DRUM SERVICE CONTROLS OPERATION AND TROUBLESHOOTING

Before troubleshooting the drum service controls make sure the following conditions are met.

A. The batteries are fully charged and all connections are clean and tight.

B. Check fuse No. 11 (5 amp), fuse No. 20 (15 amp) and fuse No. 21 (10 amp)

C. Perform the proximity switch test (in this section) and check proximity switch positions.

D. Propulsion control lever in neutral position.

E. Check engine oil pressure relay No. 2.

F. Check engine oil pressure switch.

G. Park brake switch in ON position.

H. Hydraulic lockout switch in OFF position.

I. Drum/Basket switch in DRUM position.

J. Engine running unless otherwise noted.

NOTE: *Use a multimeter for all testing, test lights can damage electrical components.*

Use schematic examples A through G for troubleshooting. The bold lines indicate current flow (12 volts). Solenoids that are blackened in are energized. Proximity switch terminals A and B will appear blackened, indicating terminal A is grounded through terminal B (Closed).

SCHEMATIC A: The drums are raised and the rockshaft is tilted back (Raised). All drum control switches are in the center position. The left and right arm drum proximity switches are grounded, which cause the tilt raise relay to energize.

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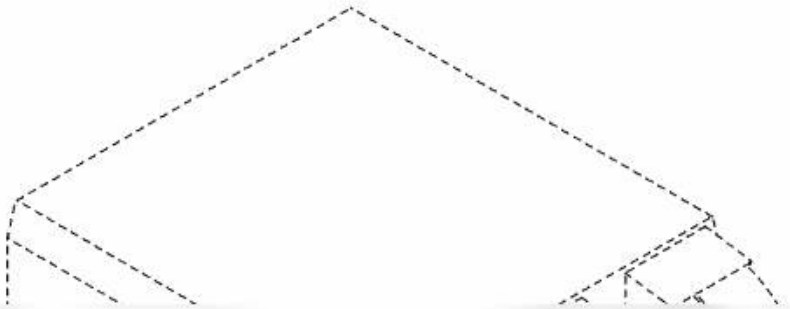
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ELECTRICAL COMPONENT LOCATIONS



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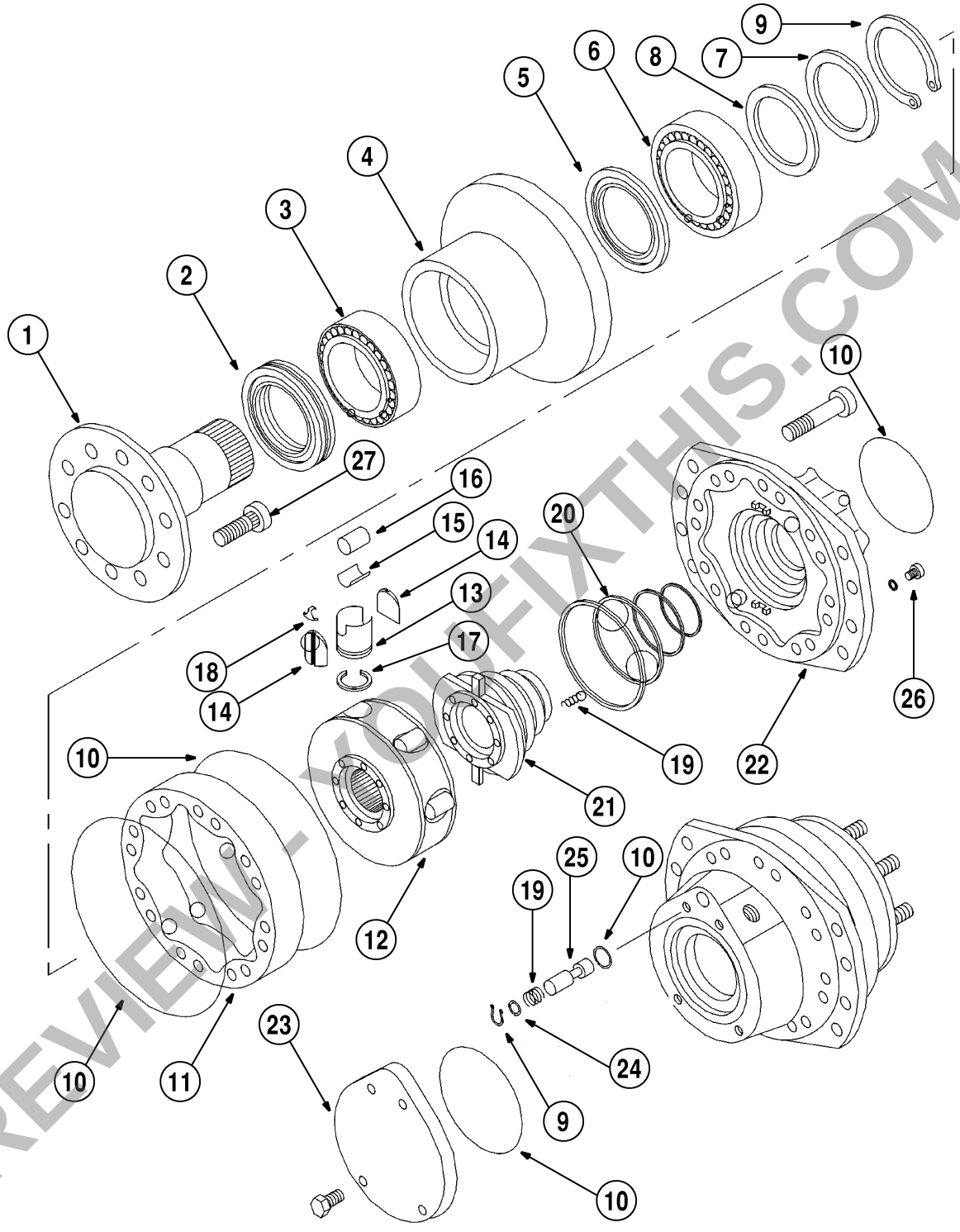
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Drive Motor Assembly

