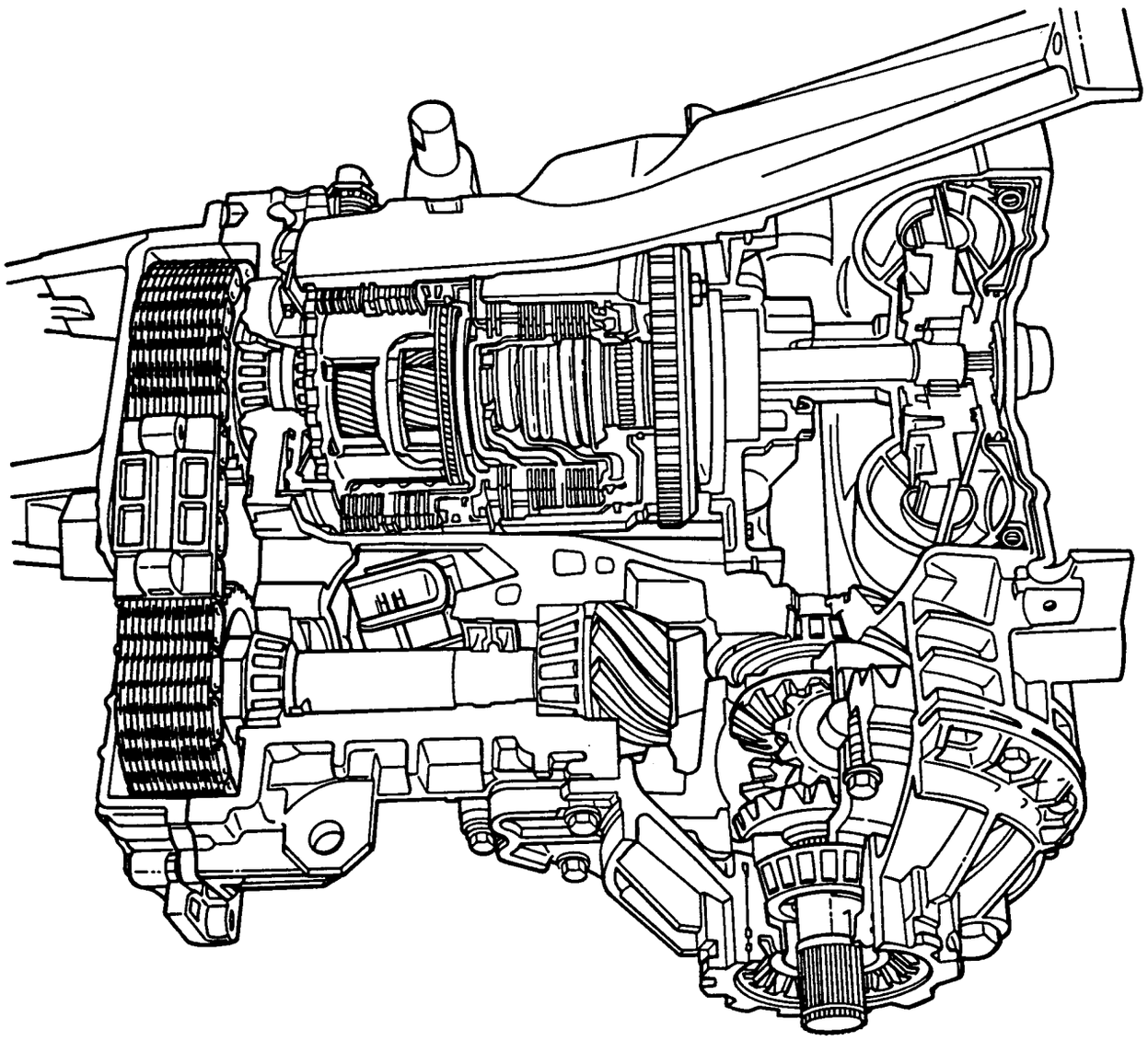
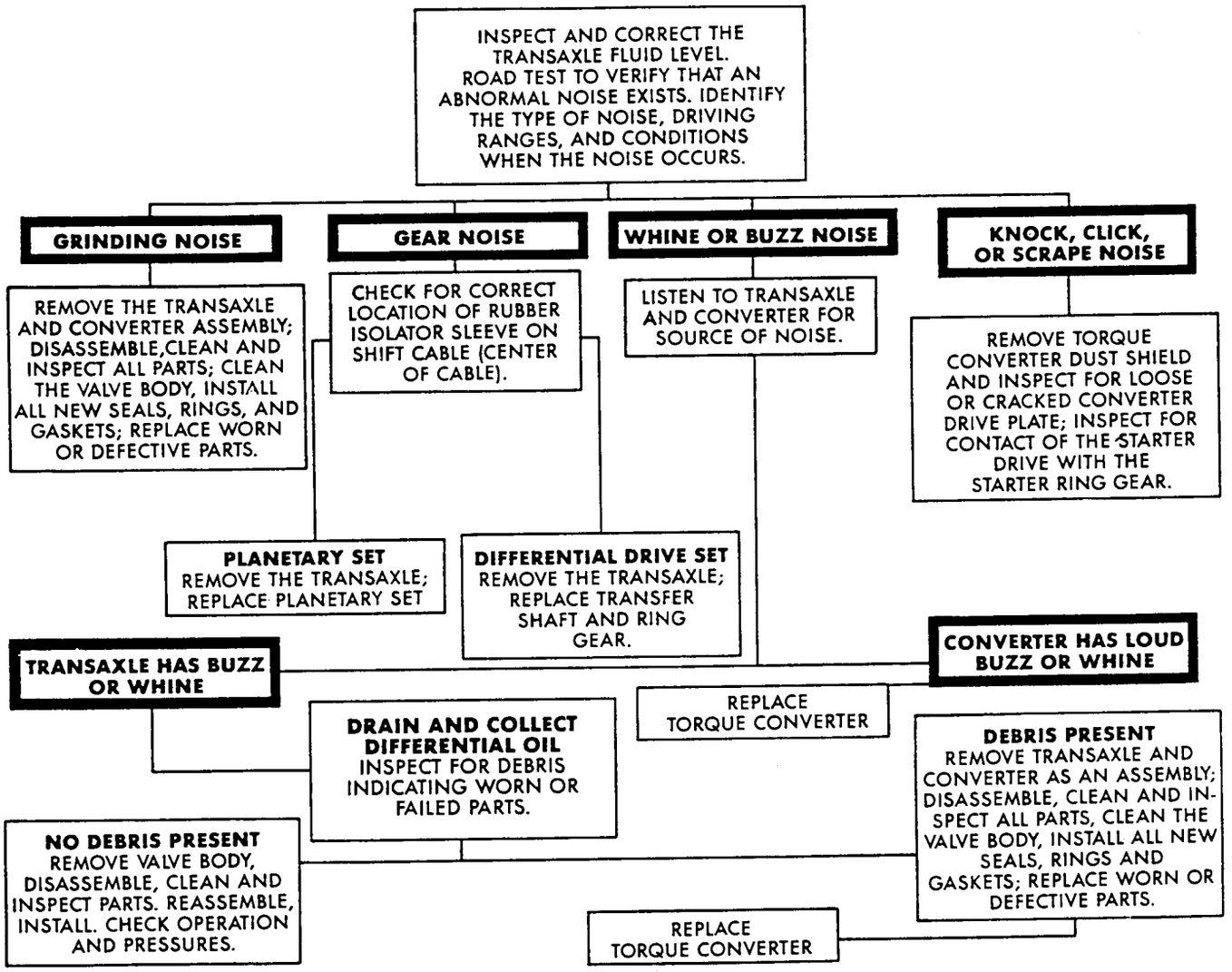
CHRYSLER
42LE (A606)

INDEX



DIAGNOSIS GUIDE-ABNORMAL NOISE



- Any other useful diagnostic information.

