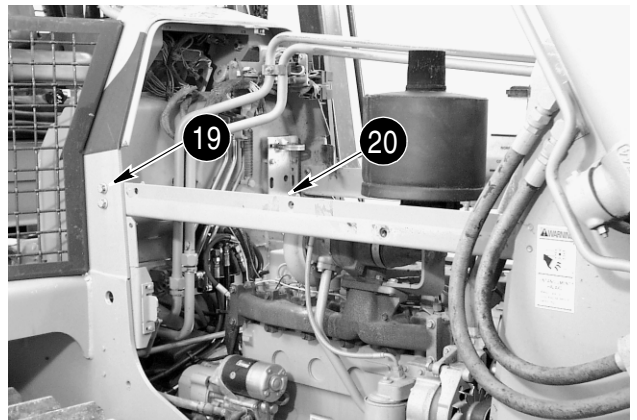
BD00H016

Identify, tag, and disconnect the two wires from the air restriction switch (15). Loosen the clamps (16) on both ends of the air cleaner hose (17). Disconnect the hose from the air cleaner assembly.

STEP 14

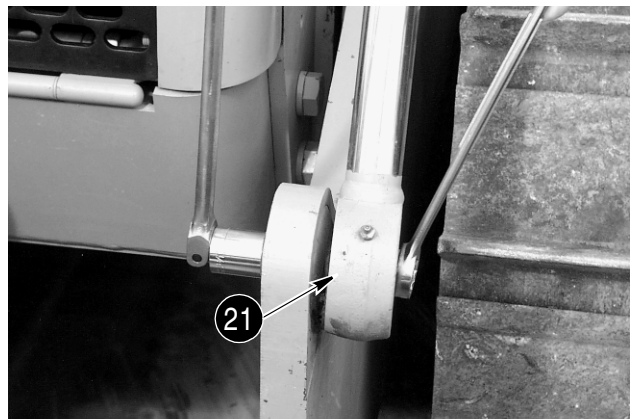
BD00H024

Remove the four lock nuts (18), washers, and bolts securing the air cleaner bracket. Remove the air cleaner and bracket as an assembly. Remove the air cleaner hose (17) from the turbocharger inlet.

STEP 15

BD00H049

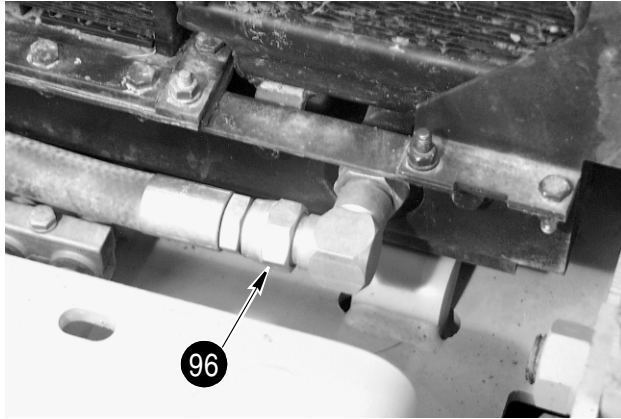
Remove the four bolts (19) securing the RH support panel (20). Remove the RH support panel.

STEP 16

BD00H062

Remove the lock nut, washer, bolt, washer, and mount securing the LH lift cylinder rod (21). Repeat this step for the RH lift cylinder rod.

STEP 57



BD00H071

Put a drain pan under the hose (96) to catch oil that will drain when the hose is disconnected. Disconnect the hose from the outlet of the oil cooler. Plug the hose and cap the fitting in the oil cooler.

STEP 58

Connect suitable lifting equipment to the radiator.

STEP 59



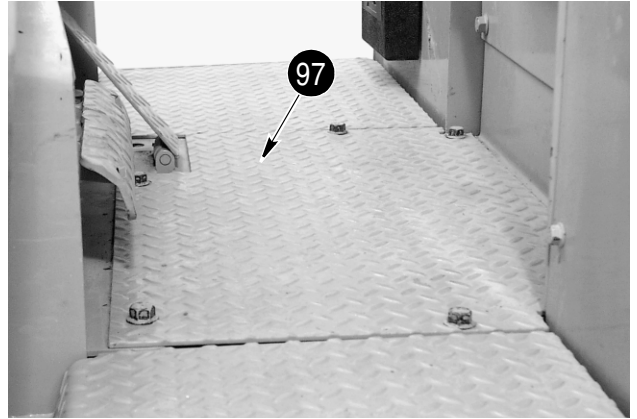
BD00H081

Remove the two bolts and four washers from the bottom of the radiator.

STEP 60

Remove the radiator and place on the ground away from the machine.

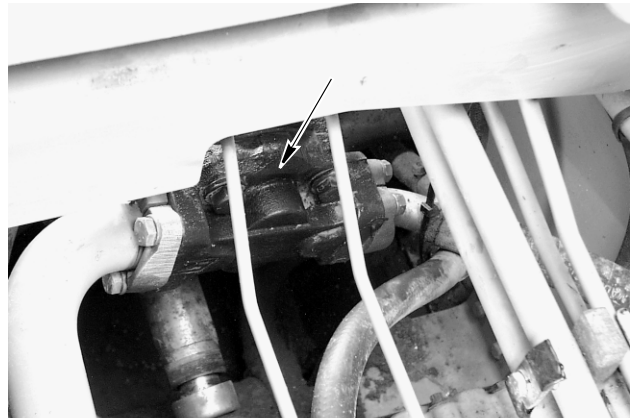
STEP 61



BD00H043

Remove the floor plate (97).

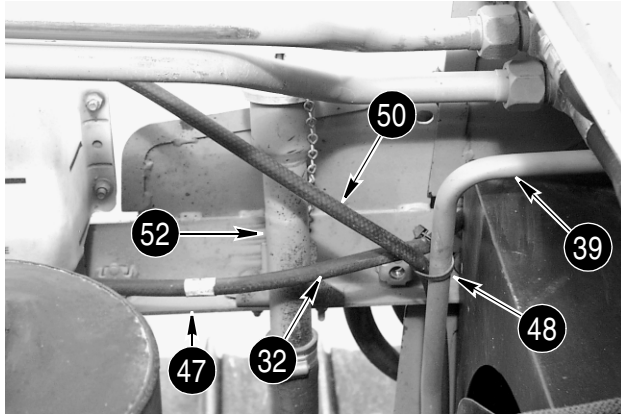
STEP 62



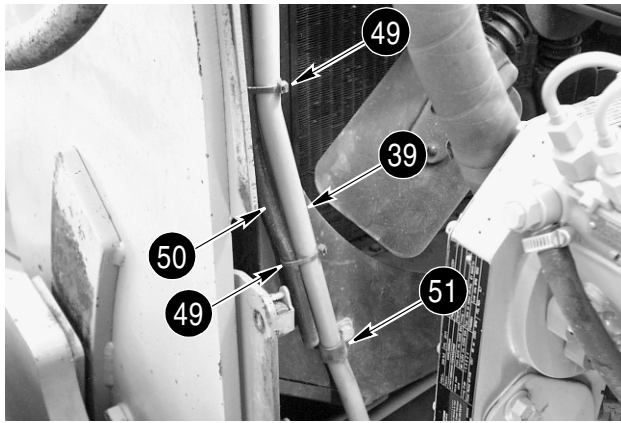
BD00H044

Connect a sling around the equipment pump and the crawler frame to support the pump and hydraulic lines when the torque converter is removed with the engine. Remove the four lock nuts and washers securing the pump to the torque converter.

STEP 105



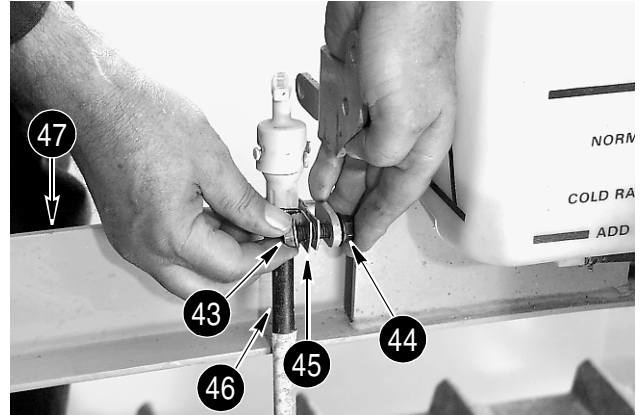
BD00H051



BD00H077

Position and support LH support panel (47) with coolant reservoir installed; secure using two bolts and lock nuts at rear and two bolts and spacers at front of LH support panel. Position oil filler tube (52) on LH support panel and secure using two lock nuts and bolts. Position oil cooler inlet tube assembly (39) on radiator shroud between oil cooler inlet port and hose. Install clamp (51) to secure tube assembly. Route coolant reservoir overflow hose (50) down alongside tube assembly (39) and secure with two tie straps (49). Secure coolant reservoir hoses to tube assembly (39) using tie strap (48).

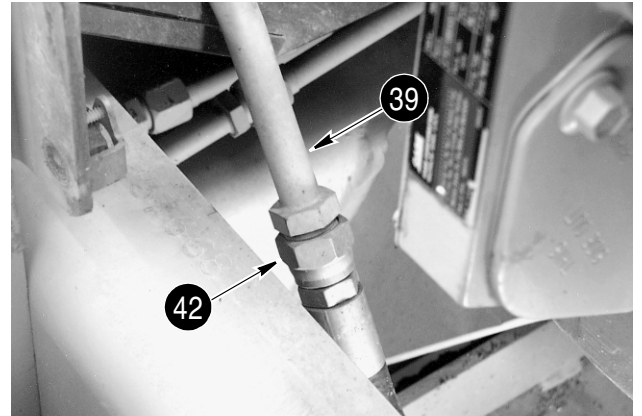
STEP 106



BD00J023

Position the clamp (45) on oil dipstick tube (46). Secure clamp and oil dipstick tube to LH support panel (47) using bolt (44) and nut (43).

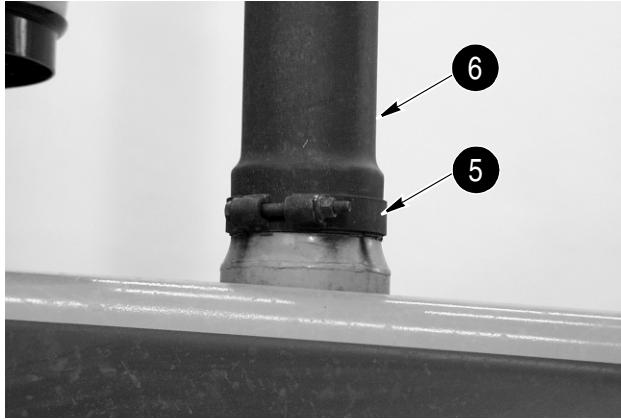
STEP 107



BD00H078

Remove cap from oil cooler inlet tube assembly (39) fitting and plug from hose (42). Connect hose fitting to tube assembly and tighten.

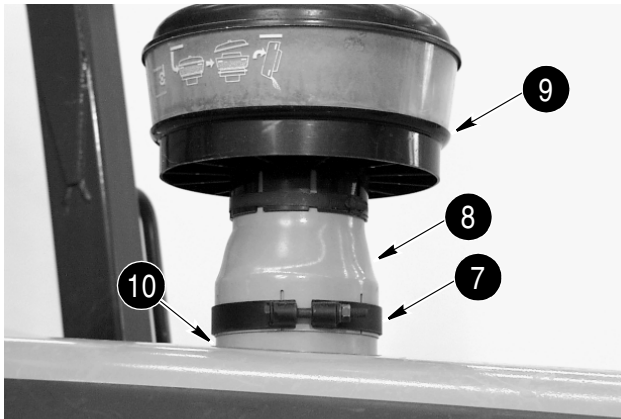
STEP 146



BD00H008

Loosen the clamp (5) securing the exhaust pipe (6). Remove the exhaust pipe.

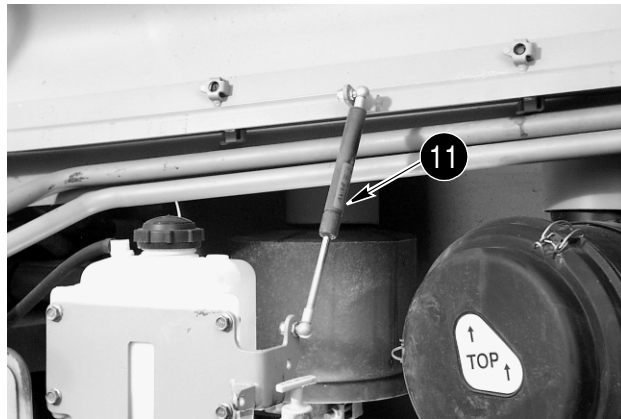
STEP 147



BD00H009

Loosen the clamp (7) securing the air cleaner stack (8). Remove the air cleaner stack (8) and precleaner (9) as an assembly then remove the pad (10).

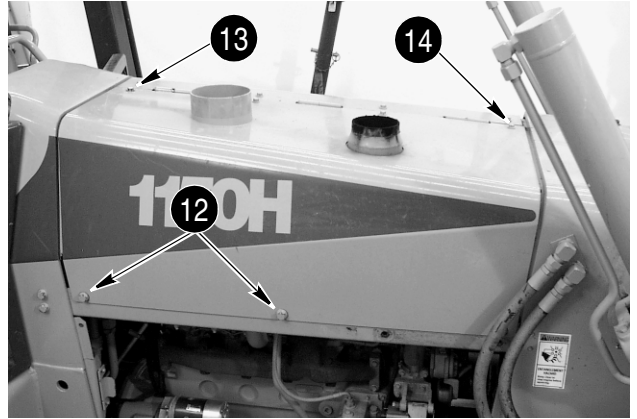
STEP 148



BD00H014

Open the LH engine hood. Remove the lock nut securing the bottom of the spring (11). Support the hood and disconnect the bottom of the spring from the bracket. Close but do not latch the hood.

STEP 149



BD00H013

Loosen the lower bolts (12). Remove the lock nut, bolt (13), and washer from the rear of the RH engine hood. Remove the lock nut, washers, plate, and bolt (14) from the front of the RH engine hood. Remove the RH and LH engine hoods as an assembly.

STEP 150



BD00H055

Remove the two bolts (15) securing the grille (20). Lower the grille.

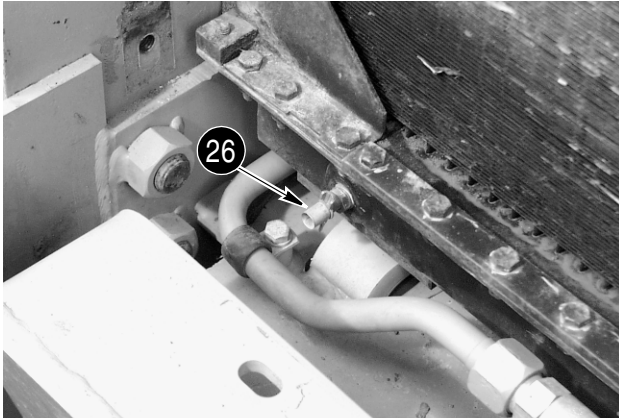
STEP 151



BD00H056

Install lifting eyes in the two holes in the grille (20). Connect suitable lifting equipment to the lifting eyes.

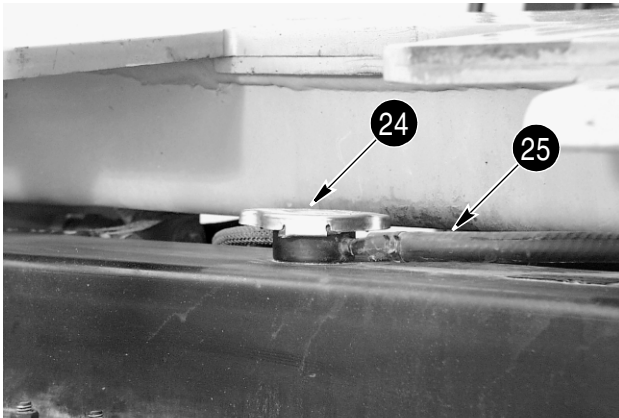
STEP 194



BD00H070

Close the drain valve (26).

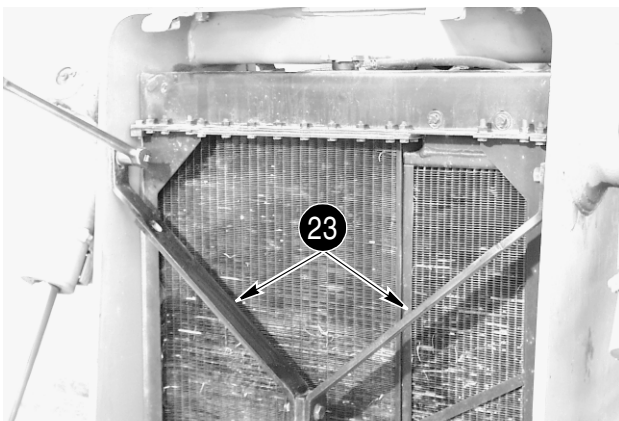
STEP 195



BD00H069

Remove the plug from the coolant recovery hose (32). Connect the coolant recovery hose. Fill the radiator with a mixture of 50% ethylene glycol and 50% water. Install the radiator cap (24). Fill the coolant reservoir up to the FULL mark on the reservoir.

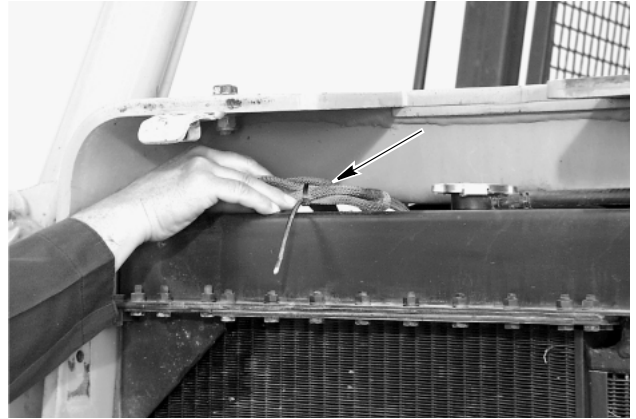
STEP 196



BD00H068

Position the braces (23) as an assembly and secure to the radiator shroud using four bolts.

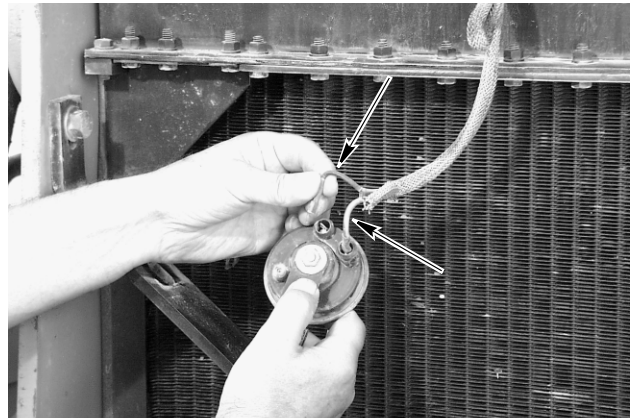
STEP 197



BD00H105

Pull the horn wires out of the engine compartment.

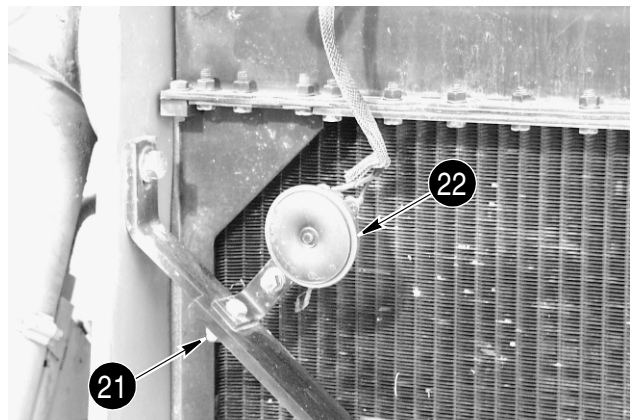
STEP 198



BD00H066

Connect the horn wires to the horn following the tags installed during removal. Remove and discard the tags.

STEP 199



BD00H065

Install the horn (22) on the cross brace and secure with nut (21).

Section 4000

REMOVAL AND INSTALLATION OF ELECTRICAL COMPONENTS

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SPECIFICATIONS

Electrical System	12 Volt Negative Ground
Battery (Standard: One Battery; Option: Two Batteries Connected in Parallel)	
Group Size	31-700CCA
Reserve Capacity	170 Minutes
Cold Cranking Capacity	
at 0° F (-17° C)	700 Amperes
at -20° F (-29° C)	520 Amperes
Load for Capacity (load) Test	350 Amperes
Alternator	
Standard	12 Volt 65 Amperes
Option	12 Volt 95 Amperes
Starter	12 Volt Solenoid Actuated
Parking Brake Solenoid Valve	
Coil Winding Resistance - (12 volt)	9.174 to 9.180 Ohms at 77° F (25° C)

16 – Ether Injection Solenoid

The ether injection solenoid is located on the left side of the engine compartment.		
Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 0 to ground.	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch in the ON position. Make sure the engine temperature is below 45° F (7° C). Disconnect the electrical connector from the fuel shutoff solenoid on the injection pump. Put the neutral lock/parking brake control lever in the ENGINE START/PARKING BRAKE APPLIED position. Have another person hold the key switch in the START position and push in and hold the ether start button.		
Terminal for wire 28 to ground.	12 volts	Bad wire 28 between the ether injection solenoid and the ether start thermo switch (15). Bad ether start thermo switch (15).
NOTE: If readings are good, replace the ether injection solenoid.		

17 – Fuse Block

Refer to the electrical schematic poster for fuse locations.		
Check Points	Reading	Possible Cause of Bad Reading
Check and replace fuses as required.		

18 – Instrument Panel Relay

Instrument panel relay is located on the relay/fuse block mounting bracket.		
Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 0 to ground.	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch in the ON position. Put the key switch in the ON position.		
Terminal for wire 13 to ground.	12 volts	Bad wire 13 between key switch (8) and instrument panel relay. Bad key switch (8).
Terminal for wire 19D to ground.	12 volts	Bad wire 19D between instrument panel relay and fuse block 1. Bad 10 ampere fuse on fuse block 1, location D. Bad circuit between fuse block 1 and battery positive post.
Terminal for wire 19E to ground.	12 volts	Bad instrument panel relay.

19 – Instrument Cluster

The instrument cluster is located in the instrument panel.		
Check Points	Reading	Possible Cause of Bad Reading
NOTE: Disconnect the connector from the instrument cluster. Put the master disconnect switch in the ON position. Turn the key switch and lamp switch to ON.		
Terminal T1 in connector to ground.	Open	Check hydraulic filter restriction switch (20) and diode connected to wire 30. Refer to diode (46) check.
Terminal T1 in connector to terminal for wire 30 at hydraulic filter restriction switch (20).	Continuity	Check wire 30 between connector terminal T1 and hydraulic filter restriction switch (20).
NOTE: Have another person hold the key switch in the momentary ground position, halfway between ON and START.		

34 – Lamp Switch

The lamp switch is located in the instrument panel.		
Check Points	Reading	Possible Cause of Bad Reading
NOTE: Put the master disconnect switch in the ON position.		
Terminal for wire 48 to ground.	12 volts	Bad circuit from the lamp switch through 30 ampere fuse in location A on fuse block 1 to the positive post of the battery. Bad fuse.
NOTE: Put the lamp switch in the ON position.		
Terminal for wire 47 to ground.	12 volts	Bad lamp switch.

35 – Lamp Relay

Lamp relay is located on the relay/fuse block mounting bracket.		
Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 0 to ground.	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch in the ON position and the lamp switch in the ON position.		
Terminal for wire 47 to ground.	12 volts	Bad wire 47 between lamp relay and lamp switch (34). Bad lamp switch (34).
Terminal for wire 19A to ground.	12 volts	Bad wire 19A between lamp relay and fuse block 1. Bad 30 ampere fuse on fuse block 1, location A. Bad circuit between fuse block 1 and battery positive post.
Terminal for wire 42F to ground.	12 volts	Bad lamp relay.

36 – Right-Hand Front Work Lamp

The RH front work lamp is located on the ROPS just below the ROPS roof.		
Check Points	Reading	Possible Cause of Bad Reading
Bulb.	Continuity	Bad bulb.
Terminal for wire 0 to ground.	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and the lamp switch in their ON position.		
Terminal for wire 42F to ground.	12 volts	Bad wire between the lamp and the lamp relay (35). Bad lamp relay (35).

37 – Left-Hand Front Work Lamp

The LH front work lamp is located on the ROPS just below the ROPS roof.		
Check Points	Reading	Possible Cause of Bad Reading
Bulb.	Continuity	Bad bulb.
Terminal for wire 0 to ground.	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and the lamp switch in their ON position.		
Terminal for wire 42F to ground.	12 volts	Bad wire between the lamp and the lamp relay (35). Bad lamp relay (35).

63 – Roof Left-Hand Rear Work Lamp

The roof left-hand rear work lamp is located at the at the LH rear of the cab roof.		
Check Points	Reading	Possible Cause of Bad Reading
NOTE: <i>Make sure the bulb is good.</i>		
Terminal B to ground.	Continuity	Bad black wire or bad ground connection.
NOTE: <i>Put the master disconnect switch in the ON position. Put the lamp switch in the ON position.</i>		
Terminal A to ground.	12 volts	Bad wire 42R between LH rear work lamp (63) and lamp relay (35). Bad lamp relay (35).

64 – Dome Lamp Switch

The dome lamp switch is located at the RH rear of the cab ceiling.		
Check Points	Reading	Possible Cause of Bad Reading
NOTE: <i>Put the master disconnect switch in the ON position.</i>		
Terminal for wire 19D to ground.	12 volts	Bad wire 19D between dome lamp switch and 10 ampere fuse D. Bad 10 ampere fuse D.
NOTE: <i>Put the dome lamp switch in the ON position.</i>		
Terminal for wire 49 to ground.	12 volts	Bad dome lamp switch.

65 – Dome Lamp

The dome lamp is located at the LH center of the cab ceiling.		
Check Points	Reading	Possible Cause of Bad Reading
NOTE: <i>Make sure the bulb is good.</i>		
Terminal for black wire to ground.	Continuity	Bad black wire or bad ground connection.
NOTE: <i>Put the master disconnect switch in the ON position. Turn the dome lamp on.</i>		
Terminal for wire 49 to ground.	12 volts	Bad wire 49 between dome lamp and dome lamp switch. Bad dome lamp switch (64).
NOTE: <i>If the tests are good and the dome lamp does not work, replace the dome lamp.</i>		

CHARGING A BATTERY



WARNING: *Never try to charge the battery if the electrolyte in the battery is frozen.*

47-83

Before you charge the battery, check the level of the electrolyte.