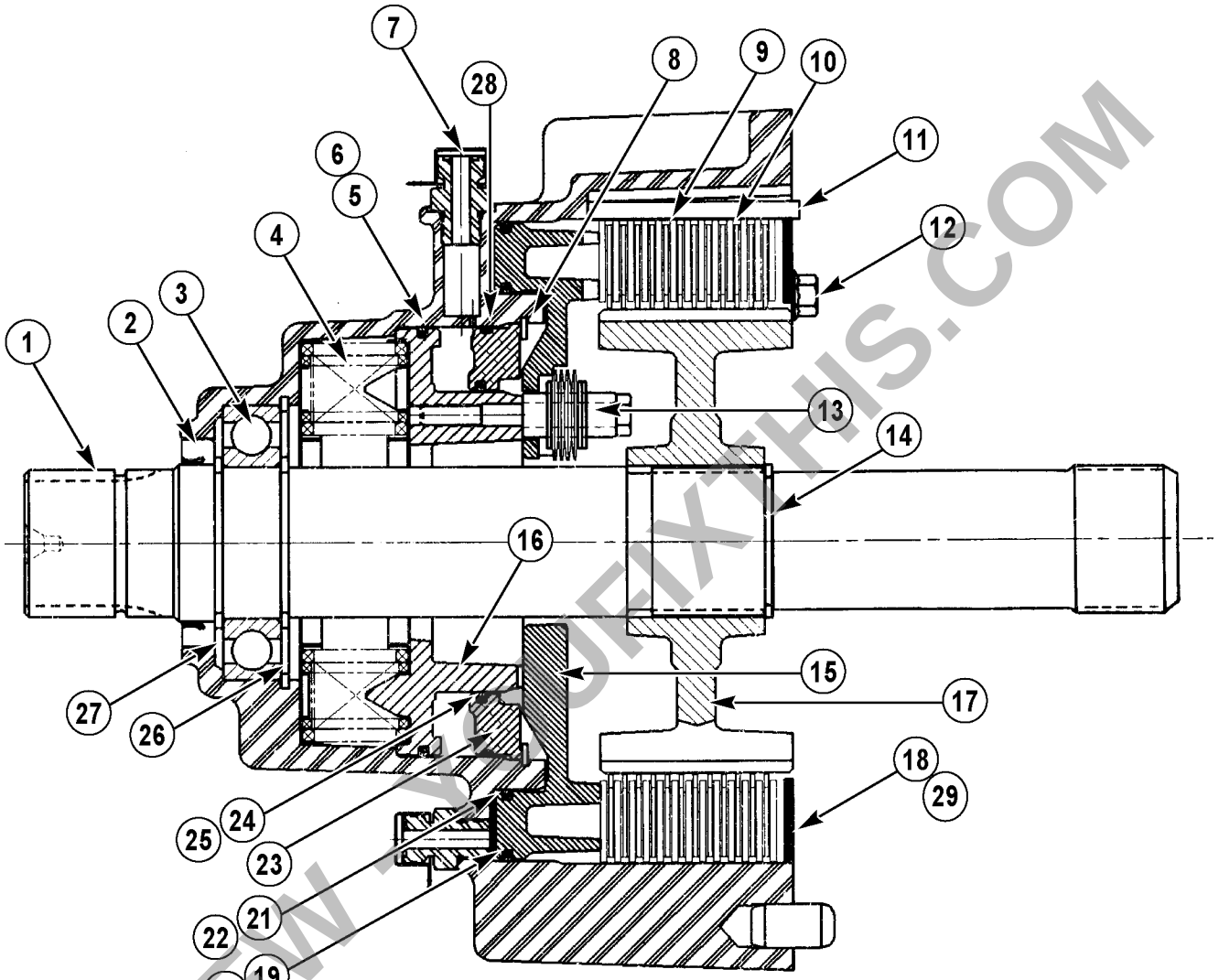


RT96J045

1. Wheel Shaft
2. Outer Seal
3. Outer Bearing
4. Bearing Cage
5. Inner Seal
6. Inner Bearing
7. Spacer
8. Shim Pack and Support Washer
9. Retaining Ring
10. O-ring
11. Cam Ring
12. Piston Block
13. Piston
14. Slide
15. Bushing
16. Roller
17. Piston Ring
18. Clip
19. Spring
20. Seal Rings (4)
21. Distributor
22. Distributor Housing
23. Cover
24. Flat Washer
25. 2-Speed Spool
26. Bleeder Screw
27. Wheel Mounting Stud

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CROSS-SECTIONAL DRAWING OF BRAKE ASSEMBLY



653L94

1. Output Shaft
2. Lip Seal
3. Ball Bearing
4. Park Brake Spring Assembly
5. Backup O-ring
6. Seal Ring
7. Park Brake Port
8. Retaining Ring
9. Friction Disc - Qty. 12
10. Separator Plate - Qty. 13
11. Separator Key - Qty. 8
12. Retaining Bolt - Qty. 4
13. Spring Return Assembly - Qty. 4
14. Retaining Ring
15. Service Piston
16. Park Brake Piston
17. Brake Hub
18. Shims - Qty. as required
19. Backup O-ring
20. Seal Ring
21. Backup O-ring
22. Seal Ring
23. Reaction Piston
24. Backup O-ring
25. Seal Ring
26. Retaining Ring
27. Retaining Ring - Qty. 2, one on each side of ball bearing
28. Backup O-ring
29. Thick Shim

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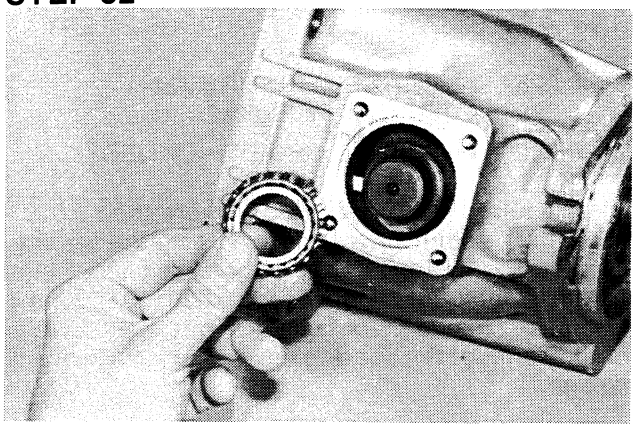
STEP 14A - Compactor Will Not Cycle

PROCEDURE	RESULT
NOTE: *The compactor will only operate when the fan is engaged, hydraulic lockout is OFF, and the engine speed exceeds 2000 RPM.*	
A. Check fuse No. 19.	If the fuse was bad replace, troubleshooting completed. If the fuse is good, continue with procedure B through H.
B. Disconnect the harness connector for one of the compactor lower pressure solenoids. Compactor lower pressure solenoid No. 23, or compactor lower tank solenoid No. 20.	
C. Also, disconnect the harness connector for one of the compactor raise solenoids. Compactor raise pressure solenoid No. 18, or compactor raise tank solenoid No. 24.	
IMPORTANT: *If both lower solenoids, or both raise solenoids are disconnected at the same time, the controller will sense the open circuit and cut power to the solenoids.*	
D. Connect the negative lead of the multimeter to a good ground.	
E. Start the engine, while running at low idle push the fan switch forward to engage the fan.	
F. Increase engine speed to full throttle.	
G. Have an assistant depress and hold the compactor switch down. The MRC controller will attempt to continually cycle the compactor.	
H. Connect the positive multimeter lead to harness end connector for solenoid No. 23, or 20 (tan wire, black wire is ground), when 12 volts is read here there must also be 12 volts at the other lower solenoid. Connect the open solenoid and disconnect the other lower solenoid. Check again for 12 volts. (The compactor lower solenoids will remain energized for 1.8 seconds during each compaction cycle). When no voltage is read at connectors 20 and 23, there must be 12 volts at connectors 18 and 24.	If less than 12 volts, see the Electrical troubleshooting section. If over 12 volts, then go to Step 14B.
I. Connect the positive multimeter lead to harness end connector for solenoid No. 18, or 24 (tan wire, black wire is ground), when 12 volts is read here there must also be 12 volts at the other raise solenoid. Connect the open solenoid and disconnect the other raise solenoid. Check again for 12 volts (The compactor raise solenoids will remain energized for 1.5 seconds during each compaction cycle). Voltage must be alternating between the raise and lower solenoid connectors.	

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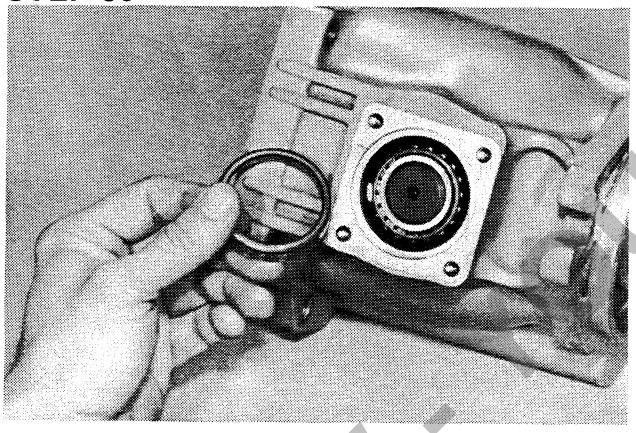
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STEP 52



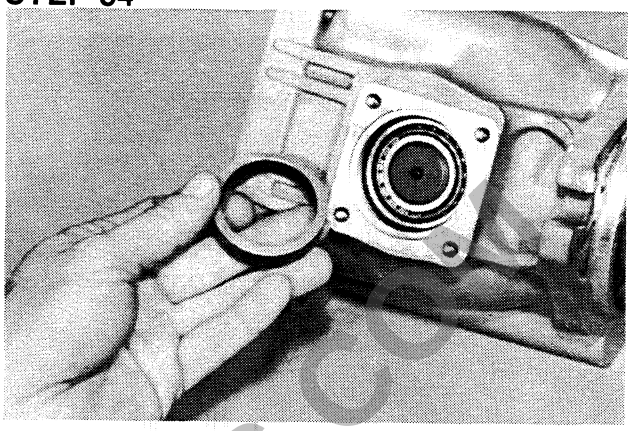
Install the cam plate bearing cone on the other side of the pump housing.

STEP 53



Install the bearing cup.

STEP 54



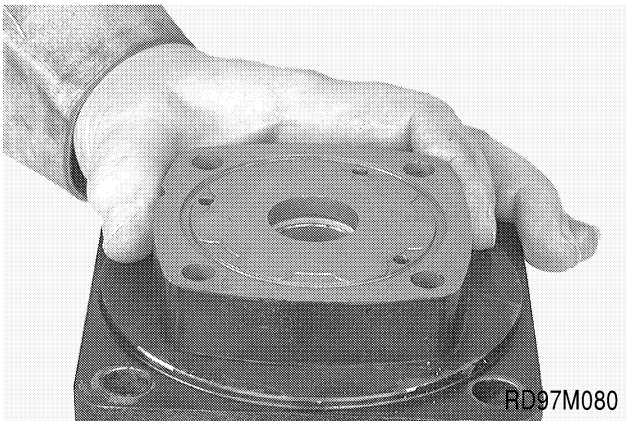
Install the spacer.