After noting all conditions, check the easily accessible variables:

- Fluid level and condition
- Shift linkage adjustment
- Diagnostic trouble code inspection

Then perform a road test to determine if the problem has been corrected or that more diagnosis is necessary. If the problem exists after the preliminary tests and corrections are completed, hydraulic pressure checks should be performed.

CAUTION: The transaxle will lose oil from the fill tube opening when the fill tube is removed.

(6) Loosen bolt that clamps shift cable to transaxle.
(7) Disconnect shifter cable from shift lever assembly at transaxle.
(8) Remove cable from underneath vehicle.

INSTALLATION

(1) Reroute new cable from underside of vehicle. The cable must be routed between the engine block and the heater return tube.
(2) Snap new transaxle cable on to shift lever assembly.
(3) Set shift lever assembly in park position at transaxle. This is the most rearward position.
(4) Place conduit end fitting in clamp and tighten mounting bolt.
(5) Reinstall transaxle fill tube and lower vehicle.
(6) Route transaxle shift cable through hole in dash panel.
(7) Install cable grommet in dash panel.
(8) Route transaxle shift cable along steering column.
(9) Connect transaxle shift cable to shift cable conduit bracket and secure with new clip.
(10) Attach shift cable to attaching stud (pin) by snapping into place.
(11) Place the shift lever in park, the steering column in full tilt upward, and the column shifter in park with key removed.
(12) Adjust cable by rotating the adjuster into lock position.
(13) Reinstall steering column shrouds and kick panel.
(14) Check shifter for proper operation. It should operate smoothly without binding. The vehicle should crank in Park or Neutral only.
(15) Start engine and check transaxle fluid level. Adjust level as required.

ADJUSTMENT

(1) Remove upper steering column shroud.
(2) Rotate cable adjuster into unlock position.
(3) Make sure that the transaxle shift lever (at transaxle) is in the park position.
(4) Tilt the steering column to the full up position.
(5) Place shifter in the park position with the key removed.
(6) Adjust by rotating adjuster into lock position.
(7) Reinstall upper steering column shroud.
(8) Check shifter for proper operation. It should operate smoothly without binding. The vehicle should crank in Park or Neutral only.
(9) Start engine and check transaxle fluid level. Adjust level as required.

GEARSHIFT LINKAGE—FLOOR SHIFT

The gear shift linkage should be adjusted if any of the following repairs or situations are encountered:
- Transaxle replacement.
- Valve body repair.
- Shift cable replacement.
- Interlock cable replacement.
- When there is no cranking in park or neutral.
- When the transaxle can be shifted without the key in the ignition.
- When the key can be removed with the shifter in reverse.
- When the key can not be removed with the shifter in the park position.

REMOVAL

(1) Remove shift handle and console bezel.
(2) Loosen nut on shift cable adjust lever.
(3) Remove clip from shift cable conduit bracket.
(4) Disconnect shifter cable from cable attach stud (pin).
(5) From underhood side of dash panel unseat grommet and remove cable from interior of vehicle.
(6) Raise vehicle and remove transaxle fill tube. Clean the area around the fill tube before removing. This will prevent dirt from entering the transaxle once the tube is removed.

CAUTION: The transaxle will lose oil from the fill tube opening when the fill tube is removed.

(7) Loosen bolt that clamps shift cable to transaxle.
(8) Disconnect shifter cable from shift lever assembly at transaxle.
(9) Remove cable from underneath vehicle.

INSTALLATION

(1) Reroute new cable from underside of vehicle. The cable must be routed between the engine block and the heater return tube.
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(4) Place conduit end fitting in clamp and tighten mounting bolt.
(5) Reinstall transaxle fill tube and lower vehicle.
(6) Route transaxle shift cable through hole in dash panel.
(7) Install cable grommet in dash panel.
(8) Route transaxle shift cable along steering column.
(9) Route transaxle shift cable under a/c duct, over central distribution duct, through support strut and air bag mounting bracket. Then route over carpeting and down to the shifter bracket.

performance or transaxle failure. In order to correctly repair this type of leak the transaxle must be removed from the vehicle and both transfer shaft seals replaced. Refer to "Transfer Shaft Seal Replacement" procedure in this section.

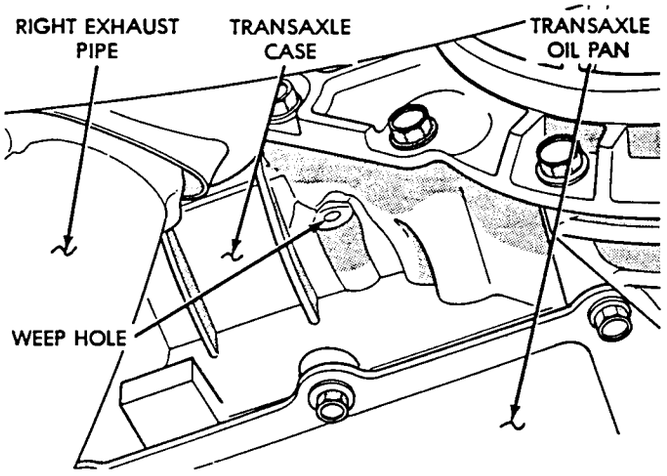


Fig. 4 Weep Hole Location

FLUID LEAKAGE-TORQUE CONVERTER HOUSING AREA

(1) Check for source of leakage. Fluid leakage from the torque converter area may originate from an engine oil leak, a differential oil leak or an ATF oil leak. The area should be examined closely.

(2) Prior to removing the transaxle, perform the following checks:

- When leakage is determined to be automatic transmission fluid, check fluid level prior to removal of the transaxle and torque converter.
- High oil level can result in oil leakage out the vent. If the fluid level is high, adjust to proper level.
- After performing this operation, inspect for leakage. If a leak persists, perform the following operation on the vehicle to determine if it is the torque converter or transaxle that is leaking.

LEAKAGE TEST PROBE

(1) Remove torque converter housing dust shield.

(2) Clean the inside of torque converter housing (lower area) as dry as possible. A solvent spray followed by compressed air drying is preferable.

(3) Fabricate and fasten test probe (Fig. 5) securely to convenient dust shield bolt hole. Make certain torque converter is cleared by test probe. Tool must be clean and dry.

(4) Run engine at approximately 2,500 rpm with transaxle in neutral, for about 2 minutes. Transaxle must be at operating temperature.

(5) Stop engine and carefully remove tool.

(6) If upper surface of test probe is dry, there is no torque converter leak. A path of fluid across probe

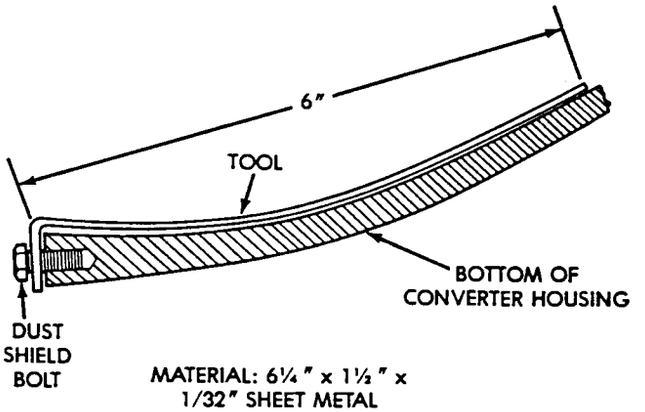


Fig. 5 Leak Locating Test Probe Tool

indicates a torque converter leak. Oil leaking under the probe is coming from the transaxle.

(7) Remove transaxle and torque converter assembly from vehicle for further investigation. The fluid should be drained from the transaxle. Re install oil pan (with Mopar Adhesive Sealant) at specified torque.

Possible sources of transaxle torque converter area ATF fluid leakage are:

- Torque converter hub seal.
- Seal lip cut, check torque converter hub finish.
- Bushing moved and/or worn.
- Oil return hole in pump housing plugged or omitted.
- Seal worn out (high-mileage vehicles).
- Fluid leakage at the outside diameter from pump housing O-ring.
- Fluid leakage at the front pump to case bolts. Check condition of washers on bolts and use new bolts, if necessary.
- Fluid leakage due to case or front pump housing porosity.