It is difficult to give an exact charging rate because of the following variable conditions: (1) temperature of the electrolyte, (2) level of charge, and (3) condition of the battery. Use the charging guide for the correct charging rate and time.

See Specifications in Section 4001 for the reserve capacity of the battery in this machine.

The charging rate must be decreased if:

1. Too much gas causes the electrolyte to flow from the cells.
2. The temperature of the electrolyte rises above 52°C (125°F).

NOTE: *For the best charge, use the slow charging rates.*

The battery is fully charged when, over a three hour period at a low charging rate, no cell is giving too much gas, and the specific gravity does not change.

CHARGING GUIDE FOR MAINTENANCE FREE BATTERIES

Recommended Rate* and Time for Fully Discharged Battery

Battery Capacity - See Reserve Capacity under Specifications	Slow Charge	Fast Charge
80 Minutes or Less	10 Hours at 5 Amperes 5 Hours at 10 Amperes	2.5 Hours at 20 Amperes 1.5 Hours at 30 Amperes
Above 80 to 125 Minutes	15 Hours at 5 Amperes 7.5 Hours at 10 Amperes	3.75 Hours at 20 Amperes 1.5 Hours at 50 Amperes
Above 125 to 170 Minutes	20 Hours at 5 Amperes 10 Hours at 10 Amperes	5 Hours at 20 Amperes 2 Hours at 50 Amperes
Above 170 to 250 Minutes	30 Hours at 5 Amperes 15 Hours at 10 Amperes	7.5 Hours at 20 Amperes 3 Hours at 50 Amperes

*Initial rate for standard taper charger.

NOTE: *A maintenance free battery will have the words Maintenance Free on the decal on the top of the battery. If the center part of the decal has been removed to get access to the battery caps, it is possible the words Maintenance Free will have been removed from the decal.*

Continued on next page

Section 4007

ALTERNATOR

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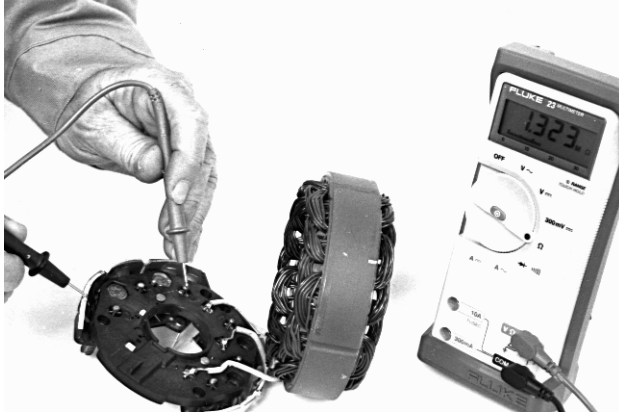
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Testing the Rectifier Bridge

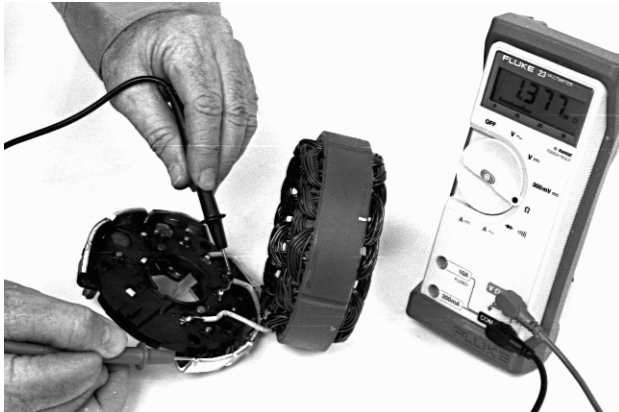
STEP 36



B9064402M

Touch the leads of the ohmmeter to a positive diode and the heat sink as shown. Then reverse the leads. There must be a high reading and a low or zero reading. Then test the other two positive diodes. If a positive diode did not have readings as specified, the positive diode is bad and a new rectifier bridge must be installed.

STEP 37



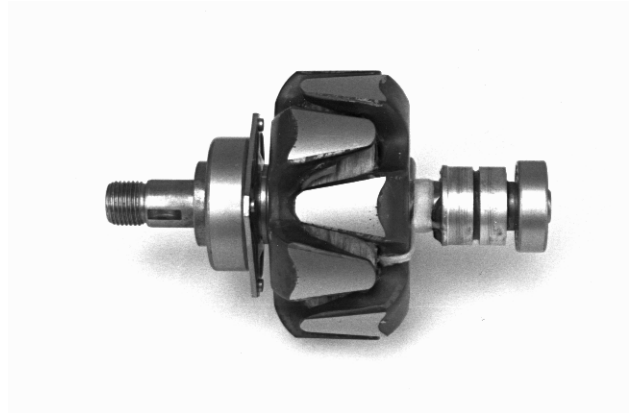
B9064332M

Touch the leads of the ohmmeter to a negative diode and the heat sink as shown. Then reverse the leads. There must be a high reading and a low or zero reading. Then test the other two negative diodes. If a negative diode did not have readings as specified, the negative diode is bad and a new rectifier bridge must be installed.

NOTE: If the tester you are using has a diode test function, use the tester according to the instructions of the manufacturer to check the positive and negative diodes.

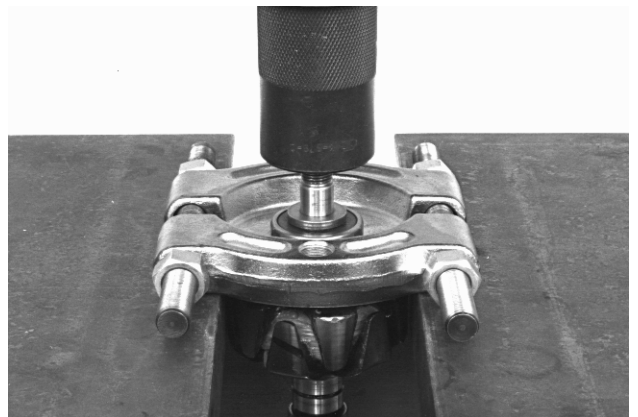
Inspection and Replacement of Bearings

STEP 38



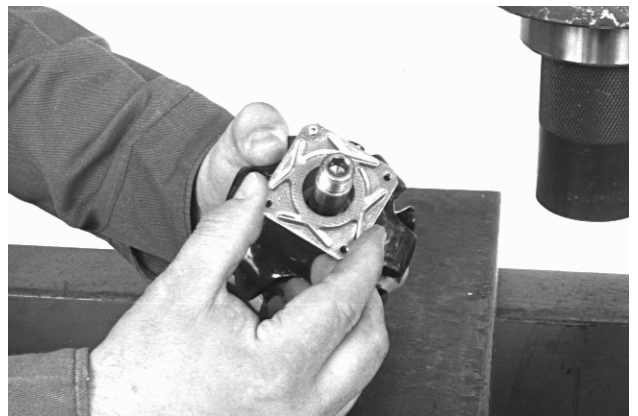
B8971402M

Inspect the bearings on the rotor. If the bearings are damaged, use the following procedure to replace the bearings.



B8971426M

1. Use a suitable support between the front bearing and the bearing retainer on the rotor shaft and press the rotor shaft out of the front bearing and the spacer.



B8971429M

2. Remove the bearing retainer.

Section 5001

UNDERCARRIAGE FUNDAMENTALS

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Wear You Can Partially Control

APPLICATIONS - The term "Applications" is often used to describe underfoot conditions. In this section we will describe what the machine is doing without regarding the applications.

DOZING - This operation shifts the machine weight to the front causing a faster wear rate on the front rollers and idlers.

SPEED - Unnecessary speed directly affects the wear rate on pins, bushings and sprockets. The faster the speed, the faster the wear rate. High speed reverse accelerates bushing and sprocket wear. Wear rate is a function of speed and distance traveled, not just hours worked.

IMPACT - High speed will increase impact loading when there is low grouser penetration on hard surfaces or when working in rock.

Impact can cause structural problems such as bending, cracking or breakage of components. This can also affect pin and bushing retention and bushing cracking. And, if a chain is worn, can cause fractures.

TURNING - Wear rate increases when tracks are slipping. Track shoe grousers are affected due to increased sliding between grouser and the ground.

TRACK SLIP - Wear rate on all components increases when tracks are slipping. Track shoe grousers are affected due to increased sliding between the grouser and the ground.

FAVORED SIDE OPERATION - Wear rates will increase on all components when only one side of the machine is favored. Wear increases as more power is applied to the favored side. Also, more packing and slipping will occur on the favored side.

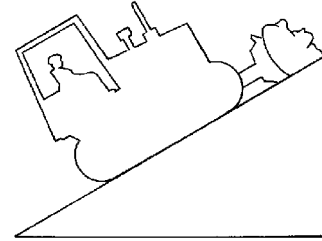
REVERSE OPERATION - Avoid excessive use of reverse operation. This is not only non-productive use of the machine, but it also accelerates bushing and sprocket wear. See pages 9 and 23.

RIPPING, PULLING IMPLEMENTS, OR USING A HITCH OR WINCH TO PULL LOADS - This operation will shift the machine weight toward the rear, causing a faster wear rate on the rear rollers. Then, during severe applications, the sprockets and track bushings wear much faster.

Terrain

Changes in the terrain change the attitude of your machine. This condition shifts the center of gravity and increases the weight of the machine on different parts of the undercarriage.

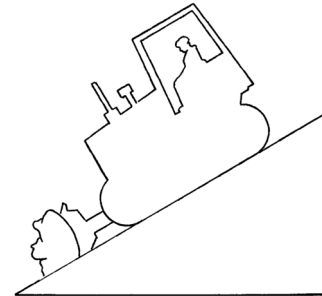
WORKING UPHILL



BS97N011

This condition moves the weight of the machine rearward causing increased wear of the rear rollers and increased forward drive wear of the sprockets and bushings.

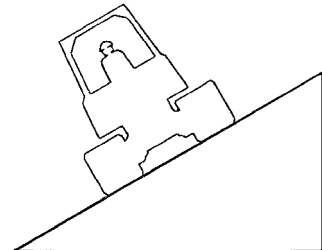
WORKING DOWNHILL



BS97N012

The machine weight is moved forward causing increased wear of the front rollers. However, due to the design of the track system, working downhill reduces the wear of the sprockets and bushings.

WORKING ON THE SIDE OF THE HILL

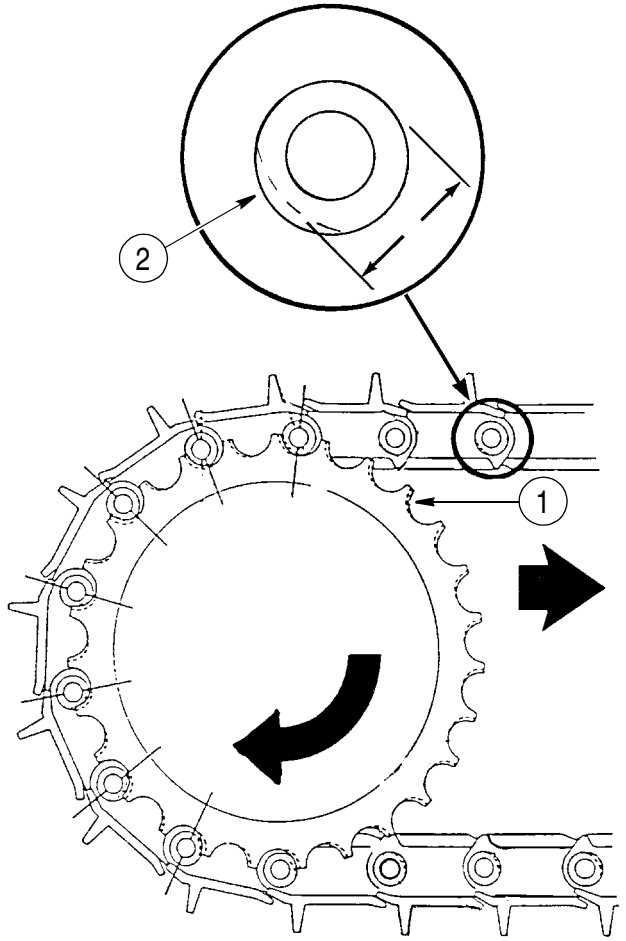


BS97N013

This moves the weight of the machine toward the downhill side of the machine. Wear is increased on the rail sides, roller and idler flanges, bushing ends, and track shoe ends that are on the downside of the hill.

**SPROCKET FORWARD OPERATION WEAR
(MACHINE TRAVELING FORWARD)**

When driving forward, the sprocket teeth contact the bushings at about 6 o'clock. Most of the torque required to move the machine occurs at this point. The bushing does not rotate against the sprocket until leaving the sprocket at about 11 to 12 o'clock. This is normally not a critical wear factor because the torque was transmitted at the 6 o'clock position. It becomes a problem only when track tension is too tight.

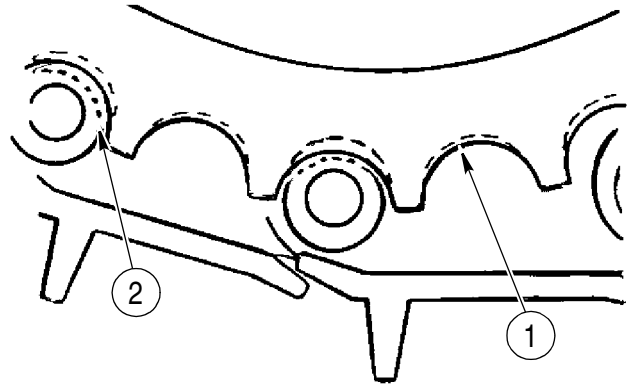


1. FORWARD WEAR OF THE SPROCKET
2. FORWARD WEAR OF THE BUSHING

B912298

SPROCKET ROOT WEAR (VERTICAL WEAR)

This type of wear occurs as the track bushings slide through the sprocket root. Accelerated wear occurs with frequent forward and reverse shifting. This moves the bushing back and forth between the sprocket teeth, though wear is even greater if track tension is too tight. This type of wear is also called vertical wear.

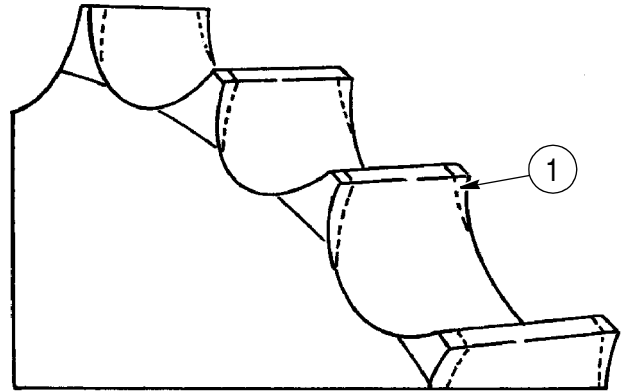


1. SPROCKET WEAR
2. BUSHING WEAR

B912299

SPROCKET SIDE WEAR

Sprocket side wear is caused by contact with the sides of the track links and is a result of excessively loose track, back bending, jamming or misalignment of the sprocket and rear roller.



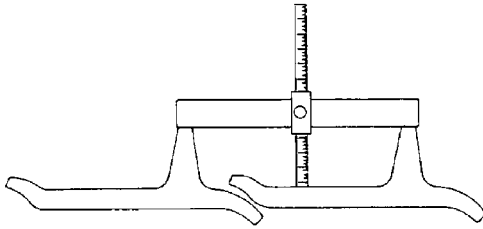
1. SPROCKET SIDE WEAR

B912300

TRACK SHOE WEAR

Track Shoes

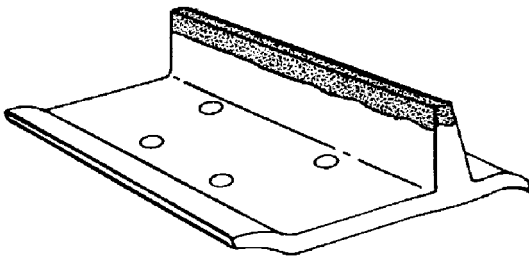
The wear that is measured on the track shoes is the height of the grouser. There are three types of track shoes (1) one bar, (2) two bar, or (3) three bar grouser. Assemble the rulers in the kit to make a depth gauge. If your machine has single bar grousers, tighten the track chain before measuring. Refer to the following illustration and measure several track shoes on each side of the machine. Measure the wear 1/3 the distance from the outer end of the track shoe. Make a record of the measurements on the Track Component Appraisal Form. When finished, adjust the track for correct tension.



B900611

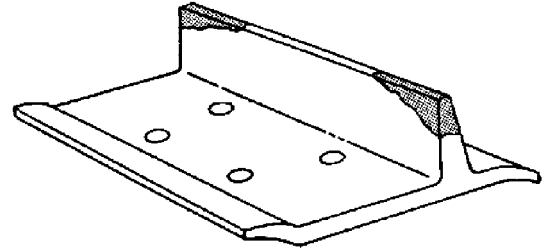
Grouser Wear

The following illustration shows wear of the grouser. This wear is normal and unavoidable. The greatest cause of grouser wear is track slipping. This is non-productive and can be controlled by reducing track speed and using the correct type track shoe for the job. Excessive wear of the grousers will reduce the strength of the track shoes increasing the probability of track shoe bending.



B912322

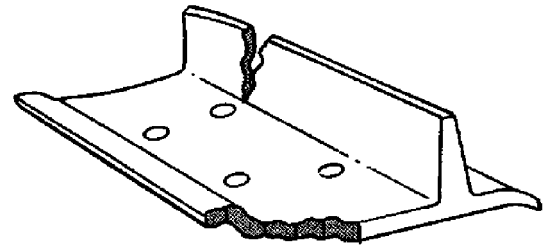
Wear on the corners of the grousers usually indicates rough terrain with high impact conditions. If the shoes are too wide, the corners can chip or bend.



B900612

Cracked or Broken Shoes

Cracked or broken shoes can be caused by various conditions. Some of the causes can be terrain, impact loads, speed, shoes that are too wide for the conditions, or structural problems for a track shoe that has lost most of the grouser bar/s. Always try to use the narrowest track shoe possible.

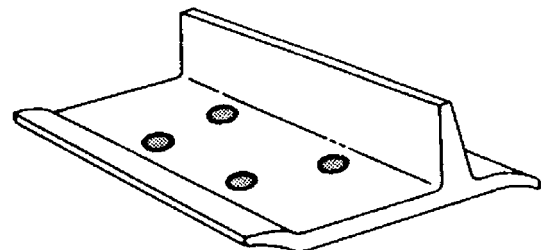


B900613

Bolt Holes Too Large

If the mounting bolts are loose, the bolt holes can become larger. If this happens, the track shoes and mounting hardware must be replaced. Conditions that cause hardware to loosen can be (1) hardware that was not torqued correctly, (2) track shoes that are too wide, or (3) turning resistance in rocky terrain.

When installing new track shoes, links, and hardware, always clean the mating surface of all paint, rust and dirt. Always use the recommended bolt torque. (Don't over torque.)



B900614

3. Abrasion and breakage of the core metals.

A. Similar to the breakage of steel cords mentioned above, excessive tension may cause core metals to be broken. Abrasion caused by one of the following may also cause core metals to be broken.

- Mis-engagement between sprocket and rubber track bushing or drive lug.
- Operation on sandy ground (packing condition).

4. Separation of core metals.

A. The core metal is retained by the adhesion of rubber, especially between the core metal and steel cords. Separation can be caused by excessive backward bending and/or semi-detracking.

B. The core metal can be corroded by severe environment. The adhesive system would deteriorate due to progress of the corrosion and the core metal will separate from the track. This could happen during the following conditions:

- Salty environment, such as coastal area.
- Active chemical environment.
- Fertilizer

Counter measures

- Thoroughly wash the track after above exposure

5. Fatigue cracking or abrasion.

- Crack on foot of lug.
- Cracking occurs at the foot of the lug due to the bending fatigue of rubber caused by sprocket and idler.

Counter measures

- Avoid "ozone" environment such as direct sunshine and heavy traffic.
- Move the machine and rotate the track once a month.
- Avoid getting lug cut damage from sharp objects.

6. Crack on edge of rubber.

- The bending of the edges can cause cracking of the rubber.

Counter measures

- Avoid driving with the rubber track coming into contact with concrete edges, etc.
- Avoid driving in rough material conditions.

7. Abrasion of lug.

- Rubber abrasion may be caused when turning on a concrete surface or hard road surface.

Counter measures

- Avoid rapid or abrasive concrete or sharp material.
- Avoid spinning tracks.

Suggestion of replacement of rubber track.

- The damage conditions mentioned above are not considered fatal, although gradually progressive damage may occur. It can still be usable, however.
- The damage discussed above gradually progresses to a terminal state causing the core metal to be exposed. The exposure of core metals along more than half the circumference of the rubber track indicates that it is time for the rubber track to be replaced. It can still be usable, however.
- With regard to abrasion as discussed above, remaining lug height of only about 5 mm is an indication that the rubber track should be replaced. It can still be considered usable, however.

8. Cracking due to external factors.

- Crushed stone, gravel, or sharp material such as steel plates, nails, or glass very often cause cracking or cuts in the outer face of the rubber track (the side in contact with the ground). Operating conditions should be checked frequently during usage.

Counter measures

- Maintain proper rubber track tension with automatic track tensioner.
- Avoid semi-detracting or detracting.

Section 5501

INSPECTION OF TRACK SYSTEM COMPONENTS

CASE CORPORATION
700 State Street
Racine, WI 53404 U.S.A.

CASE CANADA CORPORATION
3350 South Service Road
Burlington, ON L7N 3M6 CANADA

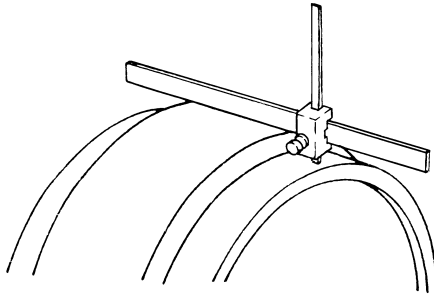
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July, 2000

IDLER WEAR

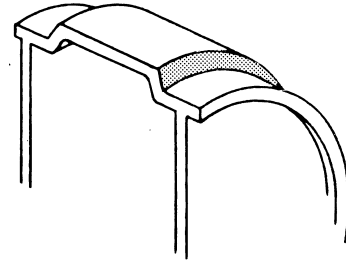
The only wear measured on the idler is the tread wear. This wear is normal and is caused by the track links moving the idler.

Use the depth gauge to measure tread wear as shown. Make sure that the treads are clean. Measure at the center of the treads because this is the area of the most wear. Record the measurements on the Track Component Appraisal Form. See the chart on Page 22 to find the percent of wear.



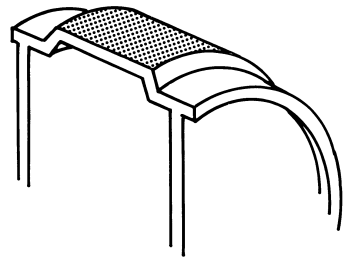
B900608J

Shown below is wear on the side of the flange. This wear is caused by side hill operation, extended track pitch which makes the track flexible and the carrier roller not aligned with the track. Check the idler alignment according to instructions in Section 5508.



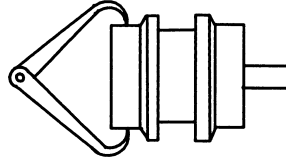
B900609J

Wear on the OD of the flange is caused by packing between the track links and packing behind the idler roller. This wear is of little importance except when measuring tread wear.



