586G 588G SERIES 3 TIER 3 FORKLIFT
Repair Manual
Bur 87728464

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CNH America LLC.
700 State Street
Racine, WI 53404 U.S.A.

Issued April, 2008

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ENGINE AND RADIATOR REMOVAL AND INSTALLATION

CNH America LLC.
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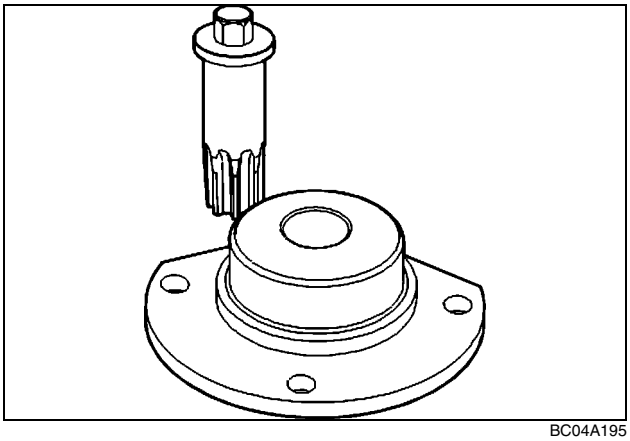
Racine, WI 53404 U.S.A.

Bur 5-12870

Issued April, 2008

STEP 22



BC04A195

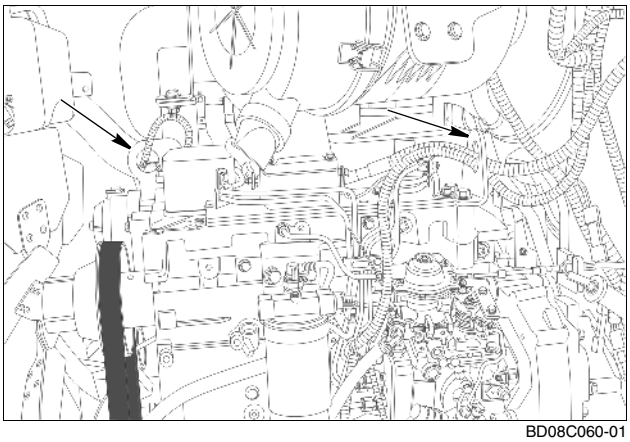
Install the engine turning tool, 380000988, to turn the flywheel for access to the bolts.

STEP 23

BD03K033

Loosen and remove six bolts that fastens the flywheel to the flex plate.

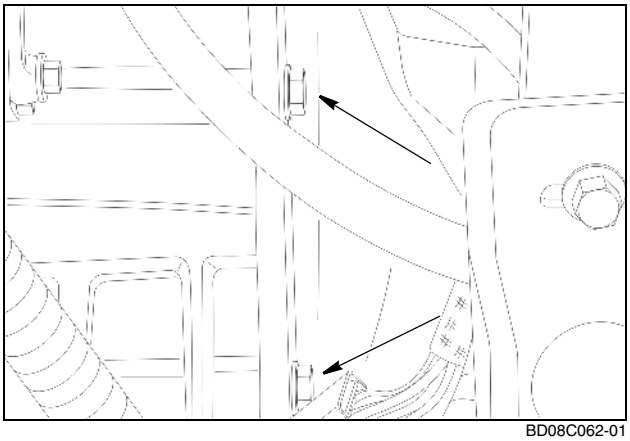
STEP 24



BD08C060-01

Connect lifting equipment to the lifting eyes on the engine to hold the engine in place.

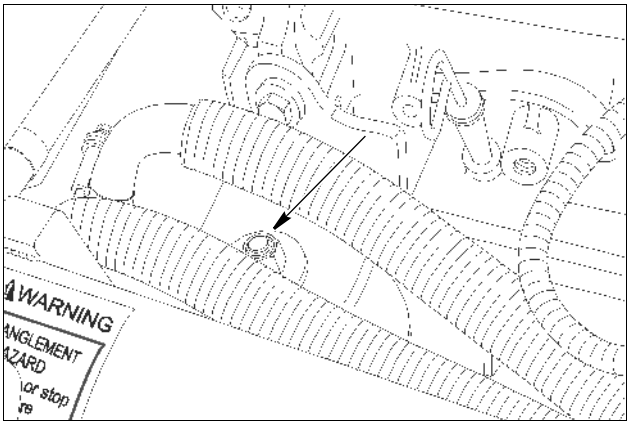
STEP 25



BD08C062-01

Loosen and remove the 12 bolts and washers that fastens the transmission to the flywheel housing.

STEP 26



BD08C101-01

Loosen and remove the bolts, flat washers, and nuts that fastens the front left and right engine support brackets to the frame.

STEP 27

Raise the engine a short distance and move the engine forward.

IMPORTANT: *Make sure that the flex plate/converter assembly stays in place on the transmission. If the engine will be separated from the transmission for an extended period of time fasten the flex plate/converter assembly in place on the transmission.*

1. DIPSTICK
2. BOLT
3. WASHER
4. LH REAR MOUNT
5. WASHER
6. NUT
7. CONNECTOR
8. TUBE
9. TORQUE CONVERTER
10. PLATE ADAPTER
11. WASHER
12. BOLT
13. RUBBER MOUNT
14. TRANSMISSION
15. RH REAR MOUNT
16. BOLT
17. WASHER
18. WASHER
19. BOLT

Section
2445

DIAGNOSING ENGINE OIL CONSUMPTION

2445

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Bur 5-13620

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ENGINE BALANCER

Removal

NOTE: *If your machine is two wheel drive go to step 10, if your machine is four wheel drive see page 5 for guard and drive shaft removal an installation.*

STEP 1

Put a floor jack under the drive shaft guard (1) to hold the drive shaft guard in position.

STEP 2

Loosen and remove the bolts (2) and flat washers (2) that fasten the drive shaft guard (1) to the frame.

STEP 3

Lower the drive shaft guard (1) and remove it from under the machine.

STEP 4

Remove the bolt (7) and washer (8) that fasten the bracket (10) to the machine.

STEP 5

Loosen and remove the bolts (11) and retainers that fasten the drive shaft (4) to the flange on the transmission. Remove the drive shaft (4).

STEP 6

Drain oil from engine.

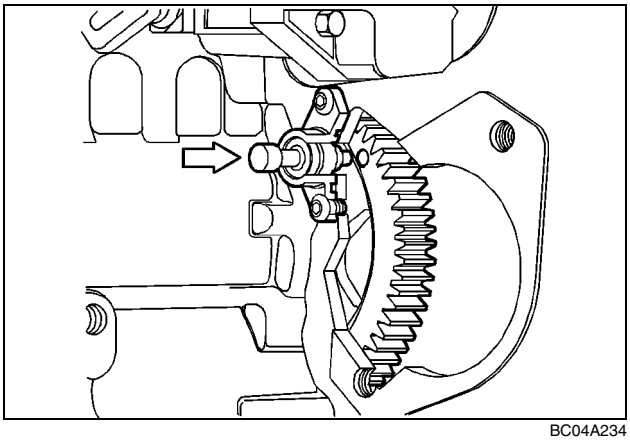
STEP 7

Put a floor jack under the engine oil pan, loosen and remove engine oil pan.

STEP 8

Loosen and remove the oil sump from the engine.

STEP 9



BC04A234

Turn the engine while pressing in on the timing lock pin until pin locks engine on number one TDC.

STEP 10

Loosen and remove the balancer from the engine.

SECTION INDEX

FUEL SYSTEM

Section Title **Section Number**

For Fuel System Repair, See the Engine Service Manual 87630273

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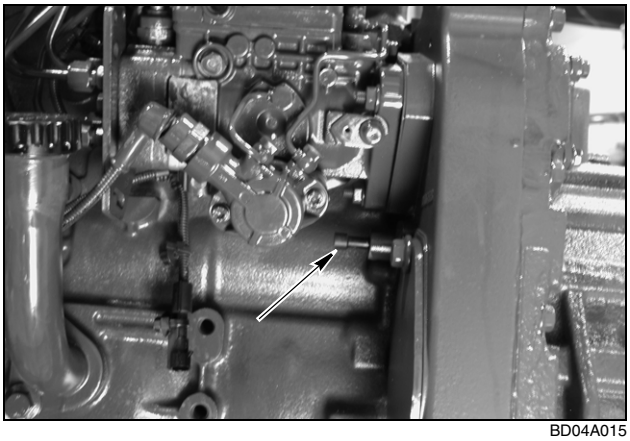
STEP 31



BD04A015

Make sure locking pin is disengaged from gear.

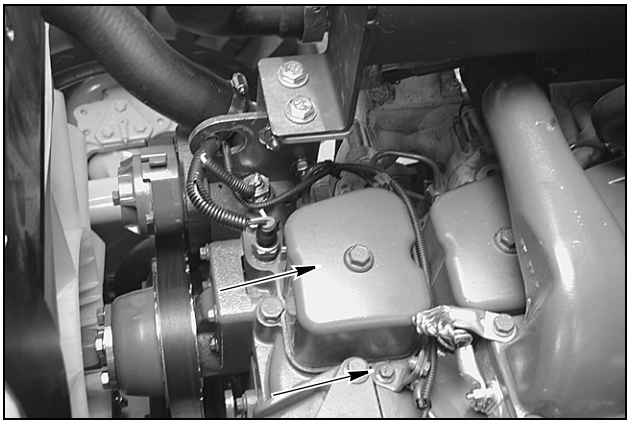
STEP 32

Remove the engine turning tool and install the starter.

STEP 33

Connect the negative battery cable to the battery. Install the battery cover.

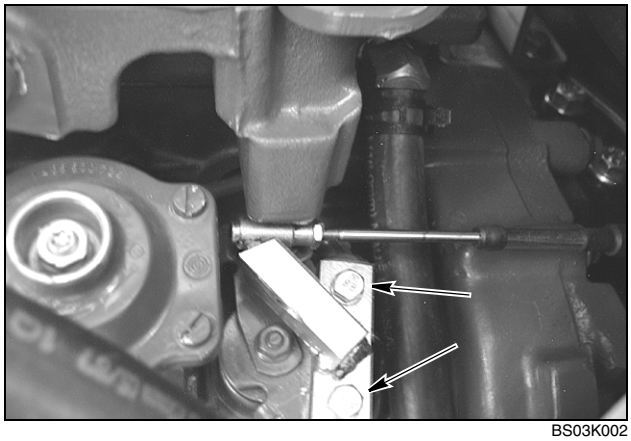
STEP 34



BD04A014

Install the front rocker arm cover and injector line retaining bracket mounting bolt.

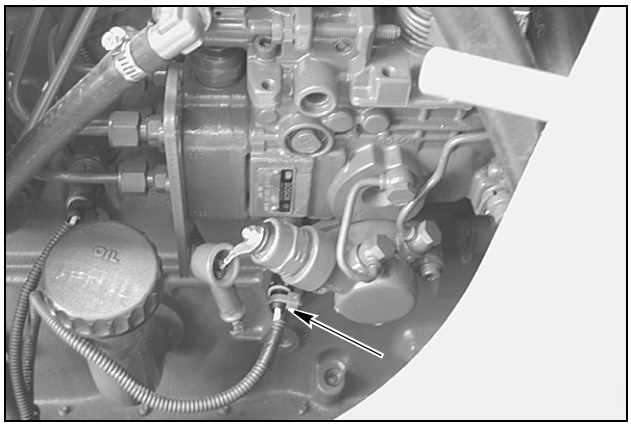
STEP 35



BS03K002

Install and thighten the two throttle arm mounting bolts. Install the throttle cable into the bracket and tighten the jam nut.

STEP 36



BS03K009

Connect the power lead to the injector pump.

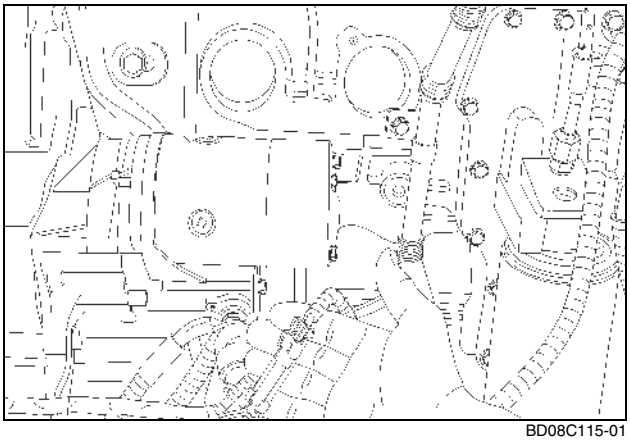
STEP 37

Actuate the lever on the mechanical fuel pump to prime the fuel system.

STEP 38

Start the machine and check for fuel leaks, check and adjust throttle linkage as needed.

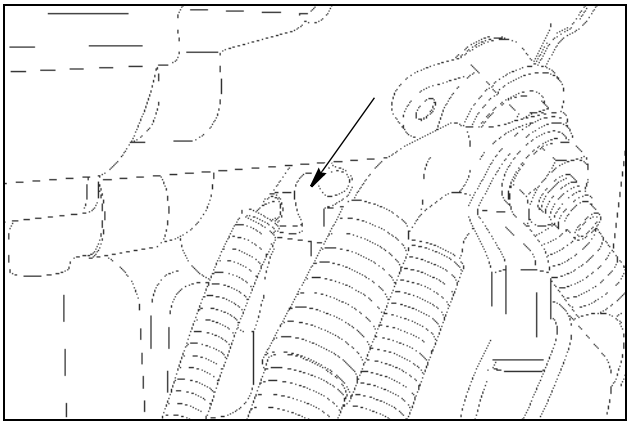
STEP 4



BD08C115-01

Connect starter wire.

STEP 5



BD08C122-01

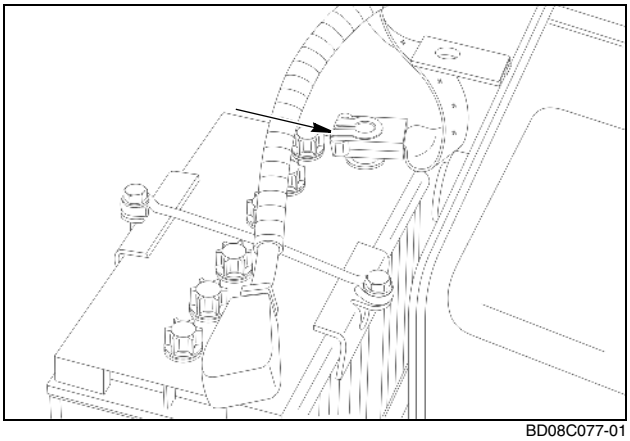
If the starter wire was removed from the terminal on the starter housing, connect the wire and tighten the screw to a torque of 2.5 to 4.5 Nm (22 to 40 pound-inches). Cover the starter wire terminal with 737 RTV silicone sealant.

IMPORTANT: *Use only 737 RTV silicone sealant. Other sealants can corrode the terminal.*

STEP 6

Close left side engine access door.

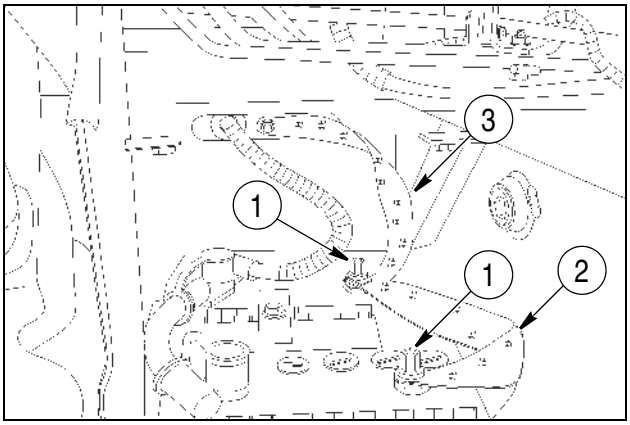
STEP 7



BD08C077-01

If the machine has only one battery, connect the negative ground strap to the battery.

STEP 8



BD01B352-01

1. TERMINAL NUTS
2. JUMPER CABLE
3. GROUND STRAP

If the machine has two batteries:

A. Install the negative ground strap on the battery.

B. Install the jumper cable and terminal nuts on the battery.

SPECIFICATIONS

Electrical system, standard	One 12 volt battery, negative ground
Electrical system, optional	Two 12 volt batteries connected in parallel, negative ground
System voltage	Approximately 12 volts
Batteries	
Standard	12 V, group 30H, 685 CCA @ -18° C (0° F) 165 Min. Reserve Capacity @ 27° C (80° F)
Option	12 V, group 28, 525 CCA @ -18° C (0° F) 110 Min. Reserve Capacity @ 27° C (80° F)
Alternator	12 volt, 90 ampere
Starter	12 volt, 2.7 Kw

12 – F/N/R (Forward/Neutral/Reverse) Switch

Check Points	Reading	Possible Cause of Bad Reading
NOTE: *Put the shift lever in NEUTRAL. Turn the key switch to ON.*		
Terminal for wire 21 to ground	12 volts	Bad circuit between the F/N/R switch and the clutch cutout relay (9). Also check the clutch cutout relay (9)
Terminal for wire 21C to ground	12 volts	Bad F/N/R switch.
NOTE: *Put the transmission control lever in FORWARD.*		
Terminal for wire 25A to ground	12 volts	Bad F/N/R switch.
NOTE: *Put the transmission control lever in REVERSE.*		
Terminal for wire 25B to ground	12 volts	Bad F/N/R switch.

13 – Fuse Block

Check all fuses in the fuse panel.

14 – Diodes

Check Points	Reading	Possible Cause of Bad Reading
NOTE: *Disconnect the diode from the connector.*		
Between the terminals of the diode	Continuity in one direction only.	Bad diode.

39 – Differential Lock Engage Switch (Console)

Check Points	Reading	Possible Cause of Bad Readings
NOTE: *Turn the key switch to ON.*		
Terminal for wire 19B to ground	12 volts	Check the circuit between the differential lock engage switch through the fuse block (13). Also check the 15 ampere fuse in the fuse block (13) and the power relay #2 (4).
NOTE: *Turn the key switch to OFF. Disconnect the wires from the differential lock engage switch. Make sure the differential lock engage switch is in the DISENGAGED position.*		
Between the terminals of the differential lock engage switch	Open	Bad differential lock engage switch.
NOTE: *Put the differential lock engage switch in the ENGAGED position*		
Between the terminals of the differential lock engage switch.	Continuity	Bad differential lock engage switch.

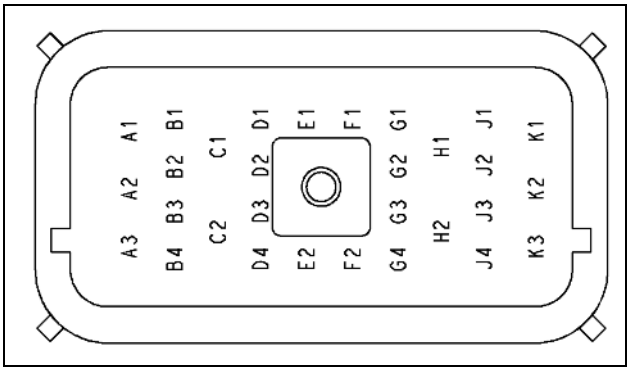
40 – Differential Lock Solenoid

Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 30 to ground	Continuity	Bad ground circuit.
NOTE: *Turn the key switch to ON. Put the differential lock engage switch in the ENGAGED position*		
Terminal for wire 25S to ground	12 volts	Check the circuit between the differential lock solenoid and differential lock engage switch (39). Check the differential lock engage switch (39). Also check the diode, see diode check (14).
Terminal for wire 30 to ground	12 volts	Bad differential lock solenoid.

41 – Rear Stop and Tail Lamps

Check Points	Reading	Possible Cause of Bad Reading
Terminal 40B to ground	Continuity	Bad ground connection.
Bulb	Good	Bad bulb.
NOTE: *Turn the key switch to ON. Turn the driving lamp switch to ON.*		
Terminal for wire 41 to ground	12 volts	Bad circuit between the rear tail lamps and the driving lamp switch (48). Also check the driving lamp switch (48).
NOTE: *Have another person push down and hold the brake pedal.*		
Terminal for wire 44 to ground	12 volts	Bad circuit between the rear tail lamps and the brake lamp switch (47). Also check the brake lamp switch (47).