One once of oil dye can be added to the automatic transmission fluid to help locate leaks. Add the dye through the transaxle dipstick tube. Then reproduce the leak and check for traces of dye. Repair leak as required.

TORQUE CONVERTER LEAKAGE

Possible sources of torque converter leakage are:

- Torque converter weld leaks at the out side (peripheral) weld.
- Torque converter hub weld.

Hub weld is inside and not visible. Do not attempt to repair. Replace torque converter.

FLUID LEAKAGE—DIFFERENTIAL HOUSING AREA

The differential uses 80w-90 petroleum based hypoid gear lube. It can be distinguished from ATF by its brown color (ATF is dyed red). Also gear lube has a distinctive odor (hypoid smell).

LONG STUB SHAFT SEAL REPLACEMENT

If it has been diagnosed that the long stub shaft seal is leaking, the following procedure can be used to replace failed seal. This procedure will allow the replacement of the seals without having to set backlash and measure differential bearing turning torque.

CAUTION: The differential bearings and the differential adjusters must be reused in order to use this procedure. If any of the items listed above require replacement, this procedure cannot be used. Refer to "Differential Recondition" section of this manual.

(1) Remove transaxle from vehicle. Refer to "Transaxle Removal and Installation" procedure in this section.

(2) Remove long stub shaft from transaxle (Fig. 1).

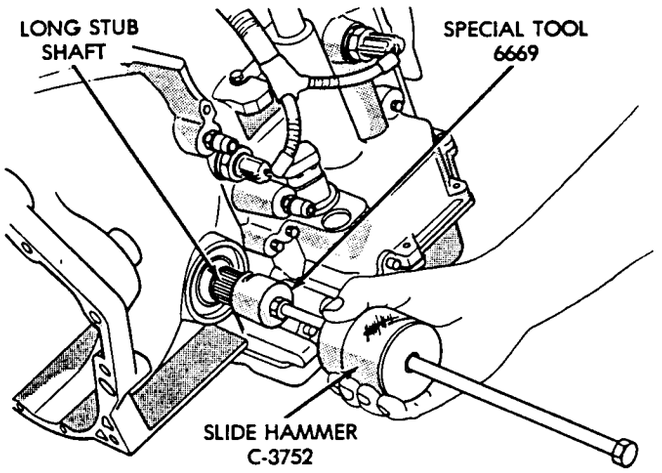


Fig. 1 Long Stub Shaft Removal

(3) Index the inner differential adjuster with a "cross hair" as shown in figure 2.

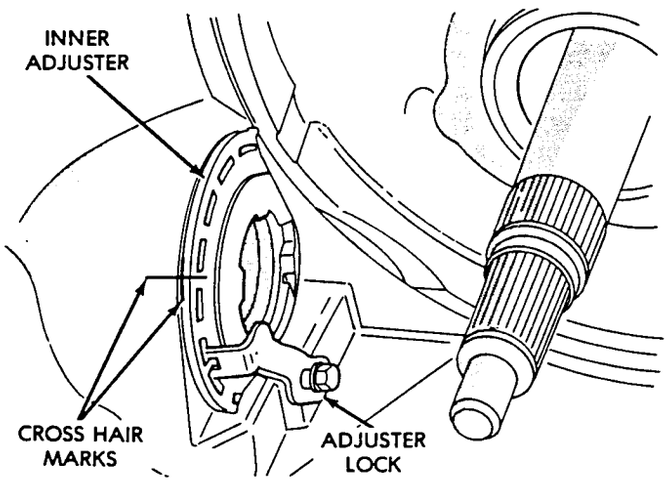


Fig. 2 Indexing Inner Adjuster

CAUTION: If short stub shaft has corrosion, use caution when removing differential cover. Inspect seal and shaft for damage after removal of cover. Replace shaft and/or seal as required.

(4) Index outer adjuster (Fig. 3). Remove lock bracket and back out adjuster exactly one revolution. Then remove differential cover.

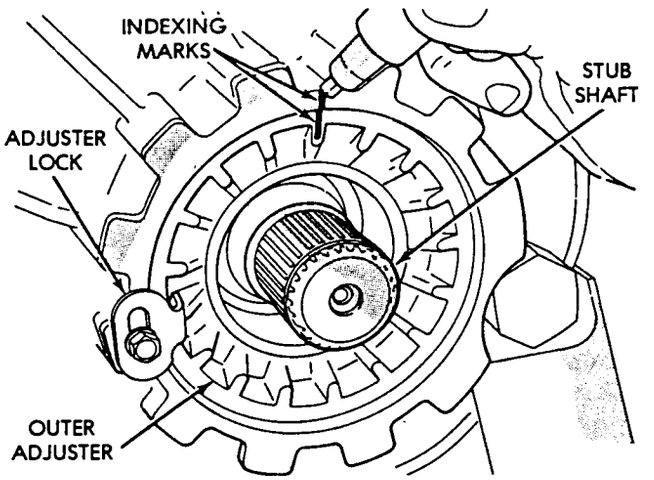


Fig. 3 Indexing Outer Adjuster

(5) Remove The inner adjuster lock bracket. Then remove the inner adjuster.

CAUTION: Keep the inner adjuster for reinstallation.

(6) Lube inner adjuster threads with gear oil and reinstall to the "cross haired" index marks.

(7) Install the differential carrier. Then install stub shaft seal protector.

(8) Install the differential cover/outer adjuster assembly with sealant applied. Install and tighten differential cover bolts.

(9) Tighten the outer adjuster 3/4 of a turn. Seat bearings by turning differential carrier three or four turns in both directions. Finish tightening the adjuster 1/4 turn to its index mark (original location).

(10) Reinstall long stub shaft, fill differential with fluid and reinstall transaxle.

(11) After installing transaxle check transmission side fluid level.

SHORT STUB SHAFT SEAL REPLACEMENT

The following procedure can be used to replace the short stub shaft seal without having to remove the transaxle from the vehicle. If the adjuster or bearing located behind the adjuster require replacement, do not use this procedure. Refer to "Differential Recondition" section of this manual.

(1) Place vehicle in neutral and lift vehicle on hoist.

(2) Remove short drive shaft.