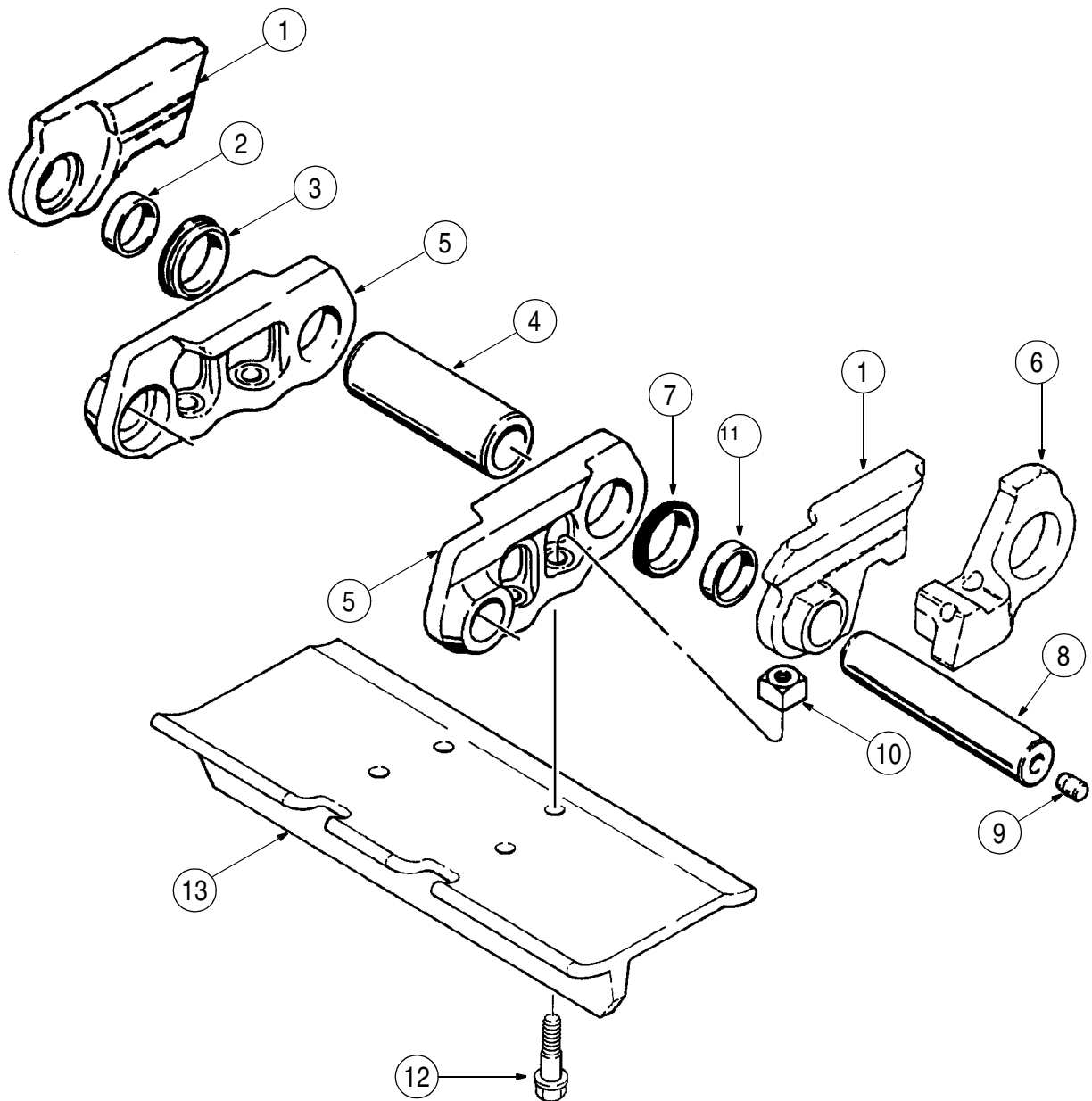
B900610J

WEAR CHART FOR CARRIER ROLLER WEAR WITH 169.6 MM (6.68 INCH) PITCH TRACK CHAIN



B910543J

MM	PERCENT WORN	(INCH)
150.00	0	5.91
149.61	6	5.89
149.10	12	5.87
148.59	18	5.85
148.08	23	5.83
147.57	28	5.81
147.07	33	5.79
146.56	38	5.77
146.05	43	5.75
145.54	47	5.73
145.03	51	5.71
144.53	55	5.69
144.02	59	5.67
143.51	63	5.65
142.49	71	5.61
141.99	75	5.59
141.48	79	5.57
140.97	82	5.55
140.46	85	5.53
139.95	88	5.51
139.45	91	5.49
138.94	94	5.47
138.43	96	5.45
137.92	98	5.43
137.41	100	5.41



1. MASTER LINK, PIN HALF
 2. SPACER
 3. SEAL
 4. BUSHING
 5. LINK

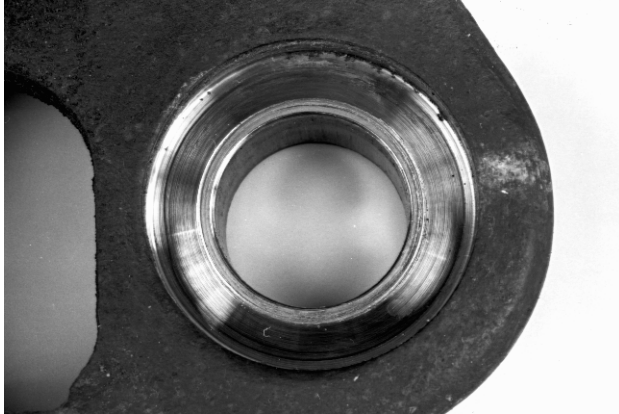
6. MASTER LINK, BUSHING HALF
 7. SEAL
 8. PIN
 9. PLUG

10. NUT
 11. SPACER
 12. BOLT
 13. TRACK SHOE

BC00C0031

MASTER LINK WITH TWO BOLTS IN EACH HALF

Links



B865378M

1. The link shows wear in the area of the spacer. This wear is acceptable. If the link is to be used for a wet turn, use a wire brush and an electric drill and remove the rust and dirt from the bore for the seal.

Seals

1. A seal removed from a wet joint can be used again for a wet turn.
2. A seal removed from a dry joint can only be used for a dry turn.

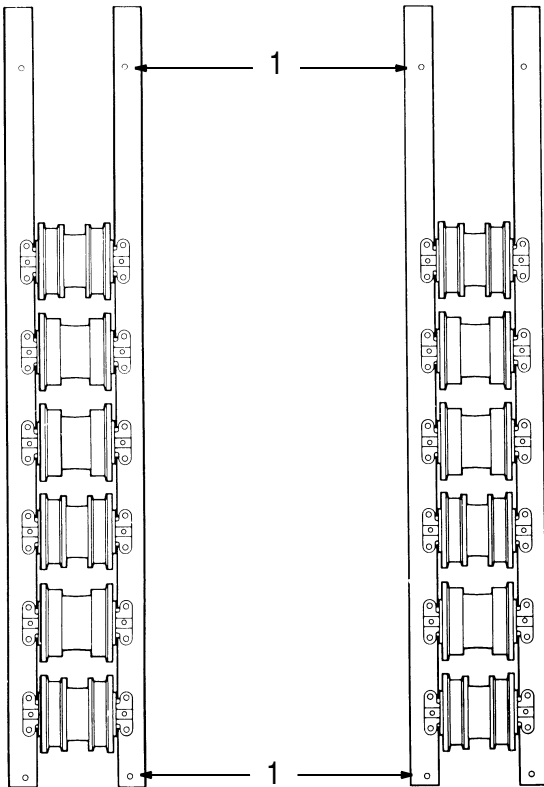
Alignment of Track Frames

To make a complete check of the alignment of the track frames, you must do the Parallel Alignment and Diagonal Alignment.

Parallel Alignment

NOTE: Refer to illustration on page 4.

1. Remove the cover (3) at each end of the pivot shaft as follows:
 - A. Loosen and remove the bolts (1) and lock washers (2).
 - B. Remove the cover (3) and gasket(s) (4).
2. Make sure that there is no gasket (4) on the covers (3) or on the housings for the pivot shaft.
3. Install the cover (3) and bolts (1) at each end of the pivot shaft.
4. Tighten the bolts (1) to a torque of 21 Nm (185 lb-inch).
5. Start the engine and move the machine forward and rearward several times. Then stop the engine.
6. Make the measurements shown in the following illustration.



1. MEASURE FROM CENTER OF HOLES OR BOLTS FOR TRACK GUARDS.

7. The measurements must be within 3 mm (1/8 inch) of each other.
 - A. If the measurements are as specified, do the Diagonal Alignment. See Page 5007-6.
 - B. If the measurements are not as specified, continue this procedure.
8. Loosen and remove the bolts (1) and cover (3) at each end of the pivot shaft.
9. Loosen and remove the bolts (5), retainer (6) and shims (7) from each end of the pivot shaft.
10. If the larger measurement was at the rear, remove shims (7) between both retainers (6) and the pivot shaft according to the following chart.
11. If the larger measurement was at the front, add shims (7) between both retainers (6) and the pivot shaft according to the following chart.

DIFFERENCE IN MEASUREMENTS	AMOUNT OF SHIMS TO ADD OR REMOVE
3.2 MM (1/8 INCH)	1 AT EACH END
6.4 MM (1/4 INCH)	2 AT EACH END
9.5 MM (3/8 INCH)	3 AT EACH END
12.7 MM (1/2 INCH)	4 AT EACH END

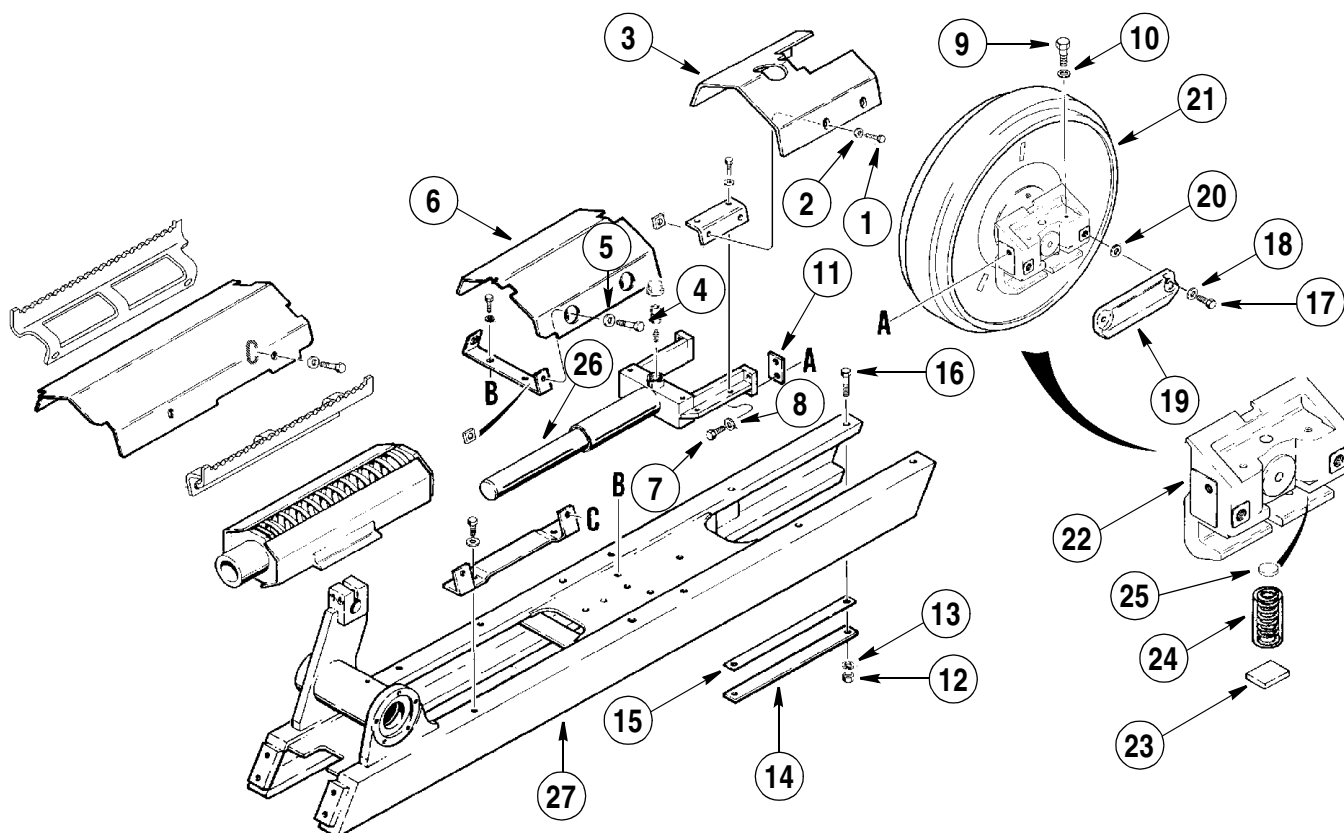
12. Install the retainers (6), small hole down and bolts (5).
13. Tighten the bolts (5) to a torque of 298 to 358 Nm (220 to 264 lb-ft).
14. Install the cover (3) and bolts (1) at each end of the pivot shaft, without the gaskets (4).
15. Tighten the bolts (1) to a torque of 21 Nm (185 lb-inch).
16. Begin at step 5 and check the parallel alignment again.
17. When the parallel alignment is correct, do the Diagonal Alignment.

840482

IDLER

Removal

1. Refer to Section 5504 and remove the track from the idler.
2. Raise the front of the machine to provide clearance between the track links and the idler (21).
3. Remove four bolts (1) and washers (2). Remove yoke cover (3).
4. Remove four bolts (4) and washers (5). Remove track adjuster cover (6).
5. Remove four bolts (7) and washers (8) securing the idler (21) to the track adjuster (26).
6. Remove four bolts (9) and washers (10).
7. Slide the idler (21) forward on the track frame (27) and remove shims (11). Tag shims for location.
8. Remove two nuts (12) and washers (13) from each bottom wear bar (14) inside the track frame (27). Remove wear bar, shim(s) (15) and bolts (16).
9. Remove two bolts (17) and washers (18) from each thrust plate (19). Remove thrust plates and shim(s) (20). Tag shims for location.
10. Install bolts (17) in the idler brackets (22).
11. Connect a lifting sling to the bolts (17) installed in Step 10.
12. Connect acceptable lifting equipment to the lifting sling.
13. Slide the idler (21) off the track frame (27).
14. Retain the wear plates (23), springs (24) and spring seats (25) from the idler bracket (22) for use during installation.



- | | | |
|-------------------------|--------------|--------------------|
| 1. BOLT | 10. WASHER | 19. THRUST PLATE |
| 2. WASHER | 11. SHIM(S) | 20. SHIM(S) |
| 3. YOKE COVER | 12. NUT | 21. IDLER |
| 4. BOLT | 13. WASHER | 22. IDLER BRACKET |
| 5. WASHER | 14. WEAR BAR | 23. WEAR PLATE |
| 6. TRACK ADJUSTER COVER | 15. SHIM(S) | 24. SPRING |
| 7. BOLT | 16. BOLT | 25. SPRING SEAT |
| 8. WASHER | 17. BOLT | 26. TRACK ADJUSTER |
| 9. BOLT | 18. WASHER | 27. TRACK FRAME |

BC00F078

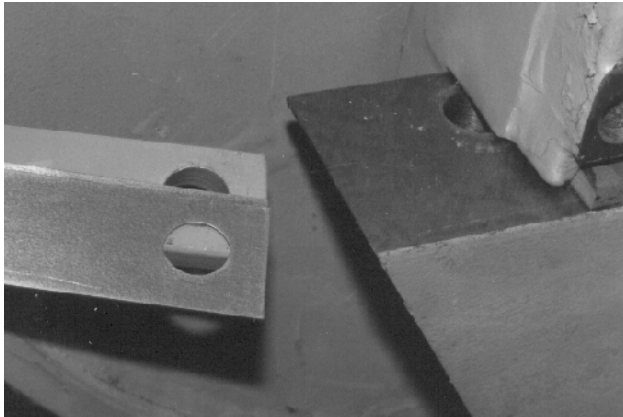
STEP 48

M1959

Select the number of shims (15) to fill the distance between the scribed line on the wear plate (23) and the bottom of the idler bracket (22). This will determine the number of shim(s) (15) required for the bottom wear bar (14).

STEP 49

Completely loosen the bolts (9).

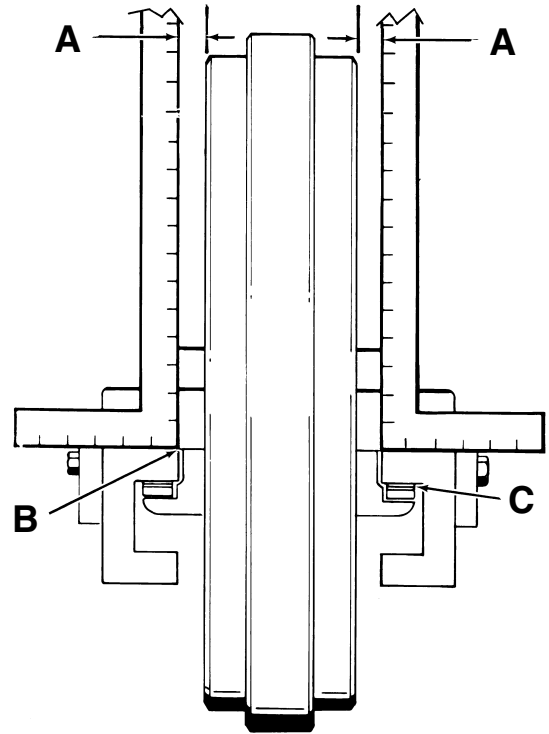
STEP 50

M1960

Install the shims (15) from Step 48 between the bottom wear bar (14) and the track frame (27).

STEP 51

Connect lifting equipment to the idler bracket (22) and raise the idler (21) so that the idler brackets (22) touch the bottom of the bottom wear bar (14).

STEP 52

B77113A

A. BOTH MEASUREMENTS MUST BE EQUAL WITHIN 3.2 MM (1/8 INCH)

B. THE SQUARE MUST BE EVEN WITH THE INSIDE SURFACE OF THE TRACK FRAME

C. SHIMS

Hold a square against the idler bracket (22) and even with the inner edge of the track frame (27) as shown. Measure from the edge of the square to the outer edge of the idler (21). Make a record of this measurement.

STEP 53

Repeat Step 52 on the other side of the idler (21).

NOTE: The two measurements must be equal within 3.2 mm (1/8 inch)

STEP 54

If the measurements are not as specified, add or remove shims (15) as required between the bottom wear bar (14) and the track frame (27).

STEP 55

Remove the lifting equipment from the idler (21).

RECOIL HOUSING

Removal



WARNING: *The recoil spring in the recoil housing is highly compressed. Using the wrong method to release this compression will result in personal injury. Release (destroy) the compression of the recoil spring according to instructions in this section.*

48-70

1. Remove the cap (1) from the track adjuster (13).
2. Loosen the valve (2) in the track adjuster (13) two turns maximum to release the pressure in the track adjuster.
3. Use acceptable lifting equipment to lift the top of the track and push the track adjuster (13) piston rod into the track adjuster as far as possible.
4. Disconnect the lifting equipment from the track.
5. Use a hydraulic ram and push the idler (3) all the way forward.
6. Remove four bolts (14) and washers (15) holding the recoil housing cover (16).
7. Remove the recoil housing cover (16).
8. Loosen and remove the bolts and washers that secure the recoil housing (17) to the track frame (18).
9. Remove the recoil housing (17) from the track frame (18).

Destroying the Recoil Spring

NOTE: *If the recoil housing is not to be used again, the recoil spring must be cut to release the tension of the recoil spring.*

1. Use an acetylene cutting torch through the hole in the bottom of the recoil housing (17) and cut through as much of the recoil spring as can be seen. This will remove the tension of the recoil spring and the recoil housing can be safely discarded.

Installation

1. Put the recoil housing (17) on the track frame (18).
2. Install the bolts and washers that hold the recoil housing (17) in place. Tighten the bolts to a torque of 183 to 223 Nm (135 to 165 lb-ft).
3. Tighten the valve (2) in the track adjuster (13) to a torque of 61 to 74 Nm (45 to 55 lb-ft).
4. Remove the hydraulic ram.
5. Position the recoil housing cover (16) and secure using four washers (15) and bolts (14).
6. Adjust the tension of the track according to the instructions in Section 5504.
7. Install the cap (1) in the track adjuster (13).

SPECIFICATIONS

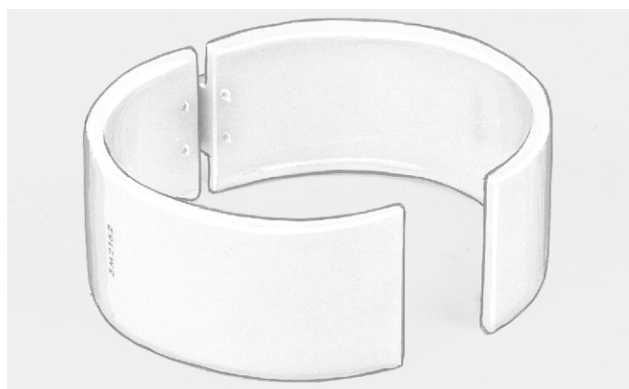
Lubricant

Type..... Case IH 135-H EP gear lubricant
 Capacity 251 mL (8.5 U.S. fluid ounces)

SPECIAL TORQUES

Bolts for Mounting Bracket..... 319 to 386 Nm (235 to 285 lb-ft) with 242 Loctite
 Valve in Track Adjuster 61 to 74 Nm (45 to 55 lb-ft)

SPECIAL TOOLS



CAS-1283

B914933



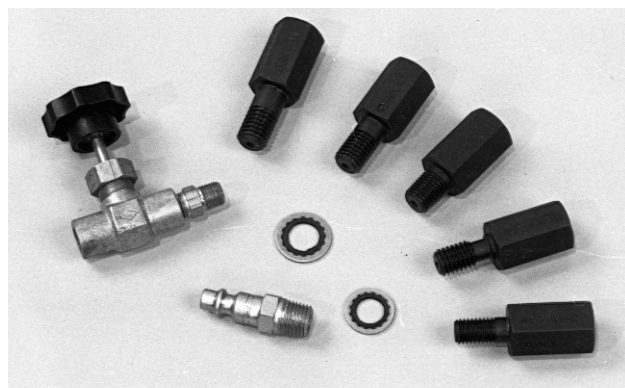
CAS-1450

B407315



CAS-1313

B914826



CAS-1682

B407317

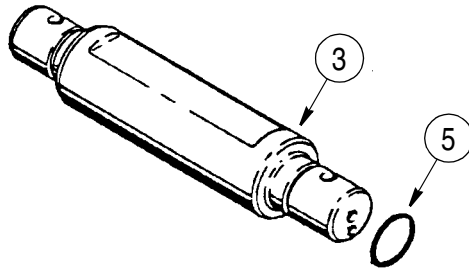
STEP 39



B205134

Install the shaft (6) in the track roller (1).

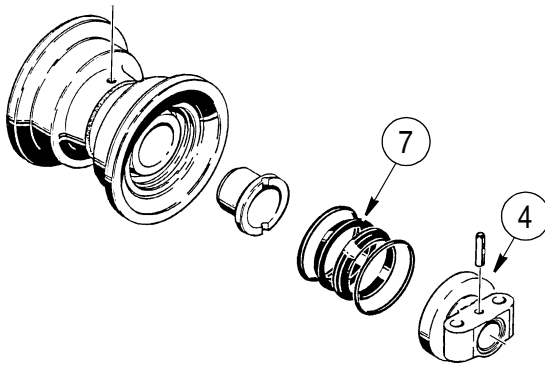
STEP 40



BS00G105

Install a new O-ring (5) in the groove in the shaft (6). Lubricate the O-ring (5) with clean oil.

STEP 41



BS00G106

Put the track roller (1) in the press for the installation of the other end cap (4). Lubricate the face of the metal ring (7) with clean oil.

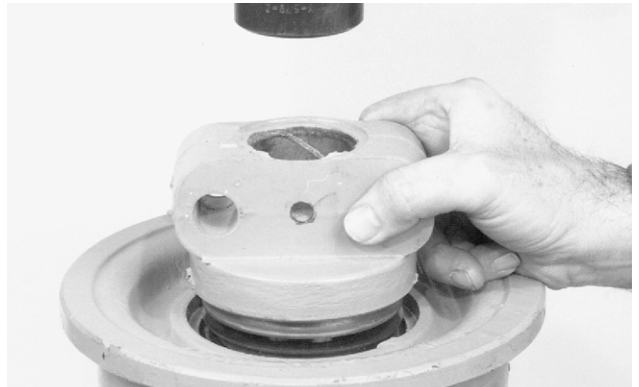
STEP 42



B205127

Lubricate the bore of the other end cap (4) with clean oil.

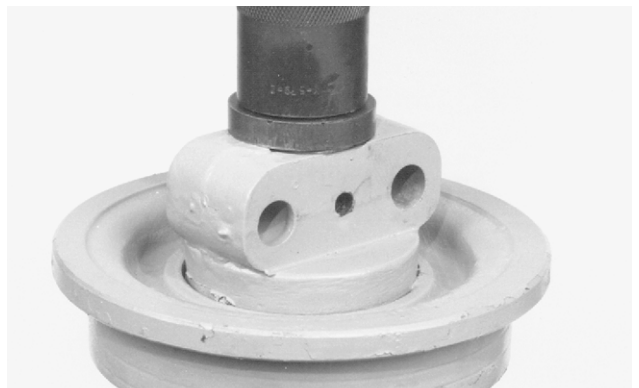
STEP 43



B205141

Start the end cap (4) onto the shaft (6) so that the flat surface is aligned with the flat surface of the other end cap (4).

STEP 44



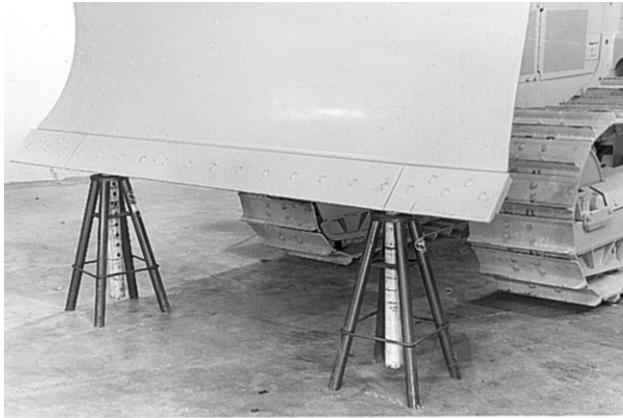
B205143

Press the end cap (4) onto the shaft until holes are aligned.

TORQUE CONVERTER

Removal

STEP 1



RP95N103

Raise and block the dozer blade up. Use a floor jack to support the undercarriage guards and remove the guards from under the torque converter.

STEP 2



BD00J020

Put the battery disconnect switch in the OFF position.

STEP 3

Get three clean 20 liter (5 gallon) containers. Remove the drain plug in the bottom of the transmission housing. Drain the transmission oil into the clean containers. Store the transmission oil in a safe and clean area if the oil is to be reused.

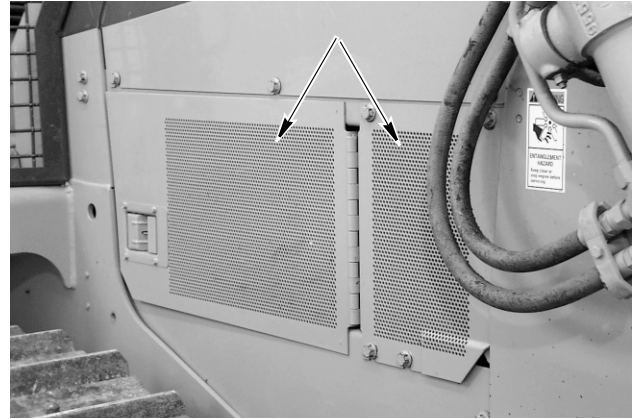
STEP 4

The hydraulic oil must be drained from the hydraulic reservoir. Remove the rear guard plate from under the hydraulic reservoir. Remove the hydraulic reservoir fill cap to relieve any pressure in the reservoir.

STEP 5

Get four clean 20 liter (5 gallon) containers and a funnel to direct the flow of oil. Remove the drain plug from the bottom of the hydraulic reservoir. Drain the oil into the clean containers. The hydraulic reservoir holds 64.4 liters (17 gallons) of oil. Store the hydraulic oil in a safe and clean area if the oil is to be reused.