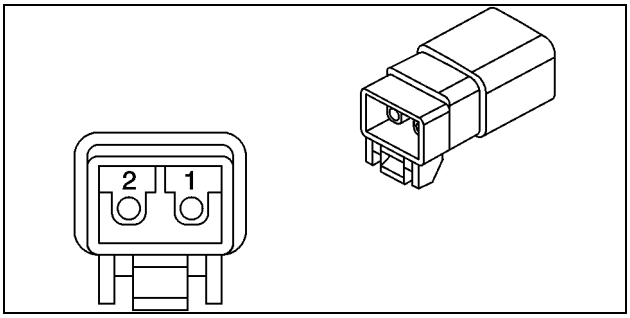
40 Pin Main Chassis Harness to Front Console



293652A1

CAV	WIRE IDENT	CIRCUIT
A1	1D	Power junction post
B1	4	Power relay T85
C1	21C	Neutral relay T85
D1	25A	Forward relay T85
E1	25E	4WD solenoid connector 1
F1	31C	Cold start connector 1
G1	45L	Flasher relay connector 5
H1	47R	Flasher relay connector 3
J1	64B	Horn switch ground terminal 1
K1	30A	Ground boss
A2	3	Fuse block 2D, 4D and 6D
B2	19C	Fuse block 5C
C2	30C	Ground boss
D2	25B	Reverse relay T85
E2	25S	Differential lock solenoid connector 1
F2	42C	15 pin ROPS connector B5
G2	45R	Flasher relay connector 7
H2	64A	Fuse block 3B
J2	19A	Fuse block 7A
K2	83	Fuse block 9C
A3	19B	Splice 19B
B3	21	Clutch relay T87a
C3	Not used	
D3	25C	Fuse block 3A
E3	Not used	
F3	Not used	
G3	46	Flasher relay connector 1
H3	Not used	
J3	41	15 pin console connector J3
K3	84	Fuse block 11C
A4	Not used	
B4	21A	Neutral relay T30
C4	Not used	
D4	25D	De-clutch relay T85
E4	Not used	
F4	Not used	
G4	47L	Flasher relay connector 6
H4	Not used	
J4	30	Ground boss
K4	Not used	

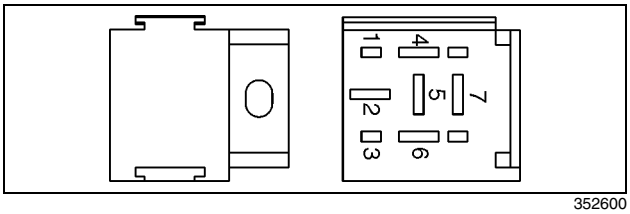
4WD Solenoid



225316C1

CAV	WIRE IDENT	CIRCUIT
1	25E	40 pin console connector E1
2	30	Splice 30D

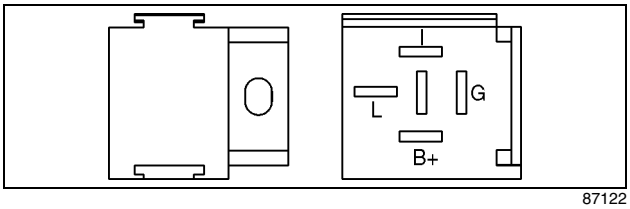
Flasher Relay



352600

CAV	WIRE IDENT	CIRCUIT
1	46	40 pin console connector G3
2	19B	sPLICE 19b
3	47R	40 pin console connector H1
4	30	Splice 30B
5	45L	40 pin console connector G1
5	45L	15 pin ROPS connector A1
6	47L	40 pin console connector G4
7	45R	40 pin console connector G2
7	45R	15 pin ROPS connector A2

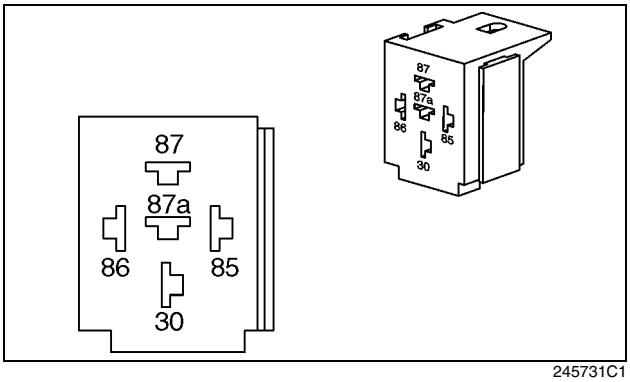
Shuttle Interlock Timing Relay



87122

CAV	WIRE IDENT	CIRCUIT
B+	19E	Clutch relay T85
G	30	Power relay 2 T86
I	24	Shuttle Interlock Relay T30
L	19N	De-clutch relay T30

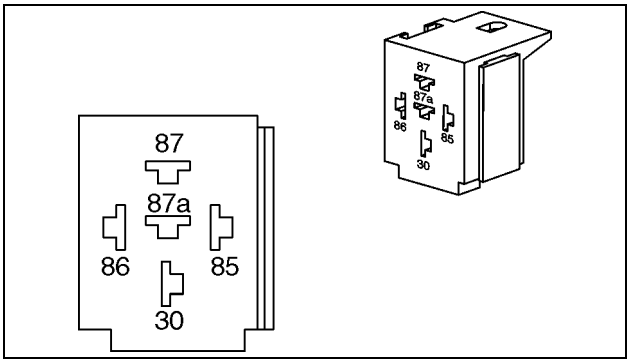
Alarm Relay



245731C1

CAV	WIRE IDENT	CIRCUIT
30	36R	RH parking brake switch
85	52	Shuttle interlock relay T87a
86	30	Ground
87	30	Ground
87A		None

De-clutch Relay



245731C1

CAV	WIRE IDENT	CIRCUIT
30	19N	Shuttle interlock timing relay L
85	25D	40 pin console connector D4
86	25G	RH brake de-clutch pressure switch A
87		None
87A	19M	Reverse relay T30

BATTERY TEST

NOTE: *To correctly test a battery, do each part of the battery test until you know the condition of the battery.*

Visual Checks

1. Make sure the cable connections are clean and tight. Clean foreign material from the top of the battery.
2. Inspect the battery case, battery posts, and cables for damage.
3. Check the electrolyte level. See Page 4.
4. If you added water to the battery, the battery must be charged for 15 minutes at 15 to 25 amperes to mix the water with the electrolyte.

Specific Gravity Check

A hydrometer is used to check the specific gravity (weight) of the electrolyte. The specific gravity is an indication of the level of charge for each cell.

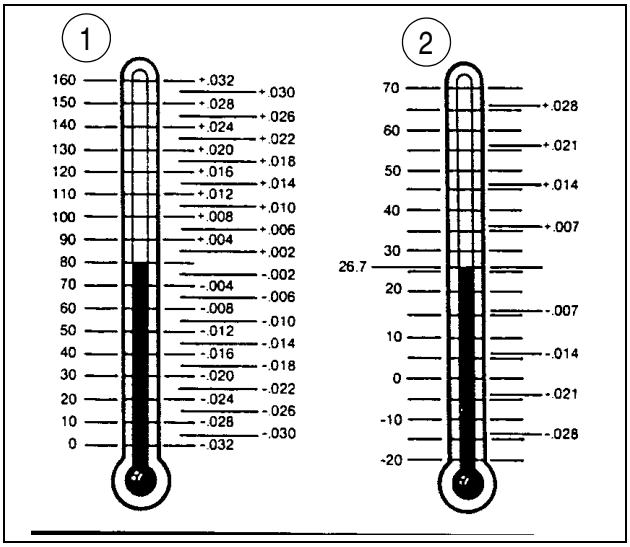
Hydrometers are made to show the correct specific gravity when the temperature of the electrolyte is 26.7°C (80°F).

When you check the specific gravity, you must know the temperature of the electrolyte. If your hydrometer does not have a thermometer, get a thermometer to check the temperature of the electrolyte. The thermometer must indicate a high temperature of at least 52°C (120°F).

1. Remove enough electrolyte from a cell so that the float is free in the tube.

NOTE: *If the specific gravity cannot be checked without first adding water to the cell, the battery must be charged for 15 minutes at 15 to 25 amperes to mix the water with the electrolyte. Then check the specific gravity.*

2. Read the float.
3. Read the thermometer. If the reading is above 26.7°C (80°F) add specific gravity points to the reading for specific gravity. If the reading is below 26.5°C (80°F) subtract specific gravity points from the reading for specific gravity. See the following illustration and add or subtract specific gravity points as needed.



B790863

1. TEMPERATURE IN F 2. TEMPERATURE IN C

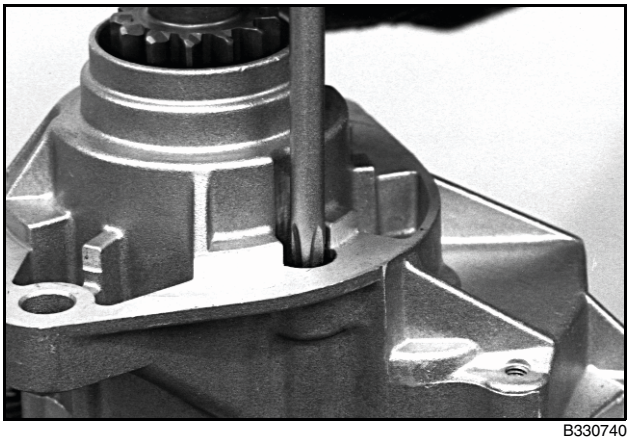
SPECIFIC GRAVITY CHART

4. Make a record of the corrected specific gravity reading for each cell.
5. If the difference between the high reading and the low reading is 0.050 or more, charge the battery and check the specific gravity again. If after charging, the difference is still 0.050 or more, install a new battery.
6. The corrected specific gravity reading shows the level of charge for the cell. The level of charge must be at least 75% in each of the cells. In maintenance free batteries the level of charge is at least 75% if the corrected specific gravity reading is 1.240 or higher. In all other batteries the level of charge is at least 75% if the corrected specific gravity reading is 1.230 or higher.
7. If the difference between the high reading and the low reading is less than 0.050, and the level of charge is at least 75% in all of the cells, do the Capacity (Load) Test.
8. If the difference between the high reading and the low reading is less than 0.050, but the level of charge is less than 75% in any of the cells, charge the battery and check the specific gravity again. If after charging:
   A. The level of charge is less than 75% in any of the cells, discard the battery.
   B. The level of charge is at least 75% in all of the cells, do the Capacity (Load) Test.

Understanding No Load Test Results

1. If the current draw and the armature shaft speed are within the ranges under Specifications, the starter is good.
2. Low armature shaft speed and high current draw are indications of too much friction. Possible causes of too much friction are:
   A. Tight, dirty, or worn bearings.
   B. A bent armature shaft.
   C. Loose pole shoes (pole shoes make contact with the armature).
   D. A short circuit in the armature coil. Disassemble the starter. Use an armature tester to test the armature. Use the instructions included with the armature tester.
   E. Damaged field coil. Do the test on page 13.
3. If the armature does not rotate and the current draw is high, possible causes are:
   A. Field terminal making contact with the field frame. Inspect the insulators for the field terminal.
   B. Damaged field coil. Do the tests on page 13.
   C. Damaged bearings.
4. If the armature does not rotate and the current draw is zero, possible causes are:
   A. An open field circuit. Disassemble the starter and inspect the field coil connections.
   B. An open armature coil. Disassemble the starter and check for burned commutator bars. Use an armature tester to test the armature. Use the instructions included with the armature tester.
   C. Brushes not making good contact with the commutator bars. Check for high insulation between the commutator bars, broken brush springs, or worn brushes.
5. Low armature shaft speed and low current draw are indications of:
   A. Dirt or corrosion on connections.
   B. Damaged wiring.
   C. Dirty commutator bars.
   D. All causes in Step 4.
6. High armature shaft speed and high current draw are indications of a short circuit in the field coil. It is difficult to find a short circuit in a field coil. Install a new field coil. Do the No Load Test again to check for improvement in the operation of the starter.

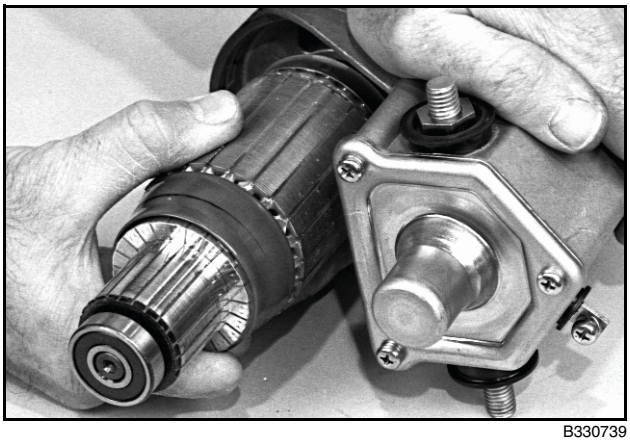
STEP 19



B330740

Fasten the starter solenoid in the vise and tighten the screws that hold the starter drive housing.

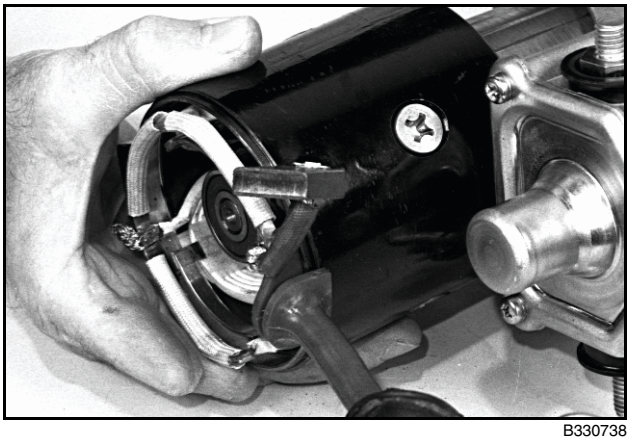
STEP 20



B330739

Install the armature.

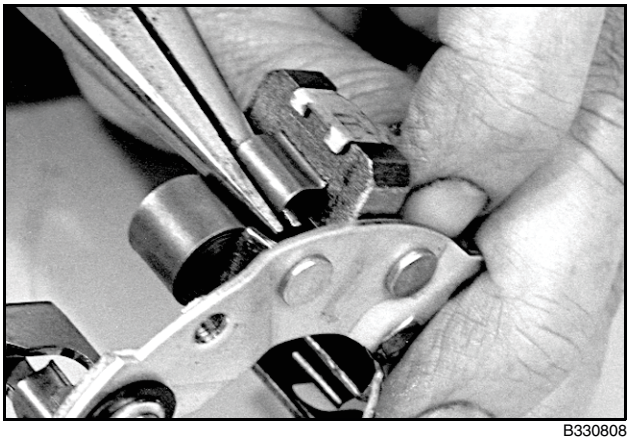
STEP 21



B330738

Install the field frame assembly.

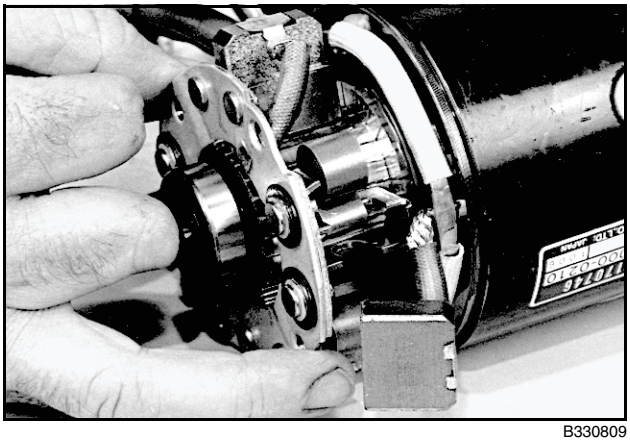
STEP 22



B330808

Use the springs to hold the brushes in the brush holder as shown.

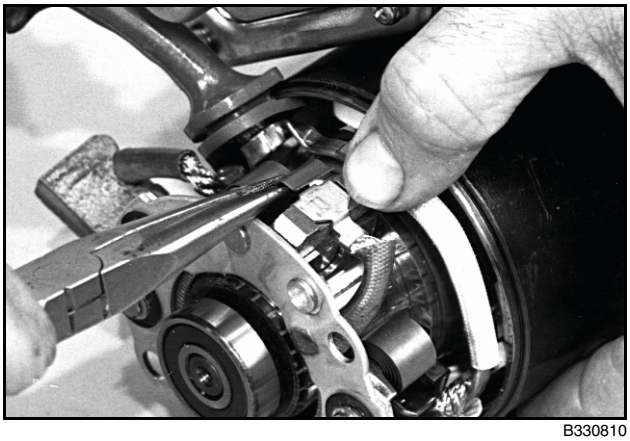
STEP 23



B330809

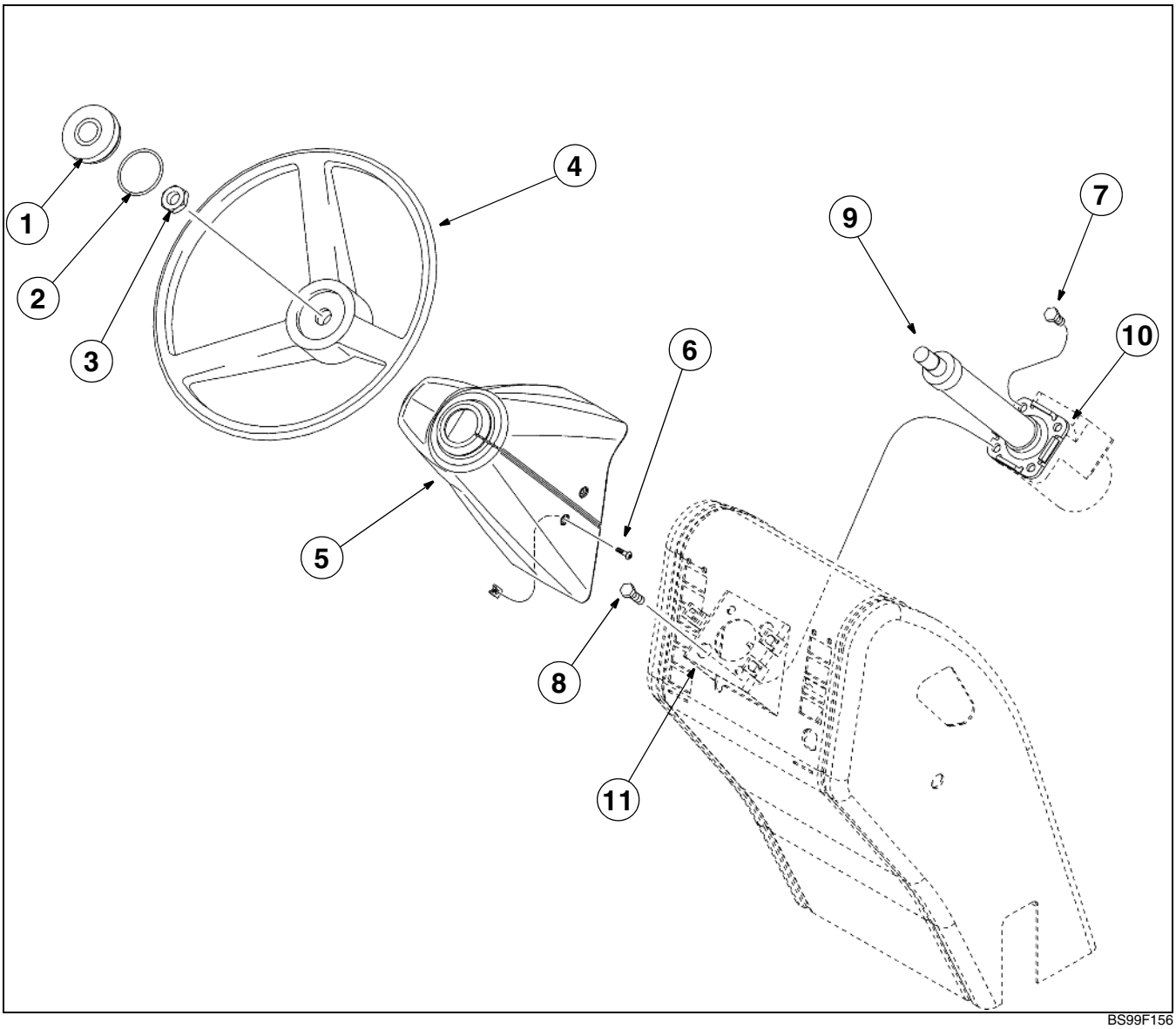
Install the brush holder.

STEP 24



B330810

Put the springs on top of the brushes connected to the brush holder.



BS99F156

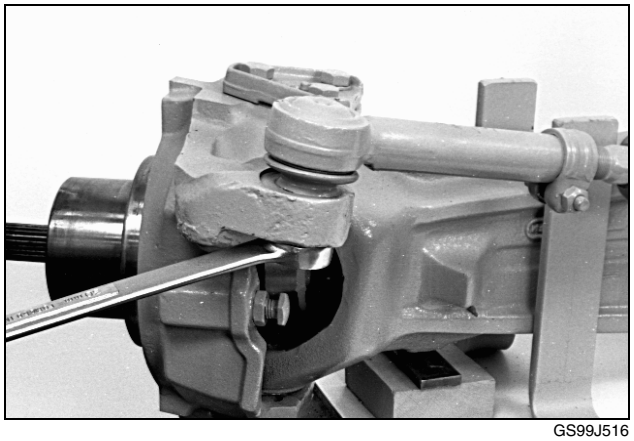
1. COVER
2. O-RING
3. NUT
4. STEERING WHEEL
5. STEERING COLUMN COVER
6. SCREW
7. CAP SCREWS THAT FASTEN THE STEERING CONTROL VALVE TO THE STEERING COLUMN
8. CAP SCREWS THAT FASTEN THE STEERING CONTROL VALVE TO THE MOUNTING PLATE
9. STEERING COLUMN
10. STEERING CONTROL VALVE
11. MOUNTING PLATE

STEERING CYLINDER, FOUR WHEEL DRIVE MACHINES

Removal

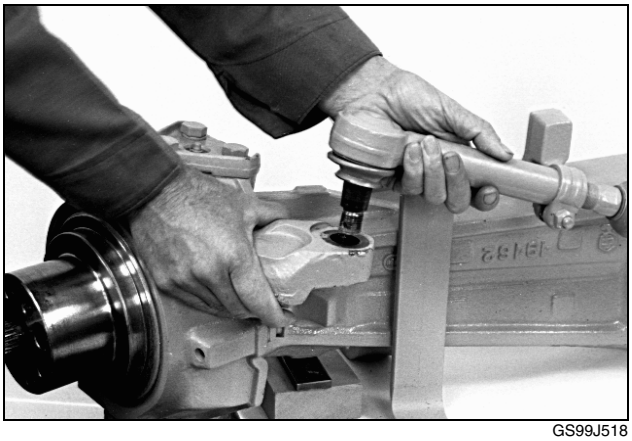
NOTE: *The following photographs show the steering cylinder being removed from the axle with the axle removed from the machine. It is not necessary to remove the axle from the machine to remove the steering cylinder.*

1. Clean the hose connections and the steering cylinder.
2. Fasten an identification tag to one of the hoses to the steering cylinder.
3. Disconnect the hoses from the steering cylinder. Install a plug is each hose and a cap on each fitting.
4. Remove the cotter pin from the ball joint and loosen the nut several turns. Do not remove the nut at this time.



GS99J516

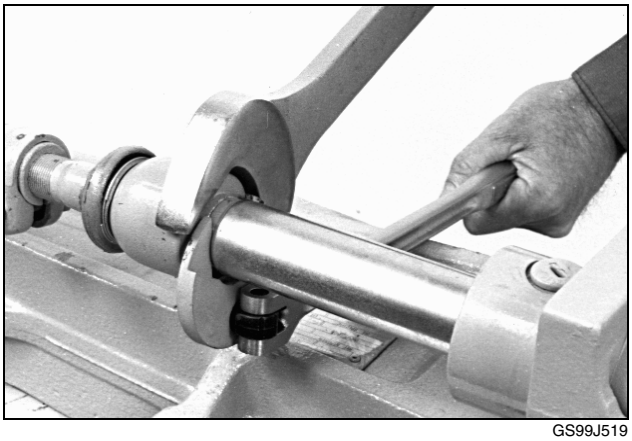
5. Install the CAS10486 puller and tighten the screw.
6. Remove the nut and remove the ball joint from the arm.



GS99J518

7. Repeat steps 4, 5, and 6 for the other end of the axle.
8. Install the CAS2150 or 380100091 tool on the flats of the piston rod and install a wrench on the tie rod. Prevent the piston rod from turning and loosen the tie rod.

NOTE: *Check the part number on the serial number plate on the axle, if your axle is P/N 87417387 use wrench CAS2150, if you axle is P/N 87395365 use wrench 380100091.*



GS99J519

9. Remove the tie rod and ball joint assembly from the piston rod.

TROUBLESHOOTING PROCEDURE

Check the machine for oil leaks and damaged or missing parts. Repair as required.

Is the oil in the hydraulic reservoir at the correct level?

No → Fill reservoir to proper level, See Section 1002.

Yes ↓

With the oil at operating temperature, operate all systems. Is the problem in the steering system only?

No → See Section 8002 for troubleshooting instructions.

Yes ↓

See the hydraulic schematic in the rear pocket and check the hose connections. Are the hoses connected correctly?

No → Connect the hoses according the hydraulic schematic.

Yes ↓

With the oil at operating temperature and the engine running at low idle, is the steering wheel difficult to turn?

No → Does the steering control valve return to NEUTRAL when the steering wheel is not being turned?

No ↓

Repair or replace the steering control valve according to instructions in Section 5002.

Yes ↓

Check the setting of the steering relief valve according to the instructions in this section. Is the setting correct?

No → See Section 8002 and check the pressure setting of the main relief valve. Is the setting correct?

No ↓

Replace the main relief valve according to instructions in Section 8005

Yes ↓

See Section 8002 and do the pump output test. Is the pump output correct?

No ↓

Replace or repair the hydraulic pump according to the instructions in Section 8004.

