SECTION 5-C
TRANSMISSION REMOVAL AND INSTALLATION
DISASSEMBLY AND ASSEMBLY

CONTENTS OF SECTION 5-C

5-9 DISASSEMBLY OF TRANSMISSION TO REMOVE MAJOR PARTS AND UNITS

1. Preliminary Instructions

a. Before starting disassembly of the transmission it should be thoroughly cleaned externally to avoid getting dirt inside.

b. Place transmission on a CLEAN work bench and use CLEAN tools during disassembly. Provide CLEAN storage space for parts and units removed from transmission. An excellent working arrangement is provided by assembling the transmission to Holding Fixture J-8763. See Figure 5-100.

c. The transmission contains parts which are ground and highly polished, therefore, parts should be kept separated to avoid nicking and burring surfaces.

d. When disassembling transmission carefully inspect all gaskets at times of removal. The imprint of parts on both sides of an old gasket will show whether a good seal was obtained. A poor imprint indicates a possible source of oil leakage due to gasket condition, looseness of bolts, or uneven surfaces of parts.

e. None of the parts require forcing when disassembling or assembling transmission. Use a rawhide or plastic mallet to separate tight fitting cases - do not use a hard hammer.

5-10 REMOVAL OF OIL PAN, OIL STRAINER AND PIPE, VALVE BODY, LOW SERVO COVER AND PISTON ASSEMBLY

a. Removal of Oil Pan

NOTE: Transmission need not be removed from car to perform the following operations Paragraph 5-0. Subparagraph a, b, c and d.