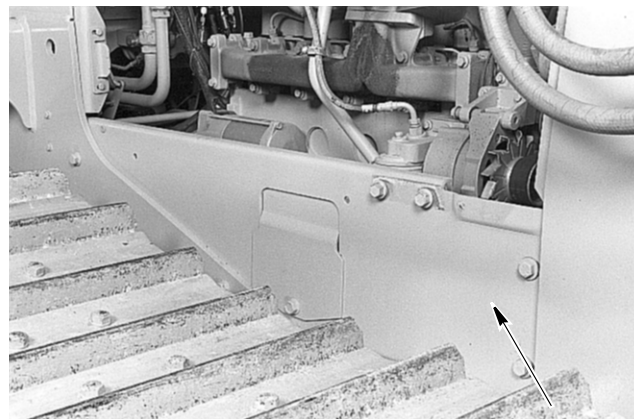
STEP 6



BD00H006

Remove the upper RH and LH side shield covers.

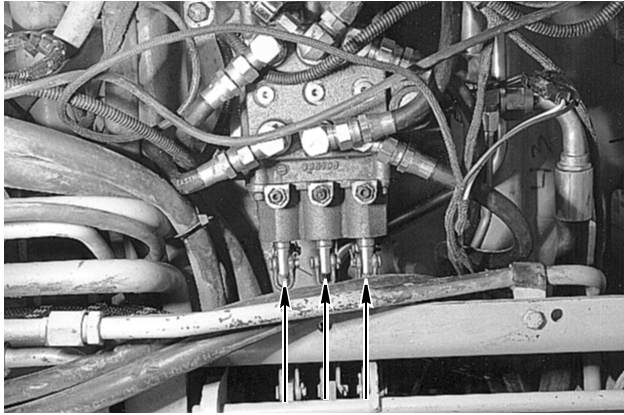
STEP 7



RP95N103

Remove the lower RH and LH side shield covers.

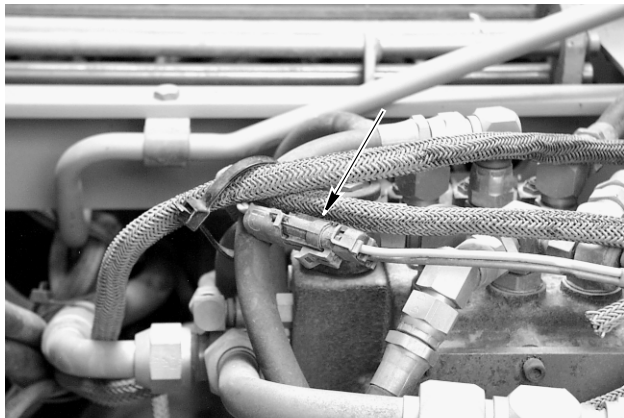
STEP 52



RP95M336

Remove the five cotter pins and five yoke pins for the track speed, direction and clutch cutout spools in the transmission control valve.

STEP 53



BD00H090

Disconnect the wiring harness connector from the parking brake solenoid connector.

STEP 54



BD00H091

Disconnect the two wiring harness wires from the backup alarm switch.

STEP 55



BD00H092

Disconnect the wiring harness connector from the high/low range control valve solenoid connector.

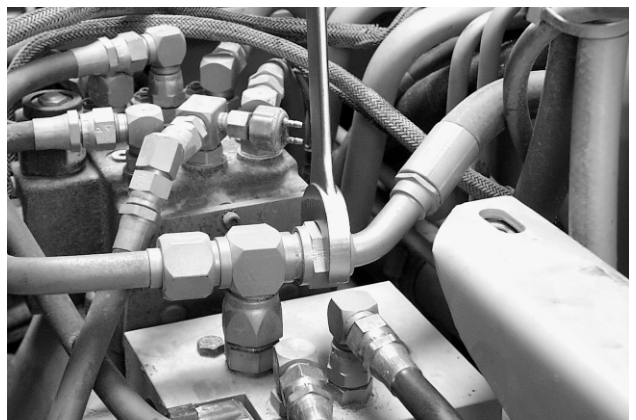
STEP 56



BD00H096

Loosen and disconnect the hose from the tee at the inlet of the transmission control valve. Make sure to plug and cap the fittings.

STEP 57



BD00H095

Loosen and disconnect the hose from the filter at the inlet to the high/low range control valve. Make sure to plug and cap the fittings.

Section 6002

TRANSMISSION SCHEMATIC AND TROUBLESHOOTING

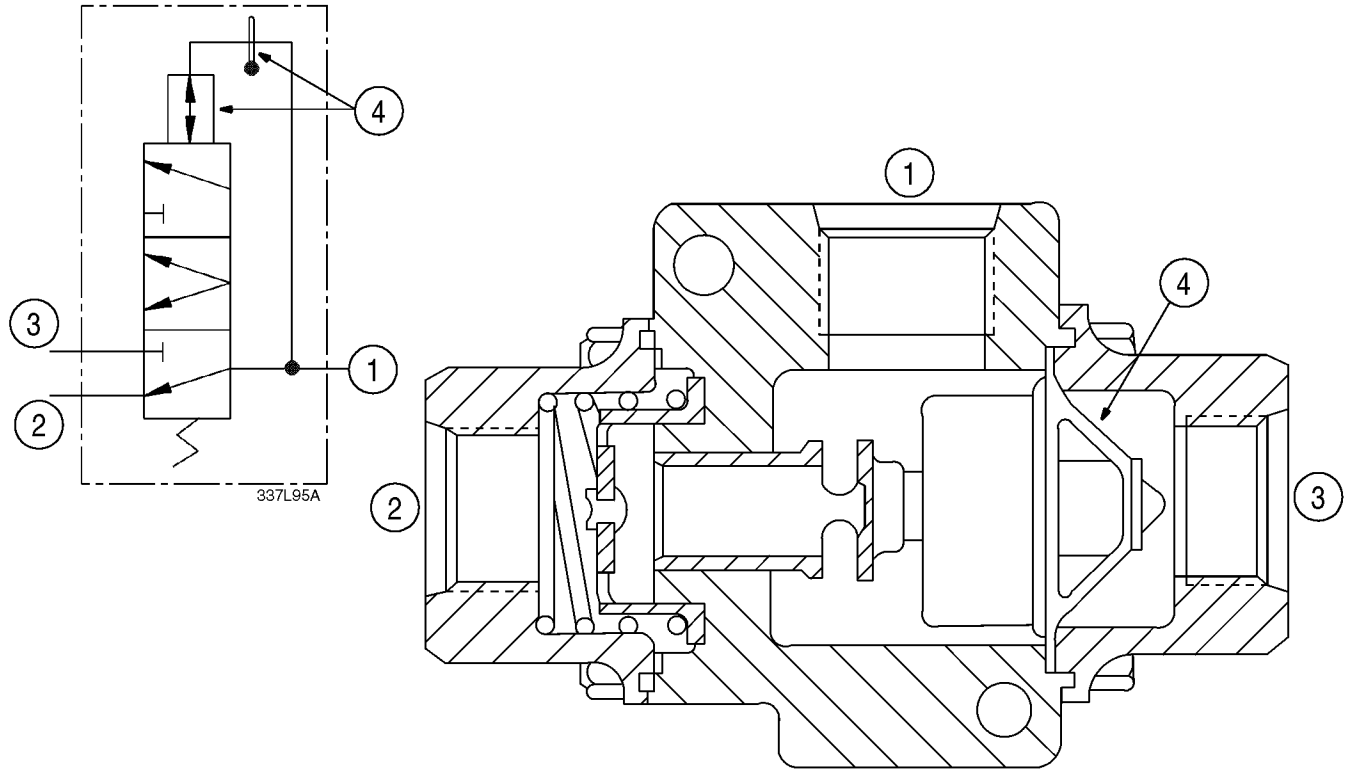
CASE CORPORATION
700 State Street
Racine, WI 53404 U.S.A.

CASE CANADA CORPORATION
3350 South Service Road
Hamilton, ON L7N 3M6 CANADA

Bur 7-17510

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THERMAL BYPASS VALVE FOR COOLING CIRCUIT



1. INLET PORT
2. COLD OIL OUTLET PORT

3. HOT OIL OUTLET TO COOLER
4. THERMOSTAT VALVE

337L95

CHECKING LUBRICATION CIRCUIT FLOW AND PRESSURE

Equipment Required

CAS- 10280 Flowmeter.

CAS-1808 Flowmeter Fitting Kit

Test Number 6 - Flow Test Procedure

IMPORTANT: *Make sure to connect the flowmeter so the flow of oil will continue to flow through the transmission system to prevent damage from lack of lubrication.*

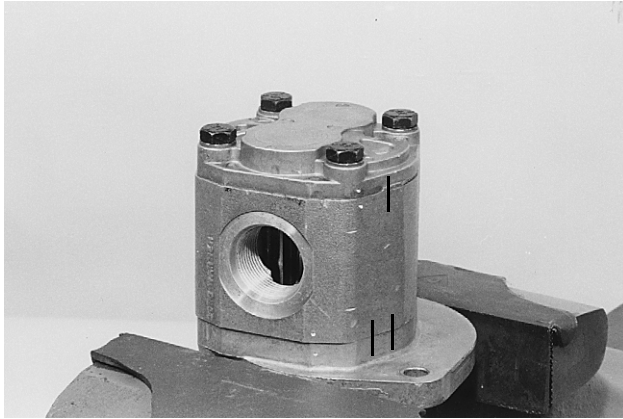
1. Disconnect the hose for the cooler return from the 4-way tee fitting for the lubrication circuit at the top front of the transmission.
2. Use an adapter fitting to connect the hose from the cooler circuit to the inlet port of the flowmeter.
3. Connect a hose to the outlet of the flowmeter and connect the opposite end of the hose to the lubrication circuit 4-way tee fitting at the top front of the transmission.
4. Make sure the parking brake is applied and all the transmission controls are in the NEUTRAL position.
5. Make sure the load valve on the flowmeter is in the FULL OPEN position.
6. Start and run the engine at 2200 r/min (rpm).
7. Make sure the transmission fluid is at an operating temperature of 71° to 85° C (160° to 185° F) at the outlet of the torque converter by observing the temperature gauge on the instrument panel. See Section 2002 for the Procedure to Heat the Oil.

NOTE: *The center of the green zone on the temperature gauge on the instrument panel will be approximately 85° C (185° F). The thermal bypass valve will not allow any oil flow to the cooler until the oil temperature at the converter out is at 71° C (160° F) and the oil temperature must reach 85° C (185° F) and above before there is full flow to the cooler.*

8. When the temperature gauge on the instrument panel is at the center of the green zone 85° C (185° F) or above, record on the check sheet on Page 23 the readings on the flow and pressure gauges. Check that readings are within the ranges of the specifications on Page 3. Check that the transmission fluid is still at operating temperature.
9. Stop the engine.

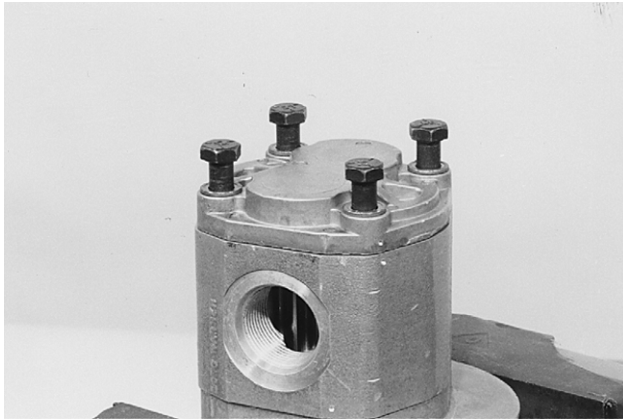
Understanding Results of the Test

1. If the flow from the oil cooler is less than the minimum as specified on page 3:
 - A. Check the output of the charge pump with a flowmeter.
 - B. Pressure test all of the transmission clutch circuits for excessive pressure drops which indicates a loss of flow.
 - C. Check for leaking seals in the torque converter causing an excess volume of oil to return to sump through the torque converter housing drain line.

STEP 7

B916242

Make an alignment mark on the end cover (6) and gear housing (8) and the drive end cover (16) and the gear housing (8).

STEP 8

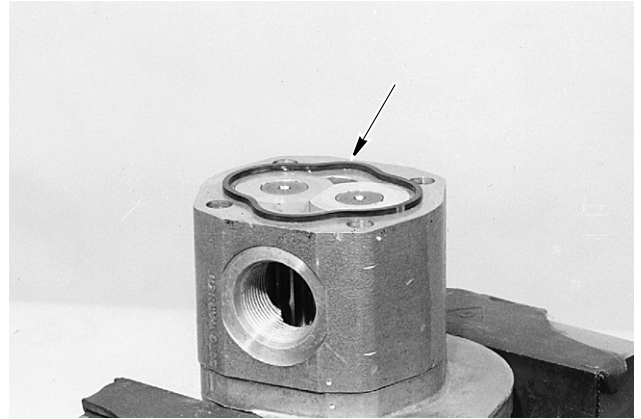
B916244

Loosen and remove the bolts (4) and flat washers (5).

STEP 9

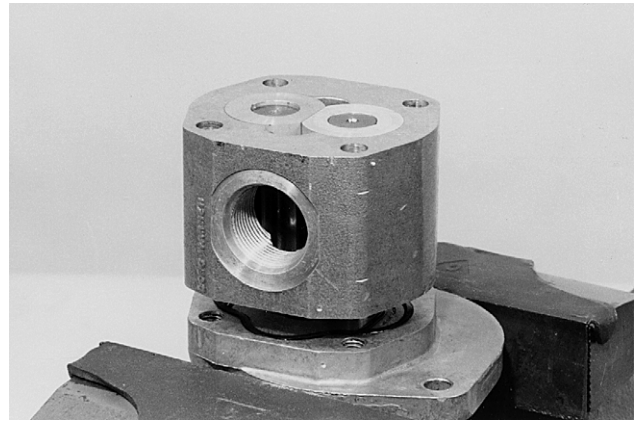
B916201

Remove the end cover (6). The seal (7) can come with the end cover (6) or stay on the gear housing (8).

STEP 10

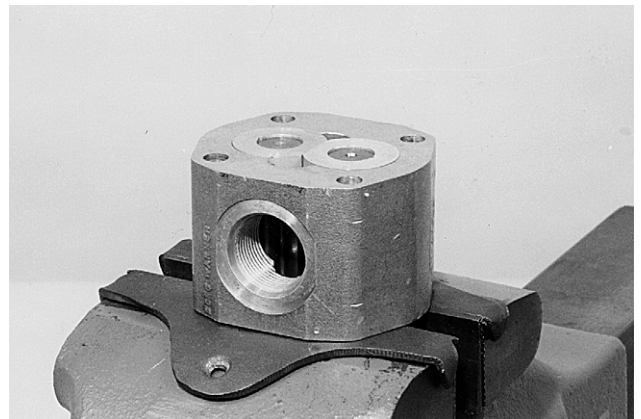
B916202

Remove the seal (7).

STEP 11

B916203

Carefully remove the gear housing (8) assembly.

STEP 12

B916207

Put the gear housing (8) assembly on the vise with drive shaft (10) down.

Section 6007

TRANSMISSION CONTROL VALVE

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700 State Street
Racine, WI 53404 U.S.A.

CASE CANADA CORPORATION
3350 South Service Road
Hamilton, ON L7N 3M6 CANADA

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Section 6008

HIGH/LOW RANGE CONTROL VALVE

CASE CORPORATION
700 State Street
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CASE CANADA CORPORATION
3350 South Service Road
Burlington, ON L7N 3M6 CANADA

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Section 6010

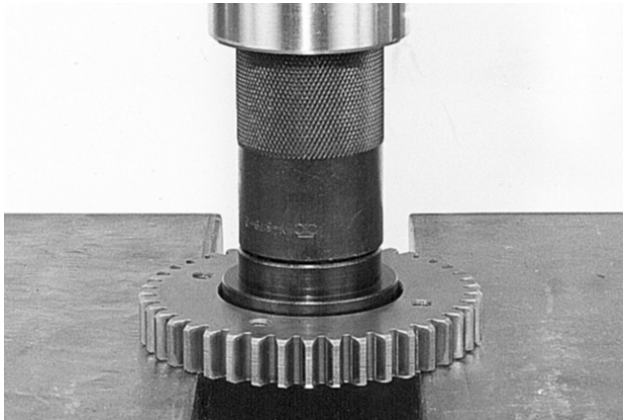
TORQUE CONVERTER

CASE CORPORATION
700 State Street
Racine, WI 53404 U.S.A.

CASE CANADA CORPORATION
3350 South Service Road
Burlington, ON L7N 3M6 CANADA

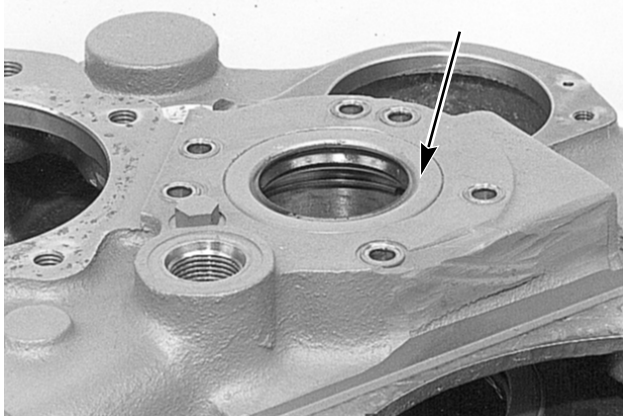
Bur 7-18570

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STEP 36

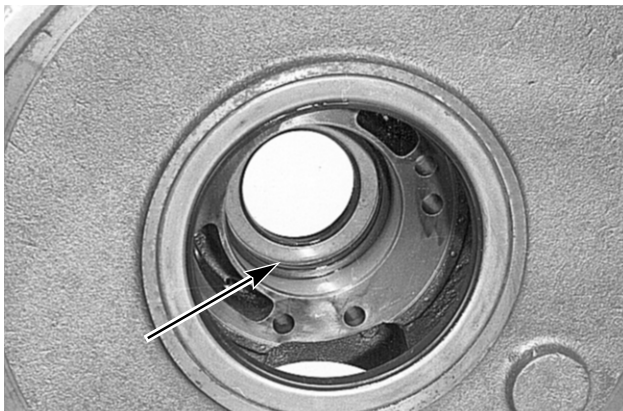
B916429

Use an acceptable driver and press the bearing (35) out of the idler gear (24).

STEP 37

B916419

Remove the front and rear seals (36 and 37).

STEP 38

B916420

Remove the snap rings (38) from the bore in the housing only if new snap rings are needed.

Inspection

1. Discard all gaskets and O-rings.
2. Clean all parts in cleaning solvent.
3. Inspect all gears for wear and damage.
4. Check the bearing for flat areas on the balls and inner and outer races.
5. Inspect the rotating housing for cracks at the impeller mounting bolt holes.
6. Inspect the seals and replace as required.
7. Inspect the housing for damage
8. Check the springs for the torque converter relief valve and pressure regulator valve to make sure that the springs are equal to the specifications on Page 3.
9. Inspect the OD of the flywheel hub (45) for the converter for wear. Replace the hub if the OD clearance is over 0.127 mm (0.005 inch) when installed into the flywheel counter bore.

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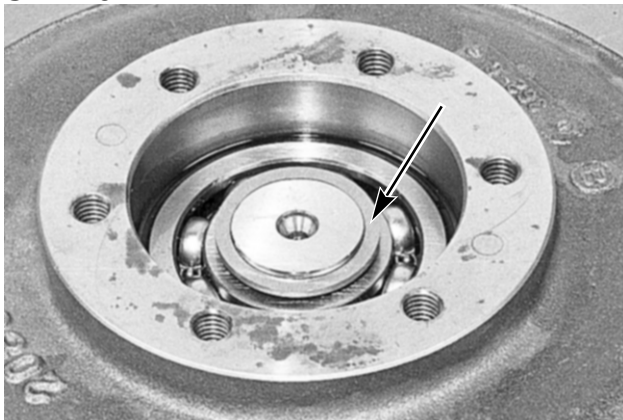
STEP 90



B915926

Remove the snap ring (46) from the output shaft (48).

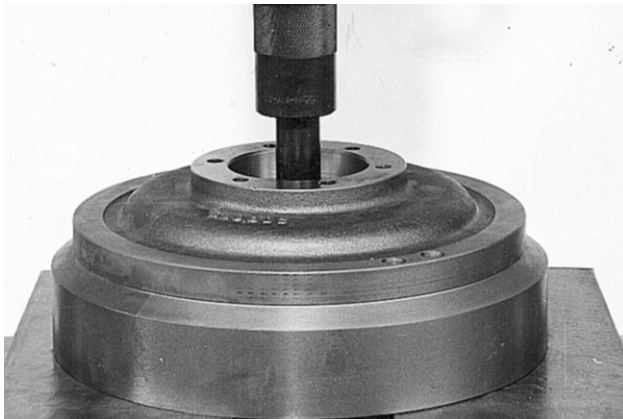
STEP 91



B915927

Remove the spacer (47) from the output shaft (48).

STEP 92



B915930

Use an acceptable driver and press the output shaft (48) out of the housing (44).

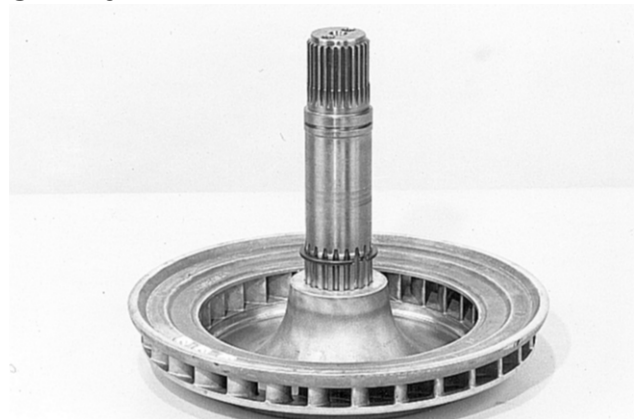
STEP 93



B915934

Use an acceptable driver and press the bearing (49) out of the housing (44).

STEP 94



B005018

Remove the output shaft (48) from the turbine (50).

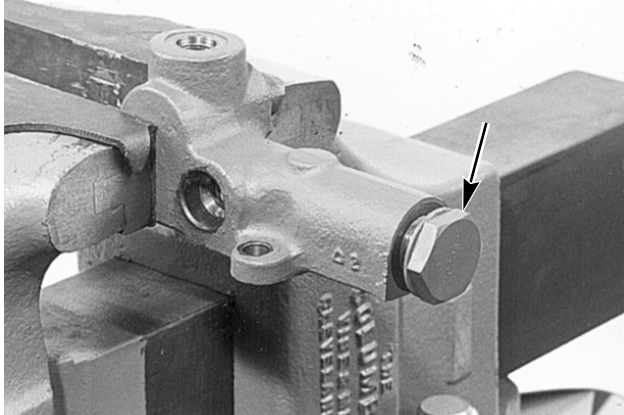
STEP 95



B005019

Disengage the ends of the sealing ring (51) in the output shaft (48).

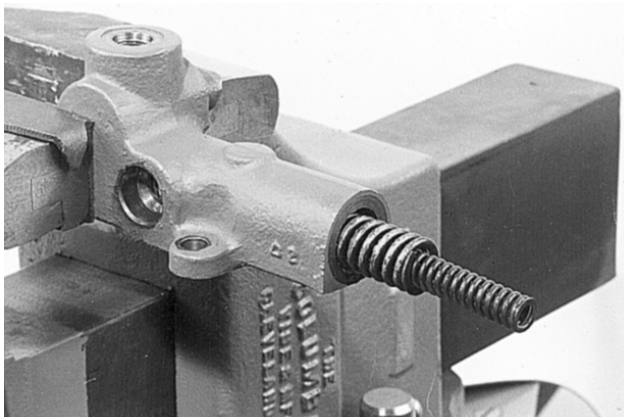
STEP 145



B916544

Loosen and remove the large plug (66) and copper gasket (67). The tension of the springs (69 and 70) will not be released until the plug (66) is out of the body. Shims (68) can be used between the plug (66) and springs (69 and 70). Keep the shims (68) together.

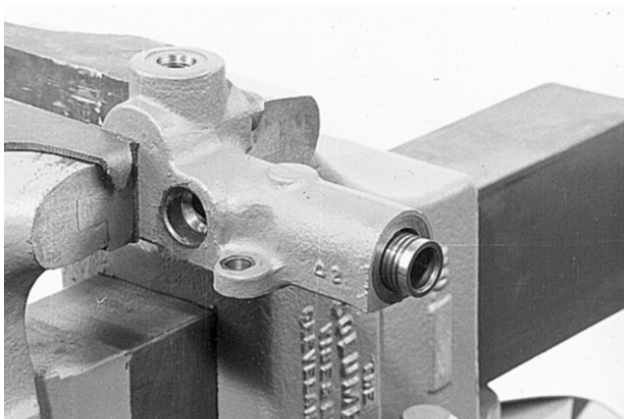
STEP 146



B916501

Remove the springs (69 and 70) from the pressure regulator valve (18) body.

STEP 147



B91652

Remove the poppet (71) from the pressure regulator valve (18) body.

STEP 148



B916918

Remove the O-rings (72) from the tube (19).

Inspection

1. Discard the O-rings.
2. Clean all parts in cleaning solvent.
3. Check the tension of each spring to make sure each spring meets the specification on Page 3.
4. Inspect the poppet and the seat for the poppet in the body for wear and damage.

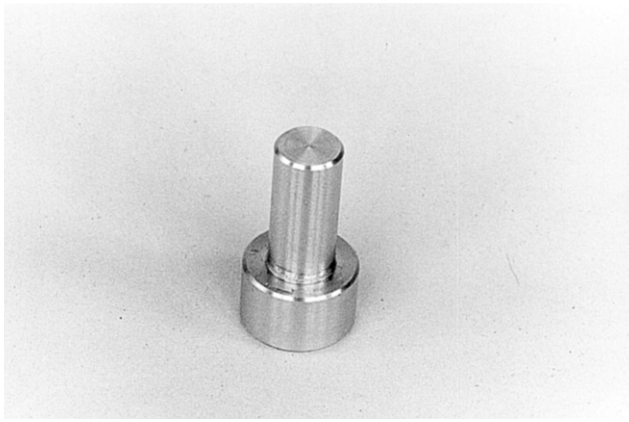
Assembly

STEP 149



B916918

Install new O-rings (72) on the tube (19).