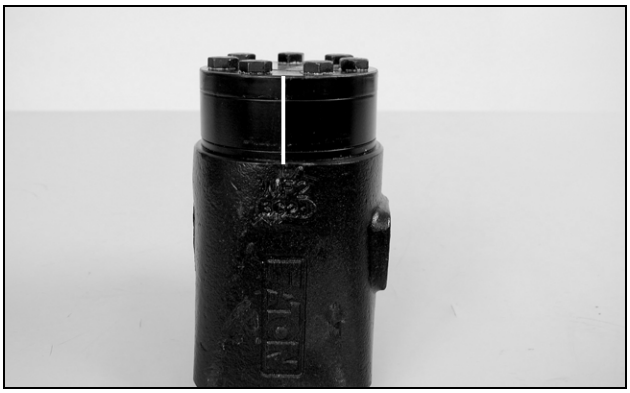
Yes ↓

Continued

Continued

DISASSEMBLY

STEP 1



BD04H001

Mark the pump for proper alignment during assembly.

STEP 2

BD04H002

Put the steering control valve in the vise so that the end plate is up.

STEP 3

BD04H003

Remove the cap screws and end cap.

STEP 4

BD04H004

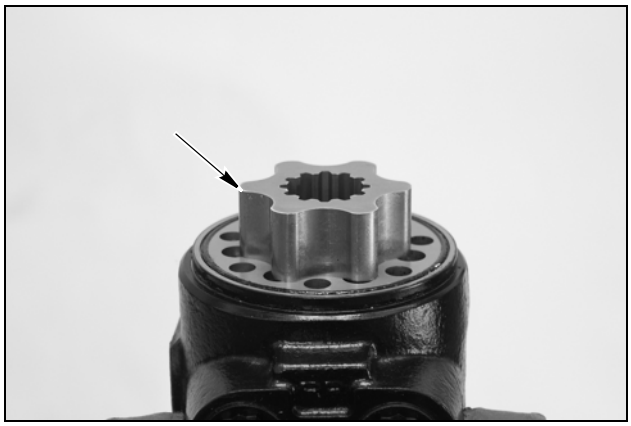
Remove the O-ring from the stator of the metering gear set.

STEP 5

BD04H005

Lift the spacer plate as from the body.

STEP 6



BD04H006

Remove the metering gear from the pump.

Section 5003

5003

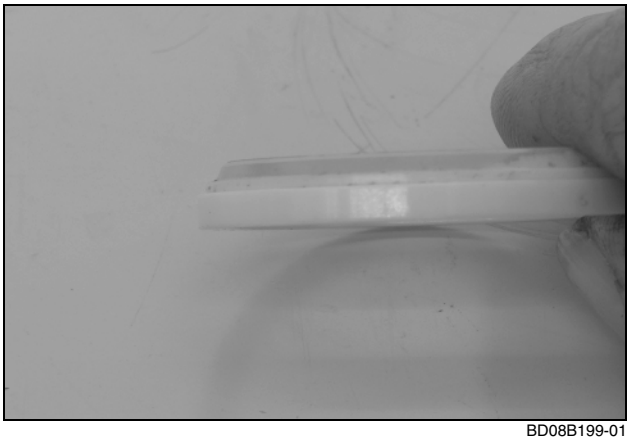
STEERING CYLINDERS

CNH America LLC.
700 State Street
Racine, WI 53404 U.S.A.

Bur 5-13610

Issued April, 2008

STEP 12



BD08B199-01

Install a new wiper in the gland. the lip of the wiper must be toward the outside of the gland.

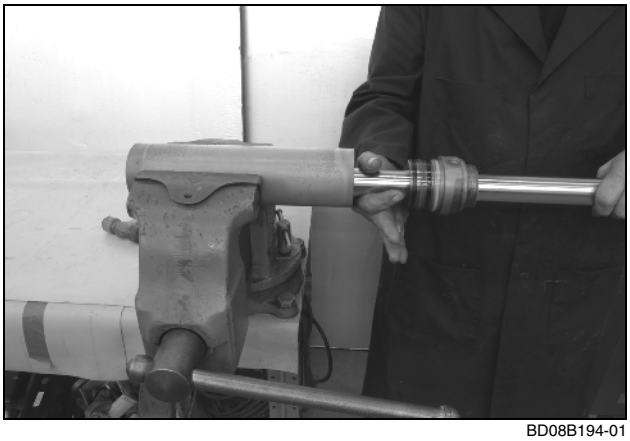
STEP 13

Install a new seal ring in the groove on the gland.

STEP 14

Lubricate the piston seals with clean oil.

STEP 15



BD08B194-01

Fasten the tube in a vise with soft jaws. Start the piston rod assembly into the tube, be careful not to damage the seals.

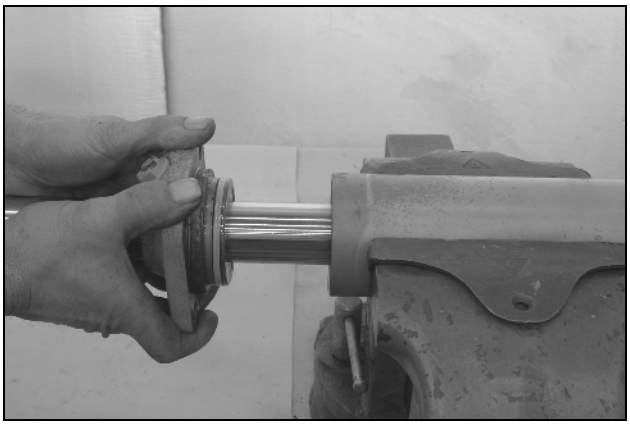
STEP 16

Push the piston rod assembly all the way into the tube, use a soft faced hammer and drive the gland into the tube.

STEP 17

Lubricate the wiper, seal, and seal ring on the gland with clean oil.

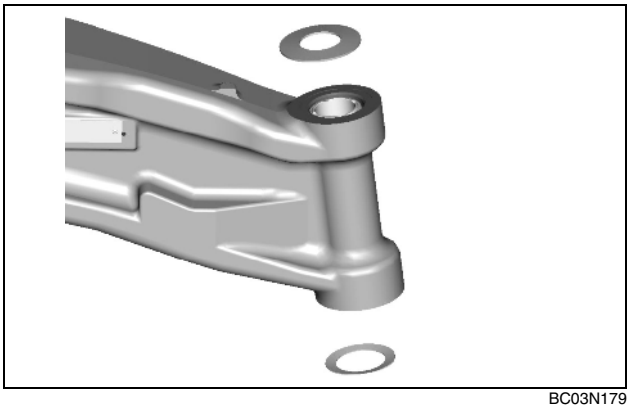
STEP 18



BD08B192-01

Install the gland on the piston rod assembly and push the gland against the tube, use a soft faced hammer and drive the gland into the tube.

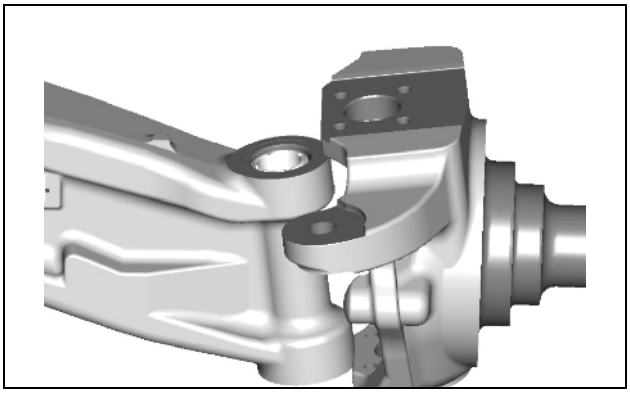
STEP 14



BC03N179

Apply grease to the bevelled washers to assist holding them in place during assembly.

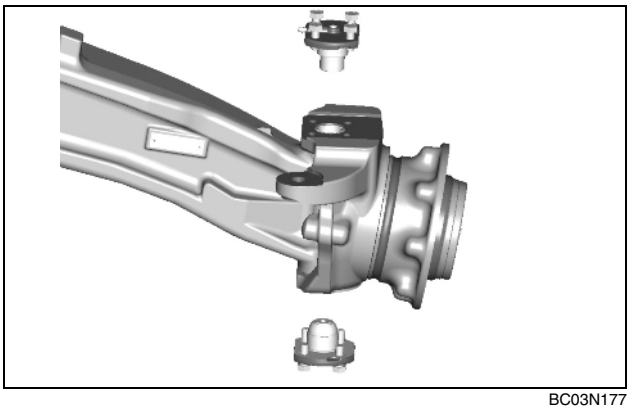
STEP 15



BC03N178

Use suitable lifting equipment and install the swivel housing on the axle.

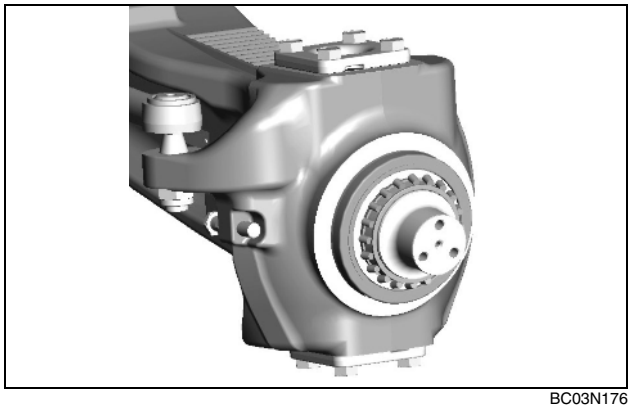
STEP 16



BC03N177

Make sure the bevelled washers are in place, install the upper and lower king pins. Torque the bolts to 120 Nm (89 pound-feet).

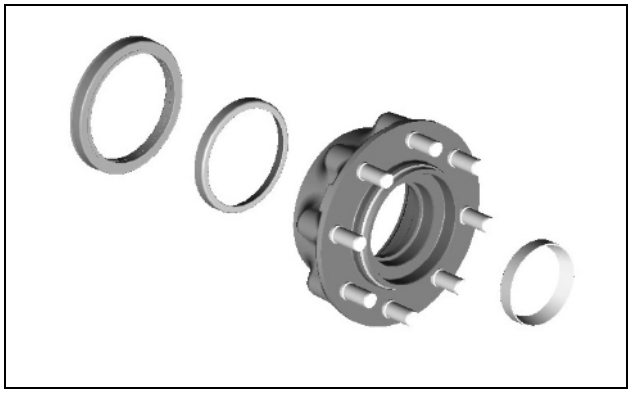
STEP 17



BC03N176

Grease the bearing cone and install it onto the swivel housing.

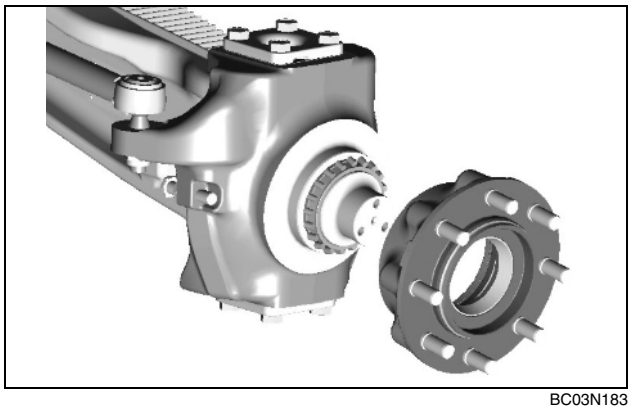
STEP 18



BC03N182

Use suitable drivers and install new bearing cups and seal into wheel hub.

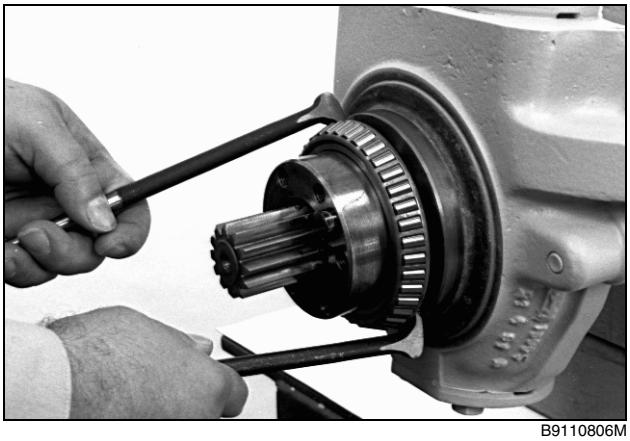
STEP 19



BC03N183

Use suitable lifting equipment and install wheel hub onto the swivel housing.

STEP 14



B9110806M

Use prybars to remove the inner wheel bearing from the swivel housing. Be careful so that you do not damage the inner wheel bearing.

STEP 15

BD01A008

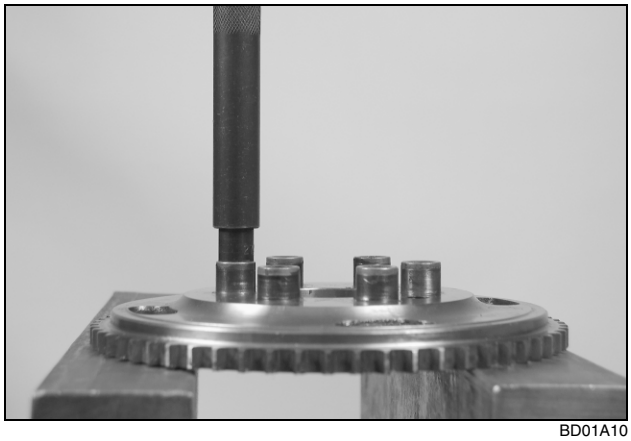
Remove the retaining ring which fastens the hub in the ring gear.

STEP 16

BD01A009

Remove the hub.

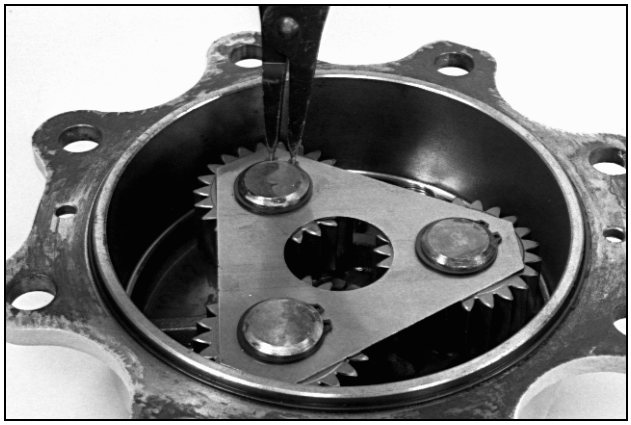
STEP 17



BD01A10

Press the bushings from the hub only if new bushing(s) are needed or a new hub is installed.

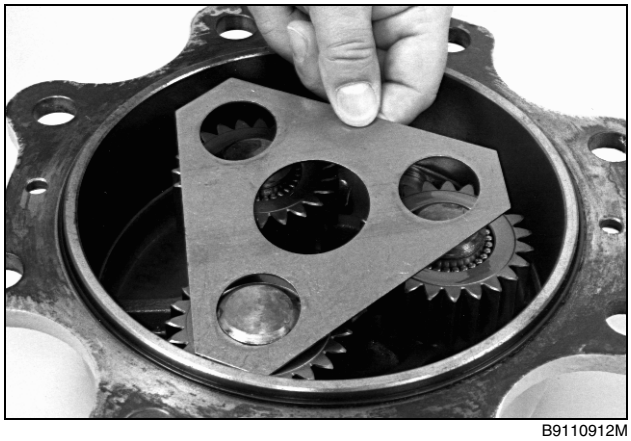
STEP 18



B9110910M

Remove the snap rings.

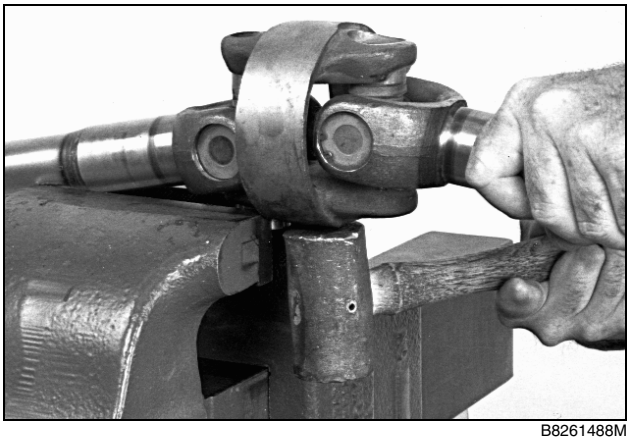
STEP 19



B9110912M

Remove the retainer.

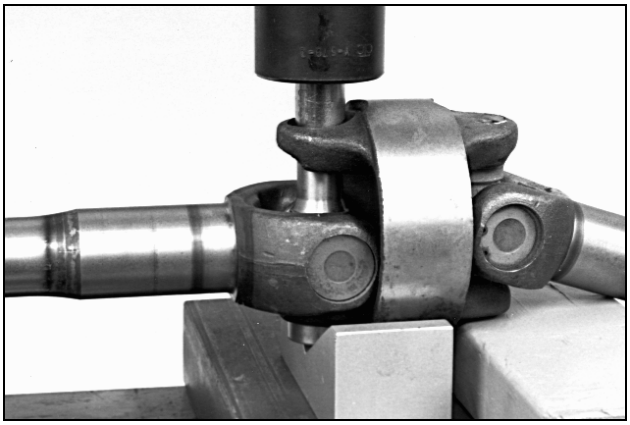
STEP 66



B8261488M

Fasten the bearing cap in a vise and drive the coupling off the bearing cap.

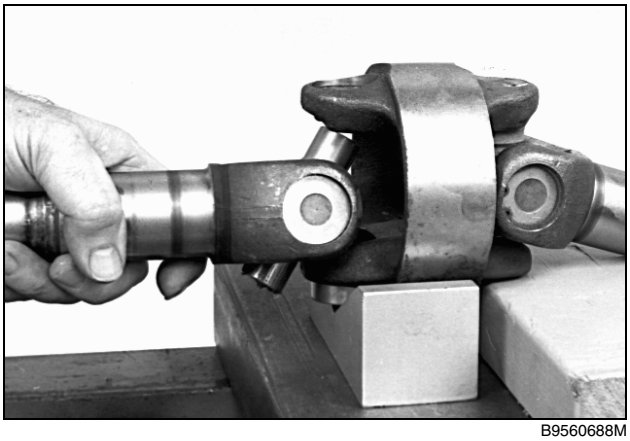
STEP 67



B9560488M

Use the V-block to support the coupling and press the other bearing cap against the V-block.

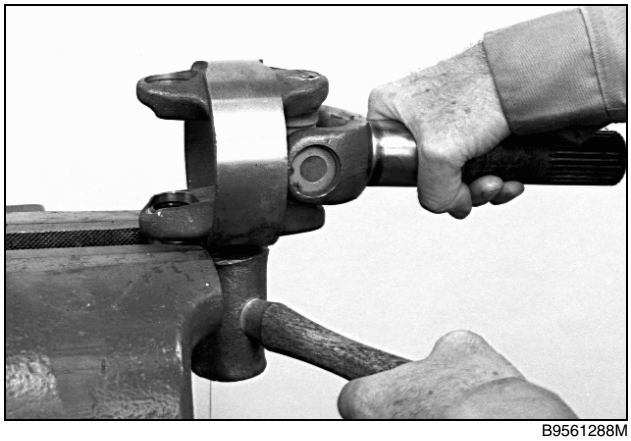
STEP 68



B9560688M

Remove the long axle shaft (or short axle shaft) from the coupling.

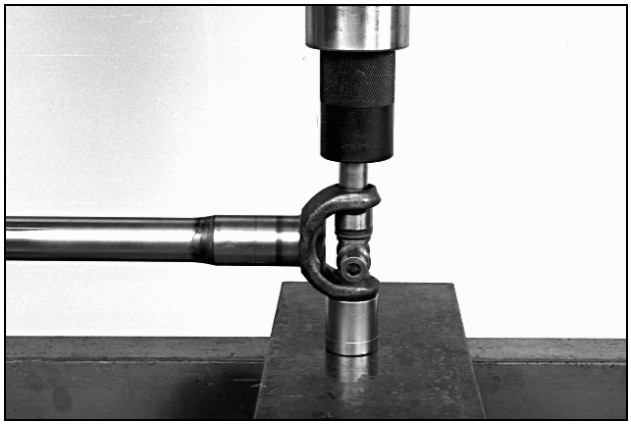
STEP 69



B9561288M

Remove the coupling from the bearing cap.

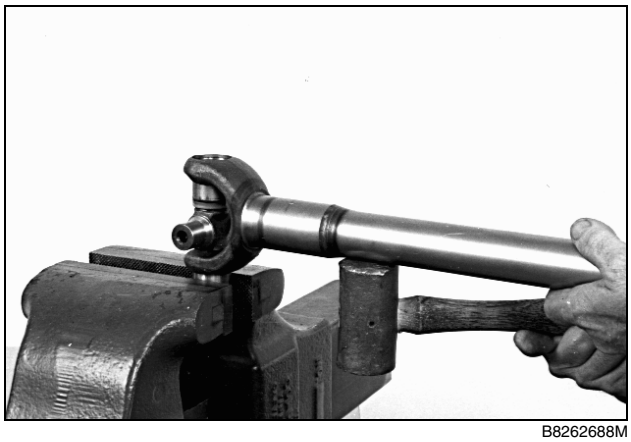
STEP 70



B8262388M

Use an acceptable support and driver to press the bottom bearing cap out of the yoke as far as possible.

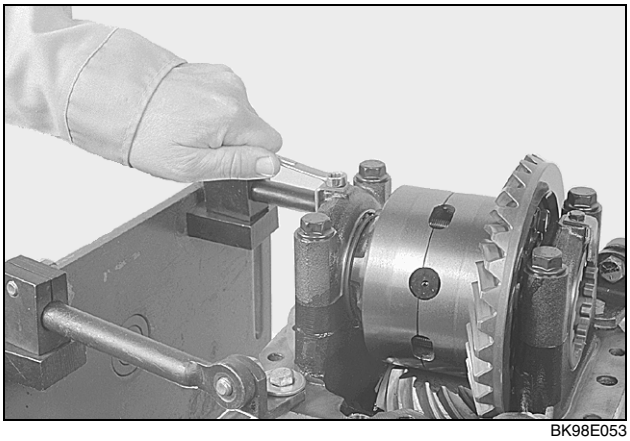
STEP 71



B8262688M

Remove the yoke from the bearing cap. DO NOT hit the axle shaft in the seal area.

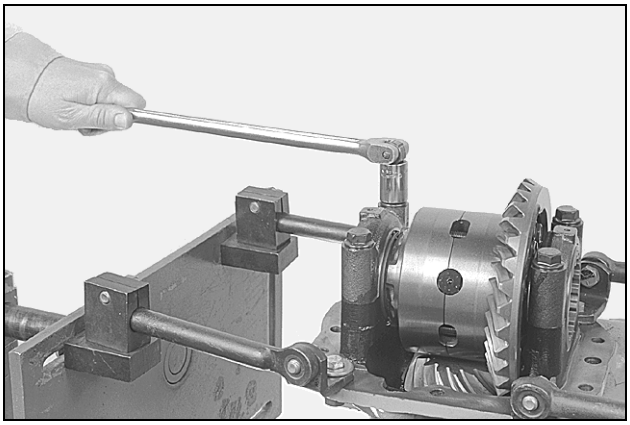
STEP 119



BK98E053

Remove the bolt and lock that hold each adjusting ring.