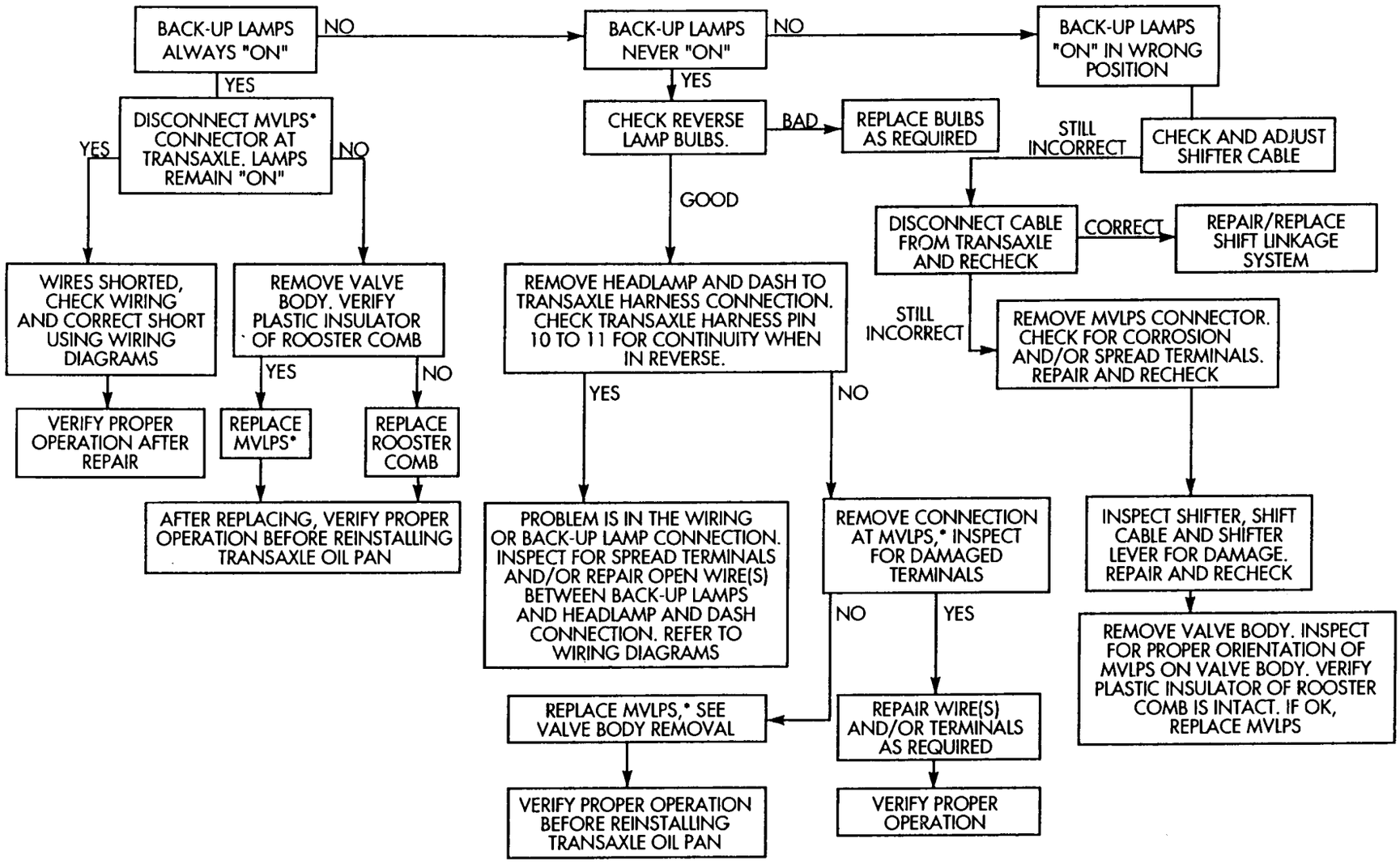
(3) Index the outer adjuster (Fig. 4).

(4) Remove Outer adjuster lock (Fig. 5)

(5) Using special tool 6503 loosen outer adjuster, then retighten to the index mark using a torque wrench. Record the amount of torque required to return the index marks to their original location. Remove the adjuster.

BACK-UP LAMP DIAGNOSTIC CHART

PERFORM ALL TESTS WITH IGNITION IN THE "ON" POSITION AND PARKING BRAKE APPLIED.