RP95K589

CAS-2444 PLUG FOR TOP SHAFTS, MUST BE USED WITH CAS-2225 SEAL EXPANDER/PROTECTOR



B87758M

CAS-1804 PRESSURE TEST FITTING KIT



RP95K591

CAS-2445 SEAL COMPRESSOR



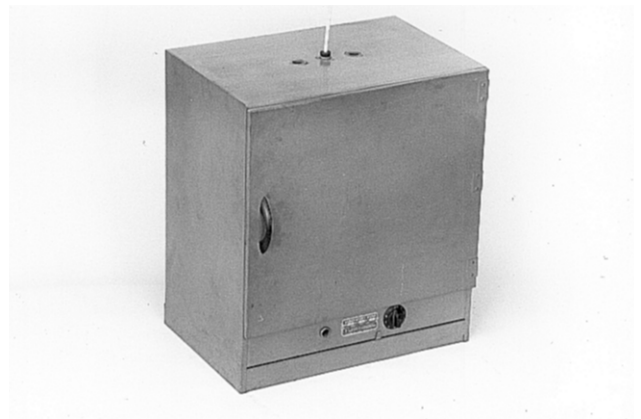
B877895

CAS-10090 HAND PUMP



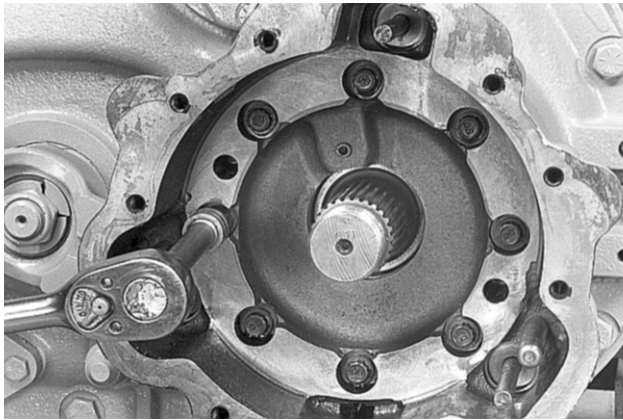
RP95K592

CAS-2446 SEAL COMPRESSOR



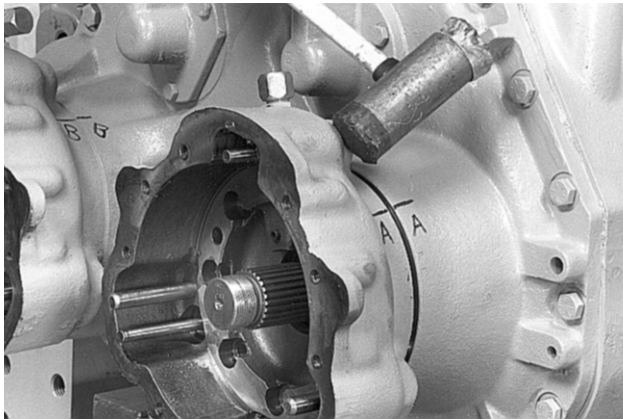
RP95K619

OEM-8014 BEARING HEATER OVEN

STEP 45

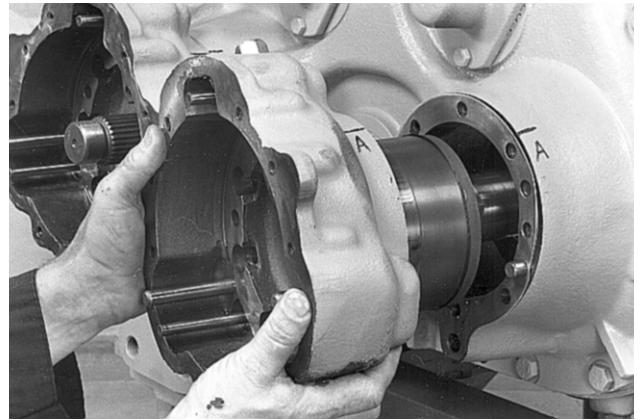
RP95K278

Loosen and remove the eight ferris head bolts (15) retaining the brake housing (16).

STEP 46

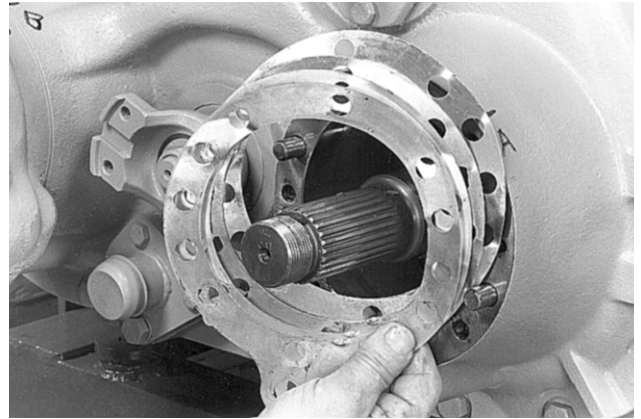
RP95K281

Mark the brake housing (16) to show the alignment with the front cover for reference during assembly. Use a soft hammer to loosen the brake housing for removal.

STEP 47

RP95K282

Remove the brake housing (16) from the front cover.

STEP 48

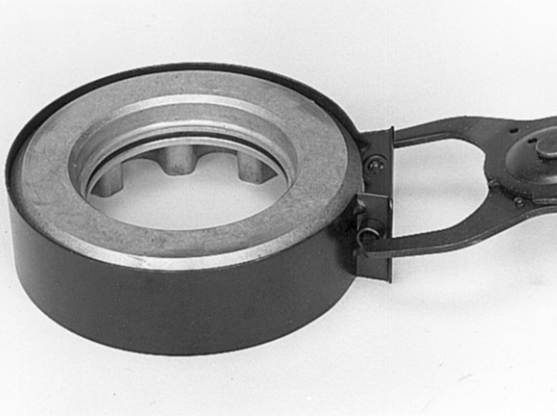
RP95K283

Remove the shims (17) and make sure to keep the original shims with the brake housing (16) for a reference point during assembly.

STEP 49

Do Step 26 through Step 48 for the brake assembly and housing on the opposite side.

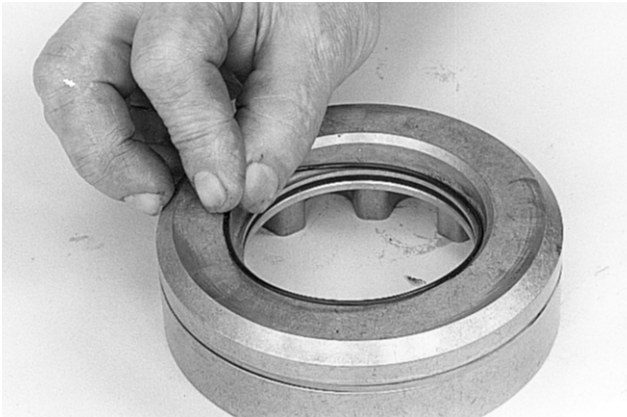
STEP 92



RP95K407

Use the CAS-2229-2 Seal Compressor with the CAS-2229-1 Clamping Plier to tighten the tool and compress the seal (18) into the groove. Wait three minutes for the seal to compress, loosen the tool and rotate the tool 1/4 turn around the piston seal then tighten the tool. Repeat this process three times.

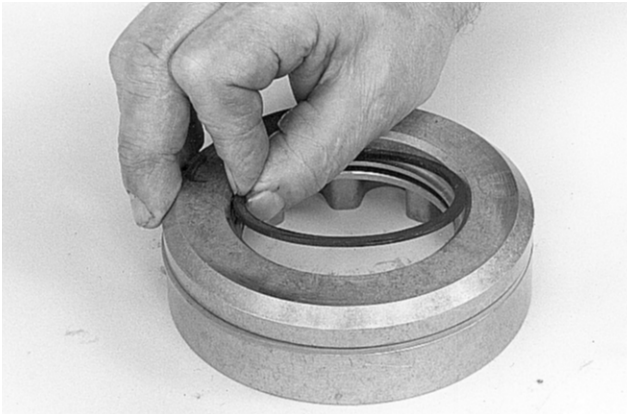
STEP 93



RP95K409

Install a new O-ring (19) in the inner groove of the piston.

STEP 94



RP95K410

Lubricate the inner piston seal (17) with a petroleum grease and install the seal into the inner groove.

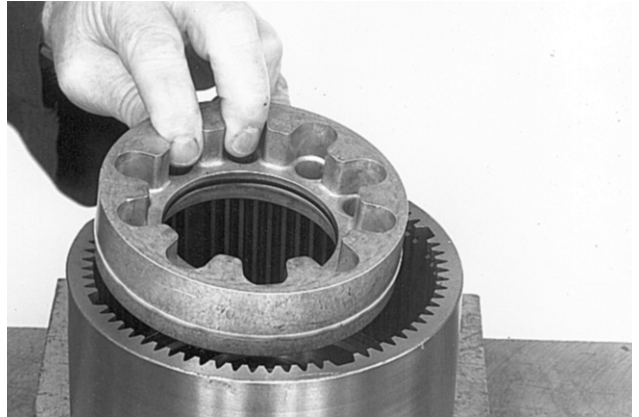
STEP 95



RP95N119

Insert the CAS-2442 Seal Compressor into the inner bore of the piston to size the inner seal (17) for five minutes.

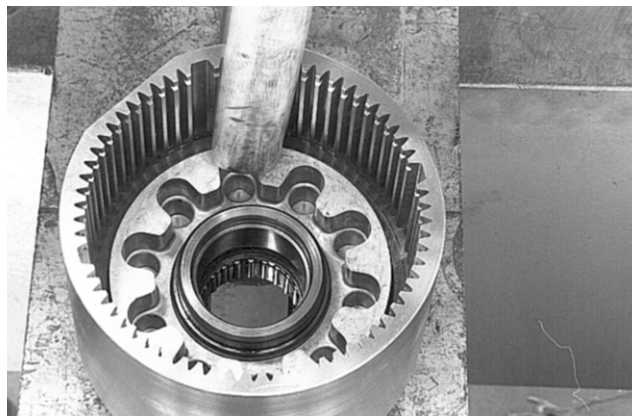
STEP 96



RP95K446

Lubricate the piston (16) with clean oil and install the piston into the Low Range clutch housing (6).

STEP 97

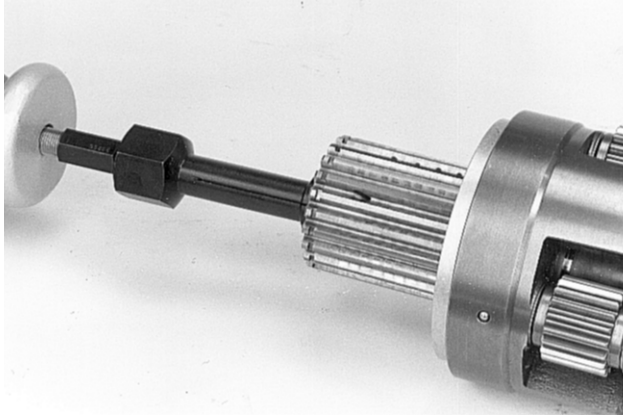


RP95K447

Use a wood handle to tap the piston (16) down into the clutch housing (6).

Replacing Needle Bearing in Planet Gear Cage

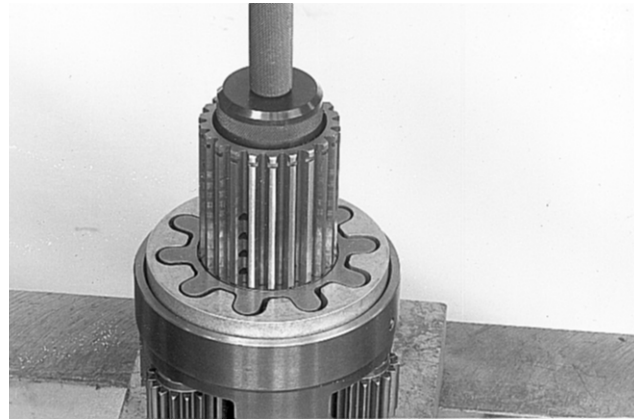
STEP 144



RP95K422

Use a 32 to 38 mm (1.25 to 1.50 inch) Blind Hole Puller with a Slide Hammer to remove the needle bearing (28) from the planet gear housing.

STEP 145

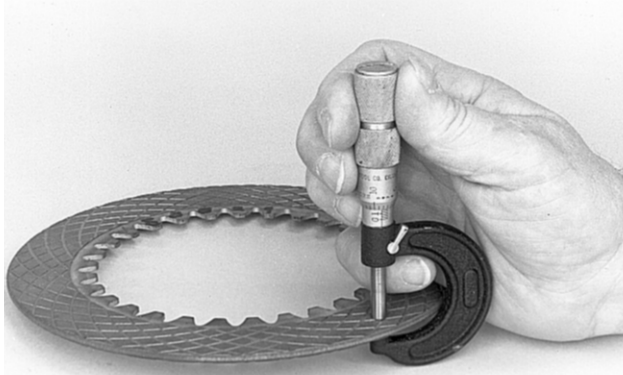


RP95K423

Use CAS-1106 Needle Bearing Driver to press a new needle bearing (28) into the planet gear housing.

Inspection

STEP 186



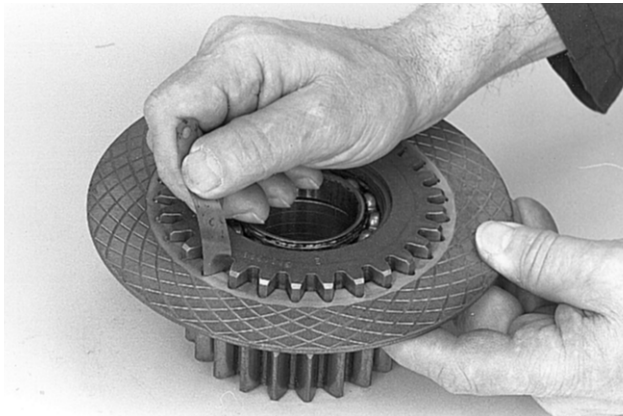
RP96B296

1. Inspect the friction discs (3) for wear by measuring the thickness in three or four places around the surface. The minimum thickness allowed is 4.25 mm (0.167 inch). Replace any friction discs measuring less than specified.
2. Use a flat surface plate or a straightedge at 90 degree intervals to make sure each steel plate (4) and friction disc (3) is flat. If a steel plate or friction disc is not flat, a new part must be used.

NOTE: *If a friction disc or a steel plate needs a replacement part, all friction discs or all steel plates used in a housing must be new.*

3. Inspect the steel plates (4) for pitting, scoring and other damage. If there is any damage, use new steel plates during assembly.

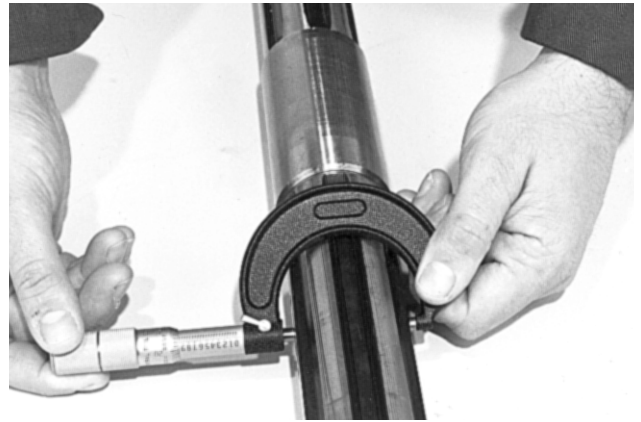
STEP 187



RP96B298

Check the friction discs (3) for tooth wear by placing the disc on the clutch gear it will mate with and use a feeler gauge or wire gauge to measure the clearance between the teeth. The maximum clearance allowed new is 0.32 mm (0.0126 inches) when the clearance reaches 0.64 mm (0.0252 inches) replace the worn parts. If the clearance is due to notching or wear in the gear teeth, replace the gear.

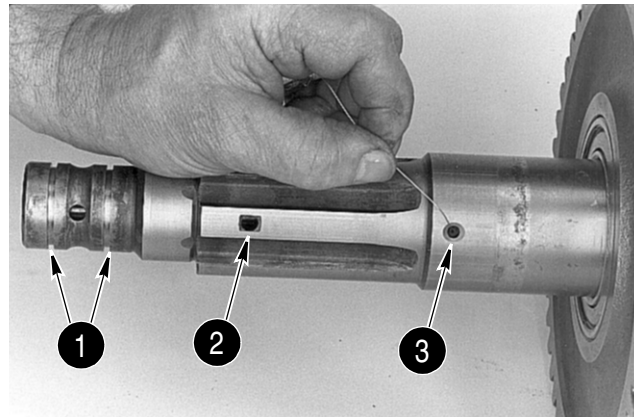
STEP 188



B796242

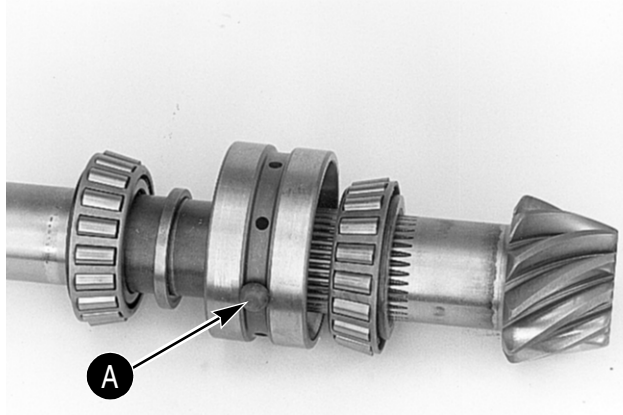
1. Measure the diameter of the clutch shafts as shown. Measure along the length of the shaft in the areas where the ball bearings are located. If the diameter is less than 49.86 mm (1.963 inches), a new clutch shaft must be installed
2. Inspect the splines of the clutch shafts for wear and damage. If damage is found, inspect the parts that were installed on the shaft.

STEP 189



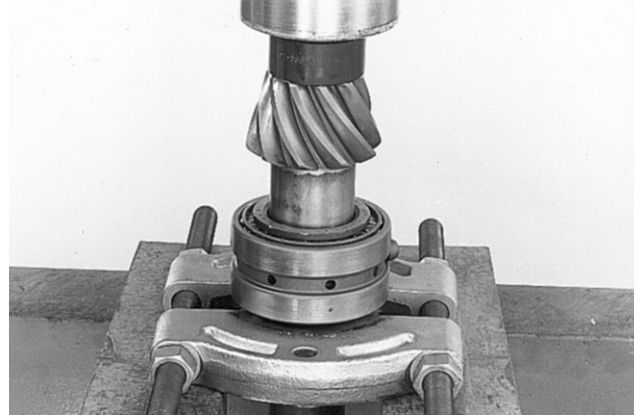
RP95K480

1. SEALING RING GROOVES
 2. CLUTCH PISTON OIL PASSAGE
 3. LUBRICATION OIL ORIFICE
1. Inspect the grooves for the sealing rings for wear or damage.
 2. Check the passages and lubrication orifices in each shaft to be sure the passages are open and free of foreign material.
 3. Check that the balls, pressed into the oil passages in the end of the clutch shaft, are tight.

STEP 226

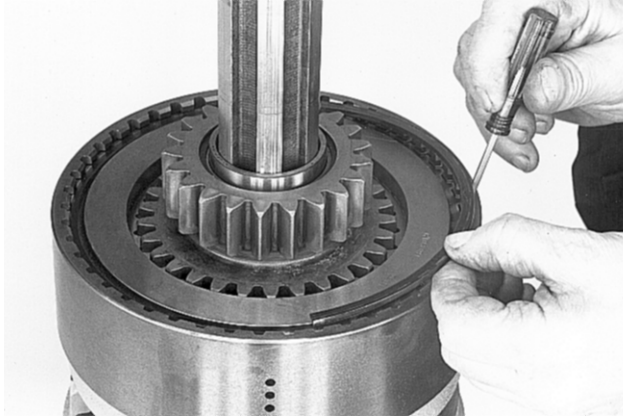
RP95K343

Assemble the MATCHED tapered roller bearing set on the pinion shaft with the spacer ring in between the bearing cones, as shown. Make sure not mix to the parts of the bearing set with another bearing set. Be careful not to loose the lock pin (A).

STEP 227

RP95K368

Place the pinion shaft with the bearing set on an OEM-4175 Split Bearing Puller and use a shop press to push the bearing set up against the pinion gear.

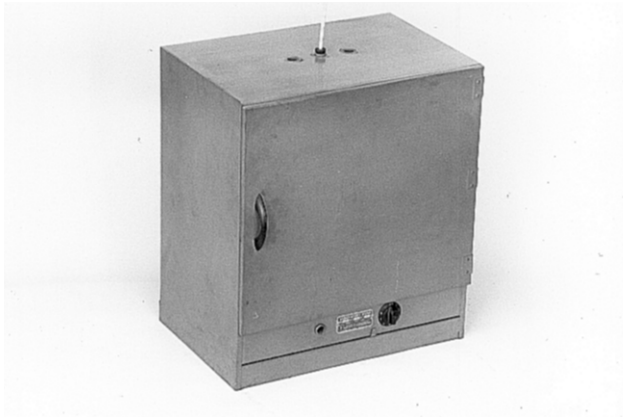
STEP 265

RP95K492

Install the snap ring (1) retaining the backing plate (2).

STEP 266

Do Step 252 through Step 265 for the other clutch shaft, Forward and Low clutches and gears.

TRANSMISSION ASSEMBLY**Install Clutches, Gears, Shafts and Bearings****STEP 267**

RP95K619

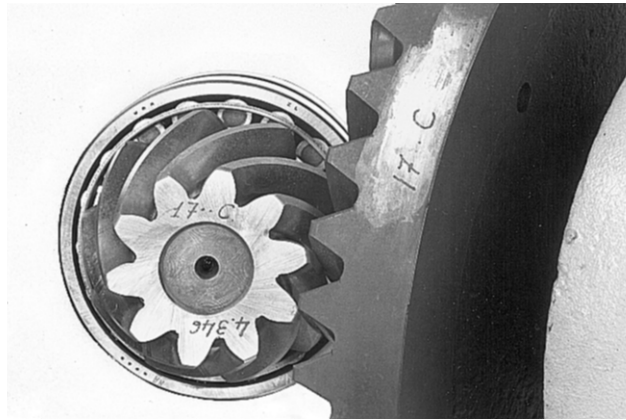
Put the High Clutch Gears, the large ball bearings for the center web of the transmission housing and the ball bearings for the front cover in an oven. Keep the oven at a temperature of 121°C (250°F).

STEP 268

RP95K312

Use the CAS-1107 Needle Bearing Driver to install a new needle bearing for the input shaft

STEP 301



RP95K500

There is a number beginning with the number four on the end of the pinion shaft. Write this number on line **A** in Step 302.

NOTE: The number on the pinion gear is in inches. To change to millimeters multiply inches by 25.4.

STEP 302

Subtract the constant number on line **B** from the number on the pinion gear on line **A**. Write the answer on line **C**. The number on line **C** is the clearance that must be between the Pinion Setting Gauge and the end of the pinion shaft. If the number on line **D** is equal to the number on line **C**, within plus or minus 0.076 mm (0.003 inch) the pinion shaft is in the correct position. Remove the used locking nut and continue assembly at Step 305.

Metric	U.S.
A. mm	A. inches
B. -109.20 mm	B. -4.300 inches
C. mm	C. inches
D. mm	D. inches

EXAMPLE

A. 110.40 mm	A. 4.346 inches
B. -109.20 mm	B. -4.300 inches
C. 1.20 mm	C. 0.046 inch
D. 0.61 mm	D. 0.024 inch

STEP 303

If the number on line **D** in Step 302 is smaller than the number on line **C**, and is not within 0.076 mm (0.003 inch) of the number on line **C**, subtract line **D** from line **C**. Write the answer on line **E**. This number is the thickness of the shims that must be added between the adapter housing and front cover, Step 305.

Metric	U.S.
C. mm	C. inches
D. - mm	D. - inches
E. mm	E. inch

EXAMPLE

C. 1.20 mm	C. 0.046 inches
D. -0.61 mm	D. -0.024 inches
E. 0.59 mm	E. 0.022 inch

STEP 304

If the number on line **D** in Step 302 is larger than the number on line **C**, and is not within 0.076 mm (0.003 inch) of the number on line **C**, Subtract line **C** from line **D**. Write the answer on line **E**. This number is the thickness of the shims that must be removed from between the adapter housing and the front cover, Step 305.

Metric	U.S.
D. mm	D. inches
C. - mm	C. - inches
E. mm	E. inch

EXAMPLE

D. 1.67 mm	D. 0.066 inches
C. -1.20 mm	C. -0.046 inches
E. 0.47 mm	E. 0.020 inch

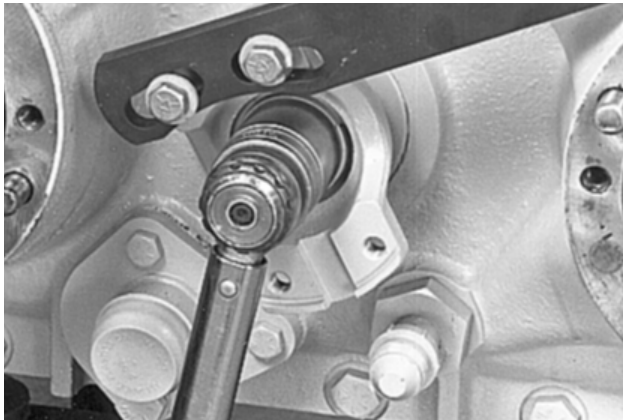
STEP 355



RP95K539

Install the companion flange for the drive shaft onto the input shaft for the transmission. Install the CAS-1579A Holding Tool on the companion flange for the drive shaft. Install a new gasket and the hardened washer.

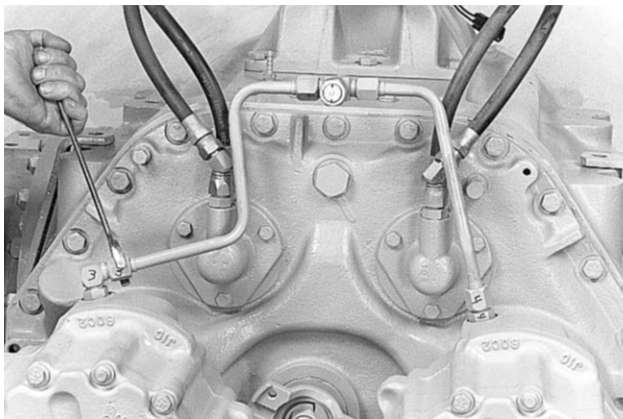
STEP 356



RP95K289

Install the locking nut on the input shaft and tighten to a torque of 271 to 325 Nm (200 to 240 lb-ft). Remove the CAS-1579A Holding Tool.