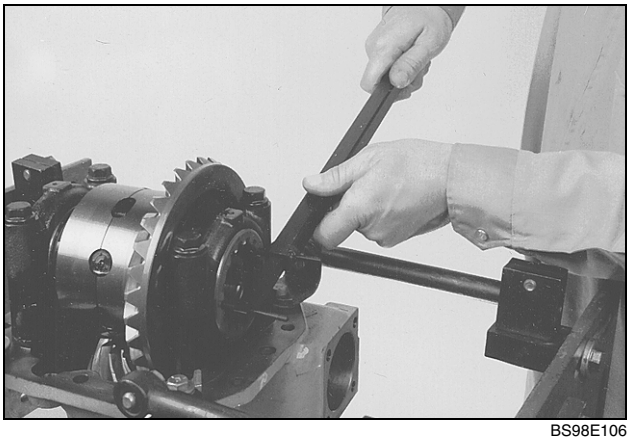
STEP 120



BK98E054

Loosen the bolts.

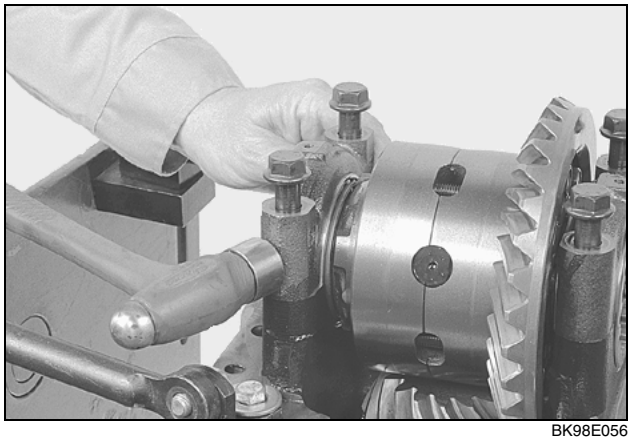
STEP 121



BS98E106

Loosen both adjusting rings.

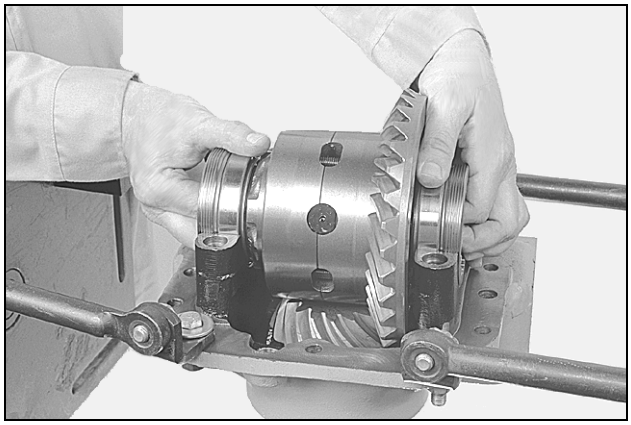
STEP 122



BK98E056

Remove the 4 bolts. Use a hammer to loosen the 2 bearing caps.

STEP 123



BK98E057

Remove the adjusting rings, bearing cups and differential.

STEP 124

If the bearing cups are to be used again, fasten an identification tag to one bearing cup for the current installation.

STEP 165

B613024M

Write the number on the end of the pinion shaft on line “d” in step 166.

STEP 166

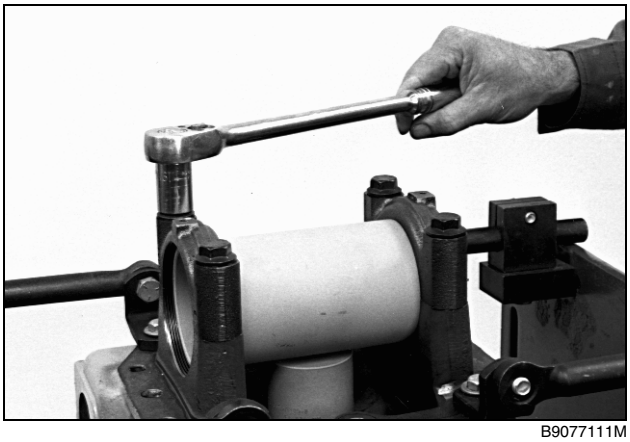
The number on line “a” does not change. Add line “a” and line “b” and write the answer on line “c”. Subtract line “d” from line “c” and write the answer on line “e”. Line “e” is the thickness of the shim to be installed on the pinion shaft.

Example:

A.	109.75 MM	A. 109.75 MM
B.+	MM	B. + 0.45 MM
C.	MM	C. 110.20 MM
D. -	MM	D. -107.45 MM
E.	MM	E. 2.75 MM

USE 2.75 MM. THICK SHIM

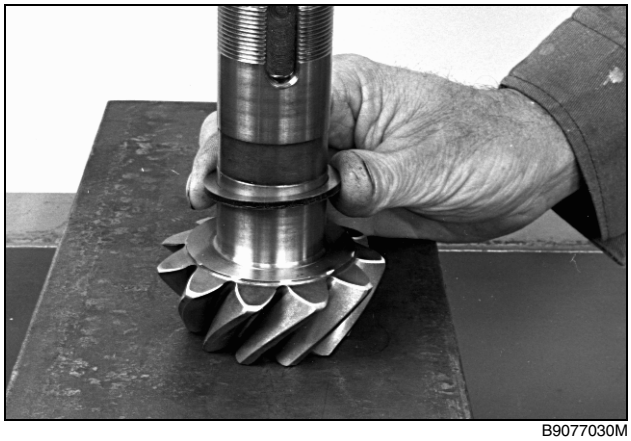
STEP 167



B9077111M

Remove the bolts, bearing caps, gauge tube, handle, gauge block assembly and the bearings.

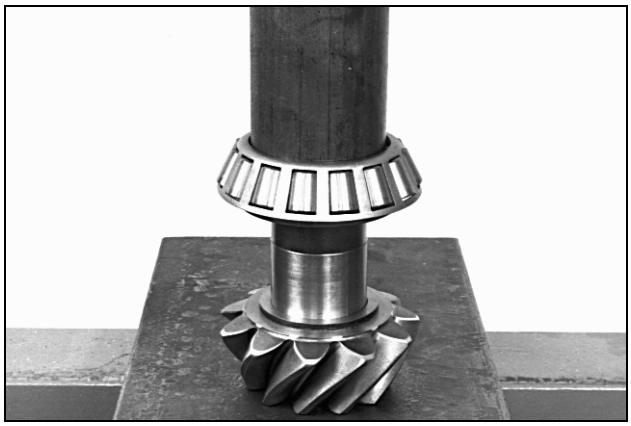
STEP 168



B9077030M

Install the shim with the thickness specified in step 166. The chamfer on the ID of the shim must be towards the pinion gear.

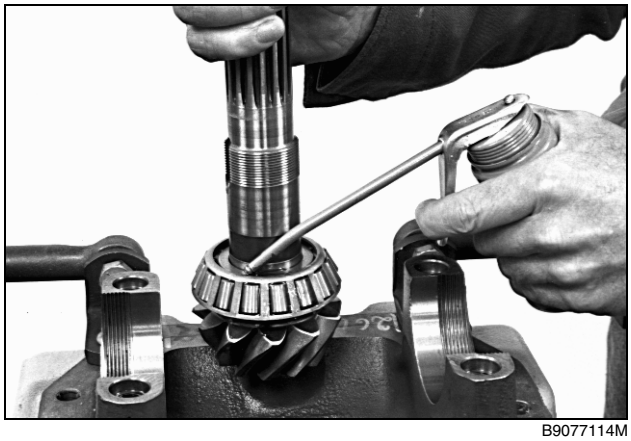
STEP 169



B9077032M

Use the CAS2370 inner/outer pinion bearing cone installer and press the inner bearing against the shim.

STEP 170



B9077114M

Lubricate the bearings with gear lubricant.

Section

6000

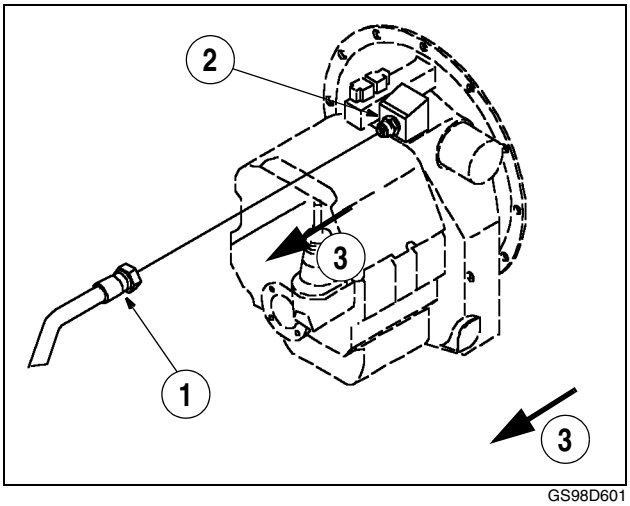
REMOVAL AND INSTALLATION OF POWER TRAIN COMPONENTS

CNH America LLC.
700 State Street
Racine, WI 53404 U.S.A.

Bur 5-13030

Issued April, 2008

STEP 37



GS98D601

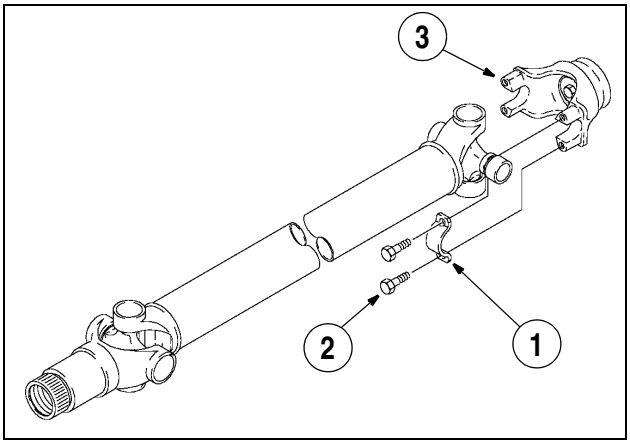
1. DIFFERENTIAL LOCK HYDRAULIC HOSE
2. FITTING
3. TOWARD FRONT OF MACHINE

Install the differential lock hydraulic hose (1) on the fitting (2) located on top of the transmission.

STEP 38

Install the front drive shaft, if equipped, by sliding it onto the axle pinion shaft splines.

STEP 39

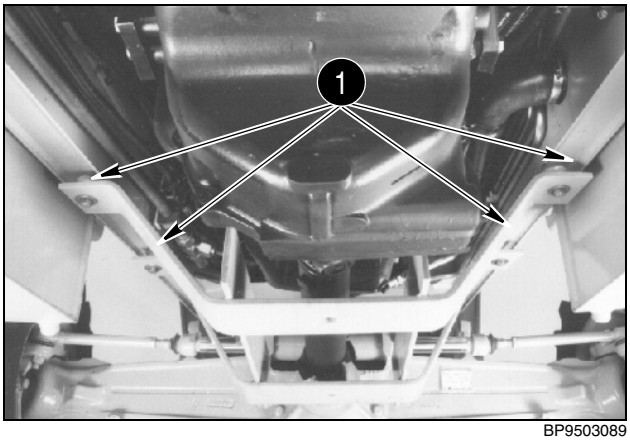


GS99J604

1. RETAINER
2. BOLT
3. TRANSMISSION OUTPUT SHAFT YOKE

Install the retainer (1) and bolts (2) that secure the front drive shaft to the transmission output shaft yoke (3). Tighten to a torque of 33 to 39 Nm (24 to 29 pound-feet).

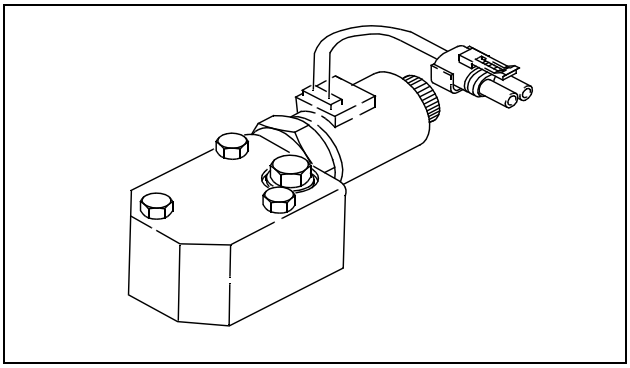
STEP 40



BP9503089

If equipped, install the front drive shaft guard (1). Tighten the bolts to a torque of 50 to 90 Nm (36.6 to 66 pound-feet).

STEP 41



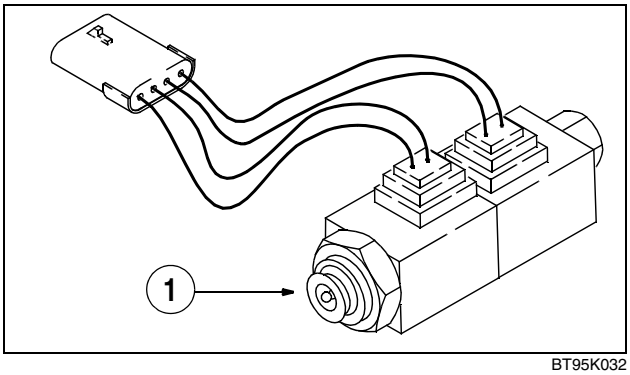
BT95K031

If equipped, connect the wiring harness for the four wheel drive solenoid at the top of the transmission.

STEP 42

Connect the wiring harness for the transmission temperature sender located on the top of the transmission.

STEP 43



BT95K032

Connect the wiring harness for the transmission shift solenoid (1) on the top of the transmission.

SPECIFICATIONS

NOTE: *All specifications shown were taken from a sampling of new production machines with less than 20 hours. Your figures may differ slightly depending upon temperature, instrumentation variables, more that 20 engine hours, etc.*

Output of supply pump ..... 32 L/min to 68 L/min at 900 to 2200 r/min
(7.02 gpm to 18.5 gpm at 900 to 2200 rpm)

Pump supply pressure (4WD) ..... 1248 to 1551 kPa, 12.5 to 15.5 bars at 900 to 2200 r/min
(181 to 225 psi at 900 to 2200 rpm)

Regulated clutch pressure ..... 1103 to 1303 kPa, 11 to 13 bars at 900 to 2200 r/min
(160 to 189 psi at 900 to 2200 rpm)

Torque converter in pressure ..... 48 to 903 kPa, 0.5 to 9 bars at 900 to 2200 r/min
(7 to 131 psi at 900 to 2200 rpm)

Torque converter out pressure ..... 0 to 427 kPa, 0 to 4.3 bars at 900 to 2200 r/min
(0 to 62 psi at 900 to 2200 rpm)

Lubrication pressure ..... 40 to 303 kPa, 0.4 to 3 bars at 900 to 2200 r/min
(5.8 to 44 psi at 900 to 2200 rpm)

Transmission oil operating temperature (normal) ..... 78 to 82° C (172 to 180° F)

Forward/Reverse clutch solenoids ..... 4.7 ±10% OHMS at 20° C (68° F)

Four wheel drive solenoid ..... 6.8 ±10% OHMS at 20° C (68° F)

Differential Lock Solenoid Valve Pressure

- Without Differential Lock Solenoid Energized ..... 0 psi (0 bars)
- With Differential Lock Solenoid Energized (4WD) ..... 12.5 To 15.5 bars (181 to 225 psi)
- With Differential Lock Solenoid Energized (2WD)
  And Direction Control Lever in Forward or Reverse Position ..... 11 to 13 bars (160 to 189 psi)

Transmission Oil Too Hot

Is oil level correct? Add oil as required.
Is there still a problem?

No → Troubleshooting complete.
Find cause for loss of oil.

Yes ↓

Check transmission oil cooler for air flow restriction. Clean exterior of transmission oil cooler as required.
Is there still a problem?

No → Troubleshooting complete.

Yes ↓

Check converter in pressure. See page 14.
Is the pressure and flow as specified?

No → See Machine will not Move on page 9.

Yes ↓

Check converter out pressure. See page 16.
Is the pressure as specified?

No → See Machine will not Move on page 9.

Yes ↓

Check lube pressure. See page 16. Is the pressure as specified?

No → If torque converter pressure is high and lube pressure is low, possible causes include:

1. The oil cooler is restricted. Replace the oil cooler.
2. The oil cooler circuit is restricted. Inspect the oil cooler circuit and repair as required.

Yes ↓

Troubleshooting complete.

NOTE: *The transmission oil cooler cannot be flushed or cleaned out, the transmission oil cooler must be replaced if retricted or plugged.*

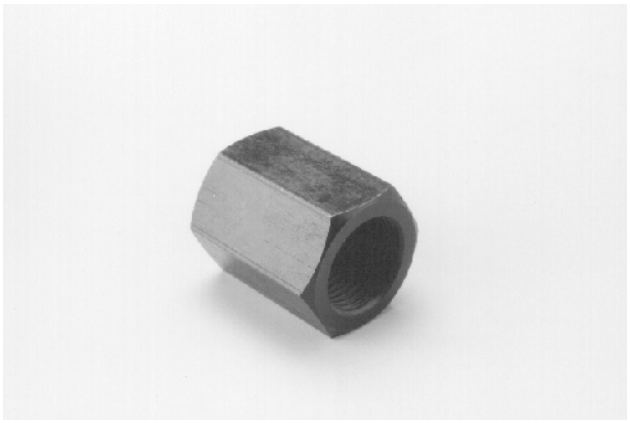
Test Two - Engine at 2200 r/min (2200 rpm)

NOTE: *All specifications shown were taken from a sampling of new production machines with less than 20 engine hours, your figures may differ slightly.*

Test Port	Item	Specifications - 4 Wheel Drive	Actual
1 and 2	Supply Pump Flow	62 to 70 L/min at 1379 kPa, 14 bar at 49° C (16.3 to 18.5 gpm at 200 psi at 120° F)	
1 and 2	Cold Oil By-Pass	3034 to 3310 kPa, 30.9 to 33.7 bar at 49° C (440 to 480 psi at 120° F)	
7	Differential Lock Pressure (FNR must be in forward or reverse)	1276 to 132 kPa, 13.0 13.5 bar (185 to 192 psi)	
		Forward	
10	Pump Supply Pressure	1586 to 1655 kPa, 16.2 16.9 bar (230 to 240 psi)	
4	Regulated Clutch Pressure	1276 to 1379 kPa, 13.0 to 14.1 bar (185 to 200 psi)	
6	Torque Converter IN	827 to 965 kPa, 8.4 to 9.8 bar (120 to 140 psi)	
8	Torque Converter OUT	434 to 455 kPa, to 4.4 4.6 bar (63 to 65 psi)	
9	Lubrication Pressure	290 to 303 kPa, 3.0 3.1 bar (42 to 44 psi)	
		Neutral	
10	Pump Supply Pressure	1407 to 1462 kPa, 14.4 to 14.9 bar (205 to 212 psi)	
6	Torque Converter IN	724 to 862 kPa, 7.4 to 8.8 bar (105 to 125 psi)	
8	Torque Converter OUT	483 to 503 kPa, 4.9 5.3 bar (70 to 73 psi)	
9	Lubrication Pressure	414 to 434 kPa, 4.2 4.4 bar (60 to 63 psi)	
		Reverse	
10	Pump Supply Pressure	1558 to 1627 kPa, 15.9 16.6 bar (226 to 236 psi)	
5	Regulated Clutch Pressure	1276 to 1379 kPa, 13.0 14.1 bar (185 to 200 psi)	
6	Torque Converter IN	827 to 965 kPa, 8.4 9.8 bar (120 to 140 psi)	
8	Torque Converter OUT	393 to 414 kPa, 4.0 4.2 bar (57 to 60 psi)	
9	Lubrication Pressure	241 255 kPa, 2.5 2.6 to bar (35 to 37 psi)	

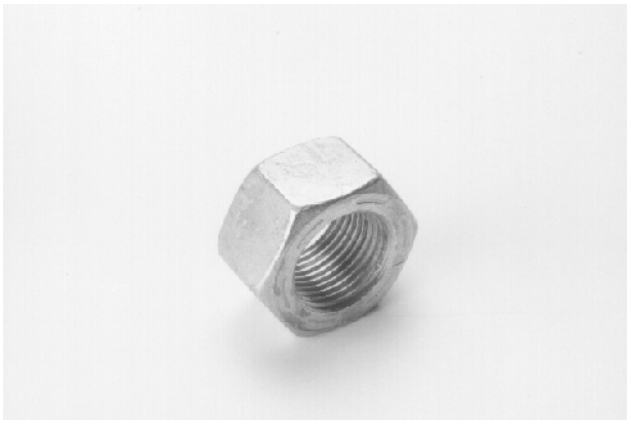
BP95F676

24835 Forcing Screw (Part of CAS1934 CE Tool Kit) - Used to install the inner pinion bearing cup.



BP95F678

24836 Special Nut (Part of CAS1934 CE Tool Kit) - Used to install the inner pinion bearing cup.



BP95F673

22301 3/4-16 UNF Grade 8 Hex Nut. - Used to install the inner pinion bearing cup.

BP95F677

CAS1940 Driver Plate (Part of CAS40002 CE Tool Kit) - Used to install the inner pinion bearing cup.

BP95F670

OEM4185 Universal Bearing Cup Installer - Used to install the hub bearing cups.

BP95F671

CAS1716-3 Handle (Part of CAS1716 AG Tool Kit) - Used with CAS2374 Hub Seal Installer.

STEP 42

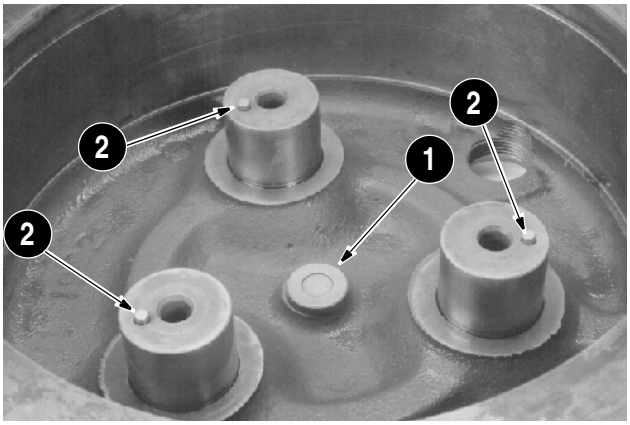
BD00M487

BK98J289

Use the CAS 2374A Hub Seal Installer and a CAS-1716-3 Handle or other acceptable tools to install the hub seal. The side of the hub seal with the words “Oil Side” must be down. Push only until the hub seal makes contact with the shoulder inside the hub. Continued pushing can damage the hub seal.

NOTE: *The photo shows the front seal side being used. Use the cupped side of the Hub Seal Installer.*

STEP 43



BP95F720

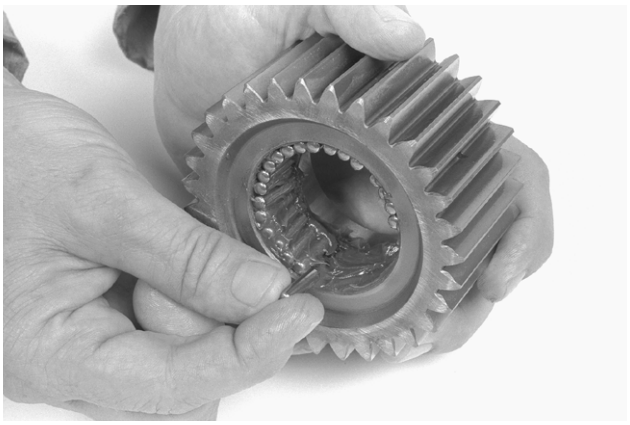
If the thrust pin (1) was removed, install a new thrust pin (1). If the pins (2) were removed from the pinion shafts, install new pins (2).