*MANUAL VALVE LEVER POSITION SENSOR

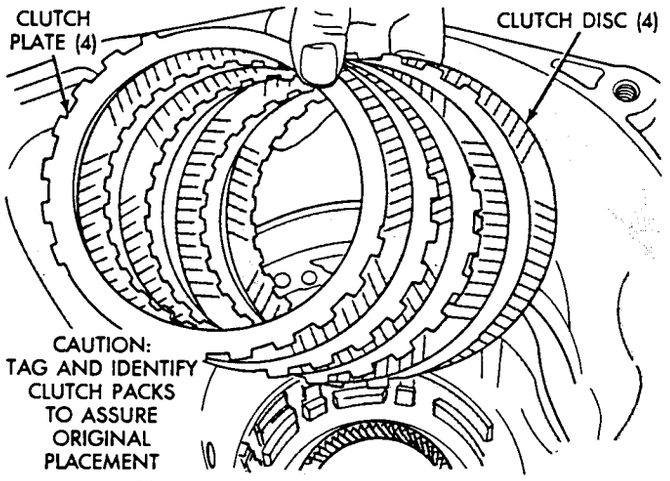


Fig. 32 Remove 2/4 Clutch Pack

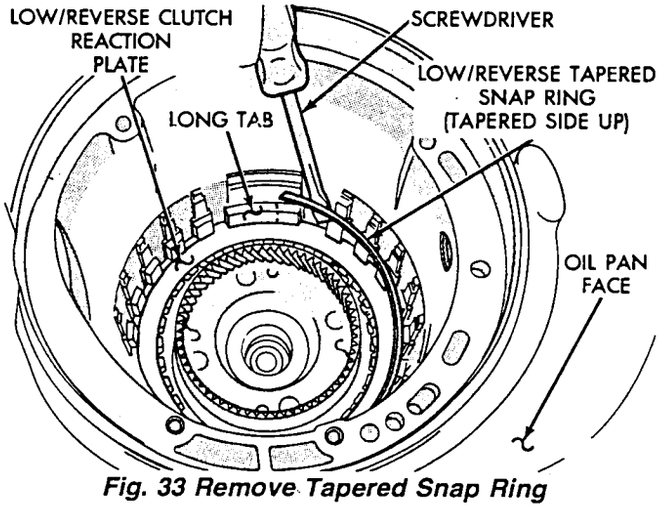


Fig. 33 Remove Tapered Snap Ring

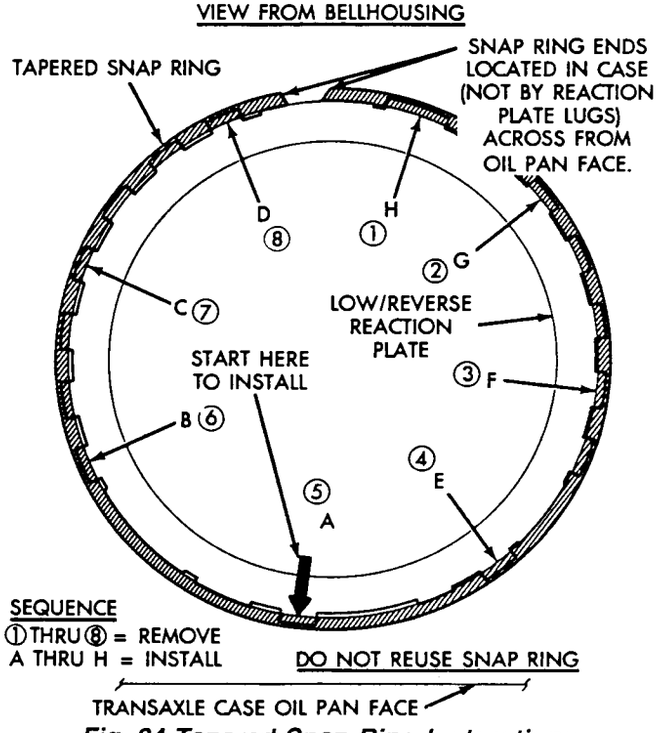


Fig. 34 Tapered Snap Ring Instructions

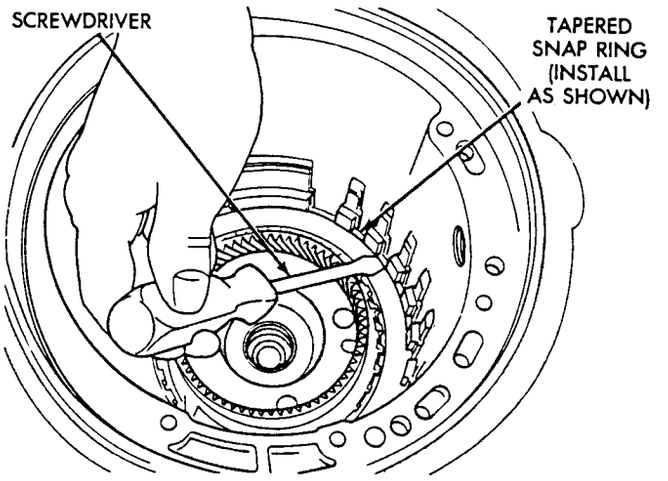


Fig. 35 Snap Ring Installed

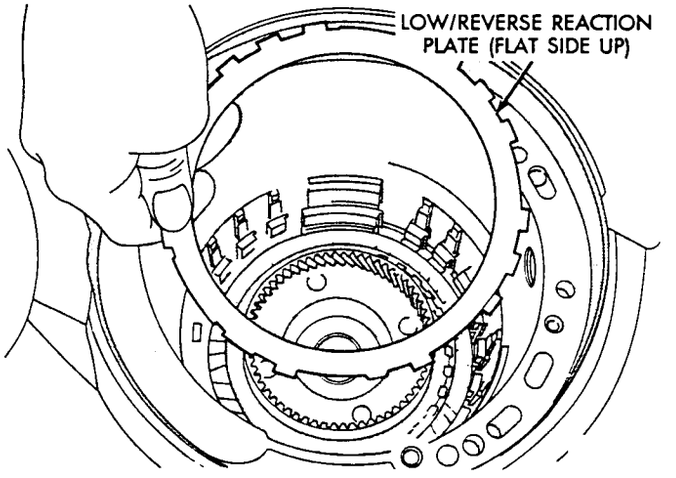


Fig. 36 Low/Reverse Reaction Plate

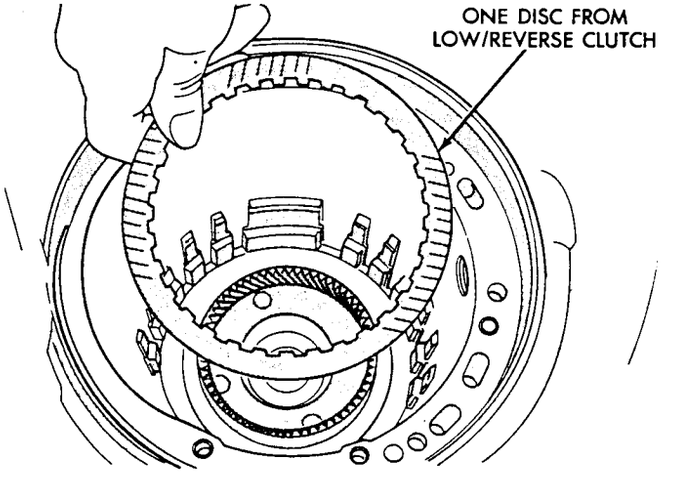


Fig. 37 Remove One Disc

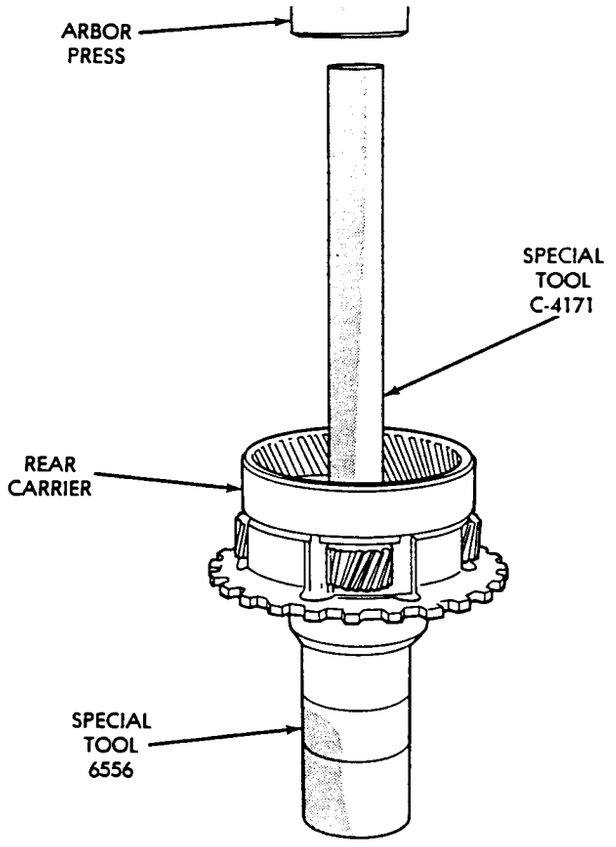


Fig. 1 Install Rear Carrier Front Bearing Cone

(2) Install rear output shaft bearing cone and special tool 6618A (Fig. 2).

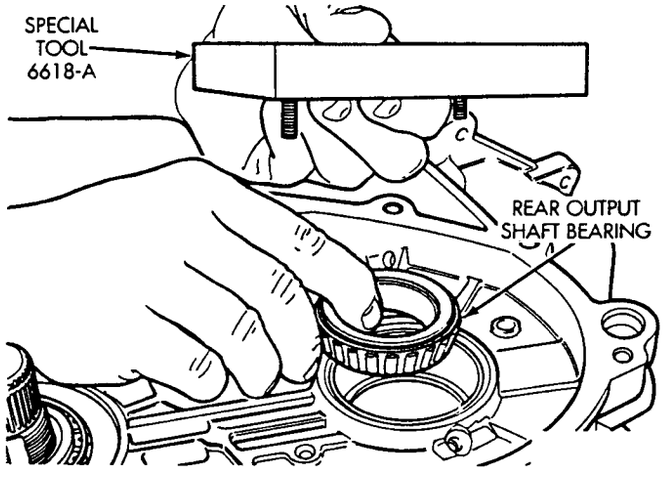


Fig. 2 Bearing Installation

(3) Install special tool 6618A (Fig. 3). Lightly tighten retaining screws. Screws should be below the plate surface, but do not snug screws.

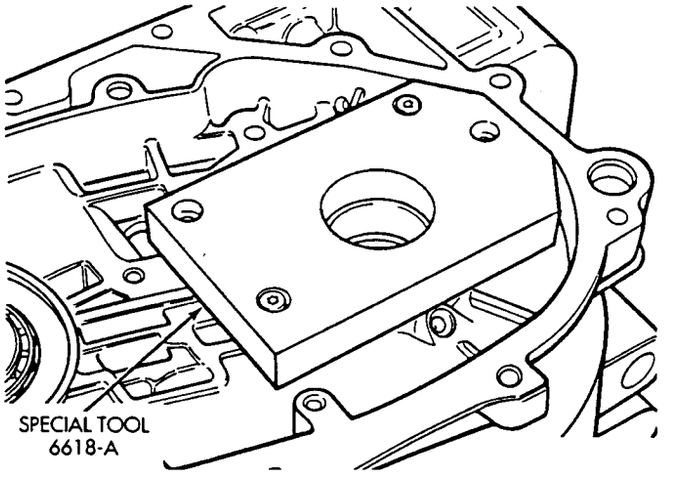


Fig. 3 Special Tool Installed

(4) Turn case over on arbor press so that the plate is resting on the press base

CAUTION: The output shaft will extend through the hole of tool 6618A. Ensure your press table has clearance for the output shaft.

(5) Install shim on output shaft (Fig. 4). Apply small amount of petrolatum onto the shim to hold it in place. Use the original shim as a starting point. If original shim is not available, use the thickest shim available. Refer to Output Shaft Rear Shim Chart for available sizes.

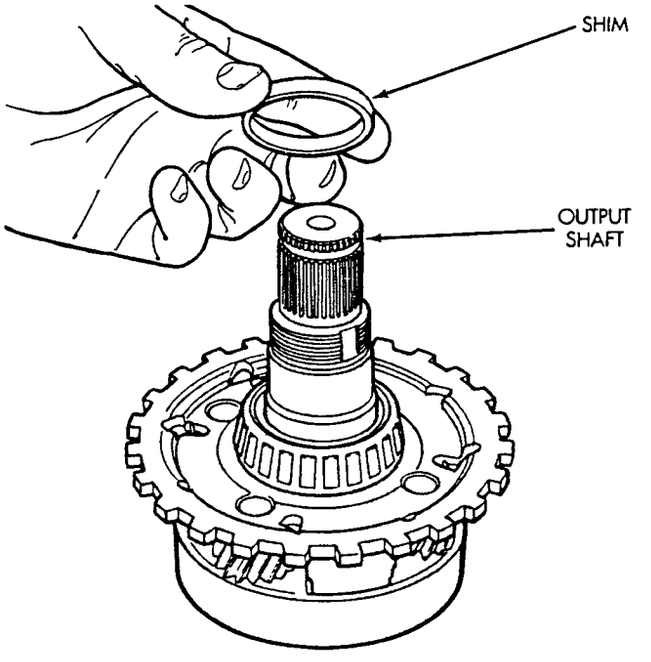


Fig. 4 Shim Installation

The overdrive (OD) clutch pack clearance is .965 to 2.26 mm (.038 to .089 inch). If not within specifications, the clutch is not assembled properly. There is no adjustment for the OD clutch clearance.