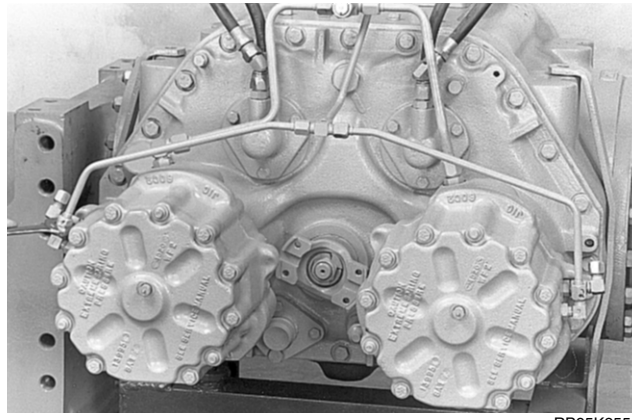
STEP 357



RP95K256

Install the hydraulic lines and fittings for the lubrication oil to the brakes.

STEP 358

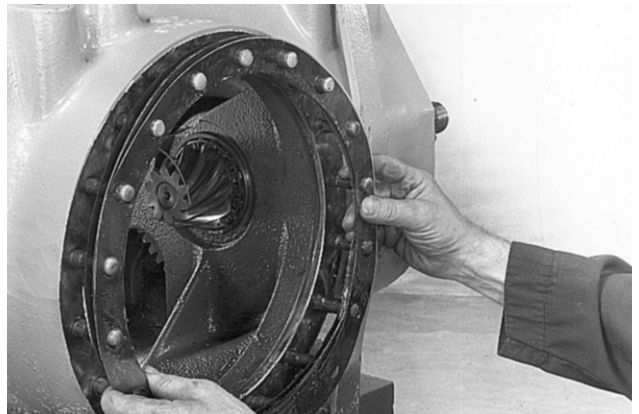


RP95K255

Install the hydraulic lines and fittings to the parking brake pistons.

Install Final Drive Assemblies

STEP 359

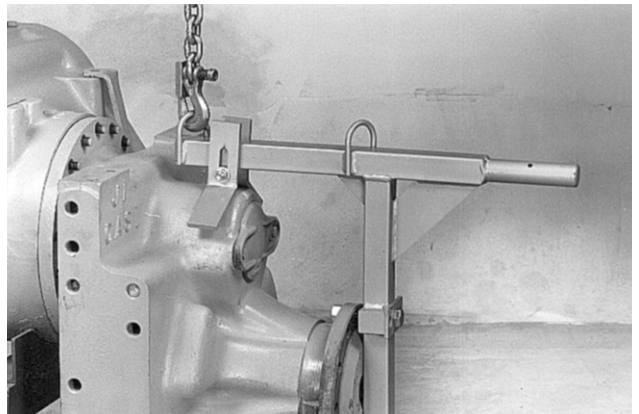


RP95K308

Install the original set of shims on the studs for the final drive.

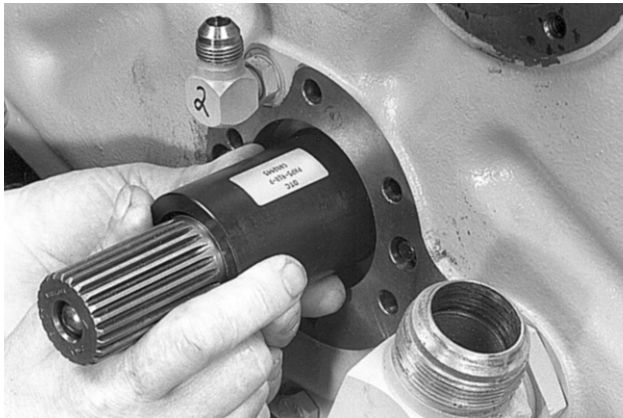
IMPORTANT: *In the following step, prevent the transmission from tipping, as it will not be balanced until the other final drive is installed.*

STEP 360



RP95K306

Attach the CAS-1433 Lifting Fixture to an acceptable hoist and install the final drive onto the transmission housing.

STEP 408

RP95K229

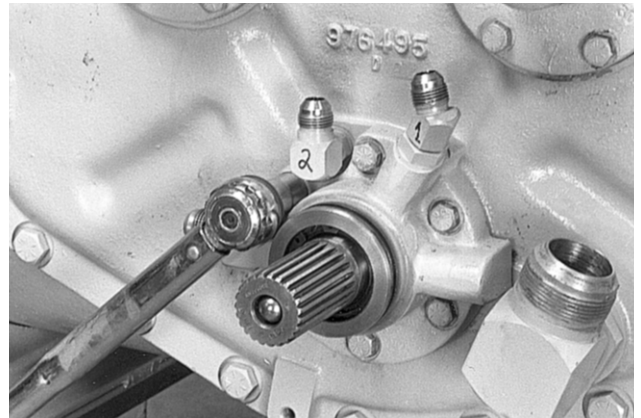
Remove the CAS-2446 Seal Compressor and it turn over. Install it over the seals again using the short tapered ID marked "USE THIS END SECOND". Let the seal Compressor stay on the seals for approximately three minutes.

NOTE: Refer to illustration on Page 104 for numbers in parentheses in Steps 409 through 415.

STEP 409

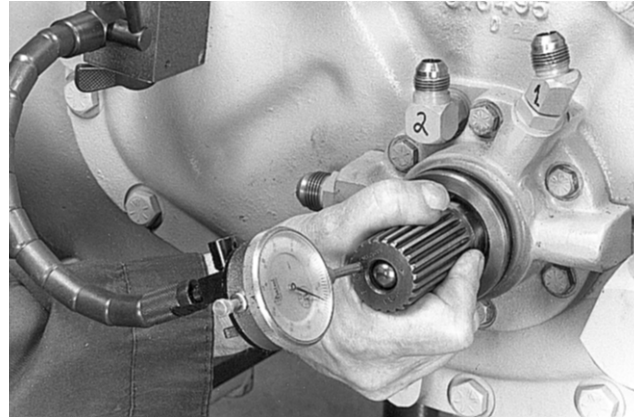
RP95K346

Put Loctite 242 on the threads of the bolts (1) for the oil distribution cover (2).

STEP 410

RP95K235

Install the bolts (1) retaining the oil distribution cover (2) and tighten to a torque of 34 to 47 Nm (25 to 35 lb-ft).

STEP 411

RP95K234

Make sure the output shaft turns freely. With a dial indicator check that the end play of the shaft is 0.36 to 0.50 mm (0.014 to 0.020 inch).

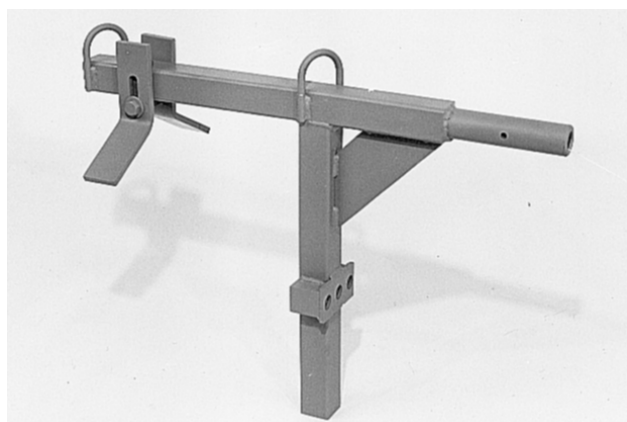
SPECIFICATIONS

Rotating torque of the pinion shaft (used bearings)	3.0 to 4.5 Nm (30 to 40 lb-inch)
Rotating torque of the pinion shaft (new bearings)	7 to 9 Nm (60 to 80 lb-inch)
Rotating torque of the sprocket shaft (used bearings)	4 to 5 Nm (35 to 45 lb-inch)
Rotating torque of the sprocket shaft (new bearings)	8 to 10 Nm (70 to 90 lb-inch)
Type of oil	Case 135H EP Gear Lubricant
Oil capacity (approximate)	7.1 litres (7.5 U.S. quarts) for each final drive

SPECIAL TORQUES

Bolts, front of final drives to frame	380 Nm (280 lb-ft) plus 1/4 turn with 272 (blue) Loctite
Bolts, top of final drives to seat and tank frame	461 to 596 Nm (340 to 420 lb-ft)
Nuts for final drive housing using tool CAS-1433	163 to 176 Nm (120 to 130 lb-ft)
Nuts for final drive housing without special tool	217 to 237 Nm (160 to 190 lb-ft)
Bolts for retainer on pinion and sprocket shaft	223 to 250 Nm (165 to 185 lb-ft)
Bolts for covers	68 to 122 Nm (50 to 90 lb-ft)
Ferry head bolts for bottom cover	108 to 122 Nm (80 to 90 lb-ft)

SPECIAL TOOLS



B796772

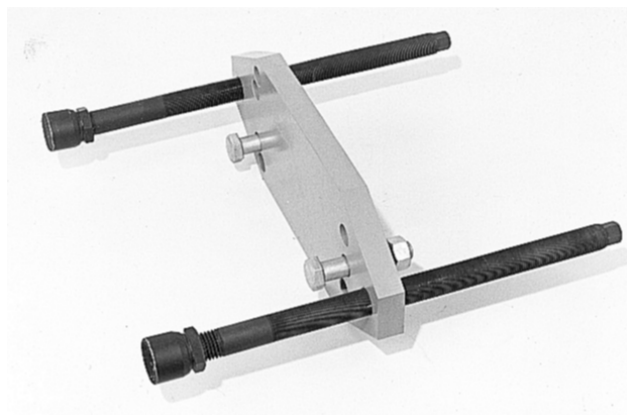
CAS-1553 LIFTING FIXTURE



B796757

CAS-1433 TORQUE WRENCH EXTENSION FOR FINAL DRIVE NUTS

IMPORTANT: *This tool is to only be used to tighten the stud nuts, NOT to loosen the nuts. Misuse will cause breakage of the ratcheting box wrench.*



B796756

CAS-1555 FINAL DRIVE OUTPUT SHAFT PULLER

WARNING: Use insulated gloves or mittens when working with hot parts. 47--41B

STEP 38



B796471

Remove the bearing that has the smallest ID from the oven. Install the bearing on the pinion shaft.

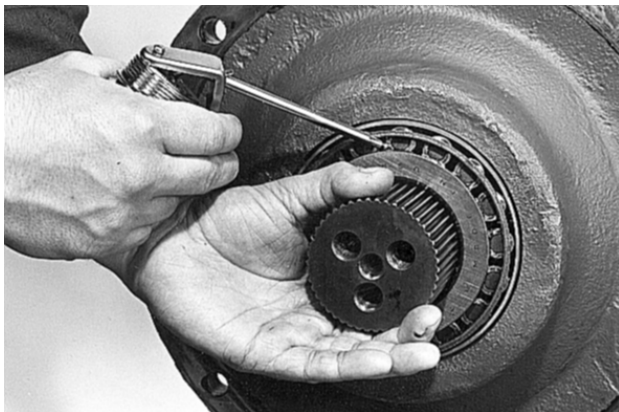
STEP 39



B796473

Install the retainer on the outer end of the pinion shaft so that the retainer is not centered on the end of the pinion shaft. Install two bolts to hold the retainer in place.

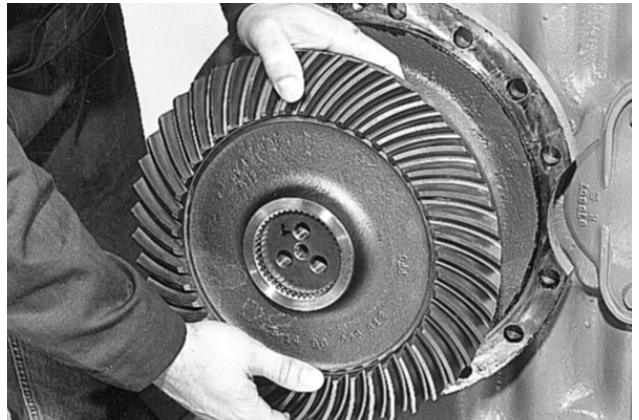
STEP 40



B796472

Lubricate the bearings with clean oil.

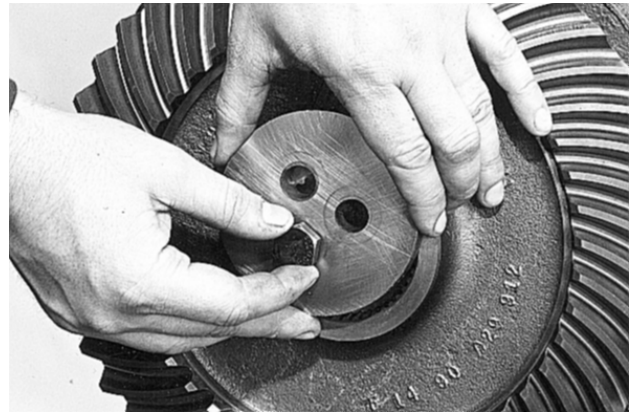
STEP 41



B796403

Install the final drive gear.

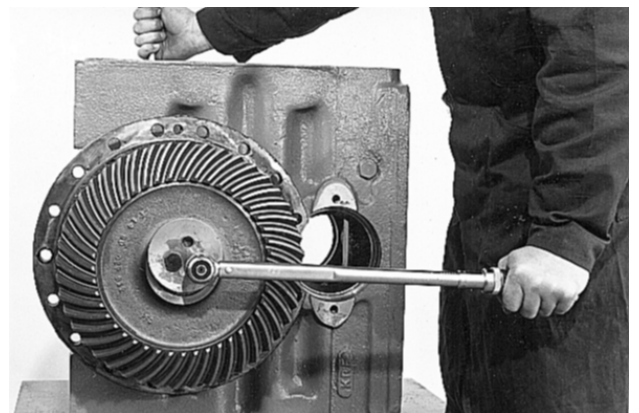
STEP 42



B796474

Install the retainer on the pinion shaft so that the retainer is not centered on the pinion shaft. Install two bolts to hold the retainer in place.

STEP 43



B796477

Prevent the pinion shaft from turning and tighten the bolts to a torque of 156 Nm (115 lb-ft).

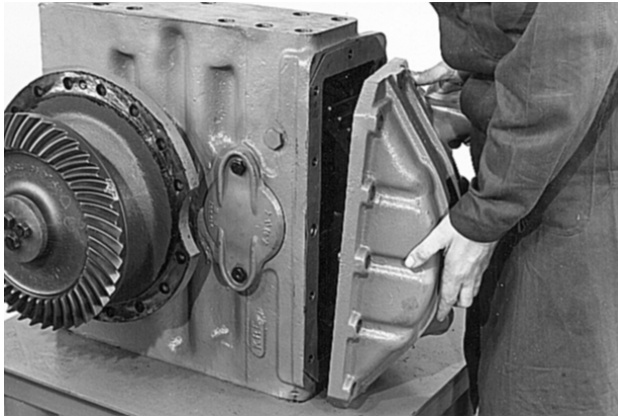
STEP 97



B796490

Install the cover, and bolts, and hardened washers. Tighten the bolts to a torque of 68 to 122 Nm (50 to 90 lb-ft).

STEP 98



B796491

Apply Gasket Eliminator 515 Sealant on the bottom cover and install the bottom cover.

STEP 99



B796492

Install the Ferry head bolts; the two long Ferry head bolts in the center hole on each side. Tighten the Ferry head bolts to a torque of 108 to 122 Nm (80 to 90 lb-ft).

STEP 100

Install the drain plug and gasket.

STEP 101

See Section 6016 for installing the final drive onto the transmission and checking the bevel gear back lash.

Section 7002

7002

BRAKE CONTROL VALVE

CASE CORPORATION
700 State Street
Racine, WI 53404 U.S.A.

CASE CANADA CORPORATION
3350 South Service Road
Burlington, ON L7N 3M6 CANADA

Bur 7-17860

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March, 2000

Section 7003

BRAKES

7003

CASE CORPORATION
700 State Street
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Burlington, ON L7N 3M6 CANADA

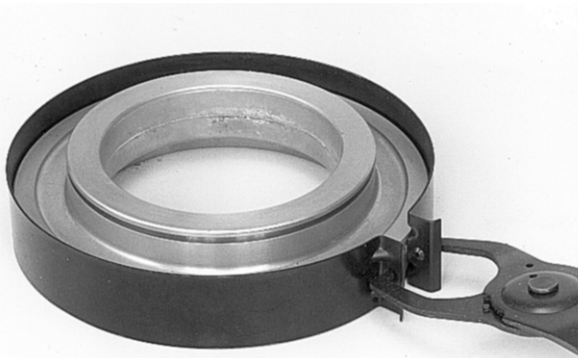
Bur 7-18620

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September, 2000

STEP 32

RP95K350

Lubricate the new piston seal with petroleum grease and install the seal into the larger OD groove. This will require the seal to be stretched, do not stretch it more than necessary.

STEP 33

RP95K351

Use the CAS-2229-4 seal compressor with the CAS-2229-1 clamping plier to tighten the tool and compress the seal into the groove. Wait three minutes for the seal to compress, loosen the tool and rotate the tool 1/4 turn around the piston seal then tighten the tool. Repeat this process three times.

STEP 34

RP95K352

Install a new backup O-ring in the smaller OD groove of the piston and use an O-ring tool to run around the O-ring while in the piston groove to remove any twists in the O-ring.

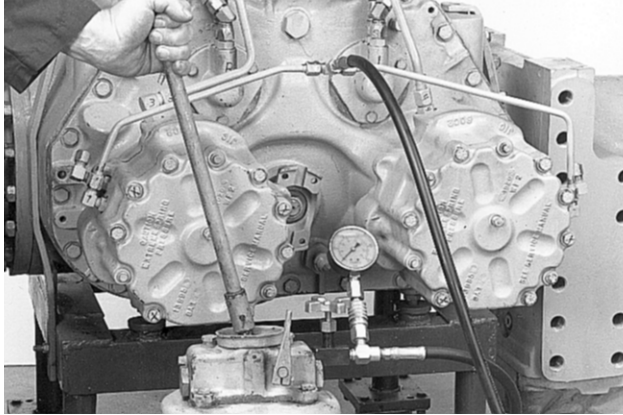
STEP 35

RP95K353

Lubricate the new piston seal with petroleum grease and install the seal into the smaller OD groove. This will require the seal to be stretched, do not stretch it more than necessary.

CHECKING AND ADJUSTING THE WEAR GAUGE

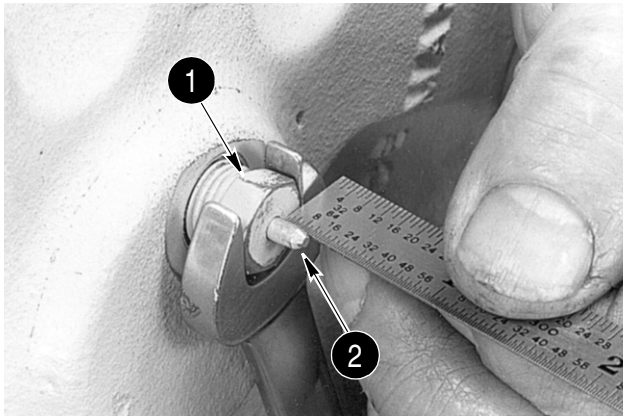
STEP 72



RP95K585

Connect a hand pump to the tee in the parking brake release line and pump up a pressure to release the parking brake. Releasing the pressure at the hand pump will apply the parking brake.

STEP 73



RP95K584

Check the wear indicator pin (2) travel from the parking brake applied position to the parking brake released position

Checking Brake Plate Wear

IMPORTANT: Do Not attempt to adjust the sight gauge plug (1) when the brake plates are used and worn. The gauge is preset at the factory and will only require adjustment when replaced.

STEP 74

When the brake plates are **new** and the parking brake is applied, push the indicator pin (2) in as far as it will go. Put Loctite 271 on the threads of the plug. Then adjust the sight gauge plug to obtain the 0.189 inches (4.8 mm) dimension to the end of the indicator pin from the face of the sight gauge plug. This establishes the correct dimension to gauge the wear of the brake plates.

STEP 75

To measure the wear indicator pin (2) travel hold a ruler on the face of the sight gauge plug (1) next to the wear indicator pin (2) when the parking brake is applied. Pump up a pressure with the hand pump to release the parking brake and measure the travel of the wear indicator pin (2). The movement of the pin will only be 0.040 to 0.060 inch (1.0 to 1.5 mm).

STEP 76

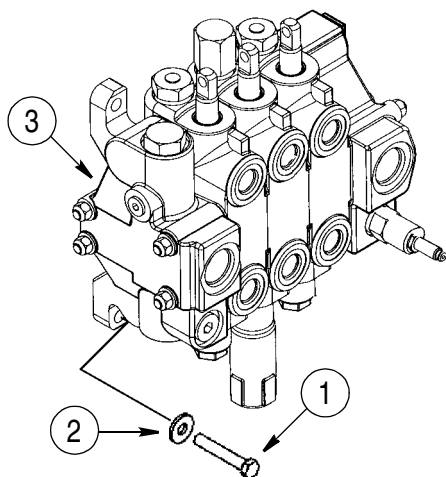
To check the brake plate wear:

1. Apply the parking brake by releasing any pressure from the hand pump.
2. Push the indicator pin (2) in as far as it will go.
3. Using a straight edge, determine if the indicator pin (2) is above the face of the sight gauge plug (1).
4. If the indicator pin (2) is flush with or below the surface of the face of the sight gauge plug (1) then replace the brake plates.

NOTE: The parking brake is spring applied and hydraulically released. If a crawler must be moved and the engine will not start, the hand pump must be used to release the parking brake before towing the crawler.

Installation

STEP 22



BS00J044

1. BOLT
2. WASHER
3. CONTROL VALVE

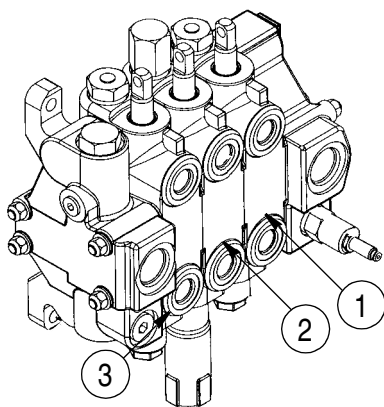
Position and support the control valve on its mounting plate. Install three washers and bolts to secure the control valve.

NOTE: In following steps remove plugs and caps installed during removal from hoses, tubes, and valve ports.

STEP 23

Connect the inlet hose to control valve. Loosely tighten the hose fitting.

STEP 24



BS00J044

1. ANGLE SECTION
2. LIFT SECTION
3. TILT SECTION

Rotate the tilt circuit tubes up towards the tilt section of the valve and connect the tubes to the control valve. Loosely tighten the fittings.

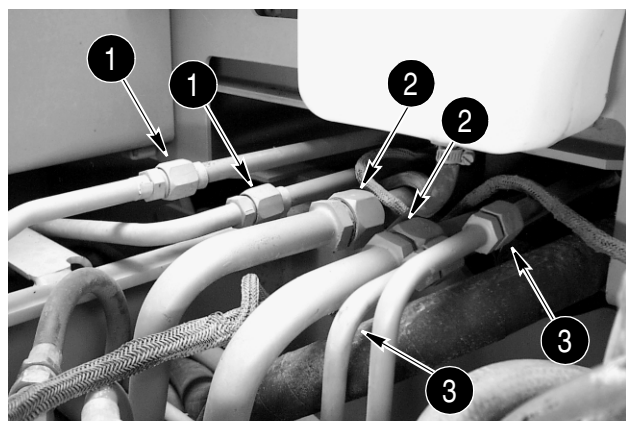
STEP 25



BD00J015

Install the clamp to secure the inlet hose. Tighten inlet hose fitting at the control valve. Install the clamps to secure the tilt circuit tubes together.

STEP 26

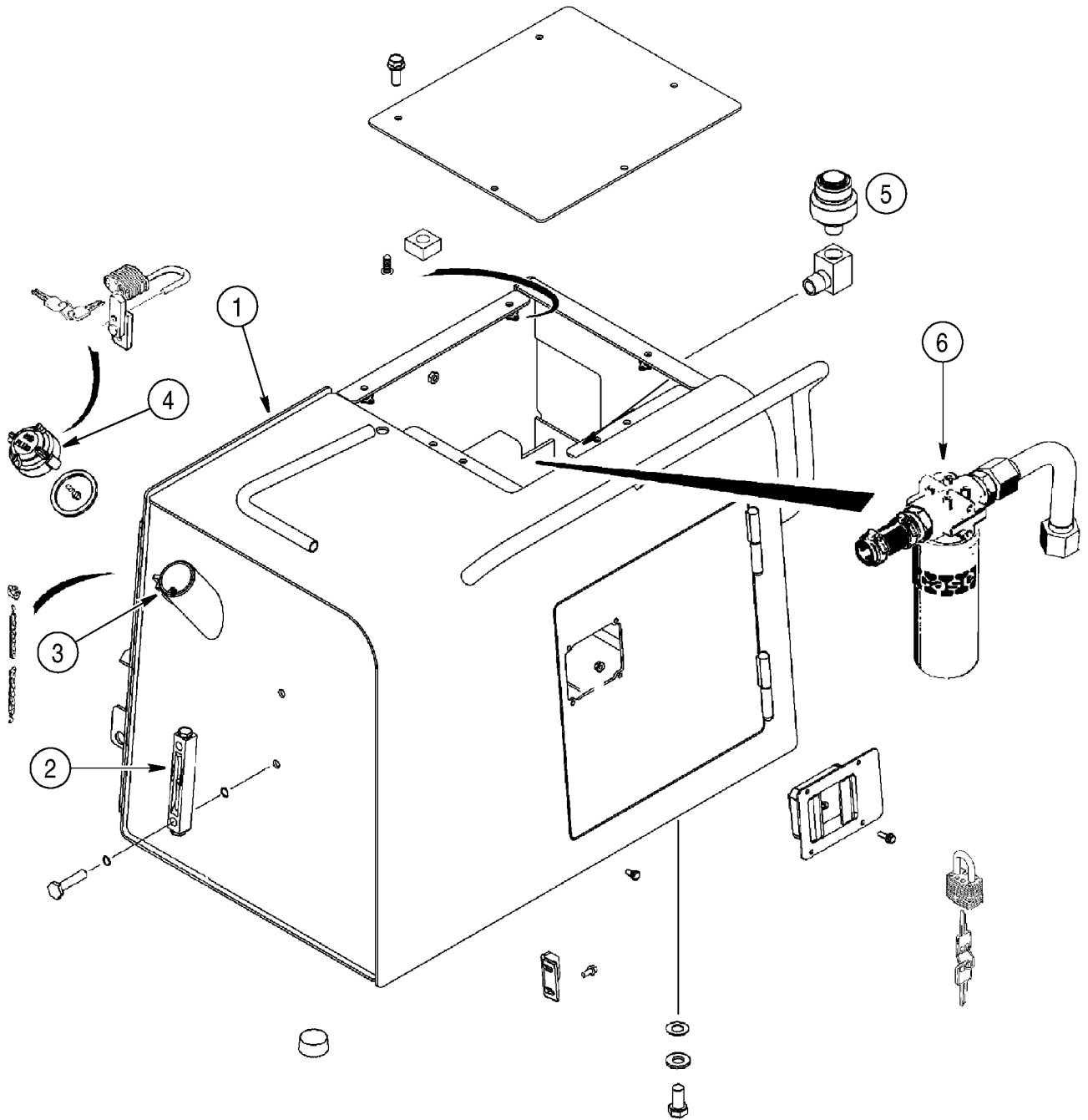


BD00H089

1. ANGLE CIRCUIT TUBES
2. LIFT CIRCUIT TUBES
3. TILT CIRCUIT TUBES

Just behind the control valve, below the transmission oil recovery reservoir, tighten the tube fittings. First, tighten the fittings for the tilt circuit tubes then tighten fittings at the control valve. Second, rotate lift circuit tubes up at control valve, connect and finger tighten fittings then tighten fittings behind control valve and finally tighten fittings at front of valve. Do the same for the angle circuit tubes.