STEP 44

BK98J280

Install the inner thrust washer on one of the pinion shafts.

STEP 45



BK98J282

Apply a light coat of Lithium based grease to the inside of the pinion gear to hold the needle bearings in place. Install the first row of needle bearings (28 needle bearings) into the pinion gear.

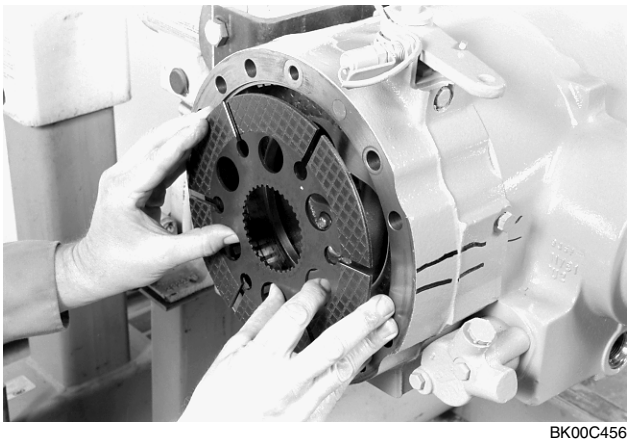
STEP 46

BK98J276

Install the pinion gear onto the pinion shaft.

NOTE: *The following photo is for reference only. It does not show the pinion gear installed on the pinion shaft.*

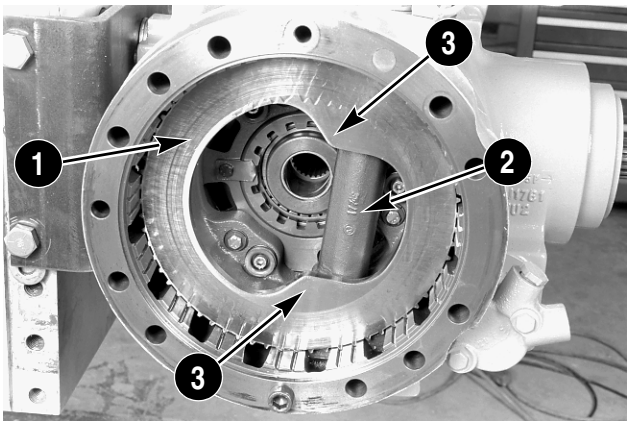
STEP 22



BK00C456

Remove the remaining brake disc.

STEP 23

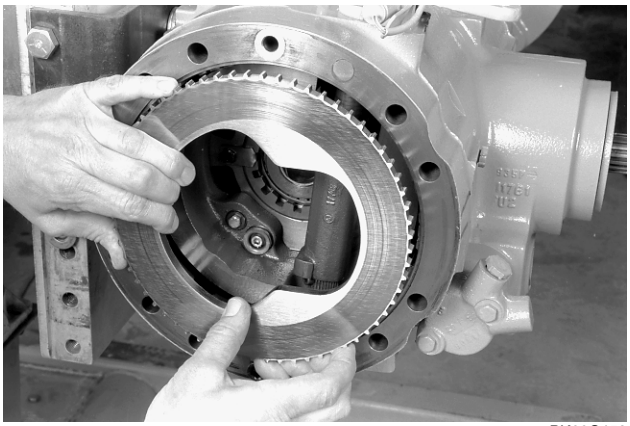


BK00C457

1. PISTON PLATE 2. CAM 3. LOBES

IMPORTANT: *Before removing the piston plate (1) note the orientation of the lobes (3) on the piston plate (1) in relation to the lobes on the cam (2). The piston plate (1) must be installed in the correct position during re-assembly.*

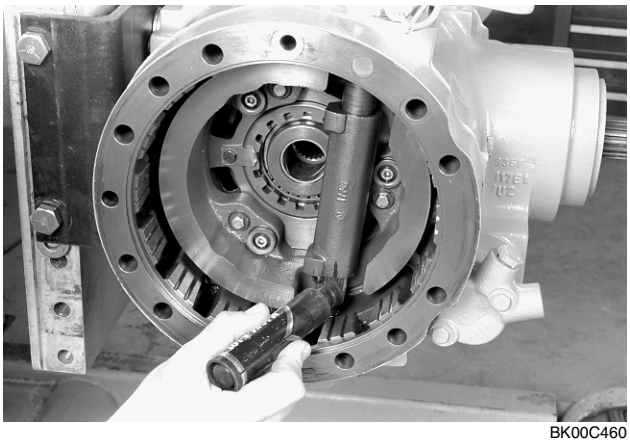
STEP 24



BK00C459

Remove the piston plate.

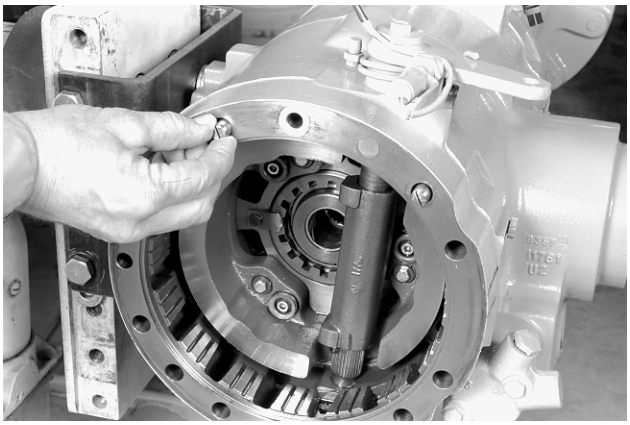
STEP 25



BK00C460

Mark the bottom of the cam for reference during re-assembly.

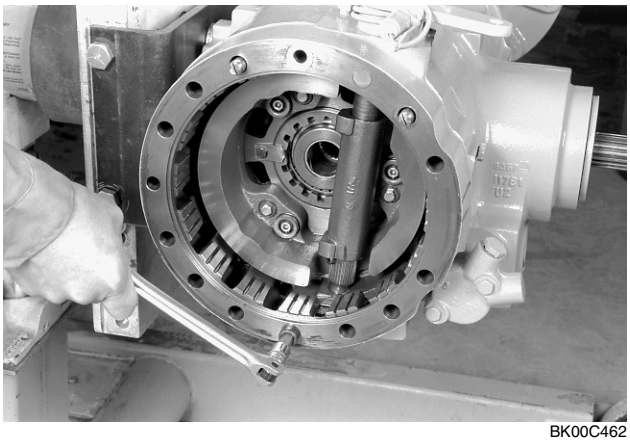
STEP 26



BK00C461

Install two guide pins.

STEP 27



BK00C462

Remove the Allen head bolt that fastens the brake section to the center section.

STEP 77

BK98C107

Remove the shaft from the fork.

STEP 78

BP95F470

Remove the remaining snap ring from the shaft.

Differential Lock Housing

STEP 79

BK98C112

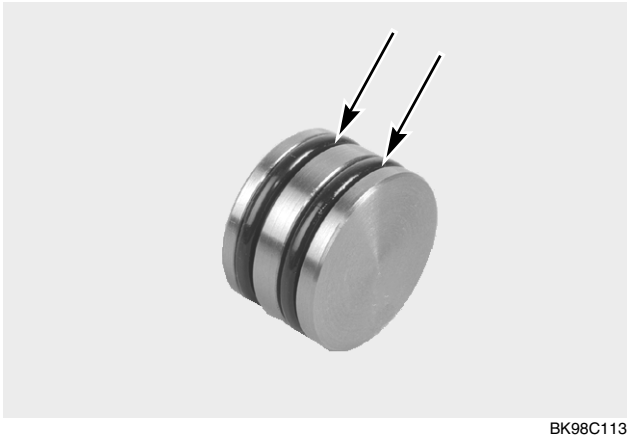
Remove the O-ring from the cover of the differential lock.

STEP 80

BK98C114

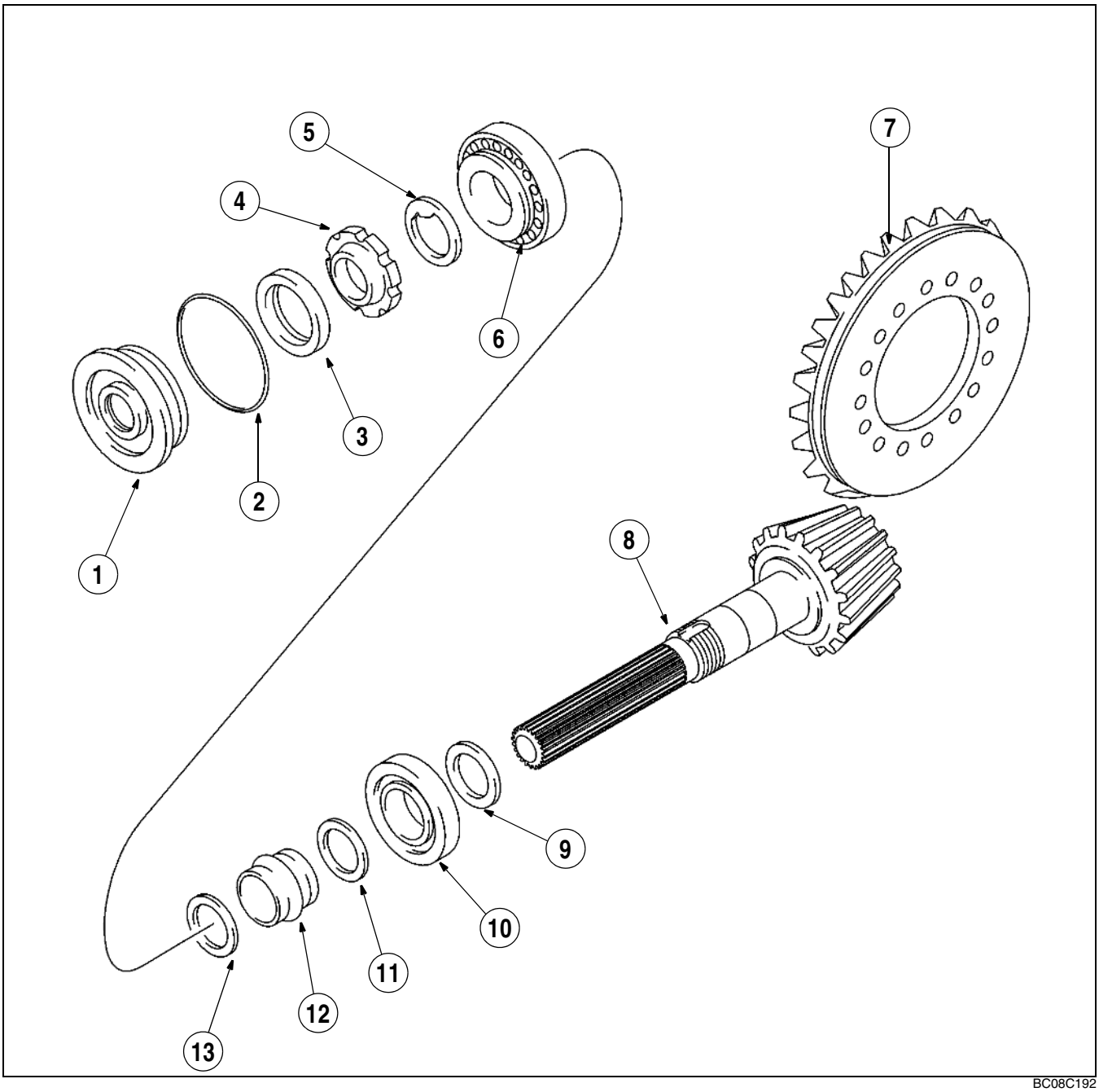
Use compressed air to push the piston from the cover of the differential lock.

STEP 81



BK98C113

Remove and discard the O-rings from the piston.



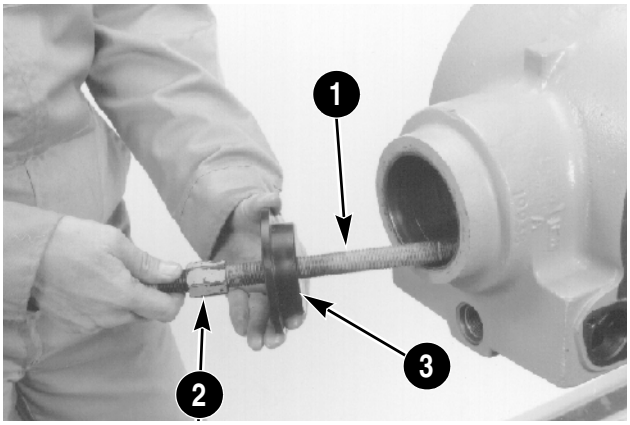
BC08C192

1. COVER
2. O-RING
3. SEAL
4. PINION NUT
5. SPECIAL WASHER
6. OUTER BEARING ASSEMBLY
7. RING GEAR
8. PINION GEAR
9. SHIM
10. INNER BEARING ASSEMBLY
11. FLAT WASHER
12. COLLAPSIBLE SPACER
13. FLAT WASHER

ILLUSTRATION OF RING AND PINION

Center Section

STEP 153

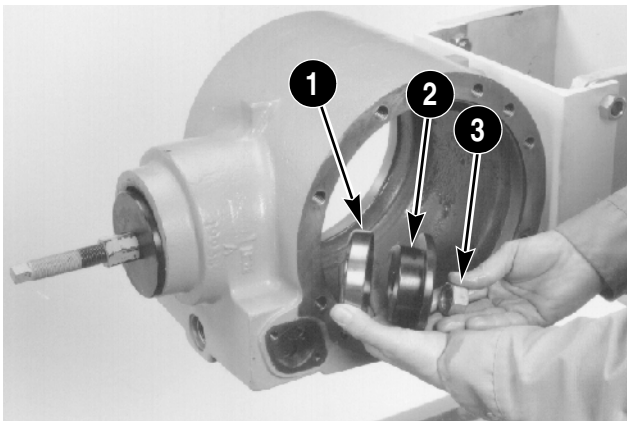


BP95F629

1. CAS24835, FORCING SCREW
2. 24836, SPECIAL NUT
3. CAS1940, DRIVER PLATE

Put the forcing screw, special nut, and driver plate in position on the front of the center section.

STEP 154



BP95F631

1. REAR BEARING RACE
2. CAS2371, INSTALLER PLATE
3. 22301, 3/4 - 16 UNF HEX NUT

Assemble the rear bearing race, the installer plate, and the hex nut on the forcing screw.

STEP 155

BP95F632

Hold the forcing screw and turn the special nut until the rear race stops moving. Remove the tools from the center section.

STEP 156

BP95F630

Put the front race in position in the center section.

STEP 157

BP95F626

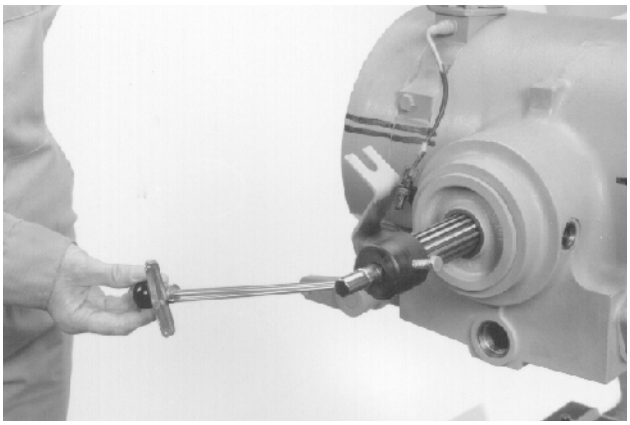
Drive the front race into position in the center section until the front race stops moving.

Differential Bearing Preload Adjustment

IMPORTANT: *The following photos show the cover for the pinion gear shaft installed. Do not install the cover at this time.*

NOTE: *The following photos may appear different than the model you are repairing. The procedure is the same.*

STEP 193



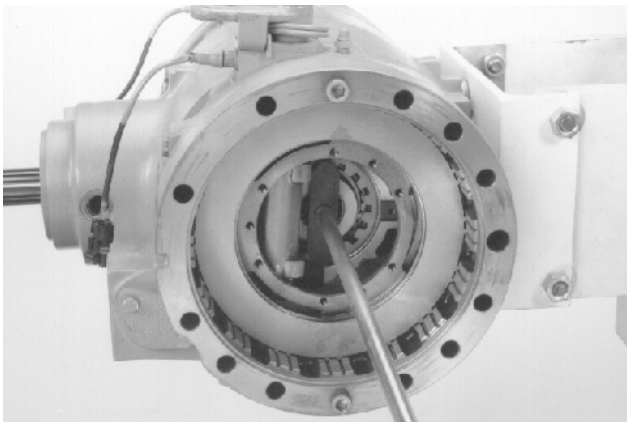
BP95F585

Install the CAS2375 on the pinion shaft. Check the rotating torque of the pinion shaft. The rotating torque must be 1.9 to 2.8 Nm (16.9 to 24.9 pound-inches).

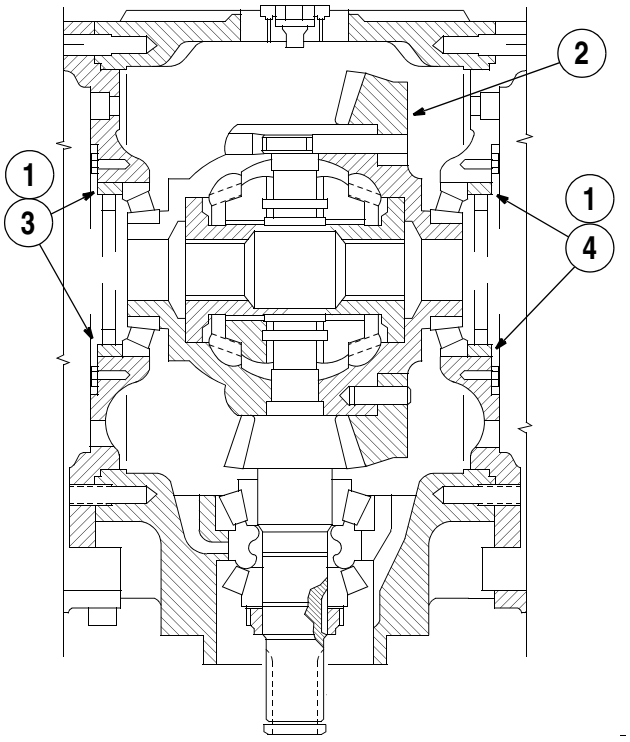
STEP 194

If the rotating torque is not correct do the the following procedure.

STEP 195



BP95F579



BT95G151

1. ADJUSTING RING
2. RING GEAR
3. TOOTH SIDE OF RING GEAR
4. BACKFACE SIDE OF RING GEAR

If the rotating torque is too high, use the CAS2376 to loosen (turn counterclockwise) the adjusting ring one notch on both sides. Continue with this step until the rotating torque is 1.9 to 2.8 Nm (16.9 to 24.9 pound-inches).

If the rotating torque is too low, use the CAS2376 to tighten (turn clockwise) the adjusting ring one notch on both sides. Continue with this step until the rotating torque is 1.9 to 2.8 Nm (16.9 to 24.9 pound-inches).

Section
6007

STANDARD TRANSMISSION

6007

CNH America LLC
700 State Street
Racine, WI 53404 U.S.A.

Bur 6-74782

Issued January, 2004 Revised July, 2005

STEP 27

BD01B033

Remove the cover.

STEP 28

BD01B034

Remove the O-ring from the cover.

STEP 29

BP95F350

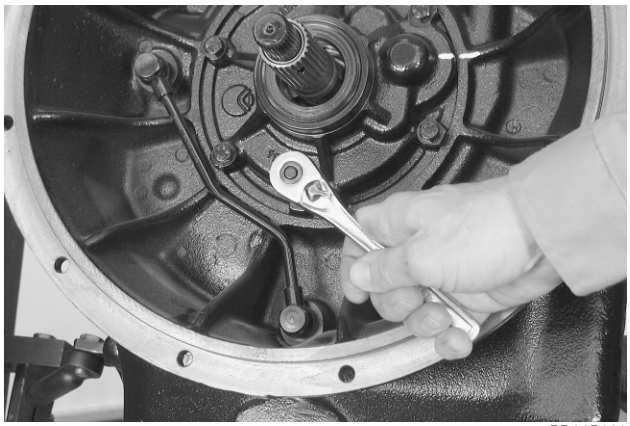
Remove the seal from the cover.

STEP 30

BD01B035

Make a mark across the joint between the oil pump and the torque converter housing so that the oil pump can be aligned the same way during installation.

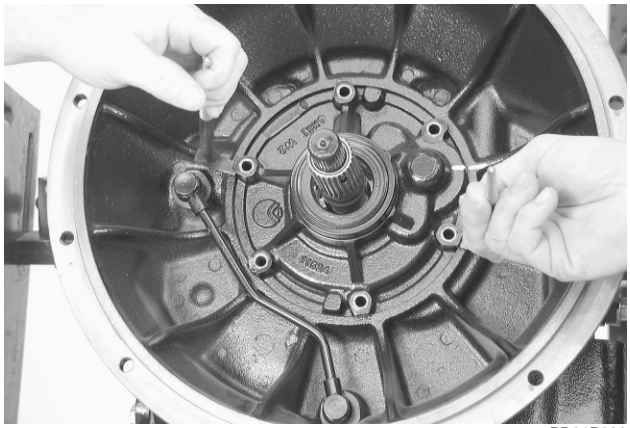
STEP 31



BD01B036

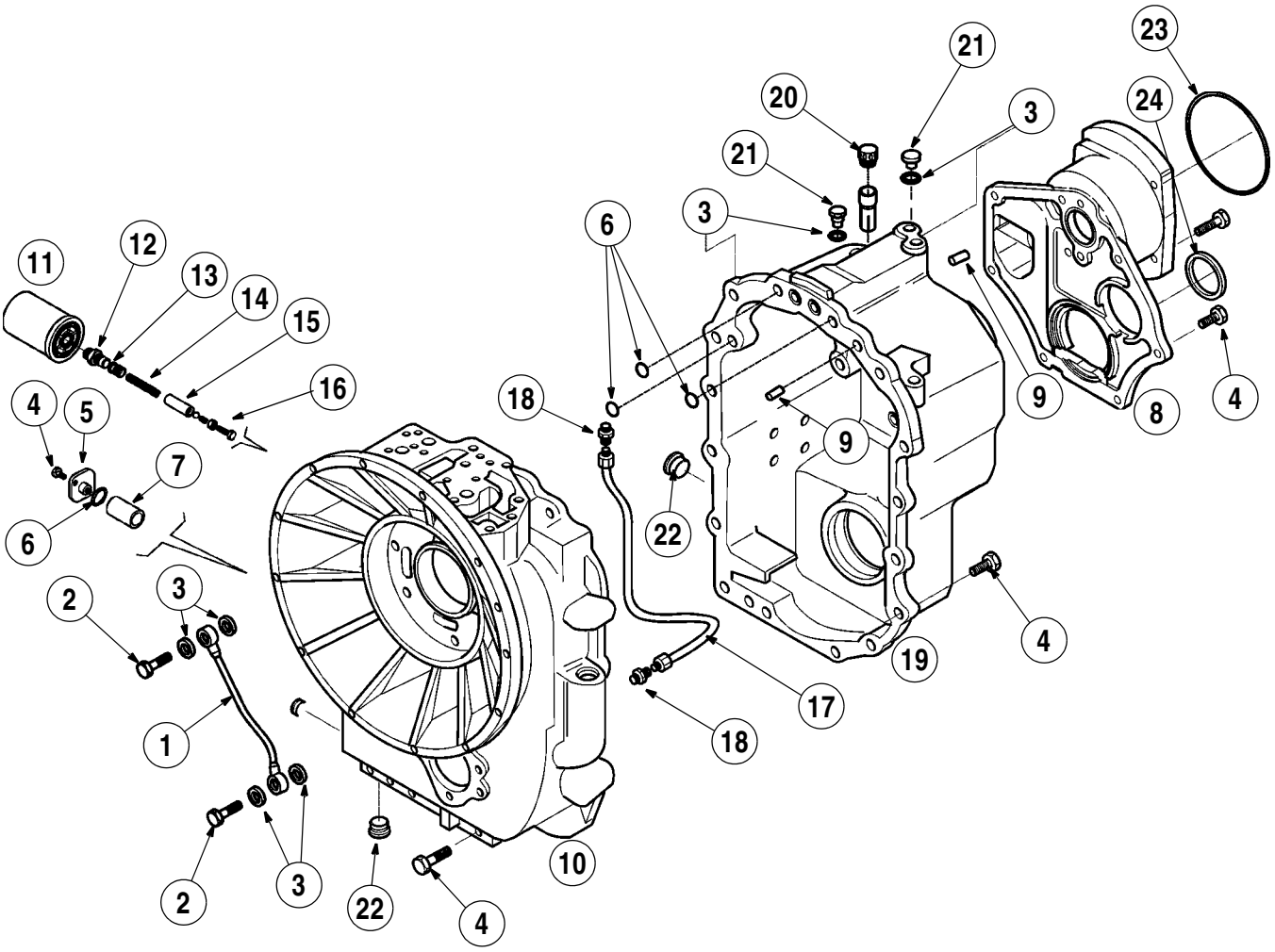
Remove the six bolts that fasten the oil pump in position.