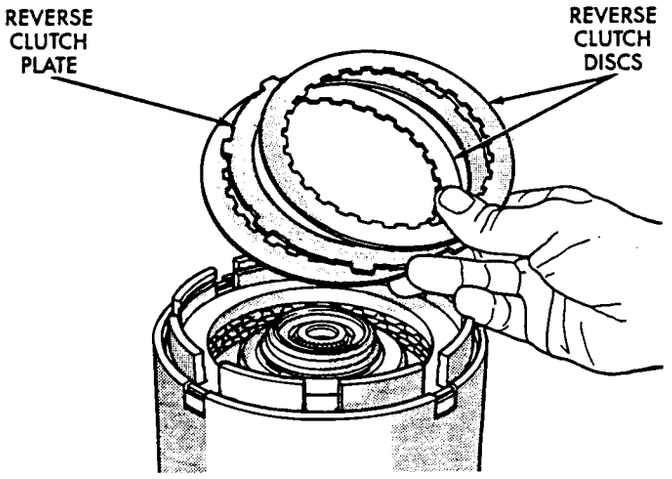


Fig. 26 Install Reverse Clutch Pack

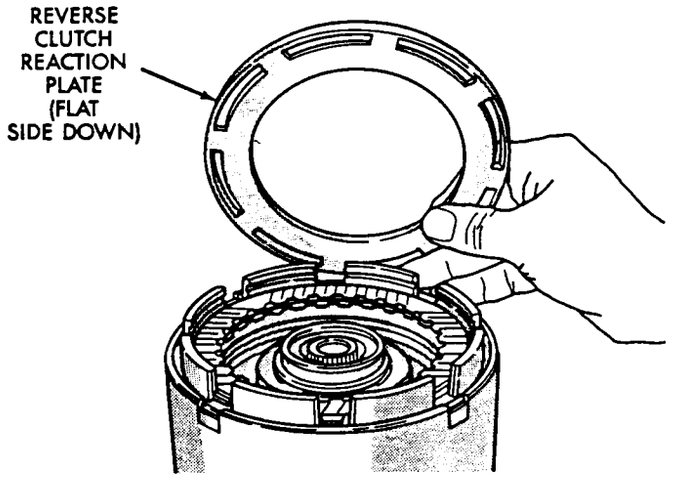


Fig. 27 Install Reaction Plate

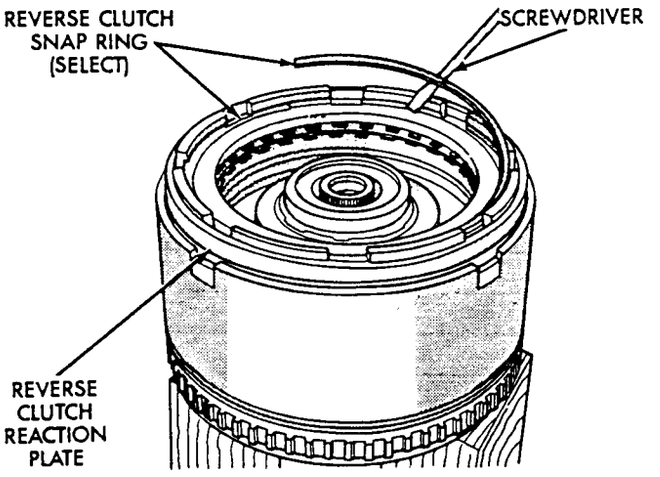


Fig. 28 Install Reverse Clutch Snap Ring

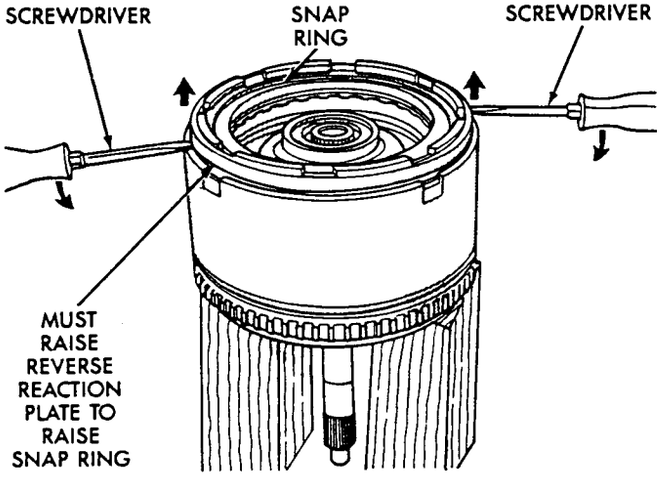


Fig. 29 Seating Snap Ring to Determine Reverse Clutch Clearance

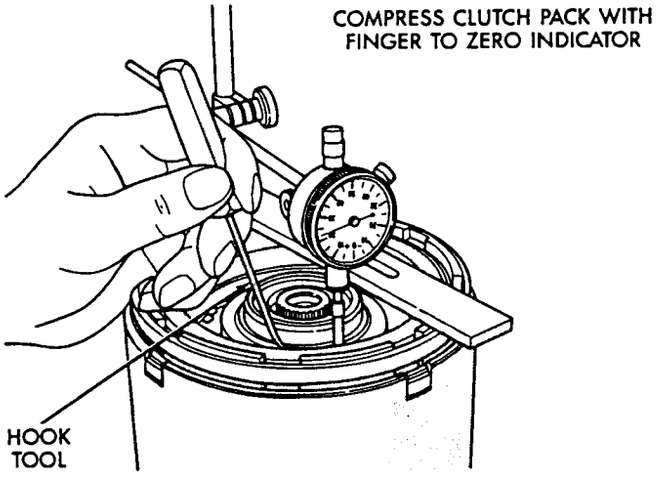


Fig. 30 Check Reverse Clutch Pack Clearance

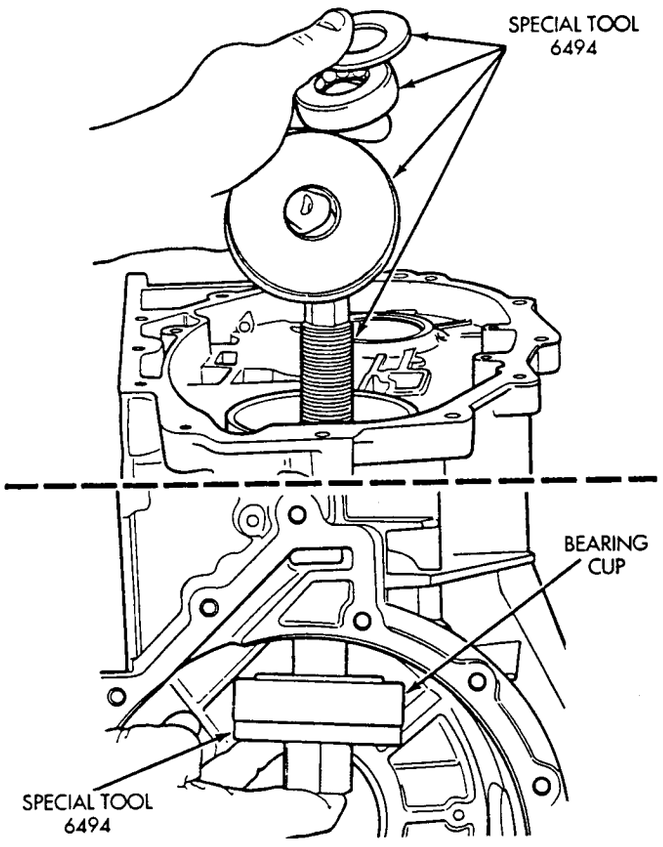


Fig. 1 Install Front Transfer Shaft Cup

(2) Install centering block (special tool 6549-2) into the transaxle case (Fig. 2). Screw centering block into inner adjuster hole of case until it bottoms. The pegs on the special tool are only used for installation. Orientation with in the case is not required.