1. If transmission has been removed from car, assemble transmission in Fixture J-8763. See Figure 5-100.

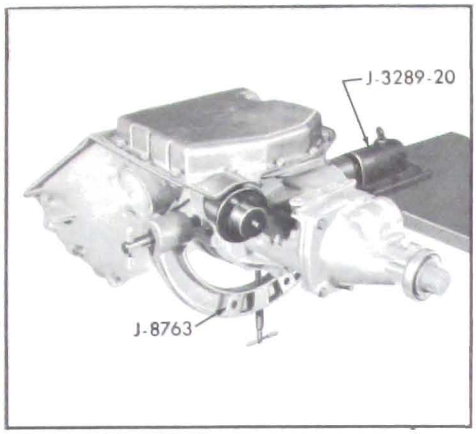


Figure 5-100

2. With transmission in horizontal position pull converter from case. See Figure 5-101.

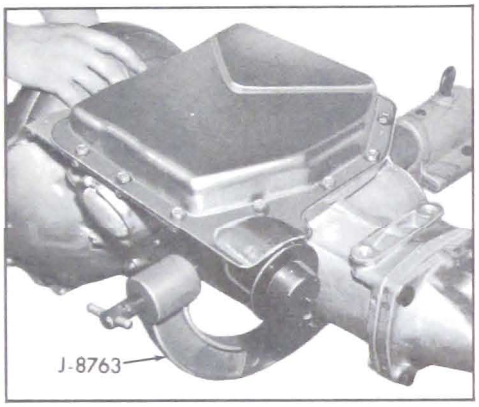


Figure 5-101

3. Remove fourteen (14) oil pan attaching bolts using a 1/2" socket. See Figure 5-102.

Figure 5-102

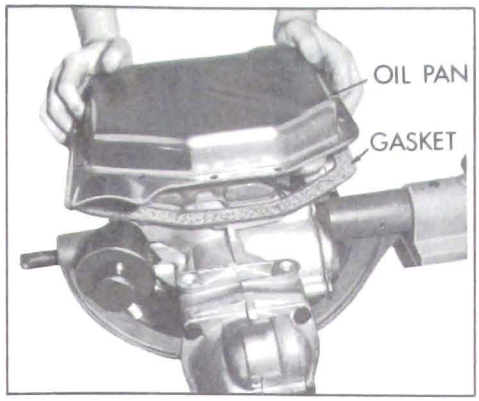


Figure 5-103

4. Remove oil pan and gasket from transmission. See Figure 5-103.

b. Removal of Oil Strainer and Pipe

1. Remove the PF-162 filter on V-8 models. See Figure 5-104.

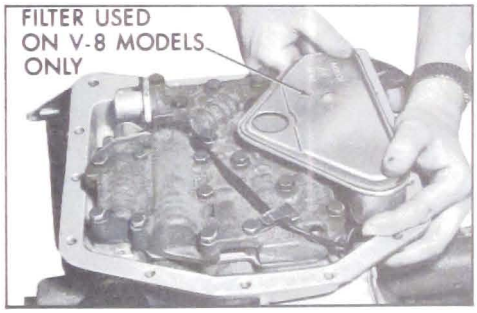


Figure 5-104

2. Remove the oil strainer from model V-6 transmissions. See Figure 5-105.

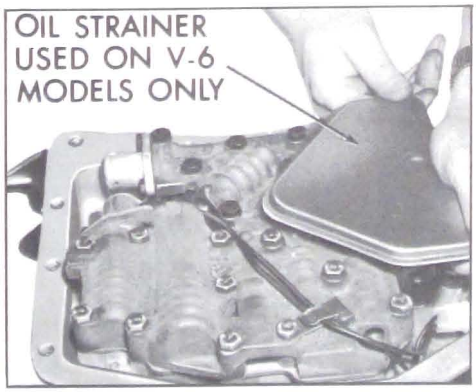


Figure 5-105

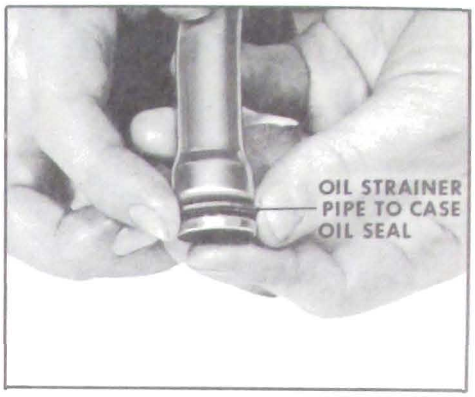


Figure 5-106

3. Examine oil strainer or filter to case oil seal. If nicked, torn or worn, remove seal. See Figure 5-106.

c. Removal of Valve Body

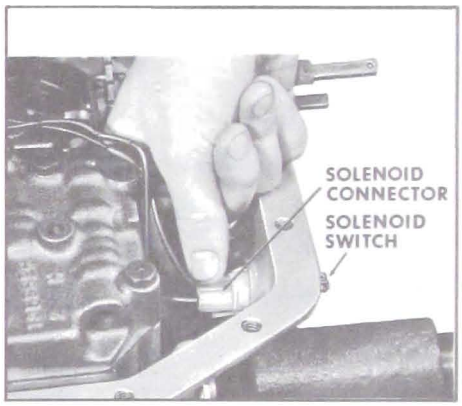


Figure 5-107

1. Disconnect solenoid connector from solenoid switch. See Figure 5-107.

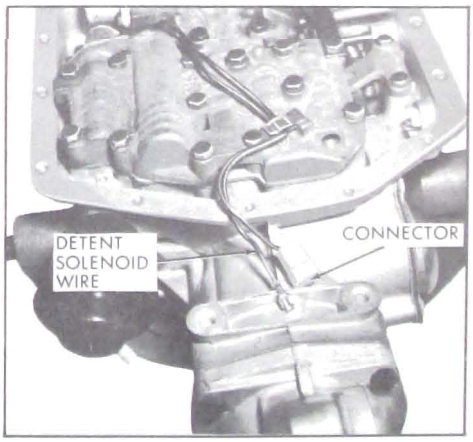


Figure 5-108

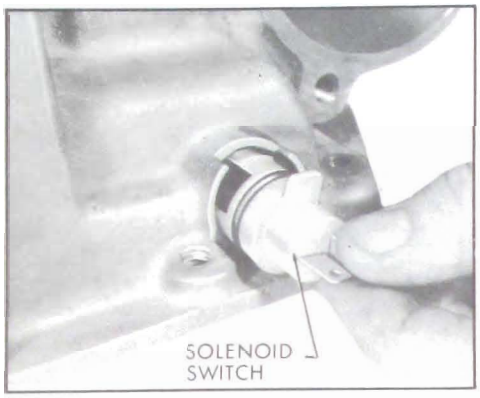


Figure 5-110

2. Remove detent solenoid wire from connector. See Figure 5-108.

3. Remove solenoid switch from case. Inspect switch "O" ring. If nicked, torn or worn replace. See Figure 5-110.

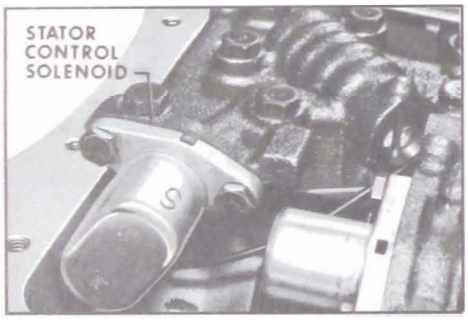


Figure 5-111

4. With a grease pencil mark stator control solenoid with an "S". This "S" will identify stator control solenoid for reassembly. See Figure 5-111.