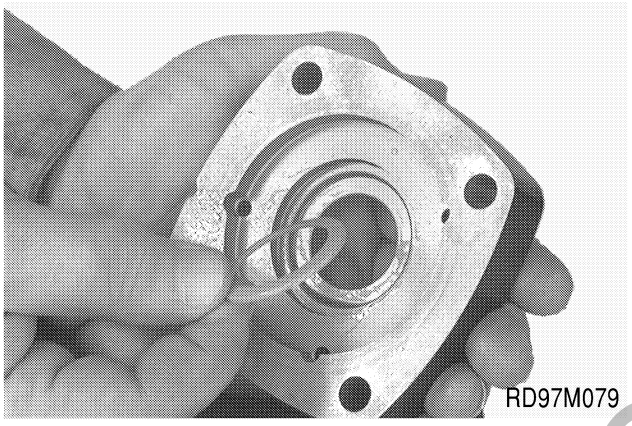
NOTE: *If the cam plate or the cam plate bearings had not been replaced with new parts, continue to Step 56. If either the cam plate or the cam plate bearings had been replaced, continue to Step 55 to find the correct shim thickness.*

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STEP 109

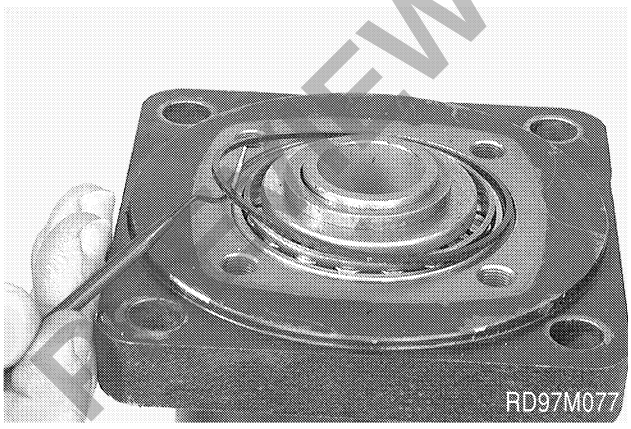




Remove and discard the seal from the wear plate. Remove the wear plate.

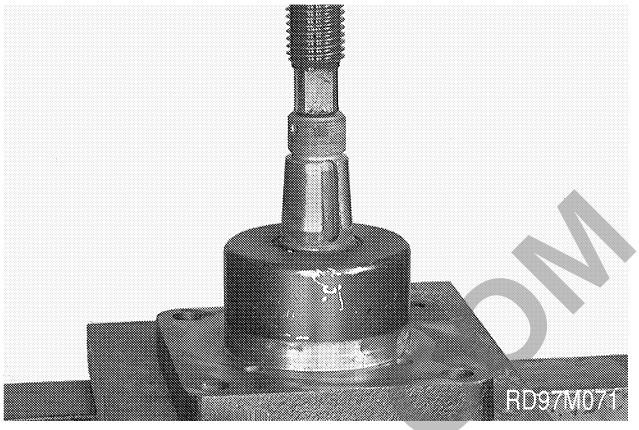
Remove and discard the shaft face seal from the wear plate.

STEP 110



Remove and discard the seal from the shaft and bearing motor.

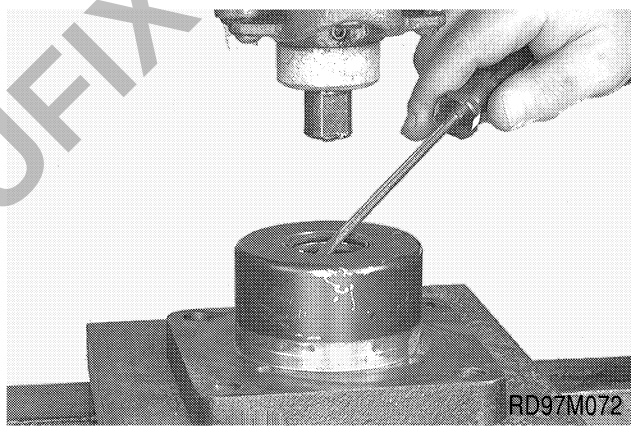
STEP 111



Press the shaft and bearing assembly from the motor housing.

IMPORTANT: *Do not disassemble the shaft and bearing assembly.*

STEP 112



Use a small screwdriver to remove shaft seal, back-up washer and dirt housing seal from motor housing. Discard the seals and washer.

IMPORTANT: *Do not damage bore of the housing.*

STEP 113

Wash all parts with clean solvent and blow dry with air. Do not wipe dry with rags or paper towels.

Inspect all parts for wear or damage. Replace parts as necessary. If any parts other than seal require replacement, replace the complete conveyor motor with a new unit.

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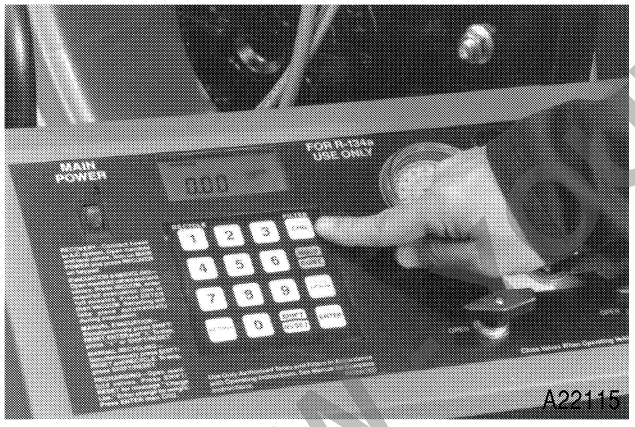
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STEP 24



Connect the main power plug to a 115 volt AC outlet. Move the main power switch to the ON position. If program and vacuum do not appear at the top of the display press the vacuum key. Program a minimum of 45 minutes and press the Enter key. The display will flash once indicating the programmed data has been accepted.

STEP 25



Press the Charge key. Program and Charge will appear on the display.

STEP 26



Program the proper poundage (kilograms) for your unit and press the enter key. See Section 1010. The display will flash once indicating the programmed data has been accepted.

STEP 27



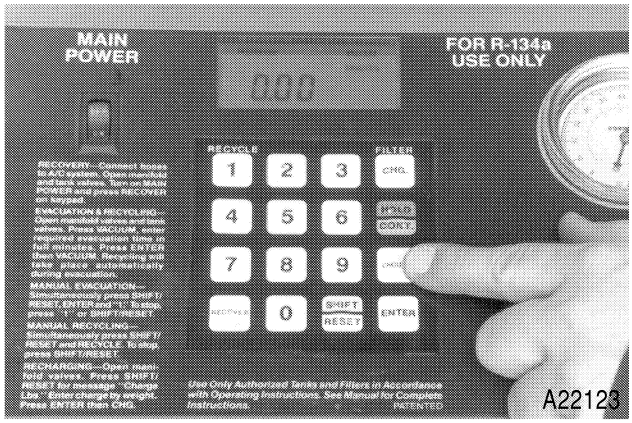
Fully open the low and high pressure valves.

STEP 28



Open the red (vapor) and blue (liquid) valves on the tank.

STEP 29



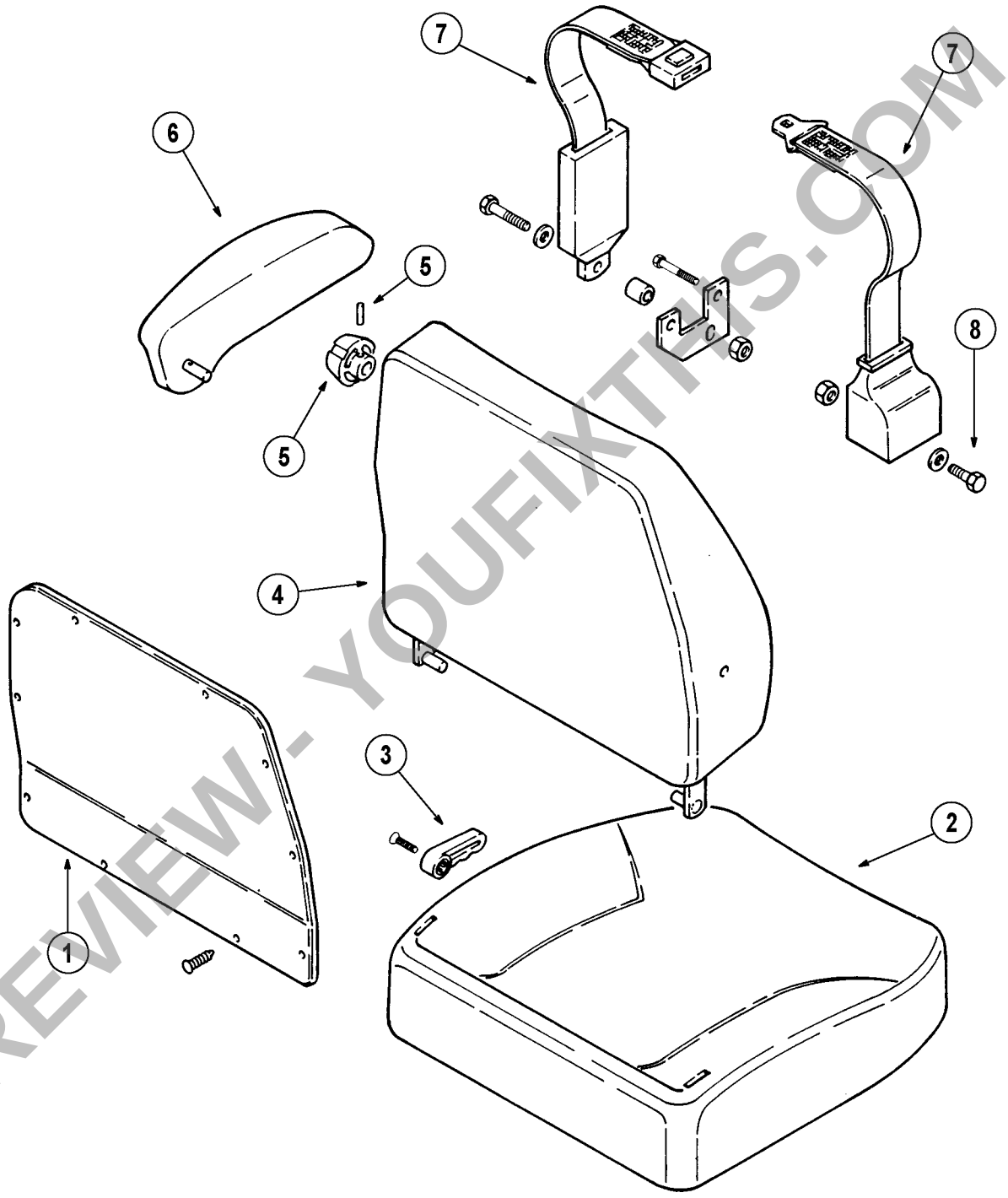
Press the Vacuum key. Automatic will shown on the display. Vacuum will appear on the display and after a slight delay, the vacuum pump will start. The display will show the amount of time programmed and begin a countdown to zero.