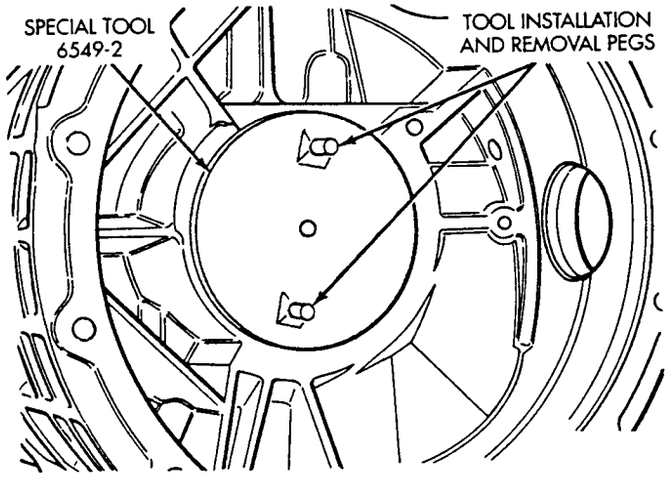


Fig. 2 Installing Centering Block

(3) Install new front bearing (actual bearing to be used during reassembly) onto gauge disc (special tool 6549-3) (Fig. 3).

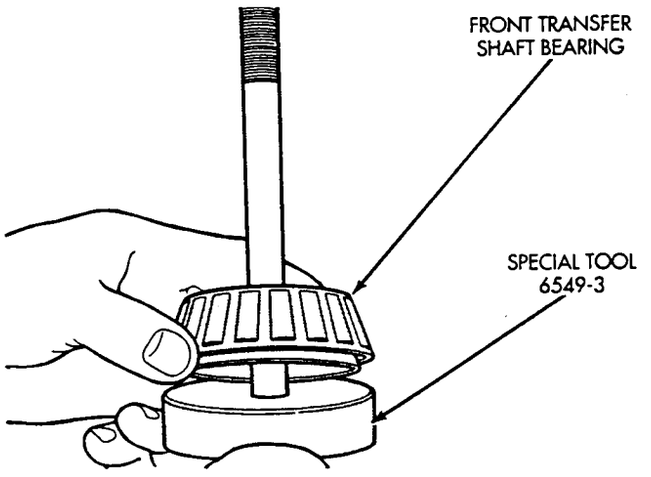


Fig. 3 Gauge Disc and Bearing

(4) Install gauge disc and bearing into case using gauge disc rod (Fig. 4).

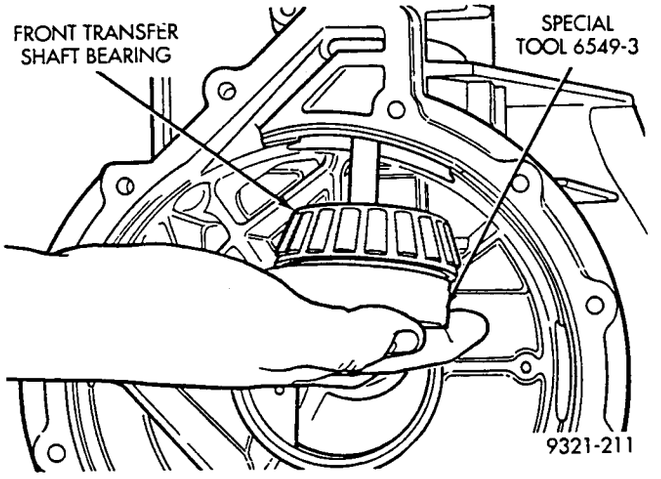


Fig. 4 Installing Gauge Disc with Front Transfer Shaft Bearing

(5) Install centering disc (special tool 6494-2) onto gauge disc rod (Fig. 5).

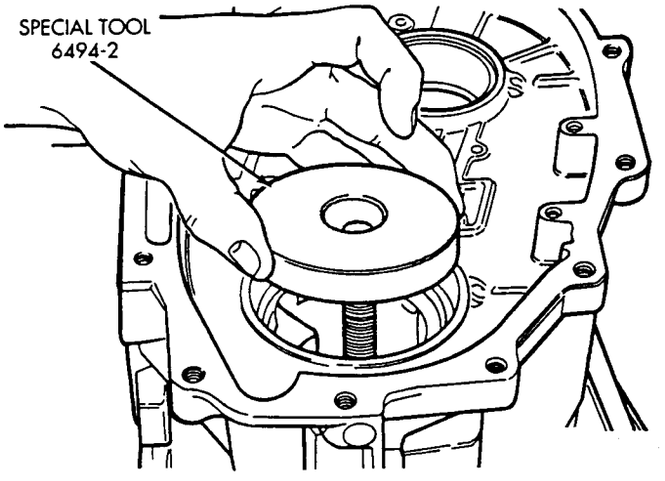


Fig. 5 Disc Installation

(37) Install rear transfer shaft cone (Fig. 33). Press cone on transfer shaft using special tool 6560.

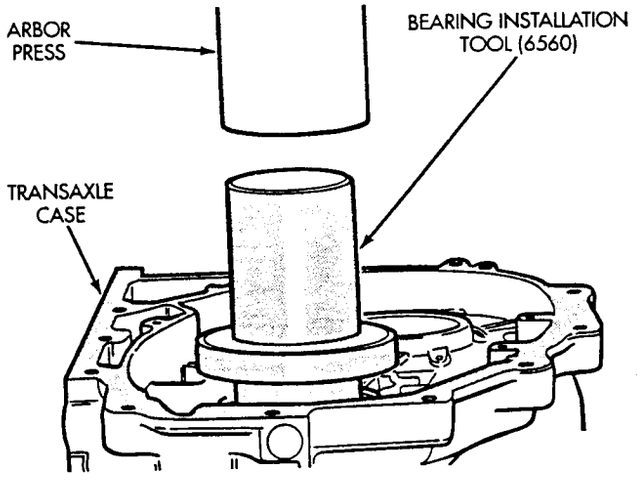


Fig. 33 Transfer Shaft Cone Installation

(38) Remove transfer shaft support fixture (special tool 6595).

CAUTION: Always use a new transfer shaft nut. Do not reuse old transfer shaft nut.

(39) Install a new transfer shaft nut (Fig. 34). Tighten nut to 271 N•m (200 ft. lbs.). Use special tools 6497 holder and 6498 shaft socket to tighten nut.

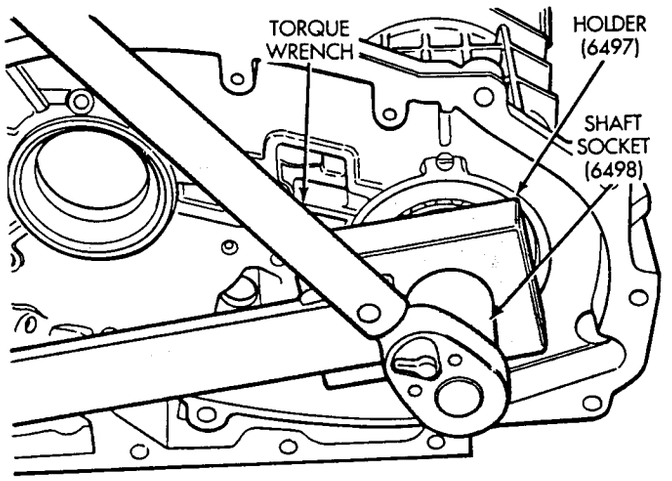


Fig. 34 Transfer Shaft Nut Installation

CAUTION: Failure to set the transfer shaft turning torque correctly may cause transfer shaft bearings or seals to fail. Be sure transfer shaft does not have end play. If end play exists, install a thinner preload shim.