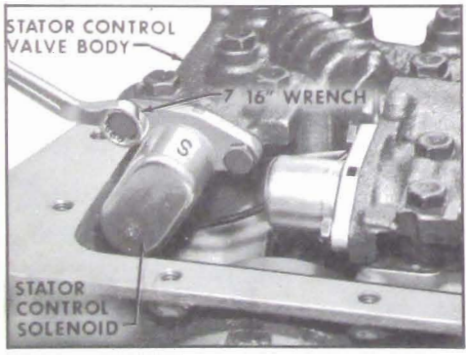


Figure 5-112

5. Remove two (2) solenoid to stator control valve body retaining bolts with 7/16" wrench. Remove stator control solenoid gasket. See Figure 5-112.

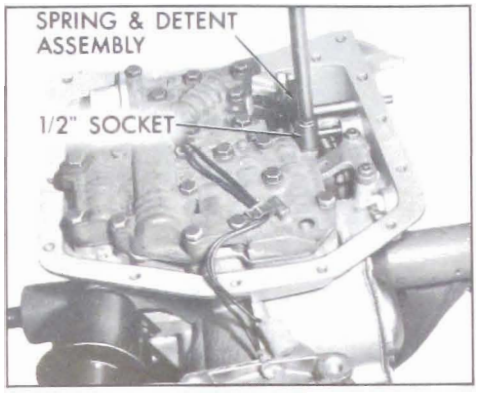


Figure 5-113

6. Remove spring detent assembly bolt with a 1/2" socket. Remove spring detent assembly from valve body. See Figure 5-113.

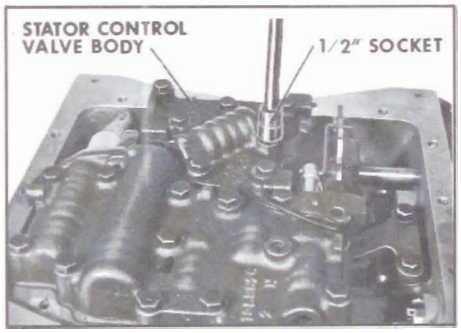


Figure 5-114

7. Remove seven (7) bolts retaining stator control valve body to transmission case using a 1/2" socket. Remove stator control valve body. See Figure 5-114.

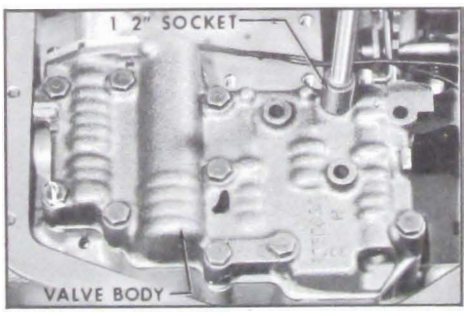


Figure 5-115

8. Remove eleven (11) valve body to case bolts only using a 1/2" socket. Do not remove valve body. See Figure 5-115.

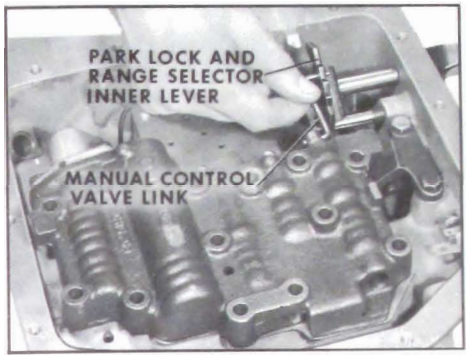


Figure 5-116

9. Remove manual control valve link by rotating valve body in a counterclockwise direction to remove link from Park lock and range selector inner valve. See Figure 5-116.