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AIR SUSPENSION SEAT

Seat Cushion and Backrest Disassembly and Assembly



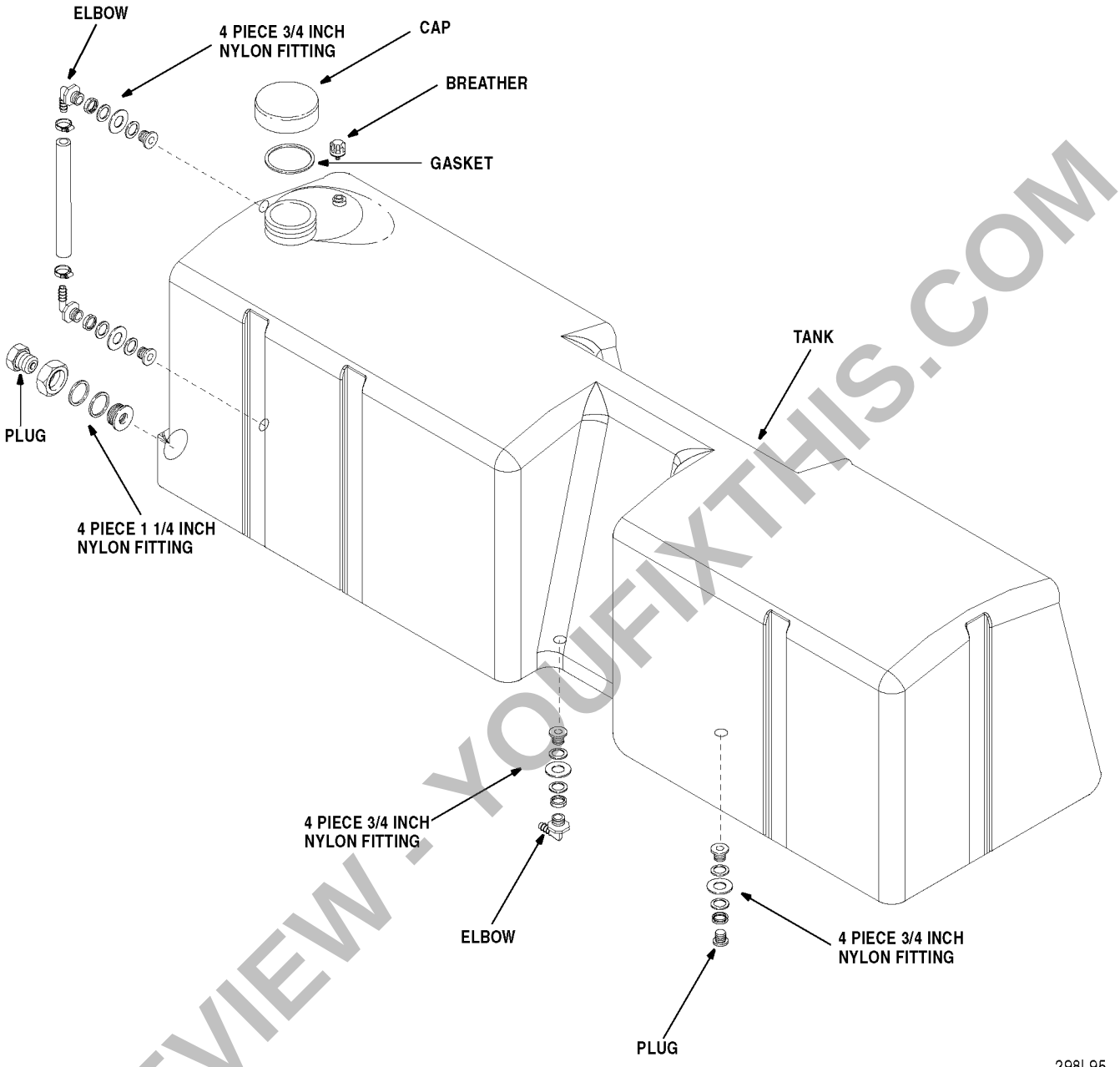
RH98B006

1. COVER
2. CUSHION
3. BACKREST TILT KNOB
4. BACKREST
5. LUMBAR KNOB
6. LH ARMREST
7. SEAT BELT
8. SEAT BELT MOUNTING BOLT

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Water Tank



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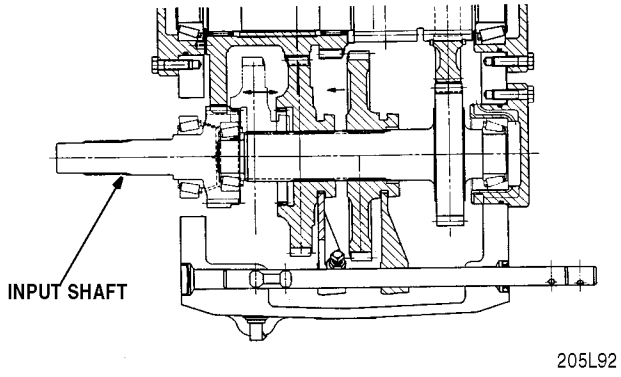
NOTE: Case Corporation reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

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CHANGE GEAR SHAFT REMOVAL AND DISASSEMBLY

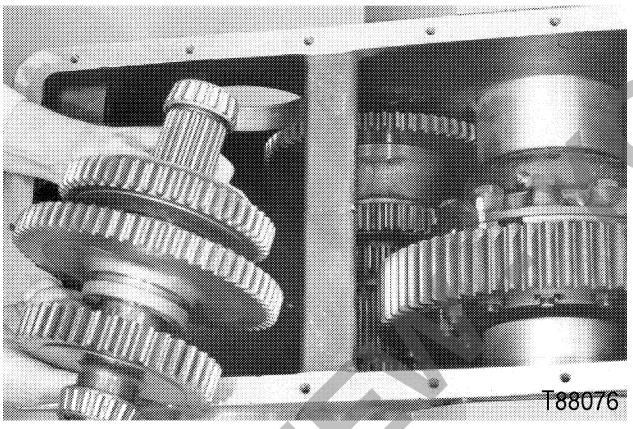
STEP 17



Remove the input shaft from the end of the gear shaft assembly.

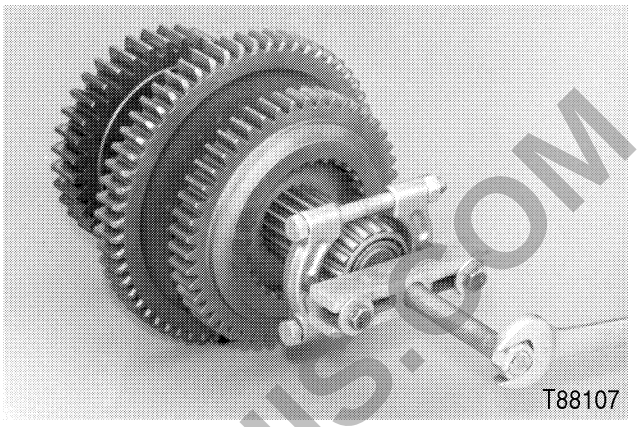
NOTE: *The input shaft can remain in the drum drive assembly, or can be removed when the transmission is separated from the drum drive.*

STEP 18



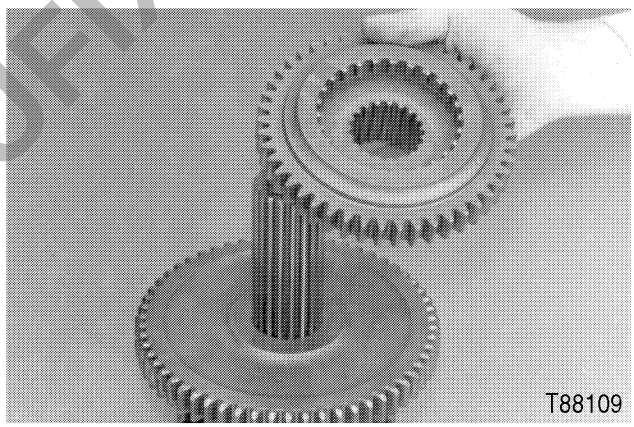
The change gear shaft assembly can be removed after the input shaft housing has been removed.