HYDRAULIC SYSTEM RESERVOIR AND FILTER

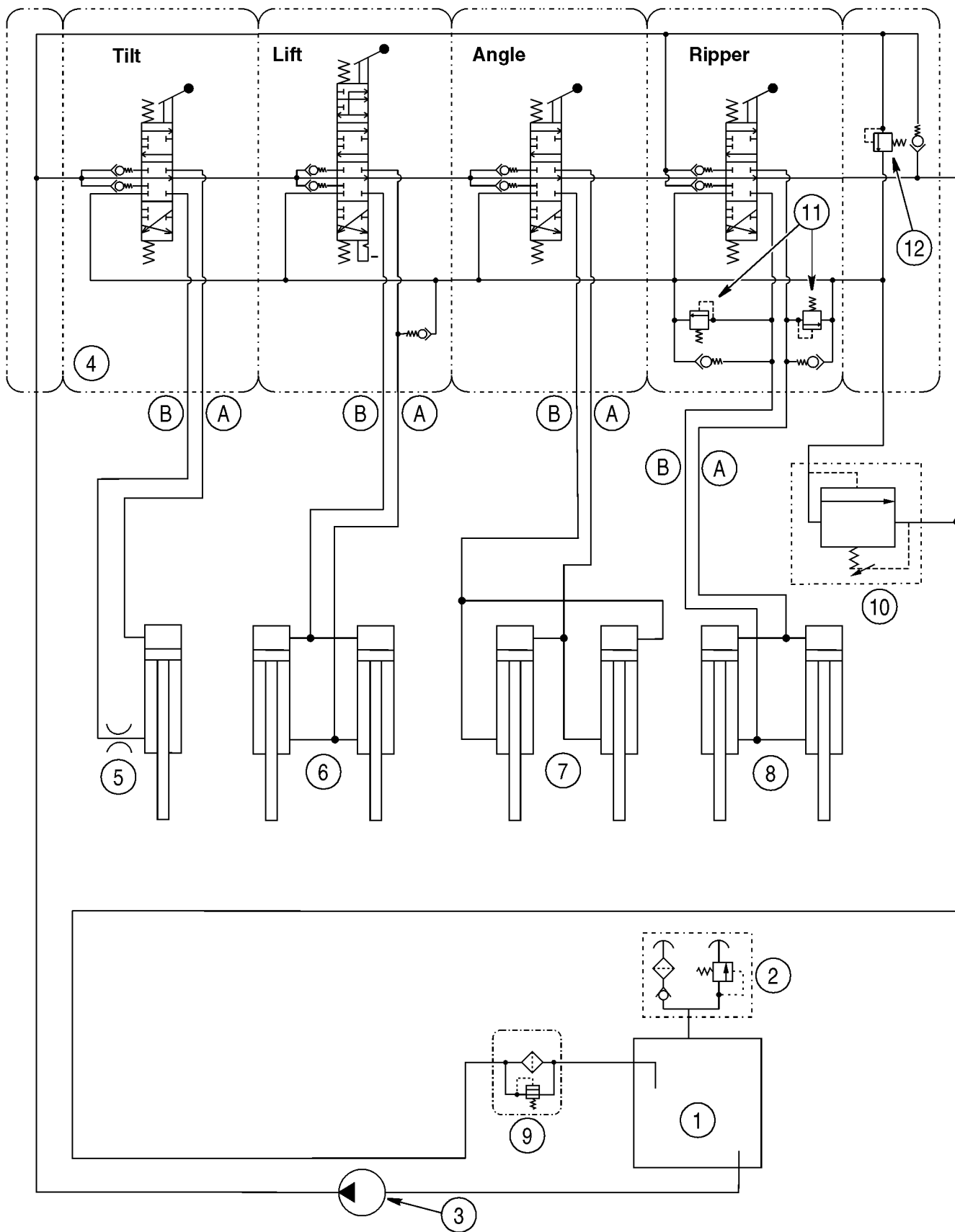


- 1. HYDRAULIC RESERVOIR
- 2. FLUID LEVEL SIGHT GAUGE
- 3. FILL NECK

- 4. FILL CAP
- 5. BREATHER
- 6. HYDRAULIC SYSTEM FILTER

BS00A160

HYDRAULIC SYSTEM SCHEMATIC



FLOWMETER CHECK SHEET

Metric Measure

Owner _____ Date _____ Hours _____

Model _____ Product Identification Number _____

Oil Temperature: At start of test _____ ° C. At end of test _____ ° C.

Test No. 1 - Equipment Pump Efficiency

1. _____ L/min at minimum pressure at **2200 r/min**

2. _____ L/min at 138 bar at **2200 r/min**

The efficiency of the equipment pump is line 2 divided by line 1.

Example:
$$\frac{.86}{36 \overline{)31.00}} \quad .86 = 86\% \text{ efficient}$$

Test No. 2 - Dozer/Ripper Circuits and Main Relief Valve

Main relief valve begins to open at _____ bar.

Main relief valve completely open at _____ bar. See Specifications on page 3.

Engine Speed **2200 r/min**

Dozer Lift _____ L/min at 138 bar Tilt Right _____ L/min at 138 bar

Dozer Lower _____ L/min at 138 bar Tilt Left _____ L/min at 138 bar

Angle Right _____ L/min at 138 bar Ripper Lift _____ L/min at 138 bar

Angle Left _____ L/min at 138 bar Ripper Lower _____ L/min at 138 bar

Section 8005

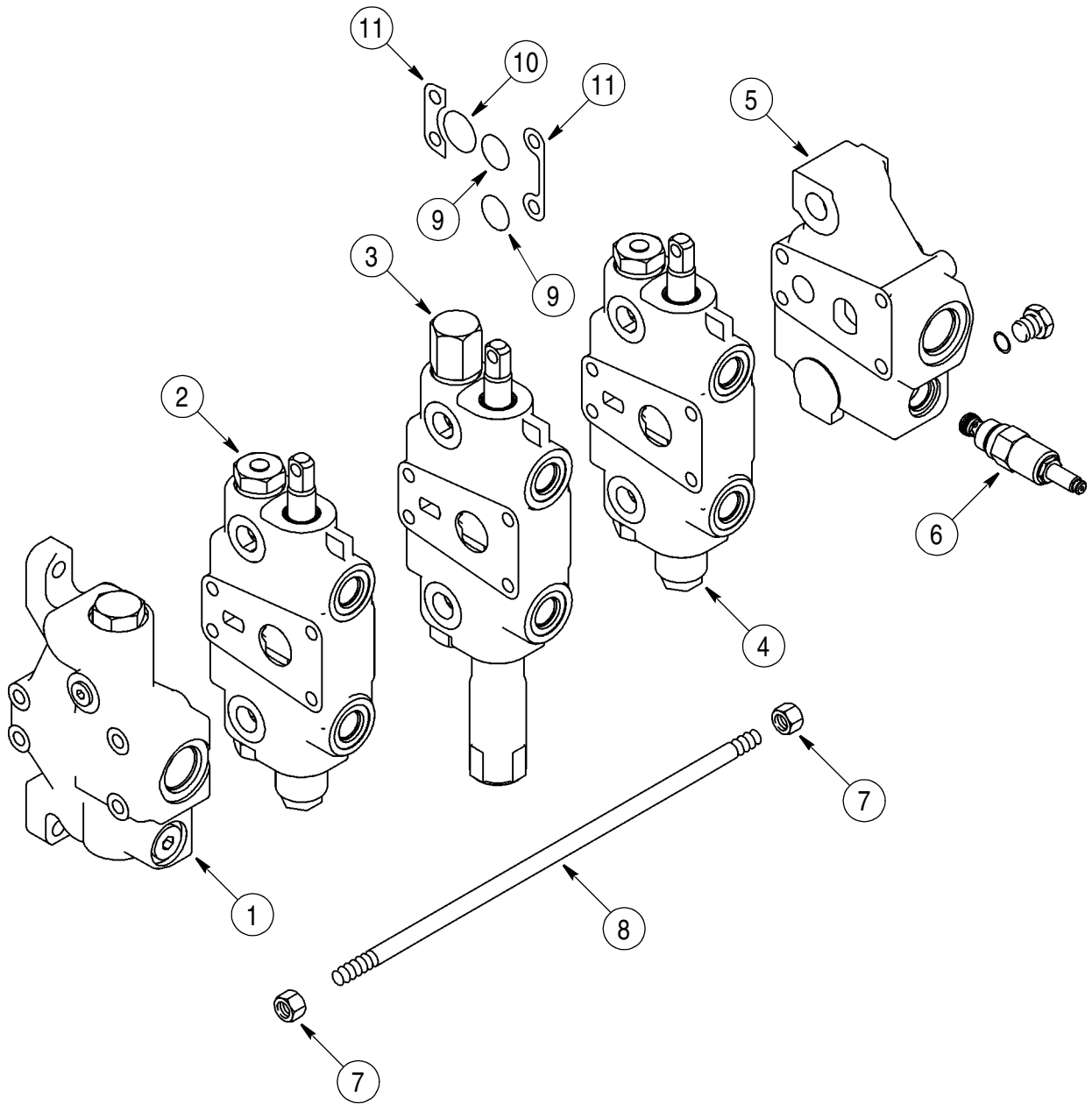
EQUIPMENT PUMP

CASE CORPORATION
700 State Street
Racine, WI 53404 U.S.A.

CASE CANADA CORPORATION
3350 South Service Road
Burlington, ON L7N 3M6 CANADA

Bur 7-18650

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1. INLET SECTION
 2. TILT SECTION
 3. LIFT SECTION

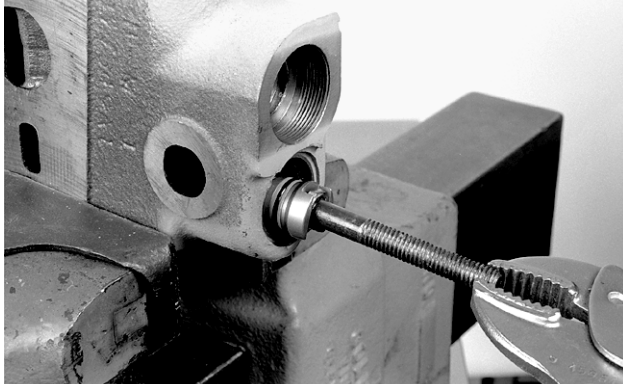
4. ANGLE SECTION
 5. OUTLET SECTION
 6. MAIN RELIEF VALVE

7. NUT
 8. STUD
 9. SMALL O-RING

10. LARGE O-RING
 11. SHIM

DOZER CONTROL VALVE

BC00G099

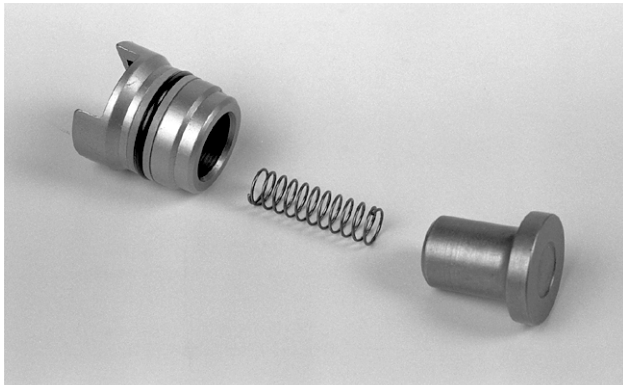
STEP 47

BP99J041

Use the tool shown on page 3 to remove the load check assembly from the body.

STEP 48

Repeat step 47 for the opposite end of the body.

STEP 49

BP99J026

Separate the load check poppet, the spring, and the load check body.

STEP 50

BP99J027

Remove the O-ring and the backup rings from the load check body.

STEP 51

BP99J024

Remove the O-rings and the backup ring from the load check plug.

STEP 52

BP99J045

Remove the O-rings and the backup ring from the check valve.

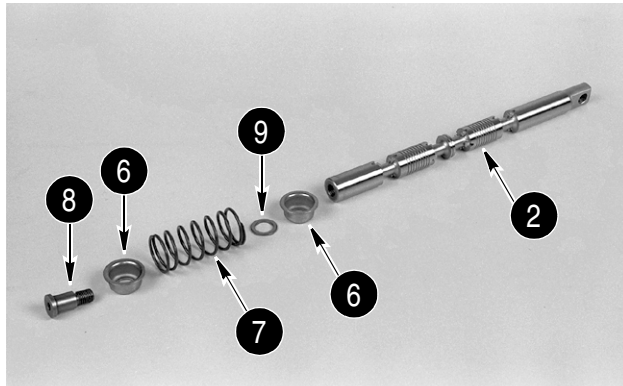
STEP 53

BP99J046

Remove the plug from the detent housing.

Assembly

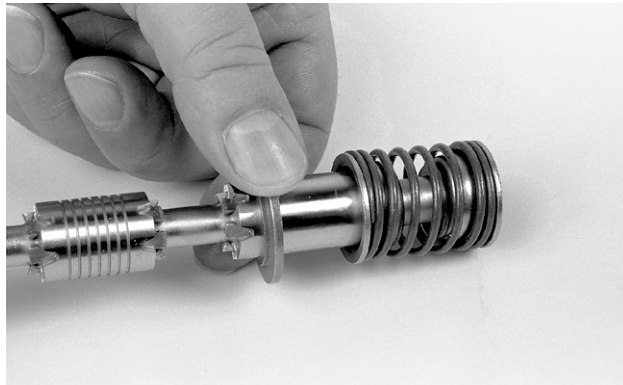
STEP 94



BP99J067

Assemble the parts of the spool assembly in the order shown above. Make sure that the spool screw (8) is installed through the spacer (9). Tighten the spool screw according to the specifications on page 3.

STEP 95



BP99J029

Install the retainer on the spool.

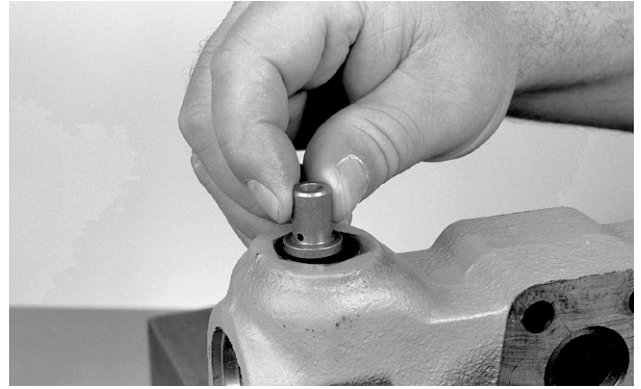
STEP 96



BP99J028

Use clean oil to lubricate the O-ring and the spool. Install the O-ring on the spool. Be careful so that you do not cut the O-ring on the edges of the spool.

STEP 97



BP99J063

Install the poppet in one end of the body.

STEP 98



BP99J062

Install the spring in the poppet.

STEP 99

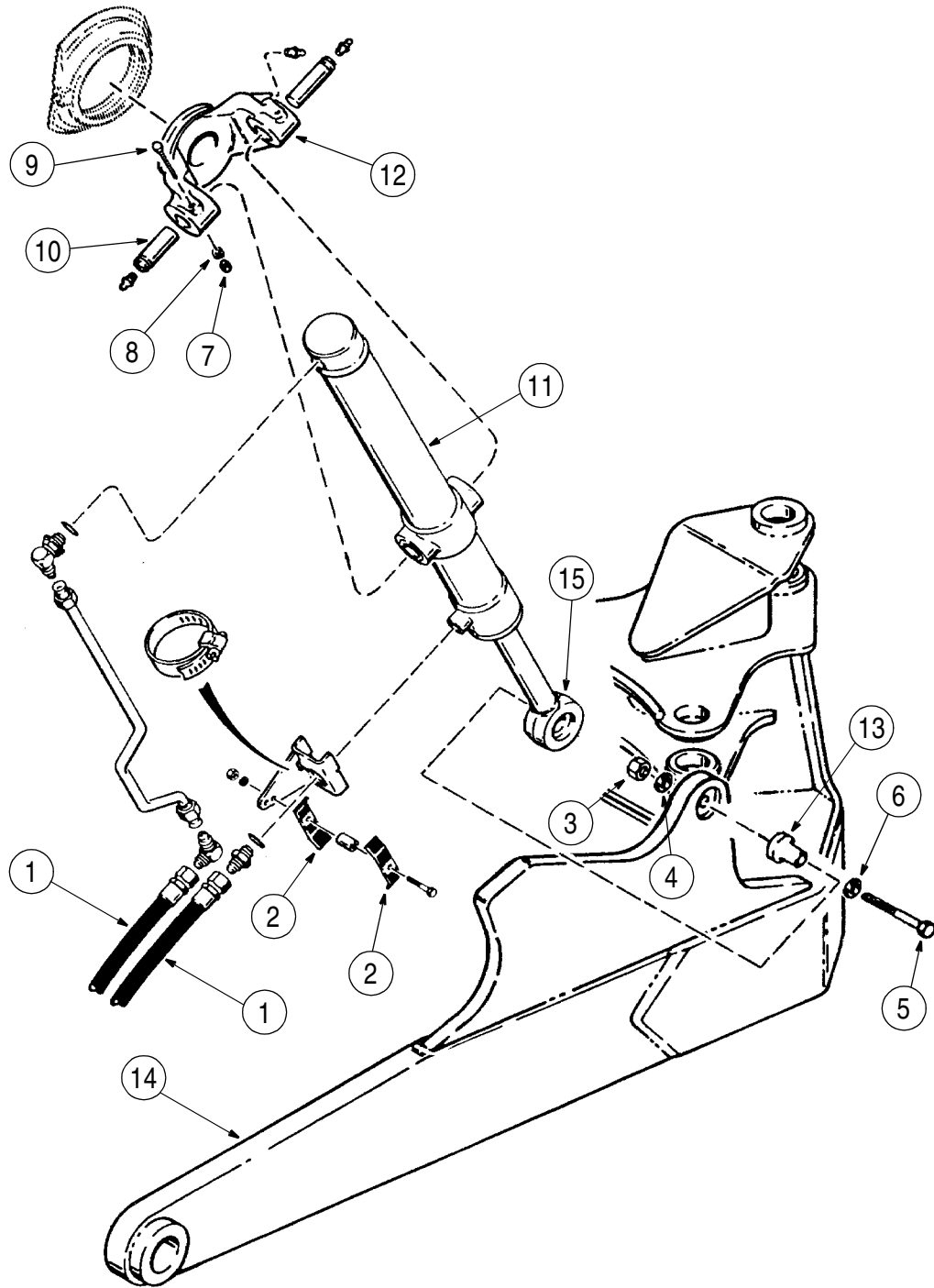


BP99J061

Install the anti-cavitation plug. Tighten the anti-cavitation plug according to the specifications on page 3.

STEP 100

Repeat steps 97 through 99 for the opposite end of the body.



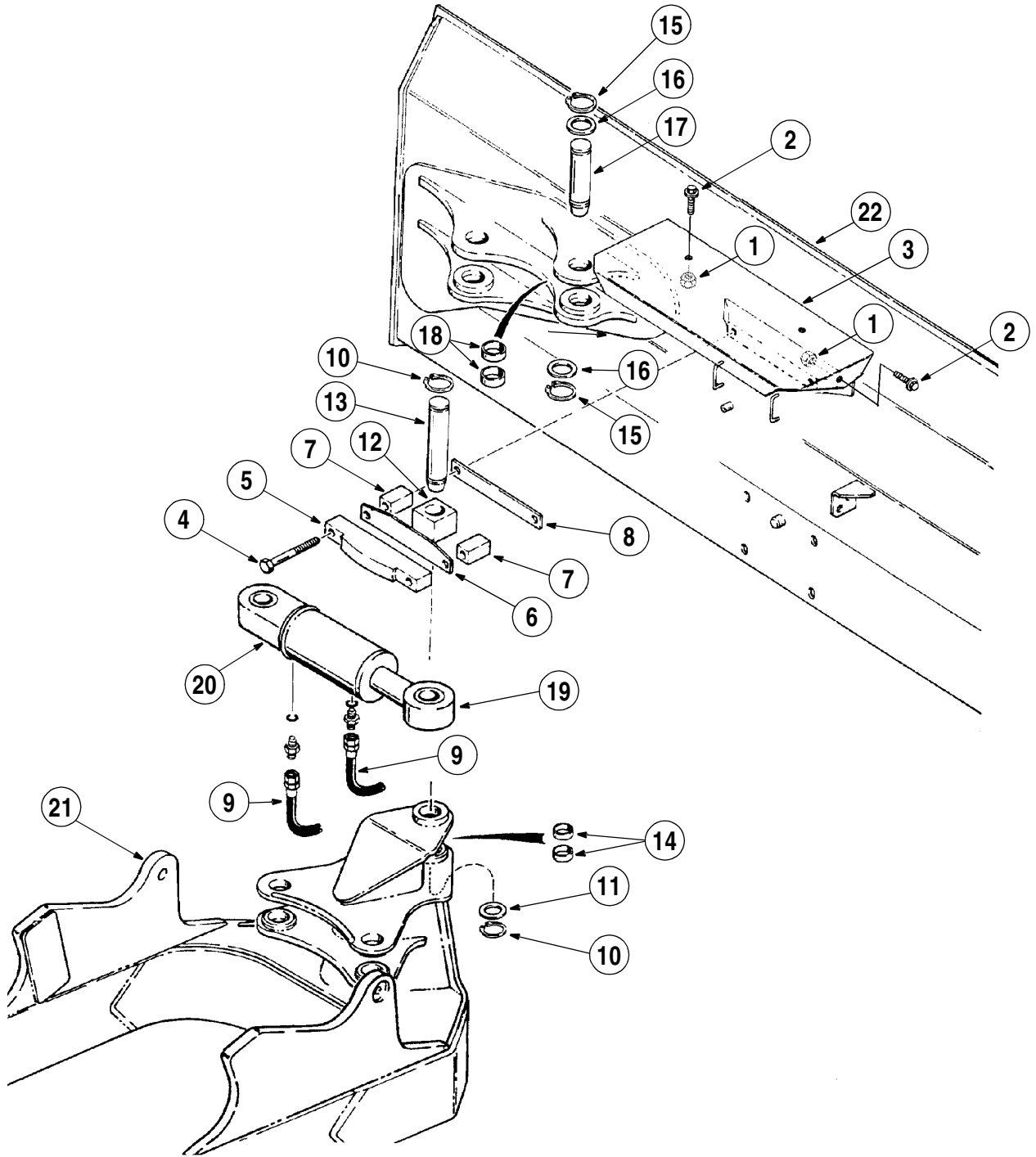
BS00G112

- 1. HOSE
- 2. CLAMPS
- 3. LOCK NUT
- 4. WASHER
- 5. BOLT

- 6. HARDENED WASHER
- 7. NUT
- 8. LOCK WASHER
- 9. BOLT
- 10. TRUNNION PIN

- 11. LIFT CYLINDER
- 12. TRUNNION
- 13. ROD EYE MOUNT
- 14. C-FRAME
- 15. PISTON ROD EYE

LIFT CYLINDER



- 1. LOCK NUT
- 2. BOLT
- 3. HOSE GUARD
- 4. BOLT
- 5. RETAINER PLATE
- 6. INNER WEAR PLATE
- 7. BLOCK
- 8. OUTER WEAR PLATE

- 9. HOSE
- 10. RETAINING RING
- 11. WASHER
- 12. SLIDE BLOCK
- 13. PIN
- 14. SPACER
- 15. RETAINING RING
- 16. WASHER

- 17. PIN
- 18. SPACER
- 19. PISTON ROD EYE
- 20. TILT CYLINDER
- 21. C-FRAME
- 22. DOZER BLADE

TILT CYLINDER

BS00G113

Inspection

STEP 135

Discard the parts that were removed from the piston and the gland.

STEP 136

Clean all parts in cleaning solvent.

STEP 137

Use a straight edge to check that the piston rod is straight. If the piston rod is not straight, install a new piston rod.

STEP 138

Illuminate the inside of the tube. Inspect the inside of the tube for deep grooves and other damage. If there is any damage to the tube, a new tube must be used.

STEP 139

Remove small scratches on the piston rod or inside the tube with emery cloth of fine grit. Use the emery cloth with a rotary motion.

STEP 140

Inspect the bushings in the piston rod eye or yoke, and the tube, and replace as required. See the instruction in this section.

STEP 141

Inspect the gland for rust and clean and remove all rust.

STEP 142

Inspect the gland end of the tube for sharp edges that will cut the gland O-ring. Remove sharp edges as necessary.