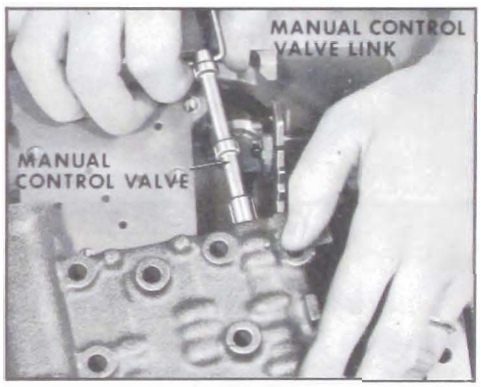


Figure 5-117

10. Remove manual control valve and link from valve body assembly. Remove valve body. See Figure 5-117.

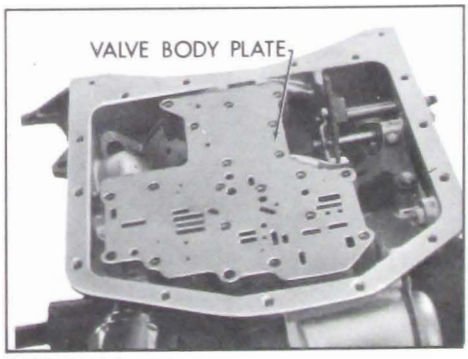


Figure 5-118

11. Remove valve body plate. See Figure 5-118.

12. On V-6 models note the identification notch. See Figure 5-120.

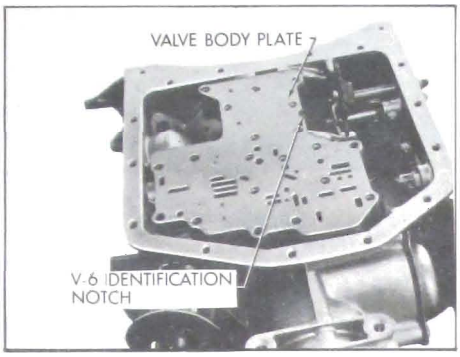


Figure 5-120

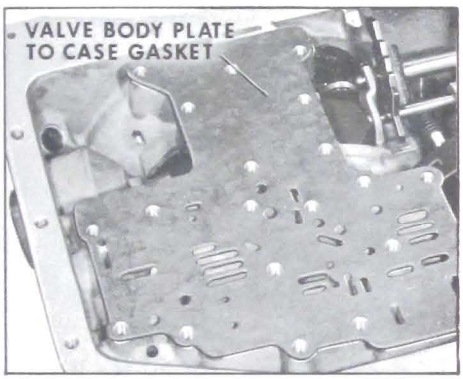


Figure 5-121

13. Remove valve body plate to case gasket. See Figure 5-121.

d. Removal of Low Servo Cover and Piston Assembly

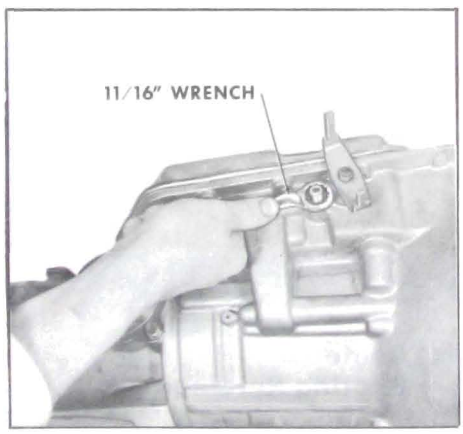


Figure 5-122

1. Release tension on low band adjusting screw retaining nut. Release tension on low band by turning adjusting screw in a counterclockwise direction. Use a 7/32" Allen Wrench. See Figure 5-122.

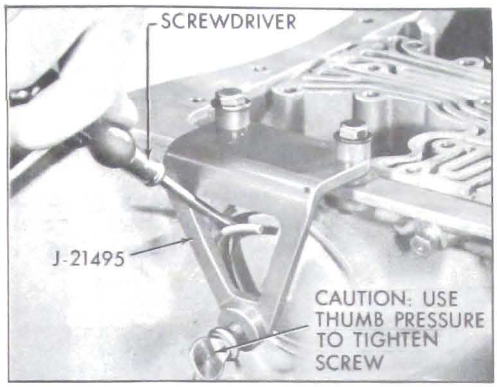


Figure 5-123

2. Remove low servo cover snap ring. Use Tool J-21495 to compress servo cover so snap ring can be removed. See Fig-5-123.

NOTE: Use thumb pressure only to tighten screw on Tool J-21495.

Figure 5-124

3. Remove tool J-21495-1 from case. Remove low servo cover.

NOTE: If necessary aid removal with screwdriver. See Figure 5-124.

NOTE: If low servo cover has to be replaced make certain all model information is stamped on new cover.