STEP 19



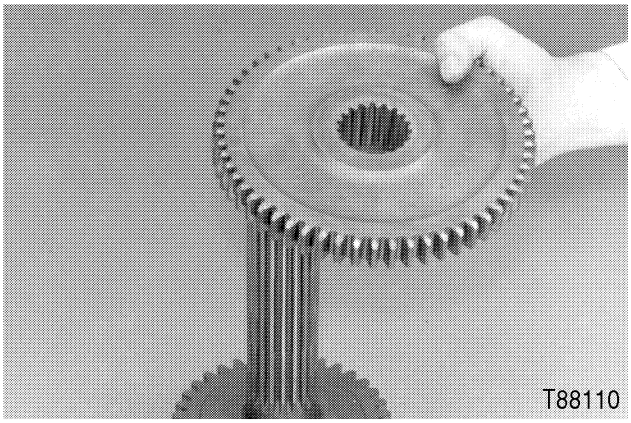
The LH end bearing has to be removed before the gears can be removed from the change gear shaft. Use a puller to remove the bearing cone.

STEP 20



Remove the second and third gear.

STEP 21

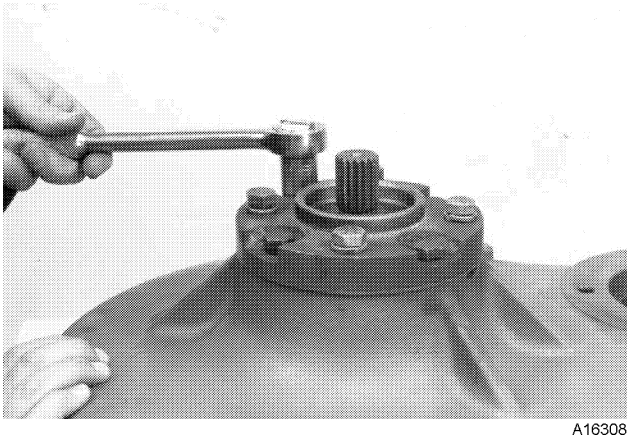


Remove the first gear.

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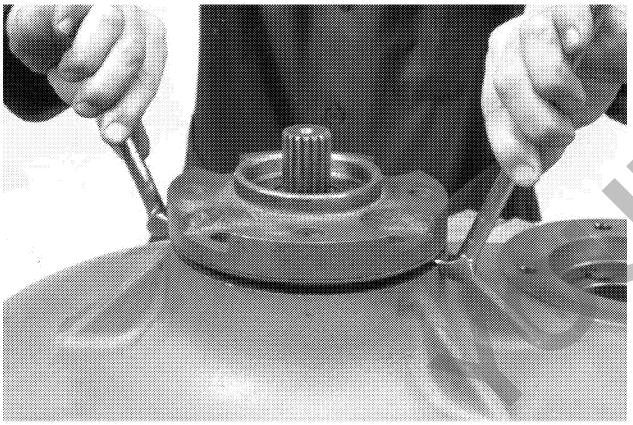
STEP 12



A16308

Turn the housing over and remove the bolts from the output shaft bearing cage.

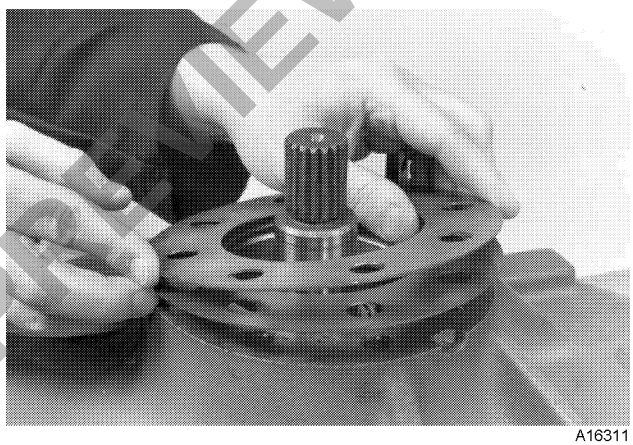
STEP 13



A16309

Using pry bars, remove the bearing cage.

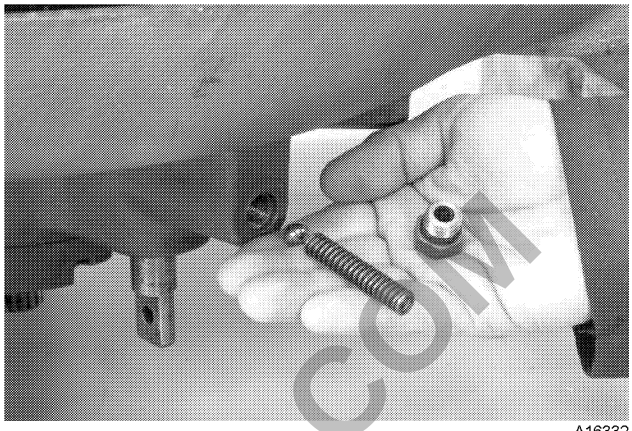
STEP 14



A16311

Remove the shim(s).

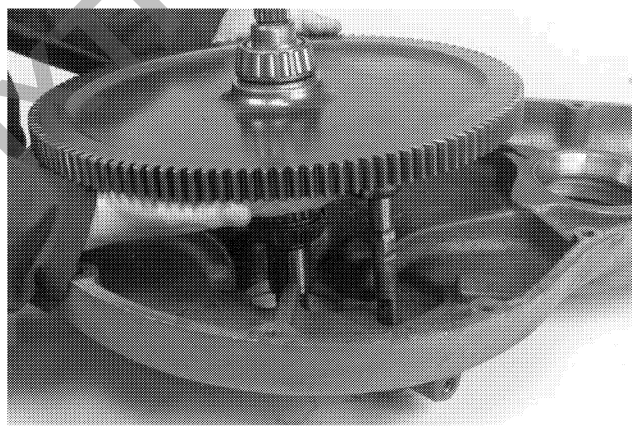
STEP 15



A16332

Carefully turn the housing over. Remove the shift rail detent ball and spring.

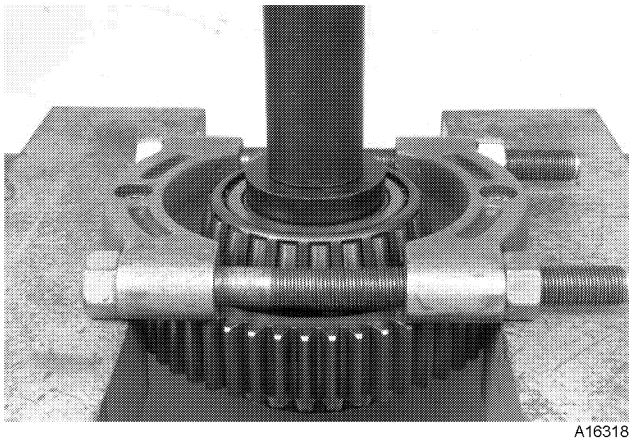
STEP 16



A16312

Lift the output gear, with shifter fork, out of the housing.

STEP 17



A16318

Remove one bearing cone from the motor input gear.

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STEP 12C - Rockshaft Tilted Down, Drum(s) Will Not Lower

PROCEDURE	RESULT
NOTE: *Before following this procedure see Step 12A.*	
A. If left side is not lowering, remove left auto solenoid valve No. 8, inspect the seals and check for operation. Replace the solenoid assembly with a known good solenoid. The basket raise solenoid No. 27 and the unloader motor solenoid No. 25 are identical valves, but have 12 volt coils rather than a10 volt coil, either of these solenoid valves can be used as a temporary replacement for troubleshooting.	If the left-hand side of drums will now lower, replace the left auto solenoid valve, be sure the replacement is equipped with a 10 volt coil assembly. If the left-hand side will not lower, continue with procedure B.
B. Remove the left-hand side drum control valve orifice plate and inspect for an obstruction. (The orifice plate is behind the elbow fitting farthest from the spool). **NOTE:** *Securely block/support the left-hand side of the drums before continuing the procedure.*	If the orifice plate is okay, continue with procedure C.
C. Remove the pilot operated check assembly from the left-hand side drum lift cylinder. The piston that unseats the check could be stuck in bore. **NOTE:** *If right-hand drum(s) not lowering, remove right auto solenoid valve No. 2 and apply procedure on right-hand side components.*	Drums will now lower, troubleshooting is completed.