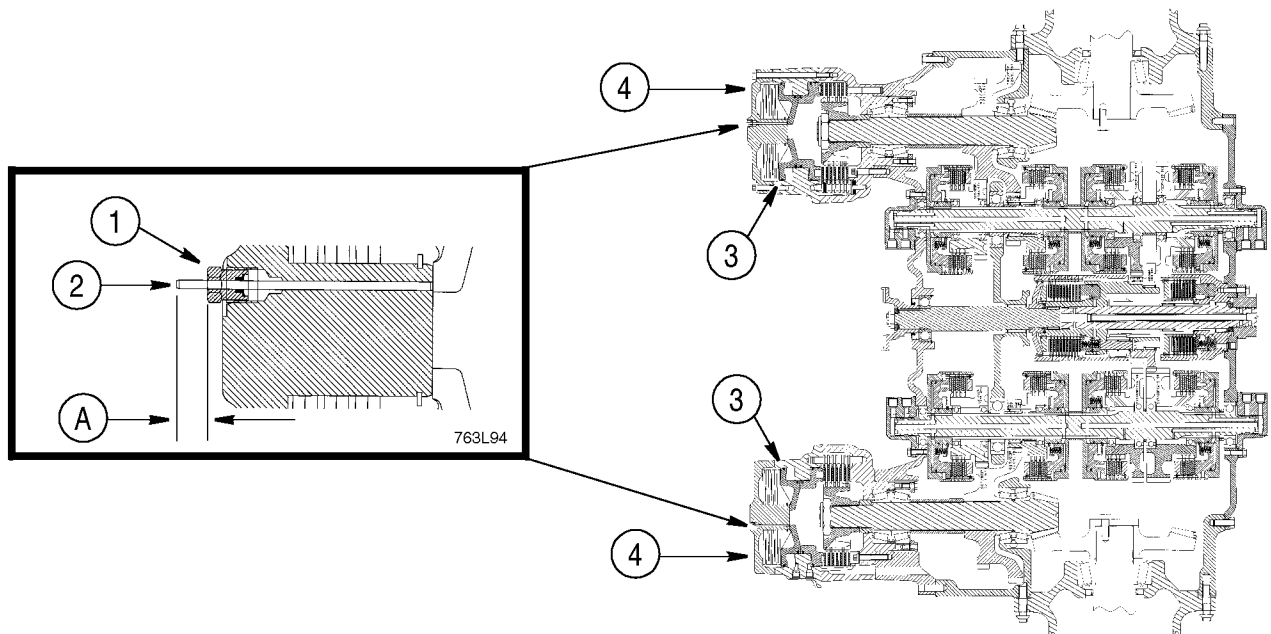
STEP 143

Inspect the piston for damage and wear. If the piston is damaged or worn, install a new piston.

SECTION INDEX
MOUNTED EQUIPMENT

Section Title	Section Number
Pedals, Levers, and Linkages	9002
Air Conditioning Troubleshooting and System Checks for Systems with HFC134a Refrigerant	9003
Air Conditioning System Service - Refrigerant Recovery, System Evacuation, and Recharging for Systems with HFC134a Refrigerant	9004
Removal and Installation of Air Conditioning System Components for Systems with HFC134a Refrigerant	9005
Air Conditioning Compressor and Clutch for Systems with HFC134a Refrigerant	9006
Dozer Blade	9007
ROPS Cab, ROPS Canopy, Seat Mounting, and Seat Belts	9008
Ripper	9011

CHECKING OPERATION OF BRAKES



- 1. SIGHT GAUGE PLUG
- 2. INDICATOR PIN
- 3. PARKING BRAKE PISTON

- 4. PARKING/STEERING BRAKE
- A. 4.8 MM (0.189 INCH)

761L94

Checking Brake Plate Wear

NOTE: Dimension A is measured with the parking brake applied and with new brake plates.

IMPORTANT: Do not adjust the sight gauge plug (1) when the brake plates are used and worn. The gauge is preset at the factory and will require adjustment only when new brake plates are installed.

1. When the brake plates are new and the parking brake is applied, put Loctite 271 on the threads of the sight gauge plug (1) and install in the cover. Push the indicator pin (2) in as far as it will go. To adjust, turn the sight gauge plug in to obtain dimension (A) from the face of the sight gauge plug to the end of the indicator pin. This establishes the correct dimension to gauge the wear of the brake plates.
2. To check the brake plate wear:
 - A. Apply the parking brake.
 - B. Push the indicator pin (2) in as far as it will go.
 - C. Using a straight edge, determine if the indicator pin (2) is above the face of the sight gauge plug (1).
 - D. If the indicator pin (2) is flush with or below the surface of the face of the sight gauge plug (1) replace the brake plates.

Checking the Parking Brake for Hold

1. Remove the battery cover from over top of the transmission control valve.
2. Disconnect the electrical connector from the parking brake solenoid on the transmission control valve.
3. The operator must be seated with the seal belt fastened. Make sure the surrounding area is clear of all persons and is a flat level surface.
4. Start and run the engine at low idle. Put the transmission controls in FORWARD and THIRD GEAR (Low Range and High Track Speed) and slowly increase the engine speed to full throttle.
5. A good parking brake will hold the tracks from moving in third gear. If the parking brake fails to hold, check to see if the parking brake is applied and for brake plate wear.

NOTE: The parking brake will not hold in first gear (Low Range and Low Track Speed)

6. Connect the electrical connector to the parking brake solenoid and install the battery cover.

Section 9003

AIR CONDITIONING TROUBLESHOOTING AND SYSTEM CHECKS

For Systems with HFC134a Refrigerant

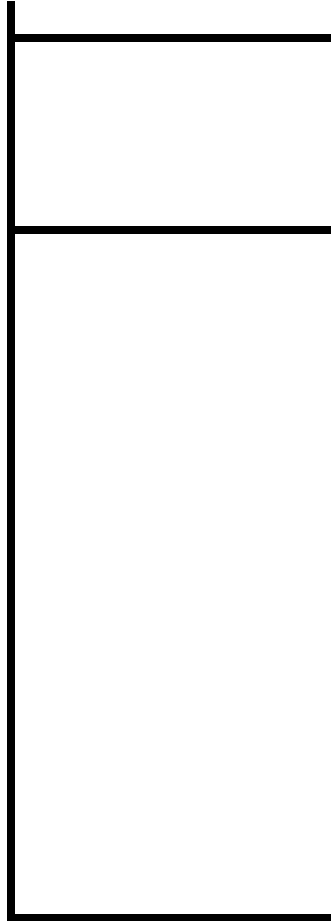
**CASE CORPORATION
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Visual and Leak Check




Compressor Hoses

1. Make sure that all hose connections are tight.
2. Check hoses for bends or cracks. Replace all hoses that have damage.

Leak Finding Check

1. Shut off the engine.

 **WARNING:** *When refrigerant comes in contact with an open flame, it can form dangerous gas. Never breathe these fumes.* SM109A

2. Use electronic leak detector OEM-1437 to inspect all connections. Use instructions from manufacturer of leak finding tool.

NOTE: *When checking compressor seal for a leak, remove the dust cover and rotate the clutch shaft clockwise.*

NOTE: *To properly check the expansion valve for leaks, remove the insulation tape.*

3. Repair all leaks and recharge the system. See Section 9004.

Condenser

1. Make sure the condenser is clean and the seals are in place. Make sure condenser fans run when temperature control switch is ON.

(Not Enough Cooling)

High Side Restriction - Indications: _____

- A. Discharge air from heater/evaporator only a little cool.
- B. Condensation or frost on receiver-drier.
- C. Liquid line to receiver-drier cool, with frost or condensation.

NOTE: *The frost will form downstream from or at the point of the restriction*

1. Recover the refrigerant from the system. A restriction in receiver-drier or liquid line must be removed.
2. Remove and replace part with restriction.
3. Remove air and moisture from the system. See Section 9004.
4. Charge system with new refrigerant. See Section 9004.



Expansion Valve Not Operating - Indications: _____

- A. Discharge air from evaporator warm or cool - not cold.
- B. Condensation or frost on expansion valve inlet.
- C. Inlet end of expansion valve is warm.

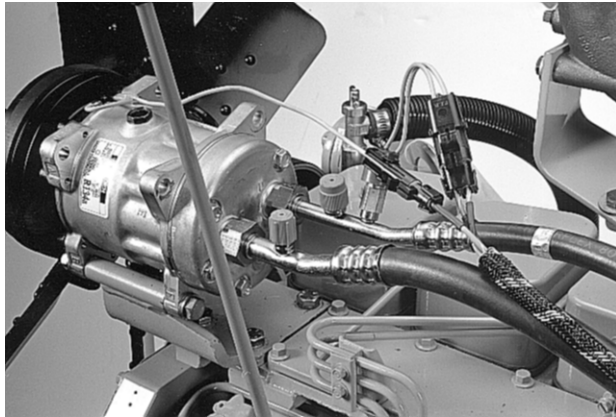
1. Expansion valve outlet with condensation or frost is an indication of a restriction in the expansion valve. Replace expansion valve. See Section 9005.
2. Inlet end of expansion valve is warm, indicating expansion valve is not completely open. Replace expansion valve. See Section 9005.

AIR CONDITIONER SYSTEM REFRIGERANT RECOVERY

Recovered refrigerant passes through an oil separator and a filter-drier before entering the refrigerant tank. The moisture indicator will turn green when dry refrigerant passes over it.

If possible, run the air conditioning system for ten minutes before starting the recovery process. Turn the system off before proceeding.

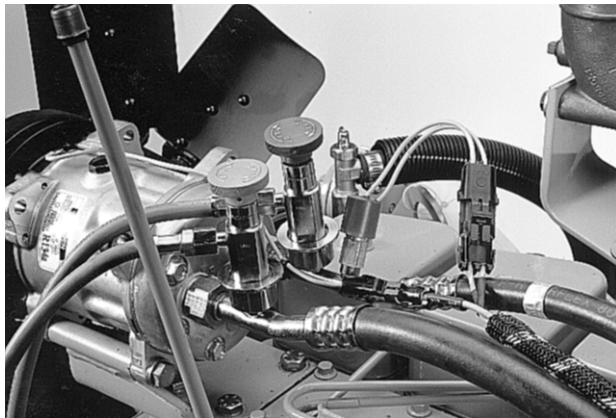
STEP 1



RP95J175

Clean the external surfaces of the compressor and hoses. Remove the caps from the service ports on the suction and pressure hoses.

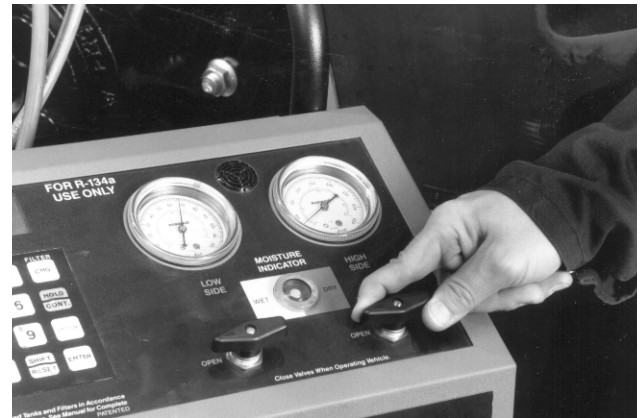
STEP 2



RP95J177

Make sure the charging station manifold gauge valves are in the closed position. Connect the hose from the low pressure gauge to the port on the suction hose. Connect the hose from the high pressure gauge to the port on the discharge hose. Turn in both thumbscrews to depress the service valves.

STEP 3



A22114

Open the high and low valves.

STEP 4



A22107

Make certain the refrigerant tank gas and liquid valves are open.

AIR CONDITIONING COMPRESSOR

Removal

STEP 1

Park the machine on a level surface and lower the blade to the floor. Apply the parking brake. Stop the engine and turn the master disconnect switch to OFF.

STEP 2

Make sure the compressor and engine are clean before connecting the refrigerant recovery system or disconnecting any lines.

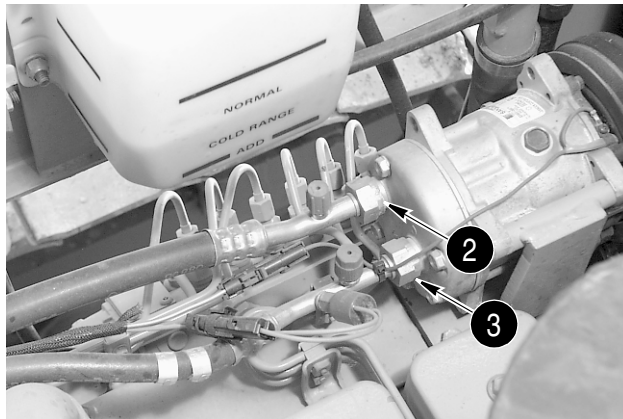
STEP 3

Connect the OEM-1415 Refrigerant Recovery, Recycling and Charging Station to the High and Low charge ports in the hose fittings connected to the compressor. Evacuate the system to remove all of the refrigerant, see Section 9004 for the procedure.

STEP 4

Disconnect the compressor clutch wire and high pressure switch connectors (1) from the wiring harness connectors.

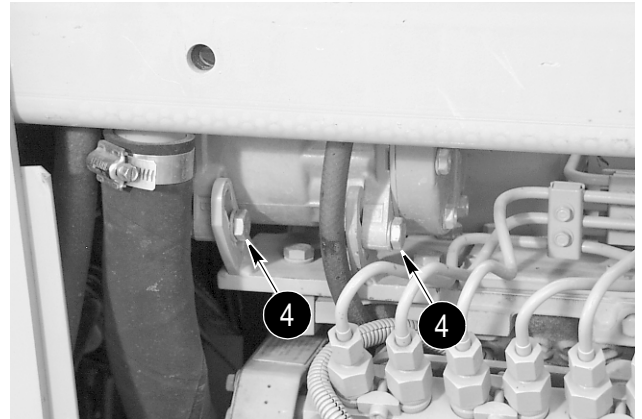
STEP 5



BD00F170

Disconnect the low pressure line (2) from the suction port and the high pressure line (3) from the discharge port on the compressor. Immediately install protective caps on the open ports and lines.

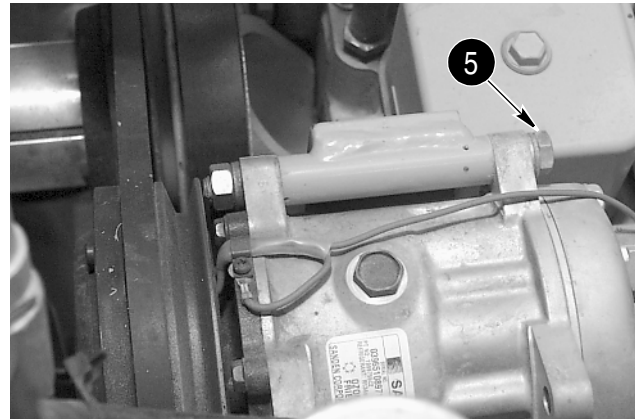
STEP 6



BD00F188

Remove the compressor adjusting bolts (4), lock washers and washers.

STEP 7



BD00F185

Loosen the compressor pivot bolt (5).

STEP 8

Push the compressor down toward the engine. Remove the compressor belt.

STEP 9

Remove the compressor pivot bolt (5), nut and washers.

STEP 10

Remove the compressor (6) from the mounting bracket (7). See Section 9006 in the manual to service the compressor.

AIR CONDITIONING SYSTEM CONDENSER

Removal

STEP 1

Park the machine on a level surface and lower the blade to the floor. Apply the parking brake. Stop the engine and turn the master disconnect switch to OFF.

STEP 2

Connect the OEM-1415 Refrigerant Recovery, Recycling and Charging Station to the High and Low charge ports in the hose fittings at the compressor. Evacuate the system to remove all of the refrigerant, see Section 9004.

STEP 3

Remove the bolts securing the top cover above the cab roof for the air conditioning system. Remove the top cover.

STEP 4

Remove the bolts securing the rear perforated shield and remove the shield to access the air conditioning condenser.

STEP 5

Fasten identification tags on the hose and tube to the condenser. Disconnect the hose and tube from the condenser. Remove and discard the O-rings.

STEP 6

Install plugs in the hose and tube. Install caps on the fittings to the condenser.

STEP 7

Loosen and remove the four bolts and lock washers fastening the condenser core to the mounting brackets.

STEP 8

Remove the condenser core.

Installation

STEP 9

Put the condenser core in position. Install and tighten the four bolts and lock washers securing the condenser core to the mounting brackets

STEP 10

Remove the caps and plugs from the hose, tube and fittings.

STEP 11

Lubricate new O-rings with clean refrigerant oil and install the O-rings.

STEP 12

Connect the hose and tube to the condenser and tighten the fittings.

STEP 13

Connect the OEM-1415 Refrigerant Recovery, Recycling and Charging Station to the High and Low charge ports in the hose fittings connected to the compressor. Evacuate the system and charge the system with reclaimed or new refrigerant, see Section 9004 for the procedure.

STEP 14

Install the rear perforated shield and tighten the bolts that secure the shield.

STEP 15

Install the top cover for the air conditioning system and tighten the bolts the secure the cover.

STEP 7

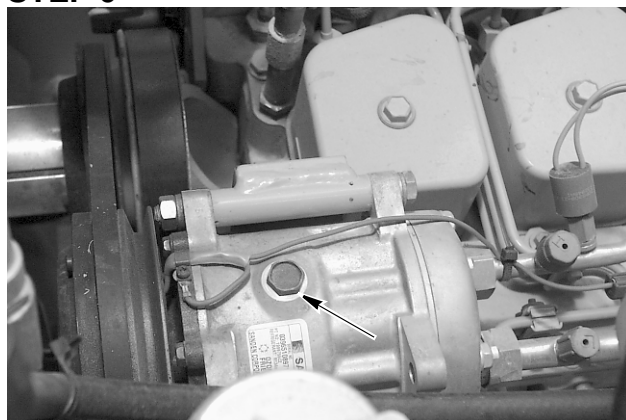
Remove the dipstick. Count the oil level marks on the dipstick. Use the following table to find the correct oil level for the mounting angle of the compressor.

Compressor Oil Level	
MOUNTING ANGLE (DEGREES)	DIPSTICK READING
0	4 to 6
10	6 to 8
20	7 to 9
30	8 to 10
40	9 to 11
50	9 to 11

STEP 8

If the oil level is not correct, add or subtract oil to the correct level shown in the above chart.

IMPORTANT: Use only *SP-20 PAG oil*.

STEP 9

BD00F185

Install a new O-ring on the oil filler plug. Install the plug and tighten to a torque of 15 to 24 Nm (11 to 18 lb ft).

Section 9007

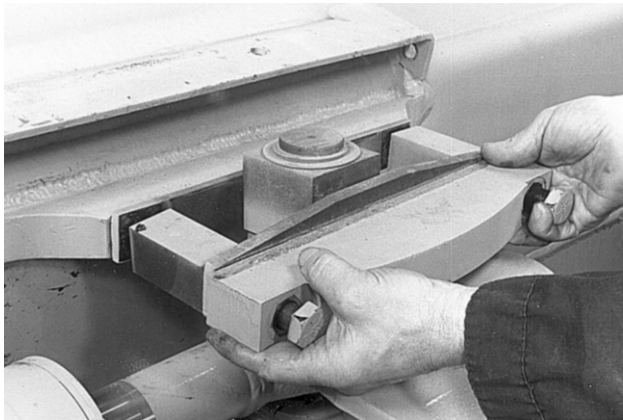
DOZER BLADE

CASE CORPORATION
700 State Street
Racine, WI 53404 U.S.A.

CASE CANADA CORPORATION
3350 South Service Road
Burlington, ON L7N 3M6 CANADA

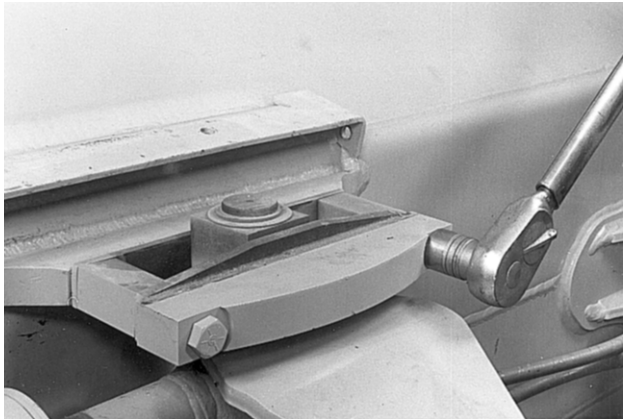
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STEP 41

RP95N123

Apply Loctite 243 to threads of bolts (4). Install the new wear plates (6), spacers (7), slide retainer (5), and bolts (4).

STEP 42

RP95N122

Tighten the bolts (4) to a torque of 515 to 618 Nm (380 to 456 lb-ft).

STEP 43

RP95N113

Install the guard (3) over the tilt cylinder and slide block (10).

STEP 44

RP95N112

Install and tighten the nuts (2) and bolts (1) to secure the guard (3) to the blade (23).

STEP 45

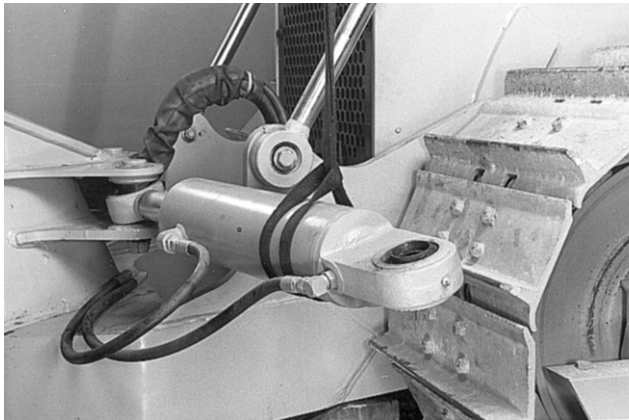
Lubricate the tilt cylinder pin with Molydisulfide grease.

STEP 46

BD00J019


Put the battery disconnect switch in the ON position.

STEP 111



RP95N133

Connect a lifting sling to the angle cylinder and move the angle cylinder to the blade (23).



WARNING: Do not use your fingers to check the alignment of the cylinder rod. Personal injury can be the result.

48-88

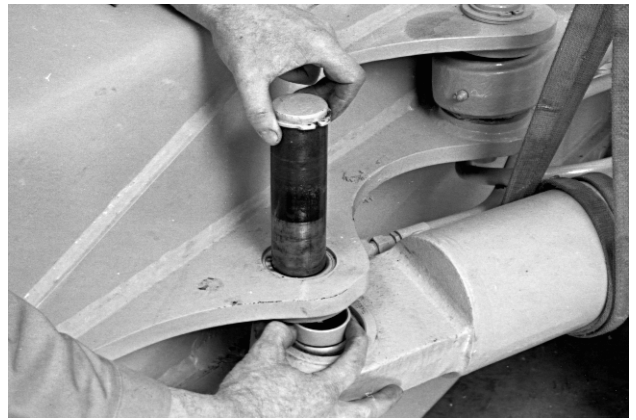
STEP 112



BS00J019

1. Put the battery disconnect switch in the ON position.
2. Start and run the engine at low idle.
3. Move the control lever for the angle circuit on the hydraulic control valve, so the closed end of the angle cylinder can be aligned with pin holes in the mounting bracket on the blade (23).
4. Stop the engine.

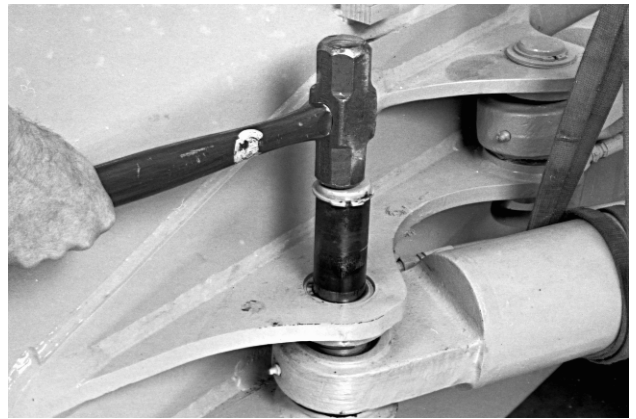
STEP 113



B5402289M

Install a spacer (14) on each side of the closed end of the angle cylinder. Start the pivot pin (13) into the mounting bracket on the blade (23).

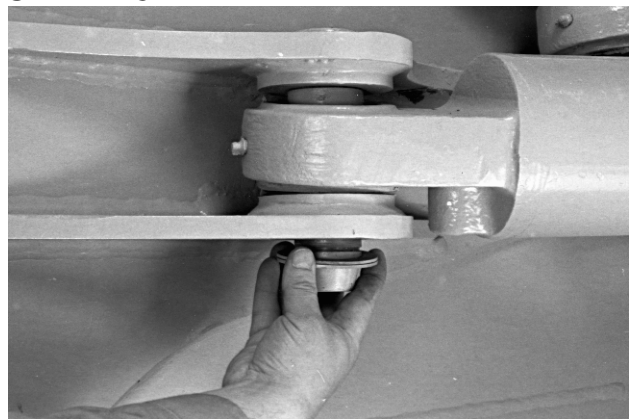
STEP 114



B5042489M

Align the closed end of the angle cylinder and the spacers (14) with the mounting bracket on the blade (23) and drive the pivot pin (13) all the way through the mounting brackets.

STEP 115



B5401489M

Install the flat washers (12) on the pivot pin (13).

POSSIBLE DAMAGE TO ROPS CAB OR CANOPY

If the machine has rolled over or the ROPS cab or canopy has been in some type of accident (such as hitting an overhead object during transport), the ROPS cab or canopy must be replaced.

After an accident, check for damage to the ROPS cab or canopy, the operator seat, the seat belts and wiring in the ROPS cab or canopy. Before operating the machine again, all damaged parts must be replaced.

Do not weld or try to straighten the ROPS cab or canopy.

MAINTENANCE AND INSPECTION OF ROPS CAB OR CANOPY

After every 500 hours of operation or every six months, whichever comes first.

1. Check to see that the mounting bolts for the ROPS cab or canopy are tight.
2. Check the operator seat and the mounting parts for the seat belts. Check to see that the bolts are tight.



WARNING: *Adding additional weight (attachments, etc.) to the machine can cause injury or death. Do not exceed the gross weight printed on the ROPS label.* SA028



WARNING: *Do not modify ROPS in any manner. Unauthorized modifications such as welding, drilling, cutting or adding attachments can weaken the structure and reduce your protection. Replace ROPS if subjected to roll-over or damage. Do not attempt to repair.* SB026

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