STEP 32



BD01B038

Use two pry bars to lift the oil pump evenly until the oil pump can be removed.



1. TUBE
2. HOLLOW BOLT
3. COPPER WASHER
4. BOLT
5. COVER
6. O-RING
7. OIL SCREEN
8. REAR COVER
9. DOWEL PIN
10. FRONT HOUSING
11. OIL FILTER
12. FITTING
13. SPOOL
14. SPRING
15. VALVE GUIDE
16. FOUR-WHEEL DRIVE PRIORITY VALVE
17. FOUR-DRIVE CLUTCH TUBE
18. FITTING
19. REAR HOUSING
20. BREATHER
21. TEST PORT PLUG
22. DRAIN PLUG
23. O-RING
24. SEAL

FOUR-WHEEL DRIVE TRANSMISSION

STEP 116

BP95F114

Remove the snap ring.

STEP 117

BP95F116

Use pry bars to lift the end plate evenly. Remove the end plate.

STEP 118

BP95F117

Remove the roll pin.

STEP 119

BP95F118

Install the top piece of the CAS-2379 special tool as shown. Use the three threaded rods and nuts to fasten the two pieces together.

STEP 120

BP95F119

Tighten the nuts evenly to compress the spring. Compress the spring just enough to get access to the snap ring.

STEP 121

BP95F120

Remove the snap ring.

STEP 159

BP95F108

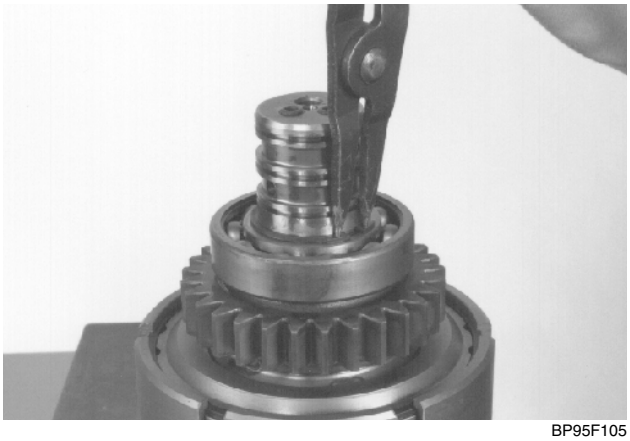
Use clean transmission oil to lubricate the thrust washer. Install the thrust washer so that the notch in the inner edge fits over the pin. Make sure that the side with the oil grooves is down.

STEP 160

BP95F231

Use an acceptable driver to drive the bearing onto the input shaft until the bearing makes contact with the thrust washer.

STEP 161

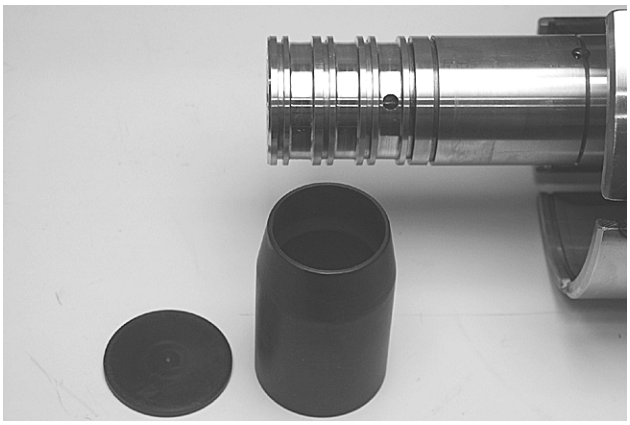


BP95F105

Install the snap ring.

NOTE: *For clarity of the Teflon sealing ring installation procedure the following photos do not show the clutch pack, gear, spacer, bearing, and snap ring installed on the input shaft. Steps 140 through 161 must be performed before installing the Teflon sealing ring on the input shaft.*

STEP 162



BD05A032

Place the 380001929 spacer into the 380001933 expander/protector

STEP 163

BD05A072

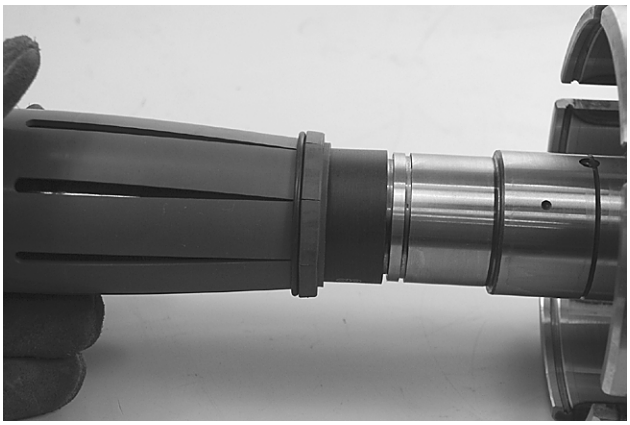
Slide the 380001933 expander/protector and the spacer onto the shaft. Heat the Teflon sealing ring to 80° to 100° C (176° to 212° F). Install the Teflon sealing ring onto the expander/protector.

STEP 202

BD05A070

Slide the expander/protector and spacer onto the input shaft. Heat the Teflon sealing ring to 80° to 100° C (176° to 212° F). Install the Teflon sealing ring onto the 380001428 expander/protector.

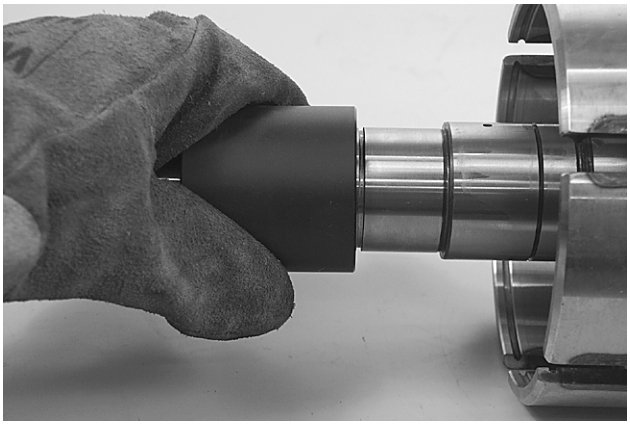
STEP 203



BD05A071

Install the 380001928 pusher over the expander/protector and slide the sealing ring until it reaches the groove in the shaft. Remove the pusher, expander/protector, and spacer from the shaft.

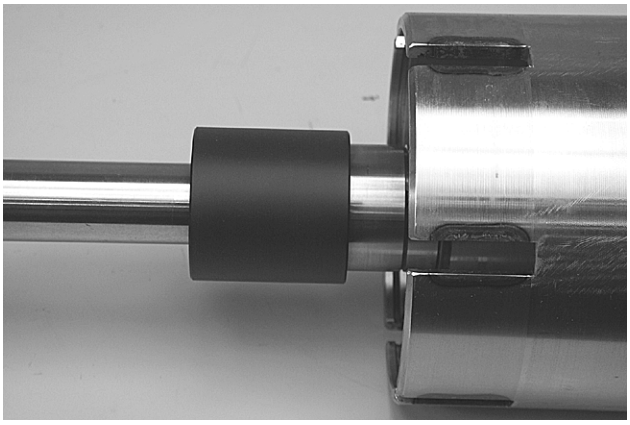
STEP 204



BD05A082

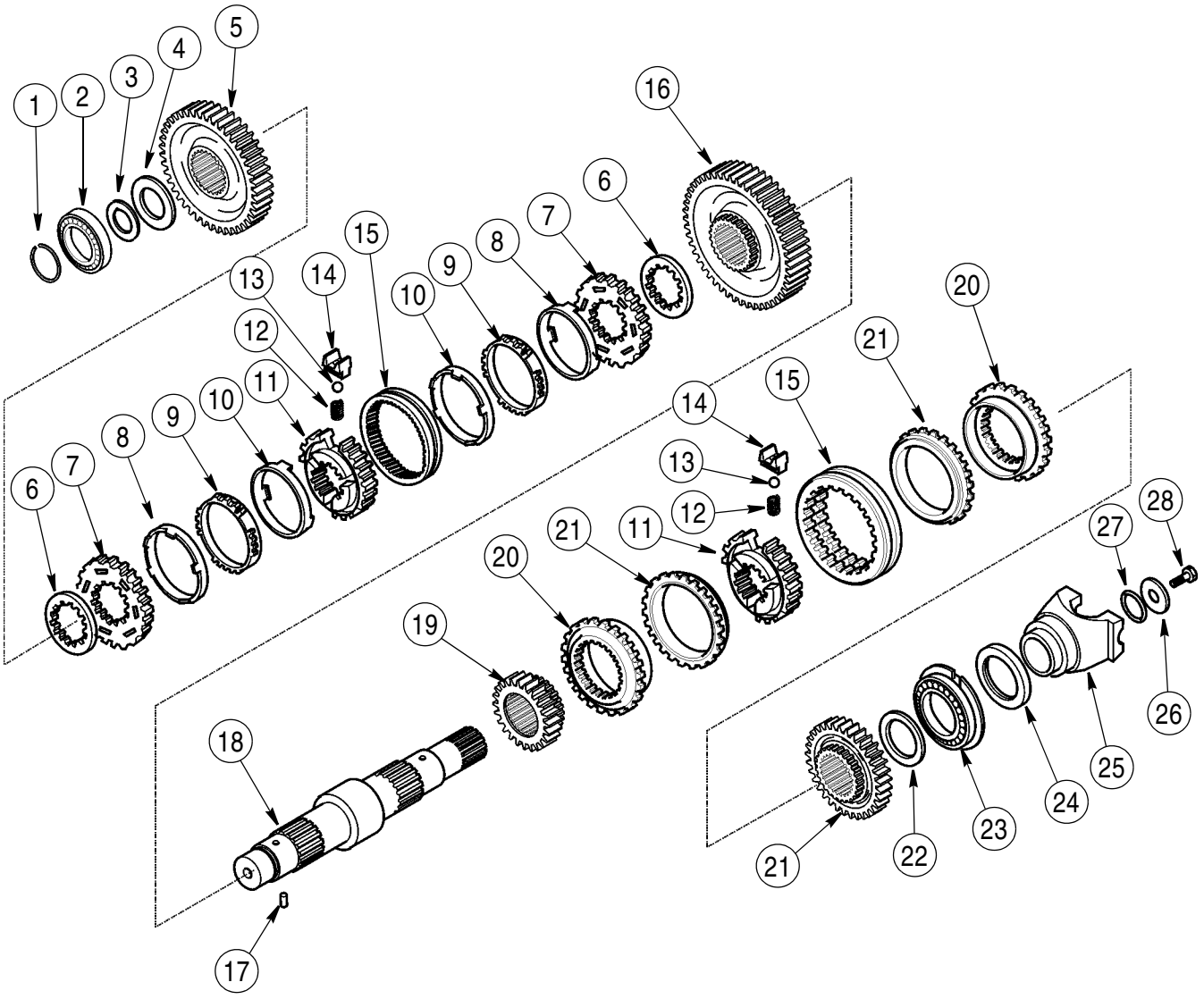
Install the end of the 380001427 seal compressor with the deep chamfer onto the shaft and over the sealing ring. Use a back and forth twisting motion to allow the seal compressor to slip over the top of the sealing ring and seat the sealing ring into the groove. Be careful not to damage the sealing ring. After the sealing ring is seated in the groove, remove the seal compressor from the shaft.

STEP 205



BD05A039

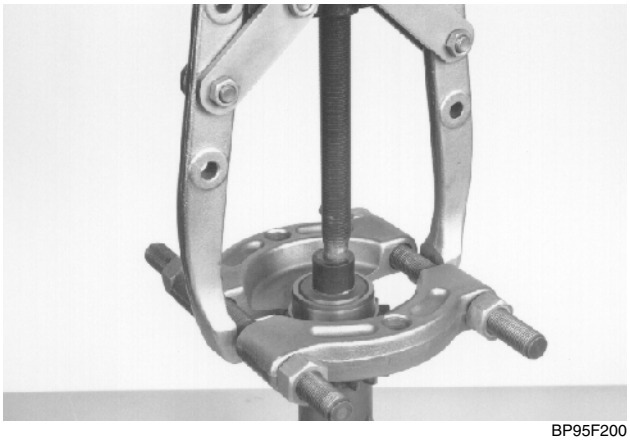
Turn the seal compressor around and slide the end with the narrow chamfer over the shaft and over the sealing ring. Leave the seal compressor in place for 15 minutes until the sealing ring has cooled and is properly sized and seated in the groove. After the sealing ring has cooled, remove the seal compressor from the shaft.



BS00E042

1. LOCK RING
2. BEARING
3. SHIM
4. THRUST WASHER
5. GEAR
6. SPACER
7. SYNCHRONIZER RING
8. STEEL RING
9. COATED RING
10. TAPERED FRICTION RING
11. HUB
12. SPRING
13. BALL
14. LOCK SPRING PLATE
15. SLEEVE
16. GEAR
17. SPLIT PIN
18. SECONDARY SHAFT
19. GEAR
20. CLUTCH RING
21. SYNCHRONIZER RING
22. THRUST WASHER
23. BEARING
24. SEAL
25. FLANGE
26. WASHER
27. O-RING
28. BOLT

STEP 287



BP95F200

Install a bearing separator under the lip of the bearing race as shown. Install an acceptable puller on the bearing separator. Use a shaft protector between the puller and the end of the primary shaft. Use molydisulfide grease to lubricate the shaft protector and the end of the puller. Pull the bearing race from the primary shaft.

Inspection

STEP 288

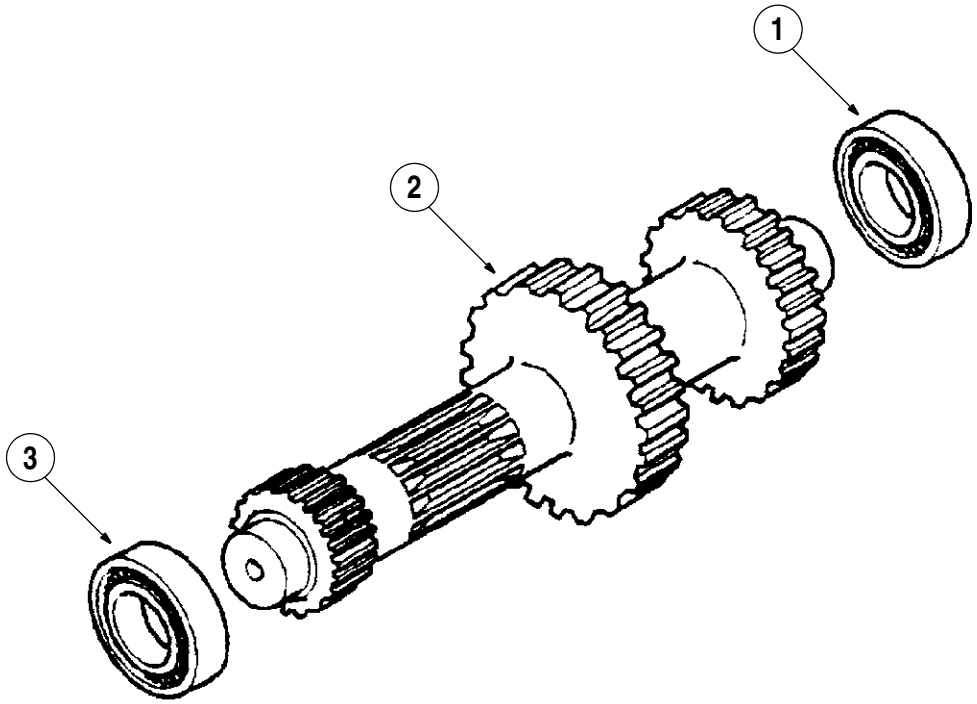
Check the teeth on the gears for wear and damage. If a tooth is badly damaged, be sure to inspect the gear or spline that is in mesh with the damaged gear.

STEP 289

Check the splines on the primary shaft for wear and damage.

STEP 290

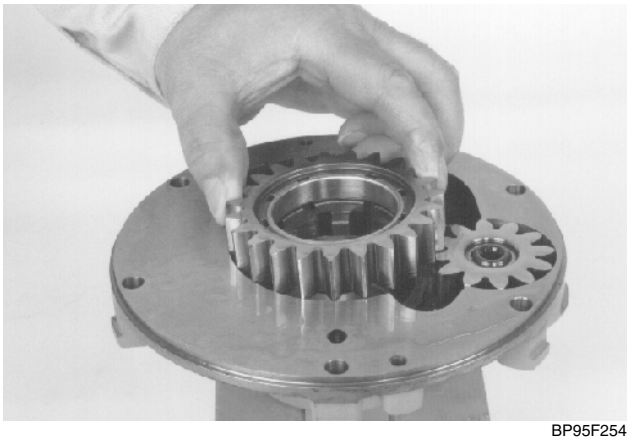
Check the bearings for flat areas, pitting, and other damage. Replace as necessary.



BS00E040

1. BALL BEARING
2. PRIMARY SHAFT
3. ROLLER BEARING

STEP 332



BP95F254

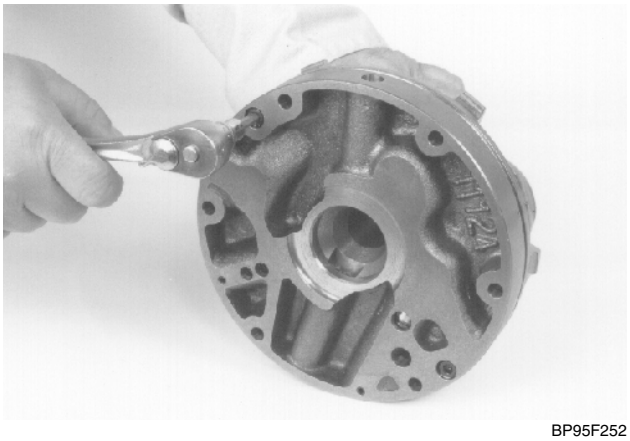
Use clean transmission oil to lubricate the large gear, the bushing in the large gear, and the bore in the pump housing. Install the large gear so that the side with the lugs is down.

STEP 333

BP95F253

Install the pump support on the pump housing. Make sure that all the bolt holes are aligned.

STEP 334



BP95F252

Install the two Allen head bolts to fasten the pump support to the pump housing. Tighten the Allen head bolts until they are just snug.

STEP 335

Install a large worm gear clamp (radiator hose clamp) around the outside of the pump housing and the pump support. The clamp must cover the joint between the two parts and be in contact with both parts. Tighten the clamp.

Tap the housing with a soft hammer. Tighten the clamp again.

Tap the housing again with a soft hammer. Tighten the clamp again.

Tighten the Allen head bolts to 10 Nm (89 pound-inches). Remove the clamp.

STEP 336

Put the oil pump on a clean work surface so that the pump housing is up. Insert a small screwdriver or punch through the hole in the torque converter hub and rotate the large gear by pushing against one of the lugs. The large gear must rotate freely. If the large gear does not rotate freely, loosen the Allen head bolts and repeat step 335.

If the large gear rotates freely, fill the oil pump with clean transmission oil and rotate the large gear three revolutions before you install the oil pump on the transmission.

STEP 337

BP95F251

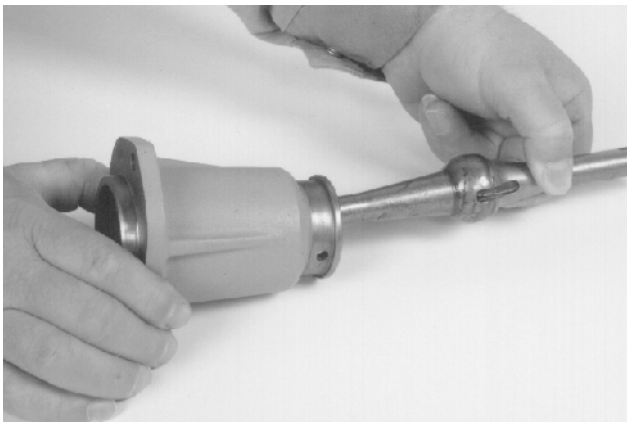
Install a new O-ring.

STEP 375

BP95F347

Remove the spring.

STEP 376



BP95F346

Remove the shift lever from the shifter housing.

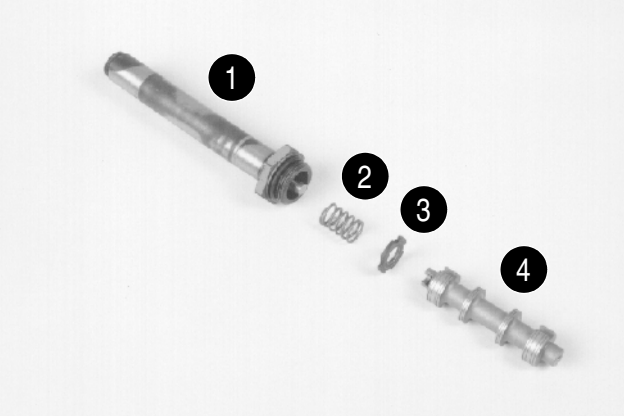
Shift Rods And Shift Forks

STEP 377

BP95F132

If disassembly is required, remove the roll pins and separate the shift forks from the shift rods. Make sure that you remember how the parts are assembled and which parts go together. The forks are the only parts that are not interchangeable. Inspect all parts for burrs and excessive wear. Assembly is the reverse of disassembly.