(40) Check the turning torque of the transfer shaft using a torque wrench (Fig. 35). The turning torque should be 0.5 to 1.3 N•m (5 to 12 in. lbs.). If the turning torque is too high, install a thicker transfer shaft preload shim. If the turning torque is too low, install a thinner transfer shaft preload shim.

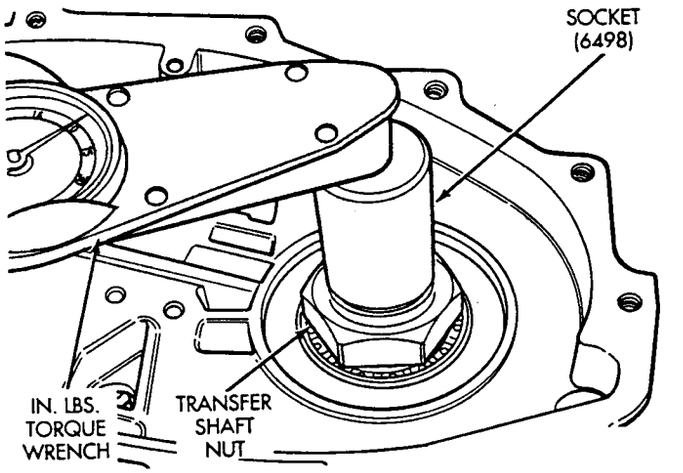


Fig. 35 Checking Turning Torque

(41) After the correct turning torque is obtained, use special tool 6589 to stake the new transfer shaft nut (Fig. 36). Be sure that the tool arms line up with slots in the transfer shaft. Use a press with the special tool to make the stakes in the nut.

CAUTION: A press and special tool 6589 must be used when staking the transfer shaft nut. Do not use a hammer and the special tool to stake nut. If a hammer is used seal, bearing and/or tool damage may result. Also the stake will not be seated against the shaft correctly. This will allow the nut to loosen.

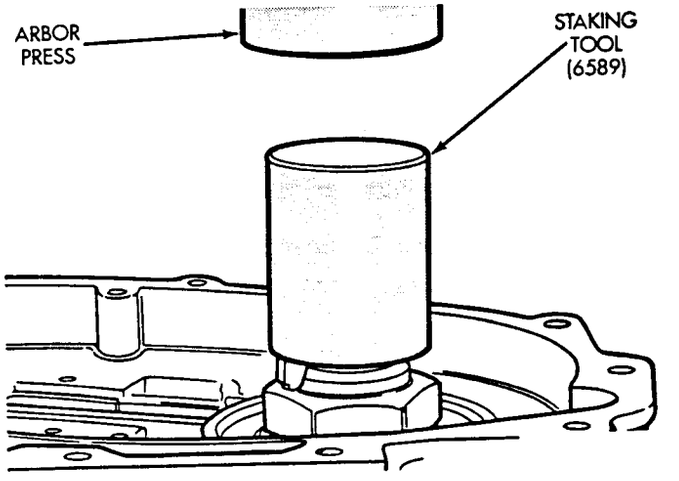


Fig. 36 Staking New Nuts

DIAGNOSTIC TROUBLE CODE 21-27

DIAGNOSTIC TROUBLE CODE:

21-27 Pressure Switch Circuits
Code 21 OD Pressure Switch Circuit
Code 22 2/4 Pressure Switch Circuit
Code 23 2/4-OD Pressure Switch Circuit
Code 24 LR Pressure Switch Circuit
Code 25 LR-OD Pressure Switch Circuit
Code 26 LR-2/4 Pressure Switch Circuit
Code 27 All Pressure Switch Circuits

BACKGROUND:

The transmission system uses three pressure switches to monitor the fluid pressure in the LR, 2/4, and OD elements. The pressure switches are continuously checked for the correct states in each gear as indicated below:

Normal Pressure Switch States

GEAR	LR	2/4	OD
R	O	O	O
N	C	O	O
1ST	C	O	O
2ND	O	C	O
3RD	O	O	C
4TH	O	C	C

O = Switch is open
C = Switch is closed

When a pressure switch mismatch is detected, the solenoid circuits are tested for continuity. If that test fails, solenoid circuits are blamed for the pressure switches mismatch. Otherwise the appropriate pressure switch code is set.

WHEN CHECKED:

Every 0.007 second.

ARMING CONDITIONS:

(1) More than 2.0 seconds since start-up.
(2) No loss of transaxle oil pump prime.
(3) Engine speed greater than 500 rpm.
(4) No shift in progress.
(5) Pressure switch mask inconsistent with the normal pressure switch state table. Use DRB II State Input/Output display.

CONDITIONS:

Pressure switch error count must equal 255.

SET TIME:

For hard faults when super cold = 3.3 seconds
For hard faults when cold = 2.2 seconds
For hard faults when warm = 1.4 seconds
For hard faults when hot = 0.6 second
(Temperature description based off of DRB II transaxle state display)

EFFECT:

Transmission limp-in.

POSSIBLE CAUSES:

Low/high fluid level in transmission.
Short/open in LR Pressure Switch circuit, 2/4
Pressure Switch circuit, or OD Pressure Switch circuit.
Solenoid pack internal problem.
Internal transmission problem.
40-way connector problem (cavities 9, 47, and 50).
Internal Transmission Control Module failure.

DIAGNOSTIC TROUBLE CODE 36

DIAGNOSTIC TROUBLE CODE:	36 Fault Immediately After Shift
BACKGROUND:	This code is not stored alone. It is stored if a speed error (codes 50 through 58) is detected immediately after shift. The existence of code 36 indicates a mechanical or hydraulic (non-electrical) related problem. It should be noted, however, that all mechanical problems don't necessarily result in code 36. When this code exists, diagnosing the system should be based on the associated code and ONLY mechanical causes should be considered.
WHEN CHECKED:	After a Speed Error code is stored in Transmission Control Module.
ARMING CONDITIONS:	Fault code 50 – 58 (Speed Error) has already been set.
CONDITIONS:	Fault happened within 1.3 seconds of a shift.
SET TIME:	Same as associated speed error.
EFFECT:	Same as associated speed error.
POSSIBLE CAUSES:	Internal transmission problem (refer to Speed Errors).

DIAGNOSTIC TROUBLE CODE 37

DIAGNOSTIC TROUBLE CODE:	37 Solenoid Switch Valve in the LU Position
BACKGROUND:	The Solenoid Switch Valve (SSV) controls the direction of the transmission fluid when the LR/LU solenoid is energized. Solenoid Switch Valve will be in the downshifted position in 1st gear, thus directing the fluid to the LR element. In 2nd, 3rd and 4th, it will be in the upshifted position and directs the fluid into the Torque Converter Clutch Switch Valve which controls the Torque Converter. When shifting into 1st gear, a special sequence is followed to make sure the Solenoid Switch Valve moves into the downshifted position. LR pressure switch is monitored to confirm Solenoid Switch Valve movement. If Solenoid Switch Valve movement is not confirmed, 2nd gear is substituted for 1st.
WHEN CHECKED:	Prior to a shift into 1st.
ARMING CONDITIONS:	(1) Transmission at normal operating temperature. (2) Solenoid Switch Valve flag must be set.
CONDITIONS:	Three unsuccessful attempts to shift into 1st gear.
SET TIME:	Concurrent with the third consecutive unsuccessful attempt to shift into 1st gear.
EFFECT:	No limp-in. No 1st gear (2nd gear is substituted). No Torque Converter Clutch operation.
POSSIBLE CAUSES:	Internal transmission problem.

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