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DRUM HEIGHT CONTROL VALVE
Operation

There are two drum height control valves located on the inner framework of the machine. These valves control the picking height of the right and left drums independently when the master drum control switch is in the “auto” position. The drum valves are controlled by linkage from the plant liters.

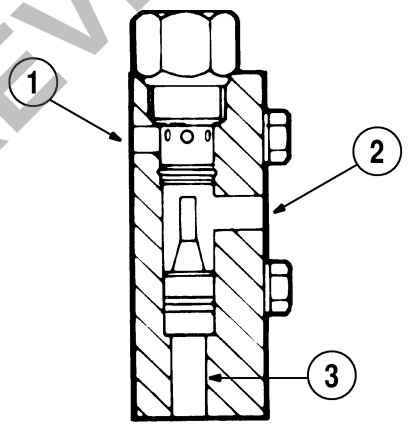
The drum control valves are open center, three position four way spool valves.

In the neutral position, (Center spool position) the oil flows through the valve and returns to the reservoir.

When the valve spool is moved out, it is in the raise position. Oil flow through the valve to the reservoir is blocked and the supply oil is sent directly through the cylinder port to the drum lift cylinder, lifting the drum. When the drum has raised enough to move the valve back to neutral, the oil flow can return to the reservoir and the pilot operated check valve located at the drum lift cylinder inlet port closes holding the cylinder at the proper height.

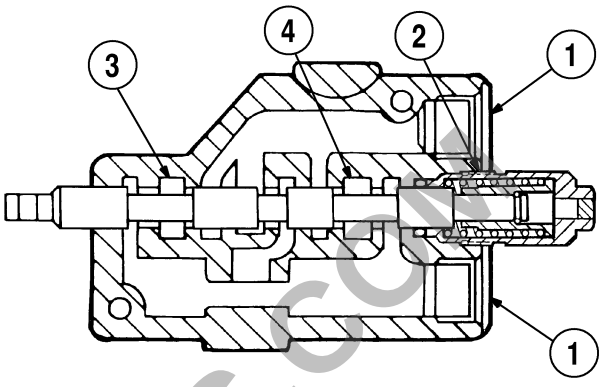
When the valve spool is moved in from the neutral position, it is in the lower position. Oil flow through the valve to the reservoir is blocked and the supply oil is sent directly through the pilot port to the pilot operated check valve.

The oil flow enters the check valve at the pilot port and increases pressure against the pilot piston. This pressure moves the piston in the bore which unseats the check valve letting the oil in the lift cylinder return through the drum control valve to the reservoir, letting the drum lower. An orifice located in the cylinder port on the control valve controls the drop rate. As the drum lowers, the valve is moved back to the neutral position. When this occurs, the supply oil flow is returned to the reservoir allowing the pilot operated check valve to close and hold the drum at the set picking height.



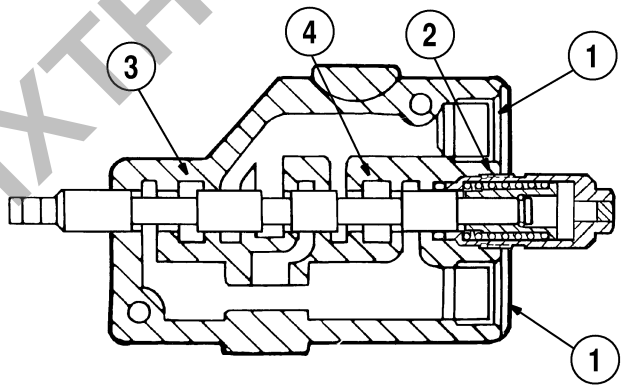
832L91A

1. Cylinder Port
2. Supply Port
3. Pilot Port



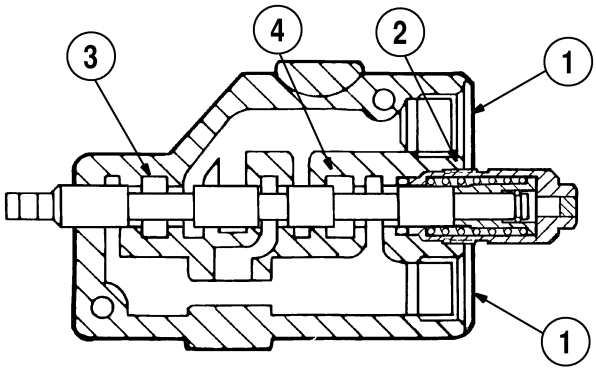
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NEUTRAL POSITION



387L92

RAISE POSITION



388L92

LOWER POSITION

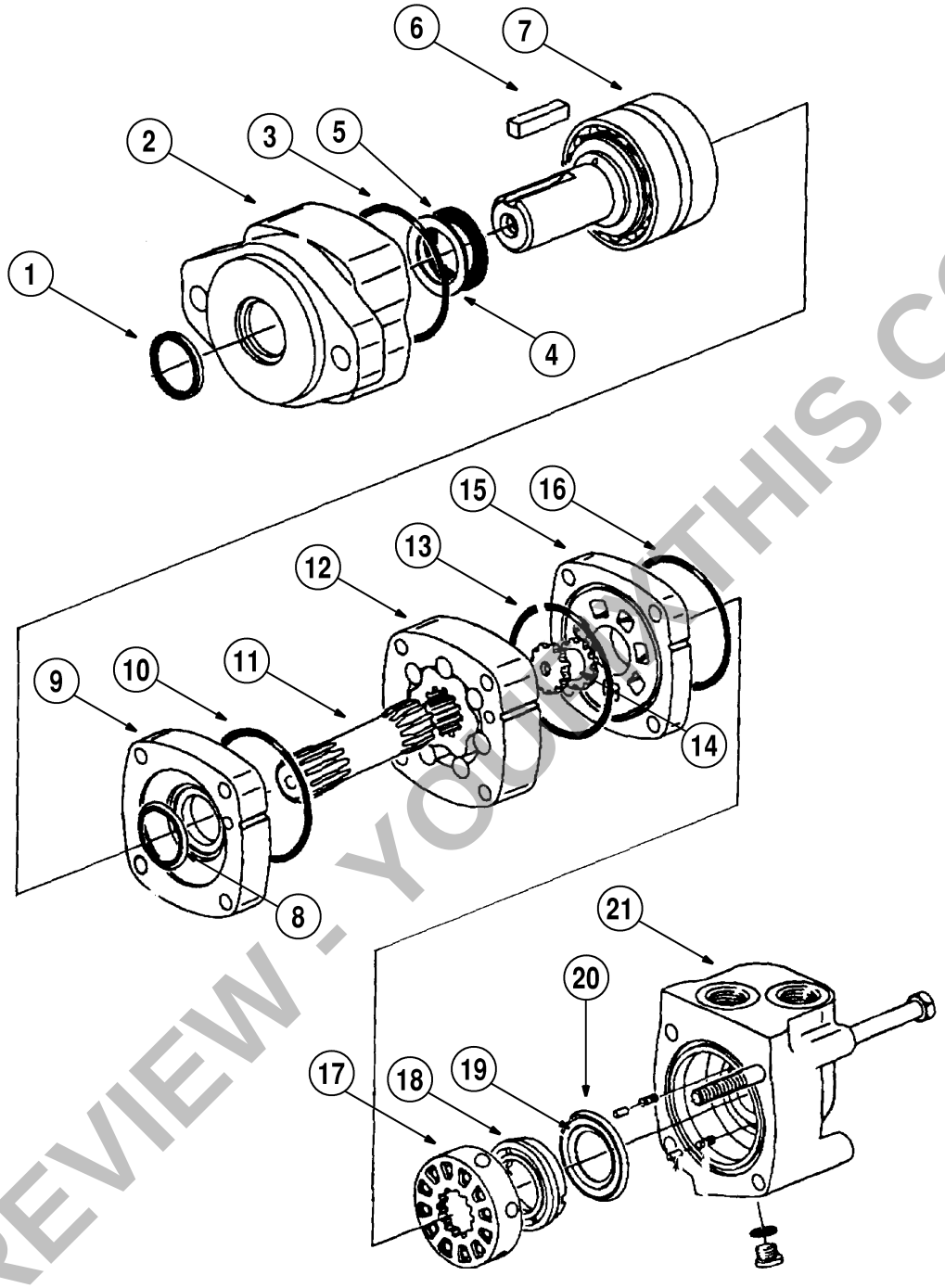
1. From Hydraulic Manifold Valve
2. Return Spring
3. Pilot Port
4. Cylinder Port

NOTE: *The height control valve is open center and spring returned to the IN position when the linkage is disconnected*

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CONVEYOR MOTOR



RH97K067

1. Dirt/Water Seal
2. Housing
3. Seal
4. Backup Washer
5. Seal
6. Key
7. Shaft &Bearing
8. Seal
9. Wear Plate
10. Seal
11. Shaft
12. Stator Motor
13. Seal
14. Rotor
15. Valve Plate
16. Seal
17. Manifold Valve
18. Balance Ring
19. Inner Face Seal
20. Outer Face Seal
21. Motor Housing

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(No Cooling Continued)

Expansion Valve Malfunctioning - Indications:

A. Discharge air from heater/evaporator warm.

B. Much condensation on suction hose.

C. Much condensation on evaporator outlet.

1. Check the expansion valve. Disconnect the low pressure cutout switch.

2. Test expansion valve:

   A. Remove insulation material from top of valve. With engine running and air conditioner on maximum cooling, cool the top of the valve with ice and check for low pressure gauge decrease. The flow of air from the blower motor must continue through the evaporator core.