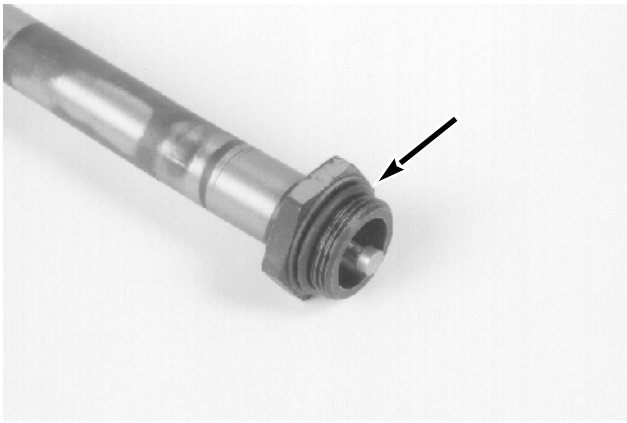
STEP 407



BP95F333

Separate the solenoid plunger (1), the spring (2), the spring spacer (3), and the forward/reverse spool (4).

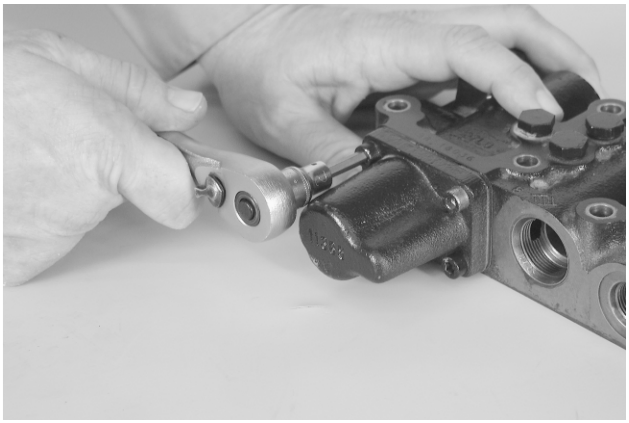
STEP 408



BP95F334

Remove the O-ring from the solenoid plunger.

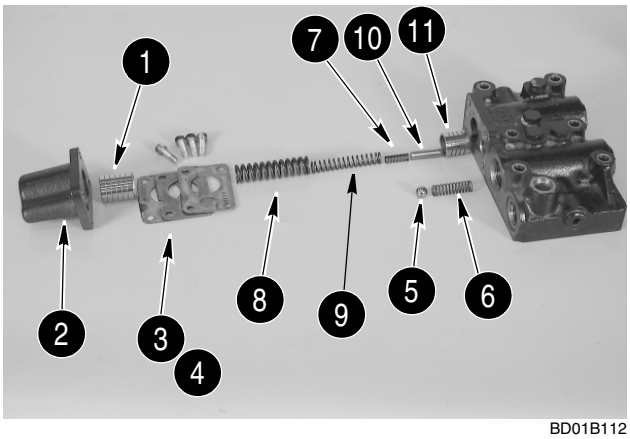
STEP 409



BD01B104

Remove the four Allen head bolts that fasten the modulation cover to the control valve body.

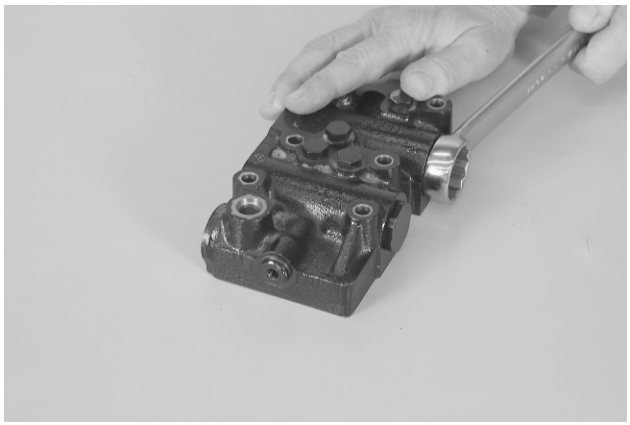
STEP 410



BD01B112

Remove the outer modulation piston (1) from the modulation cover (2). Remove the two cover gaskets (3) and the spacer gasket (4). Remove the check ball (5) and spring (6). Remove the outer modulation piston spring (7), the inner (8) and outer spring (9), and the inner modulation piston pin (10) and piston (11).

STEP 411



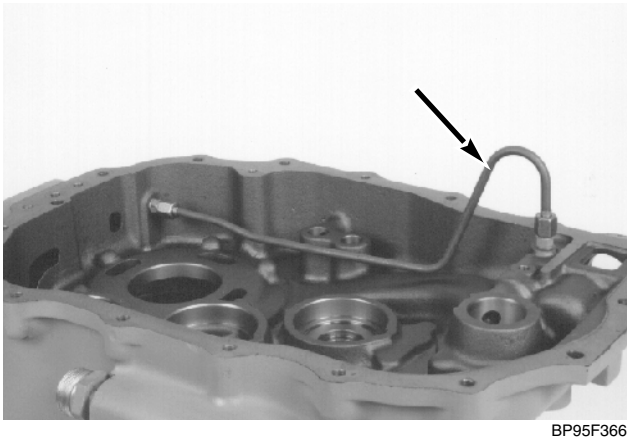
BD01B118

Loosen the plug at the opposite end of the bore.

TRANSMISSION HOUSING

Assembly

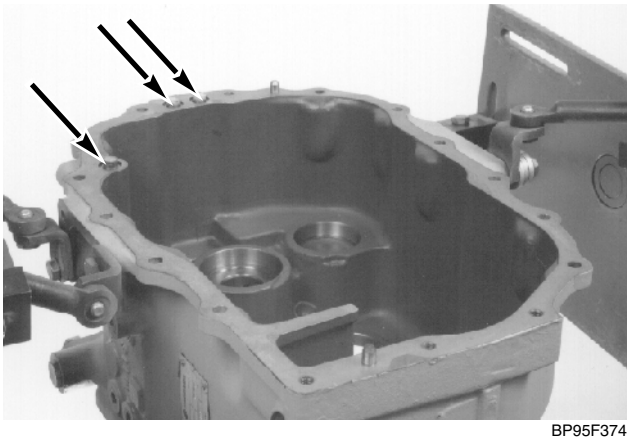
STEP 449



BP95F366

If the four-wheel drive clutch tube (four-wheel drive machine only) was removed from the front housing, install the four-wheel drive clutch tube. Tighten the fittings to a torque of 40 Nm (265 pound-inches).

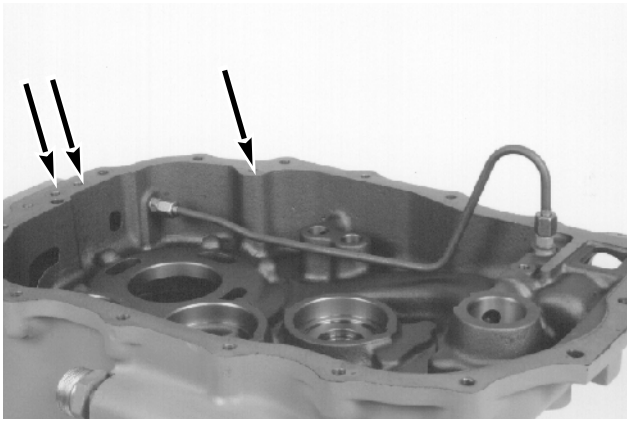
STEP 450



BP95F374

Install plugs (foam ear plugs work well) in the three oil passages in the edge of the rear housing. Scrape all sealing material from the sealing surface of the rear housing. Prepare the sealing surface by rubbing with a 3M Scotch-Brite fiber pad or equivalent. DO NOT use steel wool or anything that can leave material on the sealing surface. Flush the rear housing with solvent.

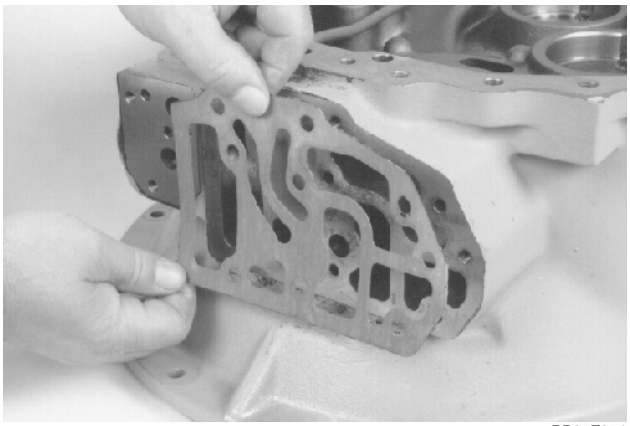
STEP 451



BP95F366

Install plugs (foam ear plugs work well) in the three oil passages in the edge of the front housing. (The plugs have not been installed in the picture above.) Scrape all sealing material from the sealing surface of the front housing. Prepare the sealing surface by rubbing with a 3M Scotch-Brite fiber pad or equivalent. DO NOT use steel wool or anything that can leave material on the sealing surface. Flush the front housing with solvent.

STEP 452



BP95F371

Install the gasket for the valve plate on the front housing.

STEP 495

BP95F353

Use the CAS-2381 special tool to install a new seal in the cover. Push just until the seal stops moving. DO NOT use excessive force. Fill the cavity under the lip of the seal with high temperature wheel bearing grease.

STEP 496

BD01B034

Install a new O-ring on the cover. Use clean transmission oil to lubricate the O-ring.

STEP 497

BD01B033

Install the cover in the front housing.

STEP 498

BD01B032

Install the three bolts that fasten the cover to the front housing. Tighten the bolts to a torque of 23 Nm (204 pound-inches).

STEP 499

BD01B029

Install a new O-ring in the four-wheel drive flange. Use clean transmission oil to lubricate the O-ring.

STEP 500

BD01B028

Install the four-wheel drive flange on the four-wheel drive shaft.

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NOTES

HYDRAULIC OIL COOLER

Removal

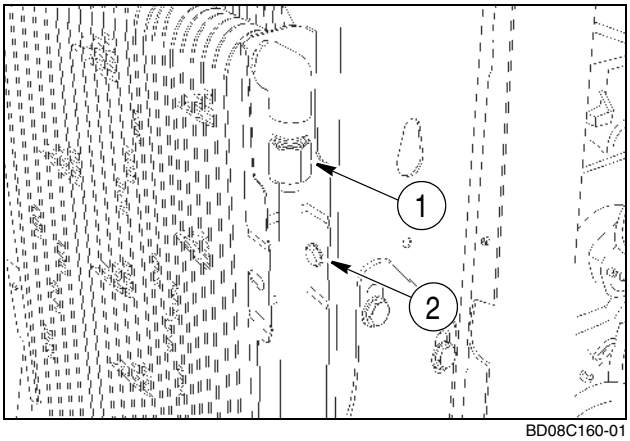
STEP 1
Park the machine on a level surface.

STEP 2
Apply the parking brake.

STEP 3
Lower the forks to the ground and stop the engine.

STEP 4
Move the control levers in all directions to release the pressure from the hydraulic circuits.

STEP 5
The hydraulic oil cooler and radiator must be removed as an assembly. See section 2000 for radiator removal.

STEP 6


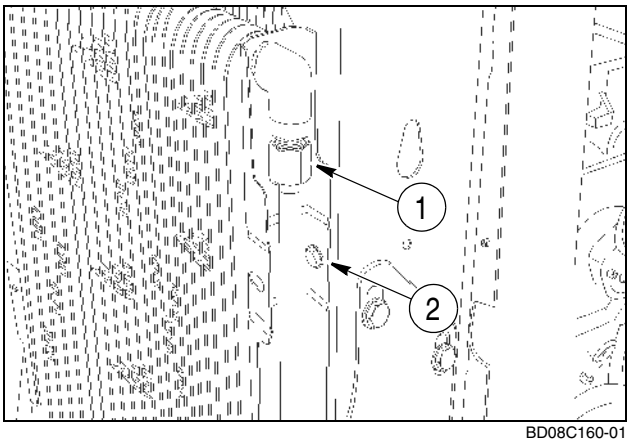
BD08C160-01

1. COOLER TUBE 2. CAP SCREW

Disconnect the cooler tubes on both sides of the oil cooler. Remove the four caps screws and separate the hydraulic oil cooler from the radiator.

NOTE: *Use a two wrench method when removing the cooler tubes to avoid damaging the fittings on the oil cooler.*

Installation

STEP 1


BD08C160-01

1. COOLER TUBE 2. CAP SCREW

Align the holes in the oil cooler with the threaded holes in the radiator and install the four cap screws. Connect the cooler tubes on both sides of the hydraulic oil cooler.

NOTE: *Use a two wrench method when tightening the cooler tubes to avoid damaging the fittings on the oil cooler.*

STEP 2
See section 2000 for radiator installation.

STEP 3
Start the engine and let it run at low idle.

STEP 4
Operate all hydraulic circuits, stop the engine and check for leaks.

STEP 5
Fill the hydraulic reservoir as required.

PRIORITY VALVE

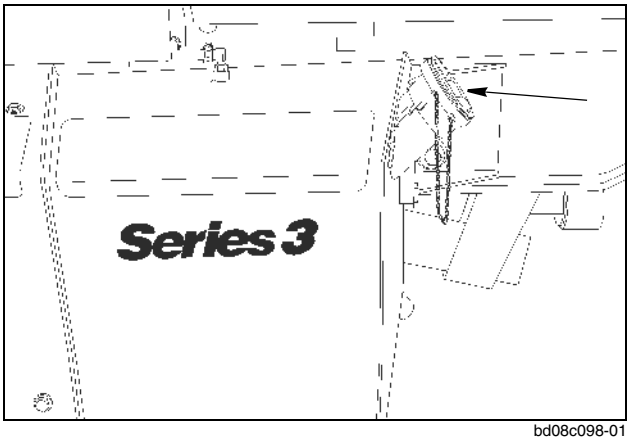
Removal

STEP 1
Park the machine on a level surface.

STEP 2
Apply the parking brake.

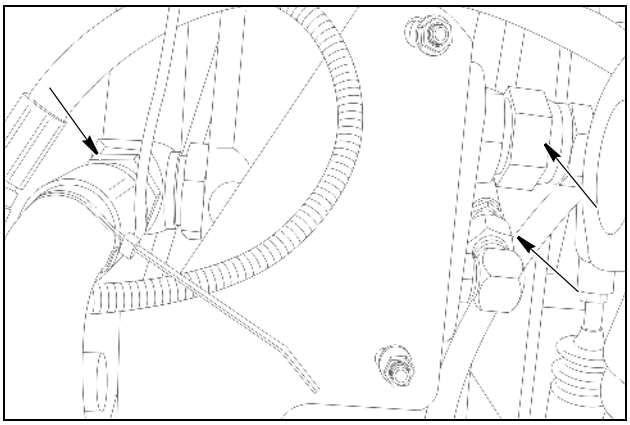
STEP 3
Lower the forks to the ground and stop the engine.

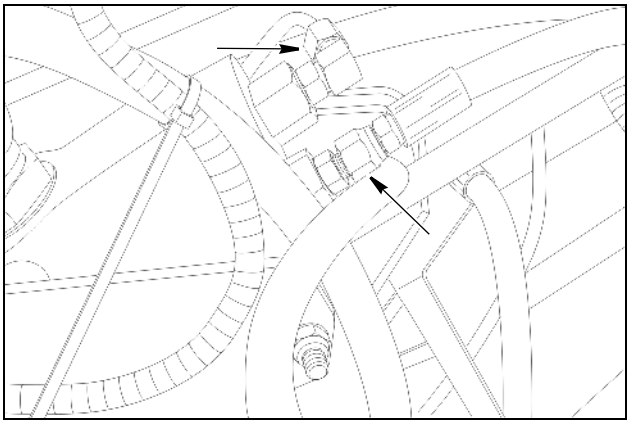
STEP 4
Move the control levers in all directions to relieve the pressure from the hydraulic circuits.

STEP 5


bd08c098-01

Remove the cap from the hydraulic reservoir and connect a vacuum pump to the filler neck, turn on the pump. This will reduce the hydraulic oil loss as the hoses and tubes are removed from the priority valve.

STEP 6

BD08C085-01


BD08C086-01

Put identification tags on each hose and disconnect one at a time from the priority valve. Install plugs in hoses and caps on fittings.

LOAD CONTROL ACCUMULATOR

Removal

STEP 1

Park the machine on a level surface and apply the parking brake.

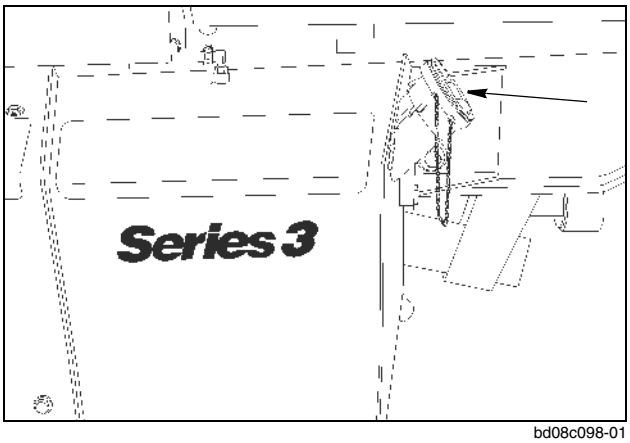
STEP 2

Lower the forks to the ground and stop the engine.

STEP 3

Move the control levers in all directions to relieve the pressure from the hydraulic circuits.

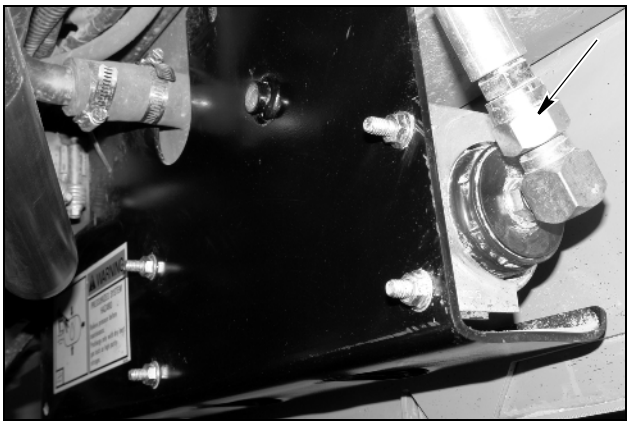
STEP 4



bd08c098-01

Remove the cap from the hydraulic reservoir and connect a vacuum pump to the filler neck, turn on the pump. This will reduce the hydraulic oil loss as the hose is removed from the accumulator.

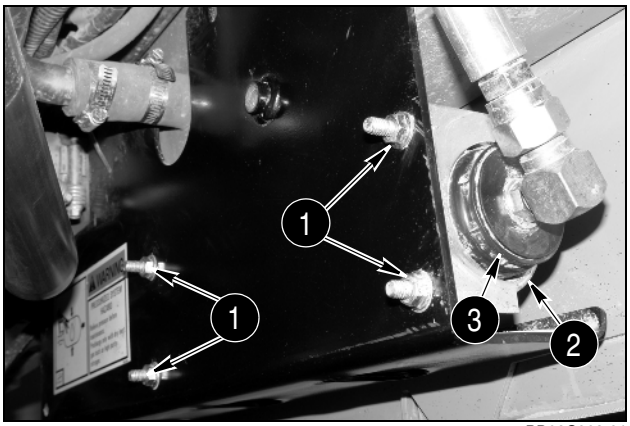
STEP 5



BD08C263-01

Disconnect the hose from the accumulator. Install a plug in the hose and a cap on the fitting.

STEP 6



BD08C263-01

1. NUT 2. CLAMP 3. ACCUMULATOR

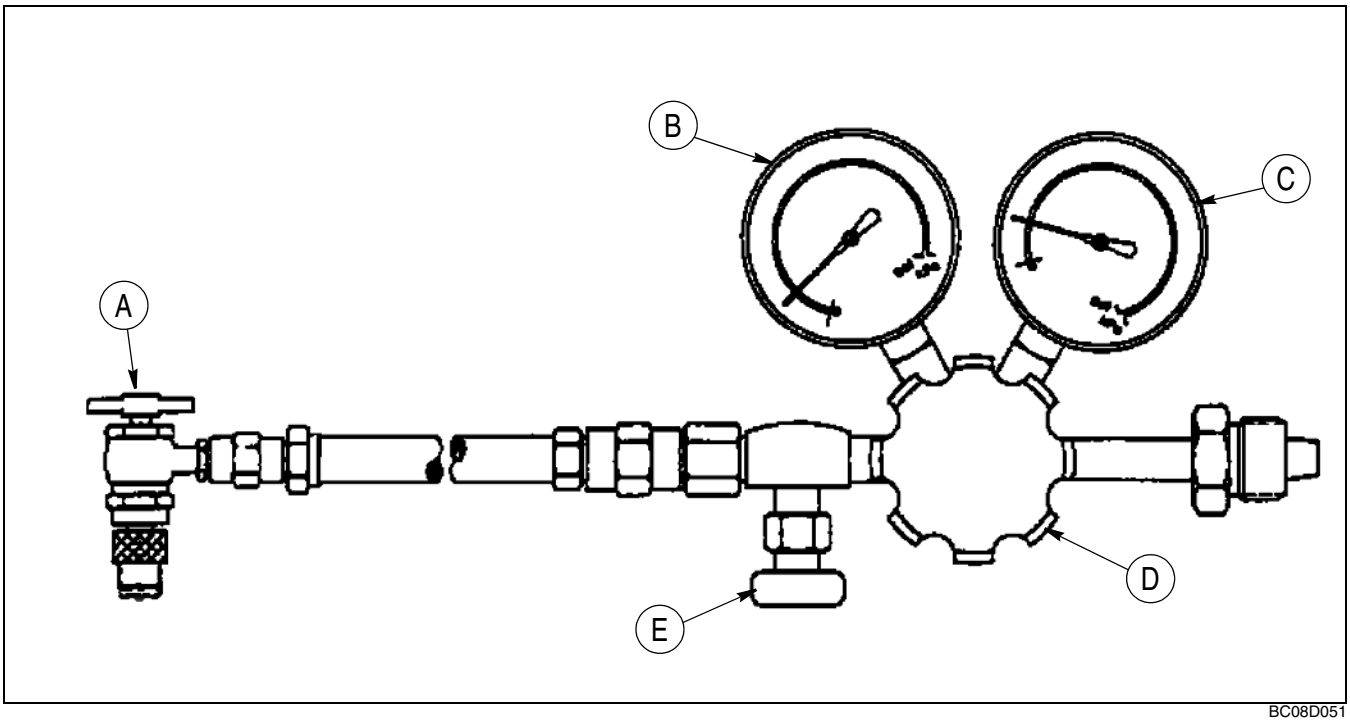
Loosen the four nuts on the clamps that fasten the accumulator to the mounting bracket. Slide the accumulator out of the clamps and remove from the machine.

CHECKING THE NITROGEN CHARGE IN THE ACCUMULATOR

1. Make sure that the oil side of the accumulator is completely discharged by doing the following:
   A. Put the mast in the vertical position.
   B. Lower the carriage to the floor. Use blocks under the carriage as required to make sure there is slack in the chains and all load is removed from the lift cylinders.
   C. Apply the parking brake and stop the engine.
   D. Move the forklift control levers in all directions to remove any pressure in the hydraulic circuits.
2. Use the Nitrogen Charging Kit to check charge pressure in the accumulator, refer to the illustration.