3. Allow the top of the expansion valve to warm. The valve should open and the pressure should rise at the low pressure gauge. Repeat Step 2. If there is little or no decrease in low pressure gauge, go to Step 5.

4. Replace all the expansion valve insulation material.

5. If the expansion valve did not operate correctly, remove refrigerant from the system and remove the expansion valve. See Section 9030.

6. Install new expansion valve, remove air and moisture and charge the system. See Section 9030.

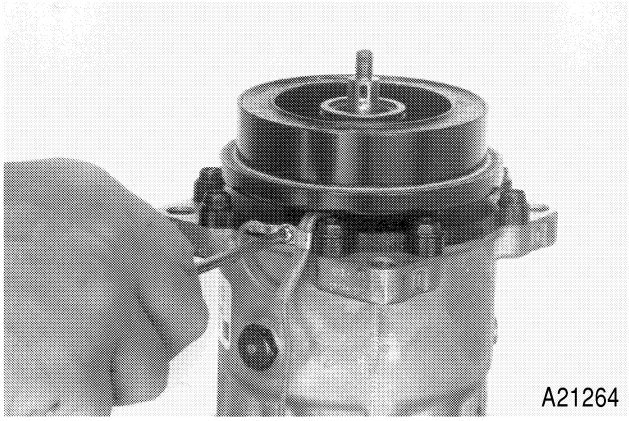
7. Connect the low pressure cutout switch.

8. Continue performance test for other possible problems.

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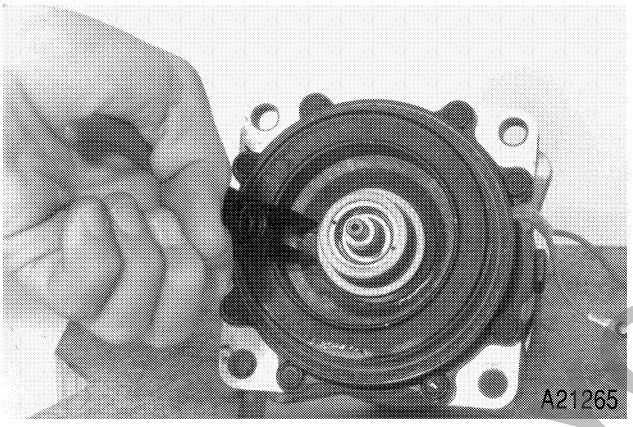
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STEP 29



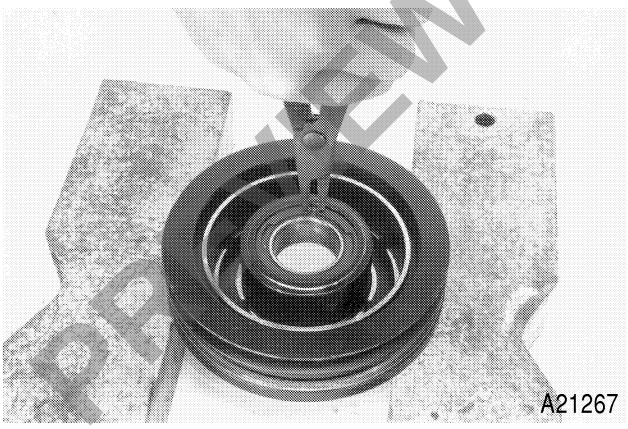
Install the clip for the coil lead wire.

STEP 30



Install the snap ring for the clutch coil assembly.

STEP 31



Install the bearing in the pulley and install the internal snap ring.

STEP 32



Put the pulley and bearing assembly on the front housing hub. Install a driver on the pulley assembly. Make sure that the tool is on the inner race of the bearing.

STEP 33

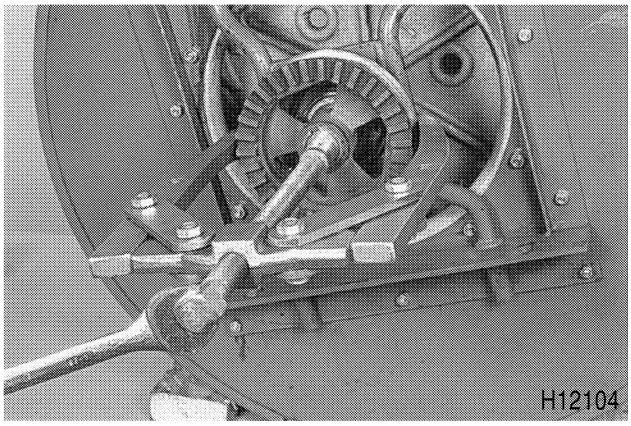


Support the compressor on the four mounting ears at the compressor rear. Use a hammer to tap the pulley assembly onto the front housing hub. As the pulley is tapped onto the hub you can hear the difference in sound when the pulley is fully installed. Make sure the bearing is against the bottom of the hub.

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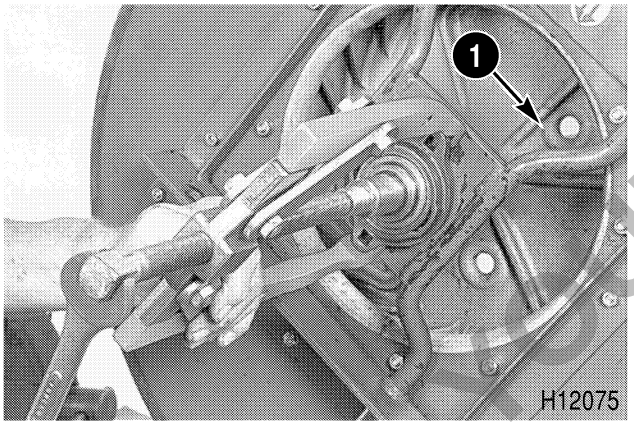
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STEP 36



Using a two jaw puller and step plate, remove the pulley and the Woodruff key from the shaft.

STEP 37



1. Rotation

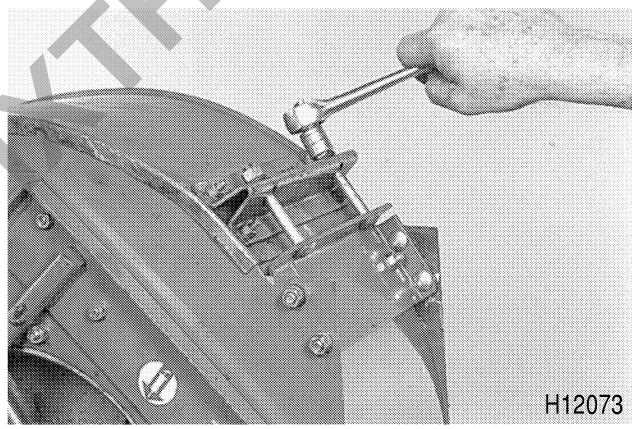
Loosen the set screw in the locking collar on the back side of the bearing. Tap the locking collar in the opposite direction of rotation. Remove the bearing mounting bolts and press the fan shaft from the bearing. Remove the bearing and locking collar.

STEP 38



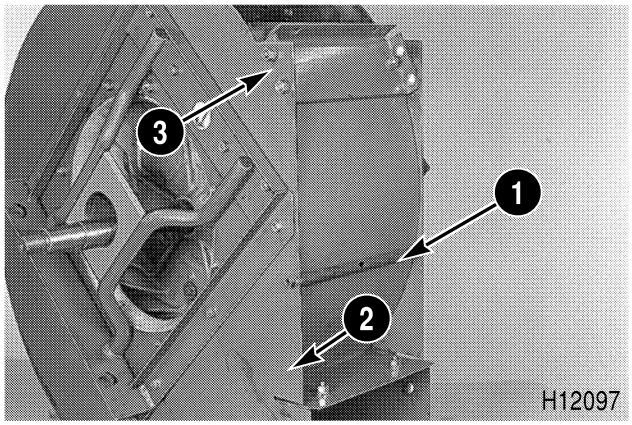
Remove the two small screws that secure the blower outer wrapper.