NOTE: *The tool must be disconnected from the nitrogen tank.*

3. Close valve (E).
4. Adjust the regulator (D) to the minimum pressure setting by turning the knob counterclockwise.
5. Turn the T-handle on valve (A) fully out.
6. Remove the valve cap from the accumulator.
7. Connect valve (A) to the accumulator.
8. Turn the T-handle inward on valve (A) to engage the pin in the valve stem on the accumulator.
9. Slowly open valve (E).
10. Check the charge pressure on gauge (B).
11. If the accumulator is to be discharged and removed, slowly open valve (D) by turning clockwise and bleed off the nitrogen charge.



BC08D051

Section 8003

8003

CLEANING THE HYDRAULIC SYSTEM

CNH America LLC.
700 State Street
Racine, WI 53404 U.S.A.

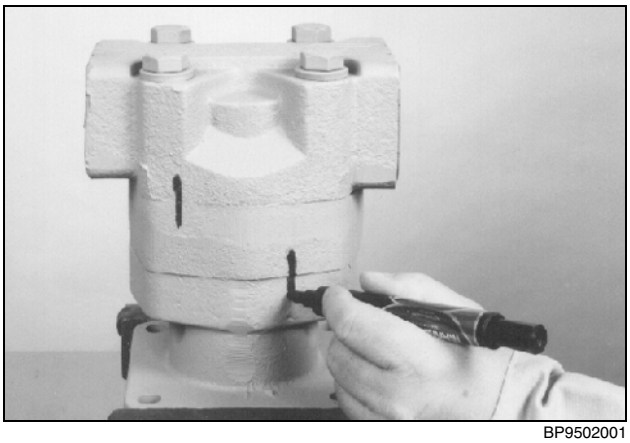
Bur 7-49641

Issued April, 2003 Revised August, 2006

HYDRAULIC PUMP

Disassembly

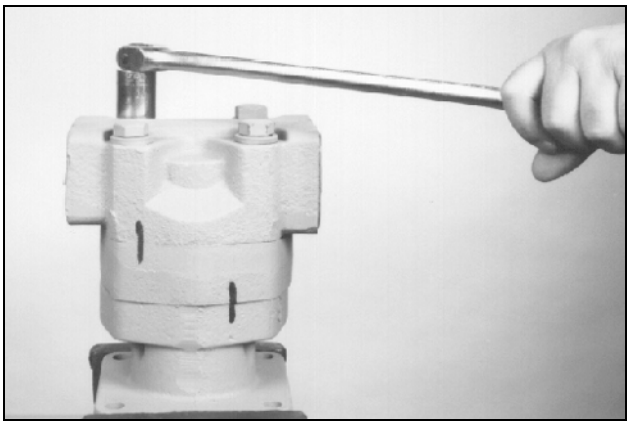
STEP 1



BP9502001

Clean the outside of the hydraulic pump. Fasten the hydraulic pump in a vise with soft jaws. Make alignment marks on each section of the hydraulic pump.

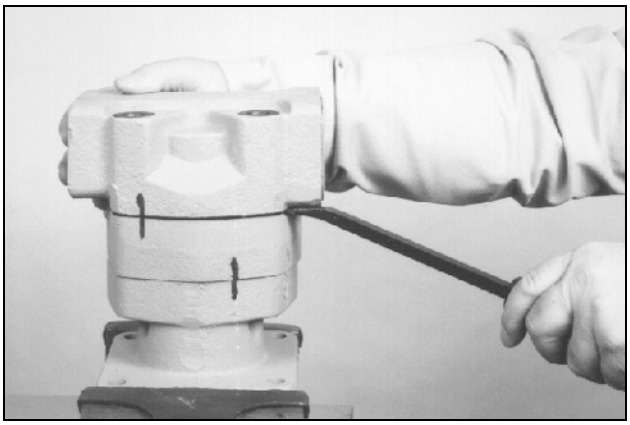
STEP 2



BP9502002

Loosen and remove the cap screws and the flat washers.

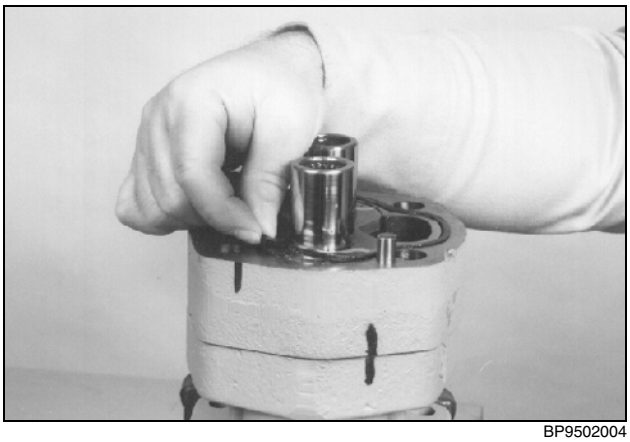
STEP 3



BP9502003

Remove the port end cover.

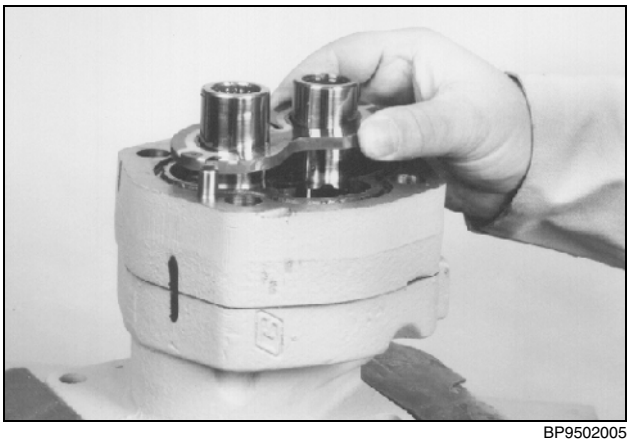
STEP 4



BP9502004

Remove the quad ring.

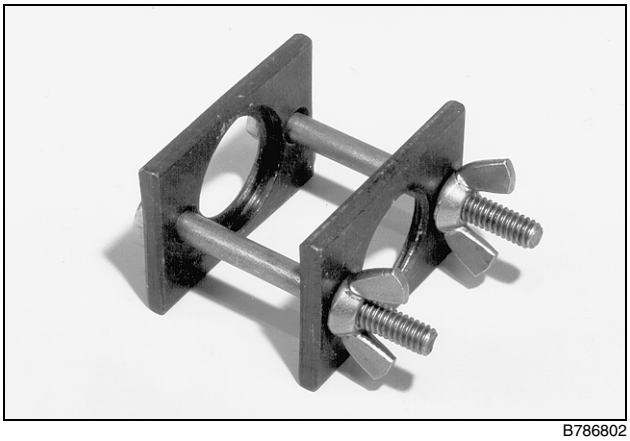
STEP 5



BP9502005

Remove the thrust plate.

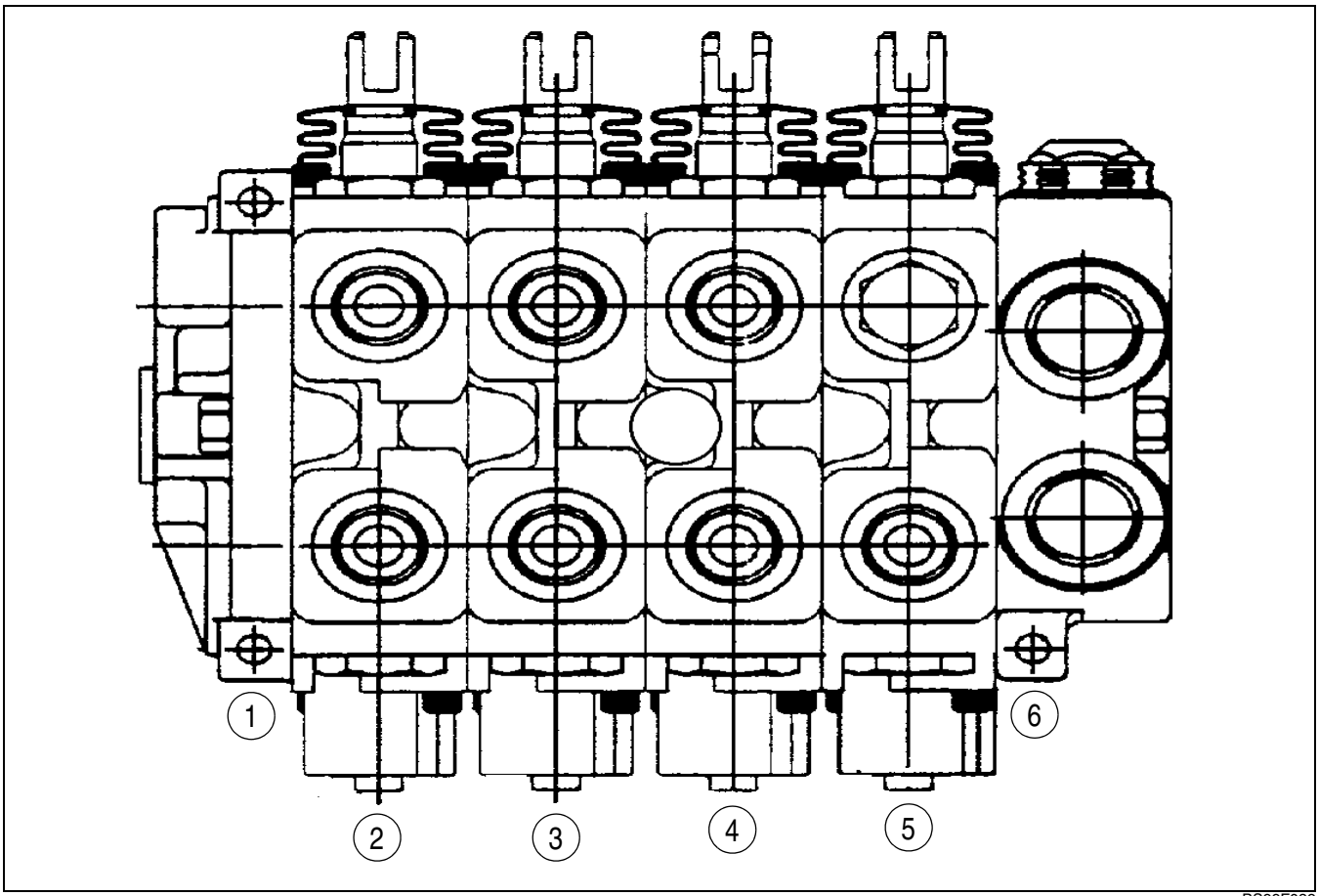
SPECIAL TOOLS



B786802

CAS-1147-2 Spring Centering Tool.

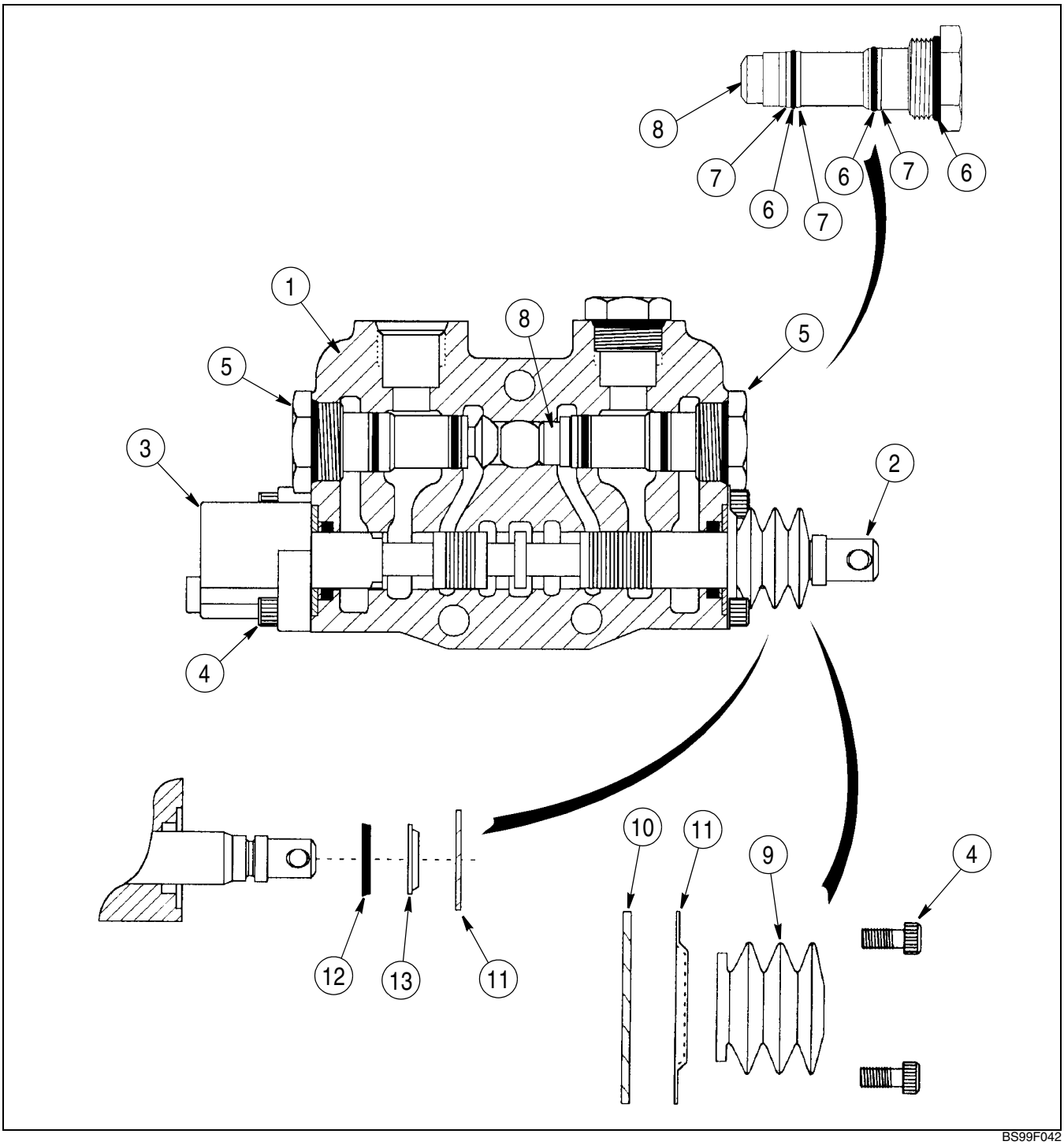
GENERAL INFORMATION



BS99F039

1. END COVER
2. SIDESHIFT, AUXILIARY SECTION
3. AUXILIARY SECTION
4. AUXILIARY SECTION
5. TILT SECTION
6. INLET/OUTLET SECTION

CONTROL VALVE SECTION CONFIGURATION



BS99F042

1. HOUSING
2. SPOOL
3. SPRING CAP
4. ALLEN HEAD SCREW
5. ANTI-CAVITATION PLUG
6. O-RING
7. BACKUP RING
8. INNER PLUG
9. BOOT
10. PLATE
11. RETAINER
12. SEAL
13. WIPER

Lift Section Component Location

Section 8007

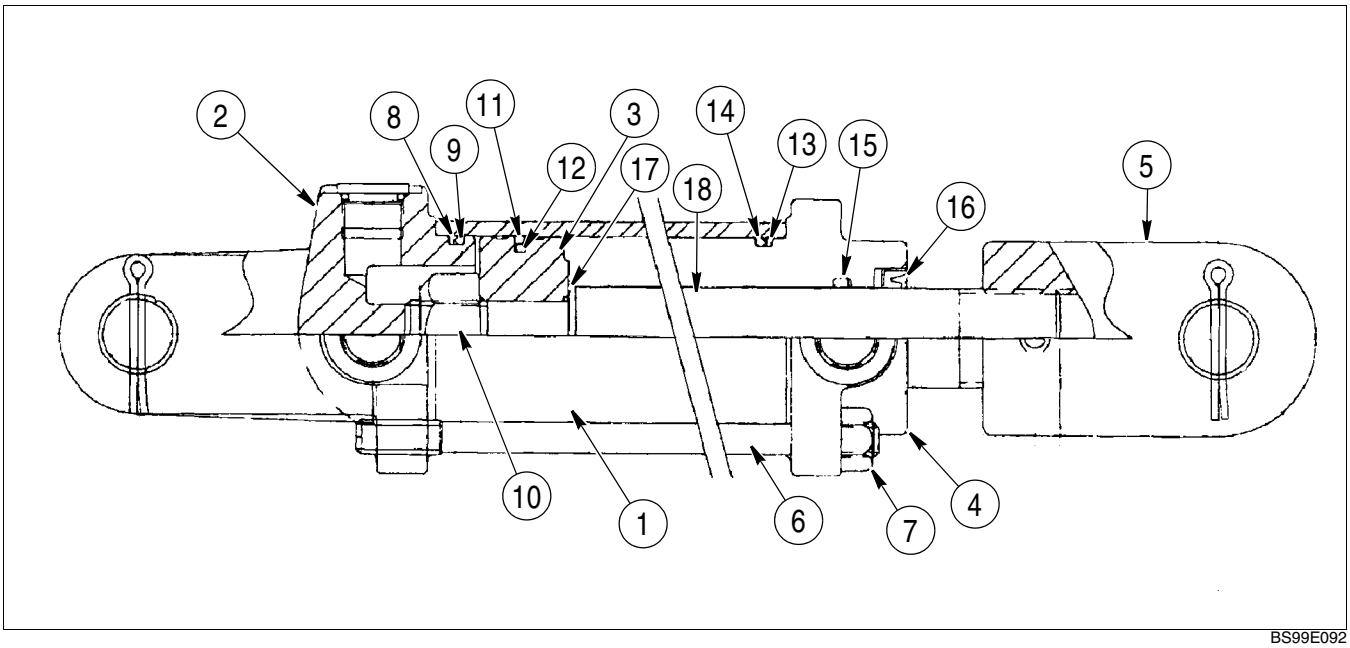
CYLINDERS

8007

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

Bur 5-13150

Issued April, 2008



BS99E092

1. TUBE
2. CAP
3. PISTON
4. GLAND
5. CLEVIS
6. STUD
7. NUT
8. BACKUP RING
9. O-RING
10. LOCK NUT
11. SEAL
12. O-RING
13. BACKUP RING
14. O-RING
15. SEAL
16. WIPER
17. O-RING
18. PISTON ROD

SIDESHIFT CYLINDER

BRAKE PEDAL ADJUSTMENT

Checking Brake Pedal Height

1. Disengage the brake pedal lock (14) if the brake pedal lock (14) is engaged.

NOTE: *If the machine is equipped with a floormat, remove the floormat before doing step 2.*

2. Measure the distance from the floor to the lower rear edge of each brake pedal (1 and 2) as shown. The brake pedals (1 and 2) must be 134 mm ±2 mm (5.27 inches ± .08 inch) above the floor with the brake pedals (1 and 2) in the released position.

Brake Pedal Height Adjustment

1. Loosen the lock nut (4) on the stop bolt (9).
2. Turn the stop bolt (9) clockwise or counterclockwise as required until the rear edge of each brake pedal (3 or 4) is 134 mm ±2 mm (5.27 inches ±.08 inch) above the floor.
3. Tighten the lock nut (4) on the stop bolt (9).
4. Repeat steps 1 through 3 for the other brake pedal (1 or 2).

Free Travel Adjustment

NOTE: *Free travel is the distance which the brake pedal can move before the push rod makes contact with the outer piston in the master cylinders.*

1. Measure the free travel at the rear edge of each brake pedal (1 and 2) as shown. The free travel must be 2 to 4 mm (.08 to .15 inches).
2. To increase or decrease the free travel, loosen the lock nut (5) at each clevis (11) and turn the push rod as necessary to get the correct free travel. Tighten the lock nut (5).

Brake Switch Adjustment

1. Loosen the lock nut (4) for the actuator bolt (18) that actuates the brake switch (16). Adjust the actuator bolt (18) so the brake switch (16) is not damaged with the brake pedal (1 and 2) in the released position. Tighten the lock nut.
2. The brake switch (16) must actuate when the brake pedal (1 or 2) is applied.

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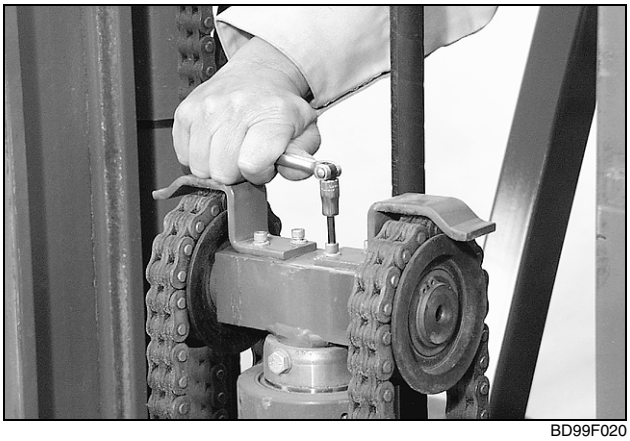
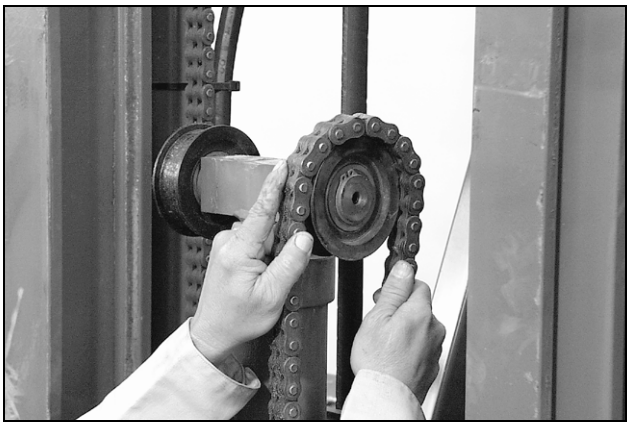
STEP 5



BD99F020

Remove (4) each Allen head bolts from top of crosshead valve and remove (2) plates that keep the chains in place on rollers.

STEP 6



BD99F021

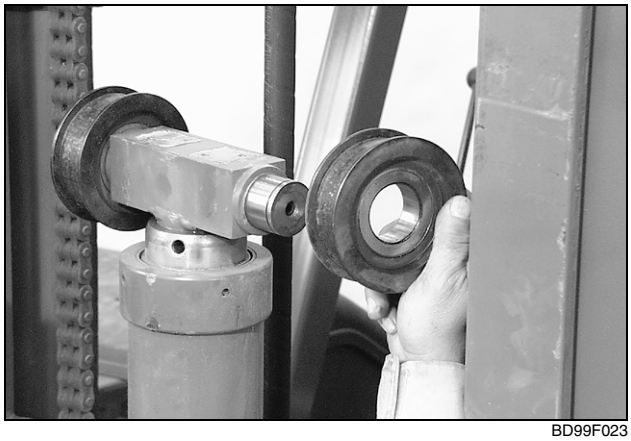
Remove chain from pullers at top of cylinder and let chain drop to floor.

STEP 7

BD99F022

Remove snap rings from stub shaft that holds chain rollers in place.

STEP 8



BD99F023

Remove pulley assembly from stub shaft and check for wear between pulley and bearing.

STEP 9

BD99F024

Remove crosshead valve from top of cylinder at this time by removing bolt.

STEP 10

BD99F025

Disconnect rod end of sideshift cylinder from mast and swing away from mast assembly. Using an open end wrench loosen hose fitting on freelift cylinder fitting.