STEP 39



Remove the two carriage bolts and remove the outer wrapper.

STEP 40



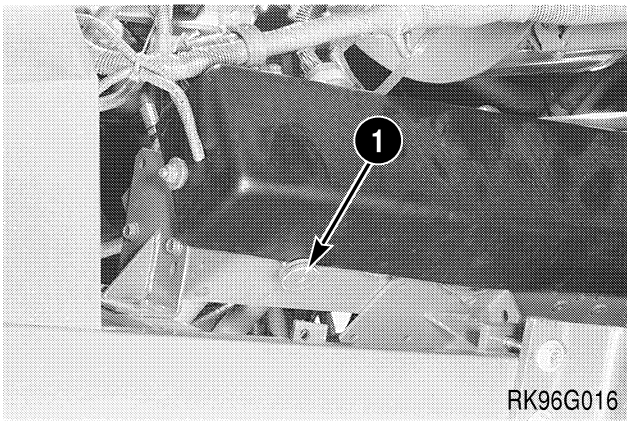
1. Pipe Spacer
2. Side Cover
3. Retaining Bolts

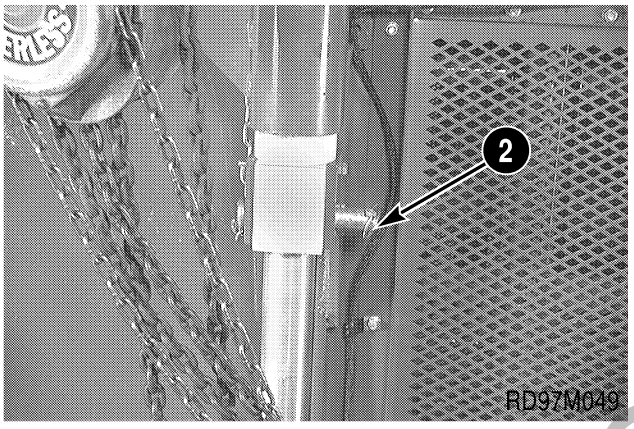
Remove the pipe spacer from between the side plates. Remove the two side plate retaining bolts.

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STEP 62





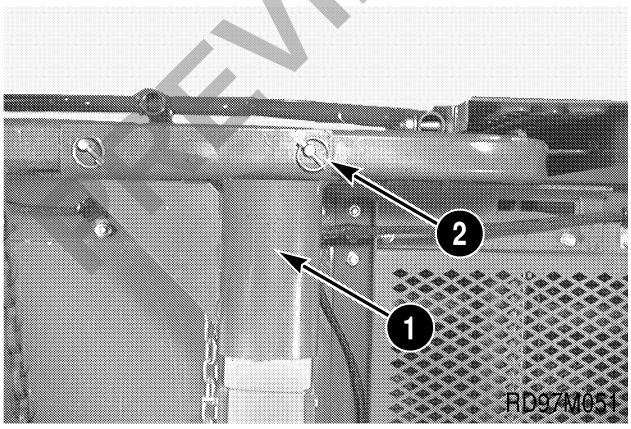
1. Basket Manual Switch 2. Pin

Open the basket manual valve on the hydraulic valve block to lower the basket just enough to take pressure of the top cylinder pin.

Remove the quick attach pin and top cylinder pin.

Open the basket manual valve again to lower the cylinder rod into the cylinder. Close the valve.

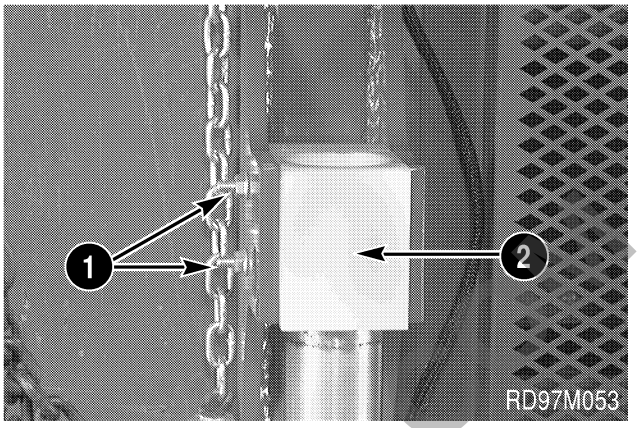
STEP 63



1. Rod Cup 2. Pins

Remove the two quick attach pins and remove the cylinder rod cup.

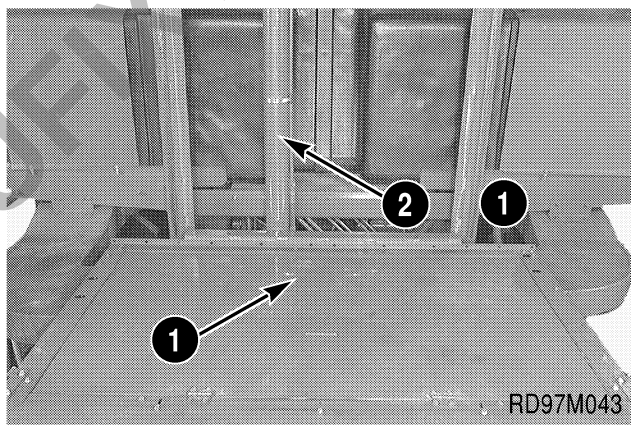
STEP 64



1. Bolts 2. Collar

Remove the two nuts and bolts on the cylinder rod collar and remove the collar.

STEP 65



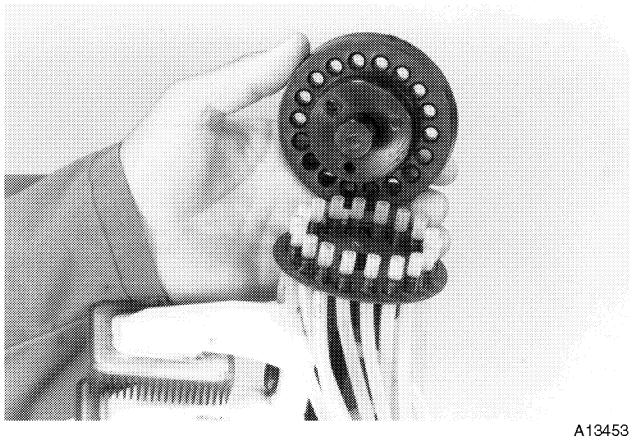
1. Fan Access Door 2. Front Cylinder

Open the fan access door under the basket for access to the bottom cylinder pin.

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Disassembly

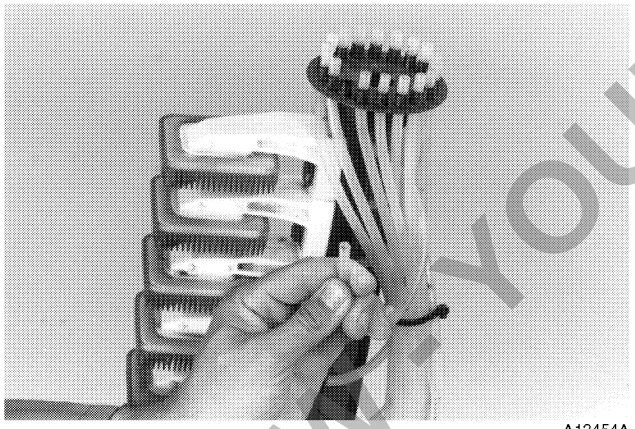
STEP 44



A13453

Remove the three screws from the water distributor cup, and pull the cup loose from the tubes.

STEP 45

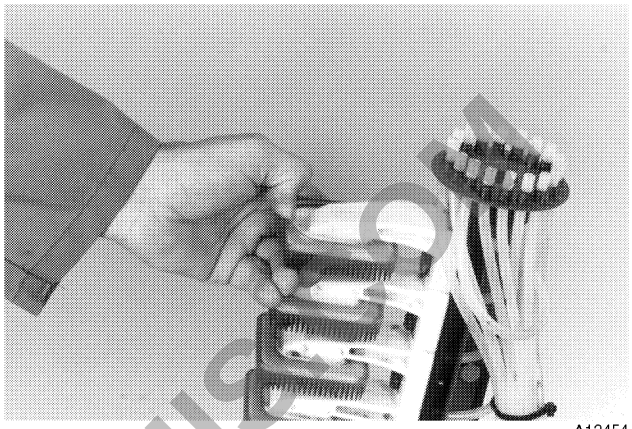


A13454A

Pull the tubes from the spring clips in the retainer.

Remove the tubes from the spring clips in the shield and out of the support/moistener pads.

STEP 46



A13454

Stretch the moistener pads until they separate from the pad supports.

Remove the mounting bolts to remove the pad supports.

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