4. Inspect low servo cover seal.

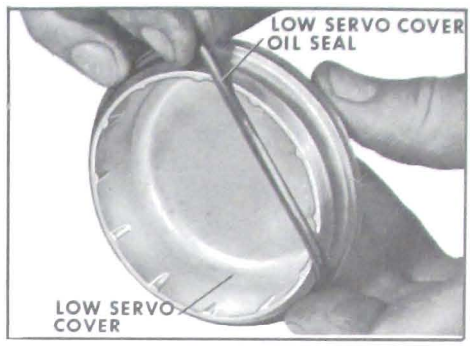


Figure 5-125

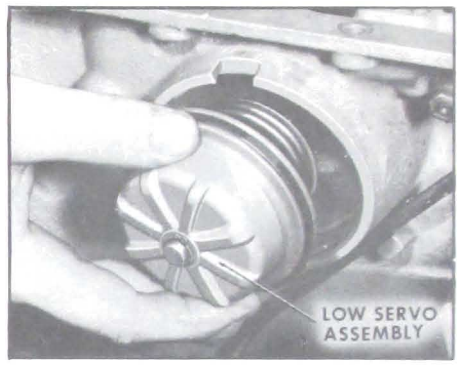


Figure 5-126

If nicked, torn or worn discard. See Figure 5-125.

5. Remove low servo piston assembly from case. See Figure 5-126.

NOTE: When removing low servo cover take extreme care not to disturb low band apply strut.

5-11 REMOVAL OF OIL PUMP, FORWARD CLUTCH, AND LOW BAND

a. Removal of Oil Pump

1. With transmission in vertical position, remove eight (8) pump attaching bolts with "O" ring seals, then install Slide Hammers J-7004 into threaded holes in pump. Using slide hammers, loosen pump from case. Remove pump and gasket from case. See Figure 5-127.

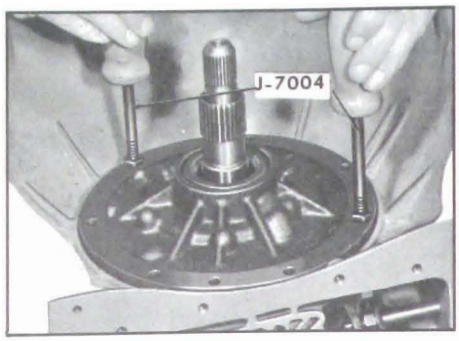


Figure 5-127

b. Removal of Forward Clutch

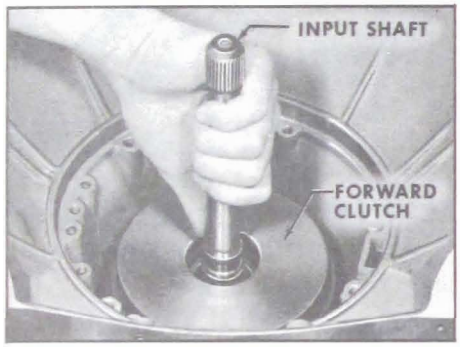


Figure 5-128

1. Remove input shaft from forward clutch drum. See Figure 5-128.

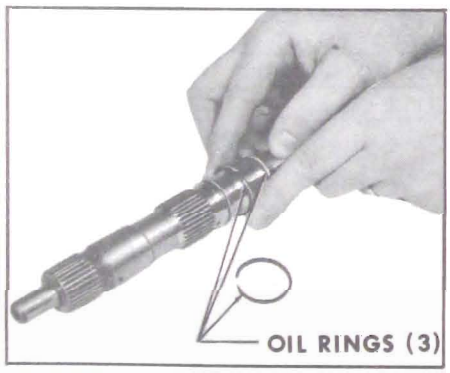


Figure 5-129

2. Examine input shaft oil rings. If nicked or worn, remove rings. See Figure 5-129.

3. Remove forward clutch assembly by pulling straight out of case. Make certain low band has been released before attempting to remove forward clutch. See Figure 5-130.

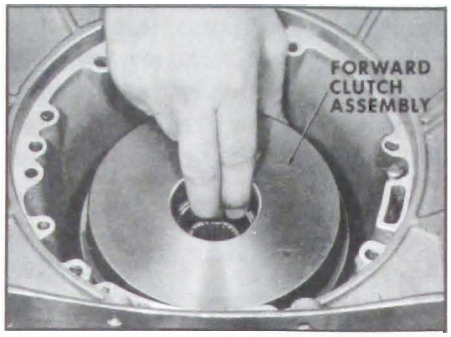


Figure 5-130

c. Removal of Low Band

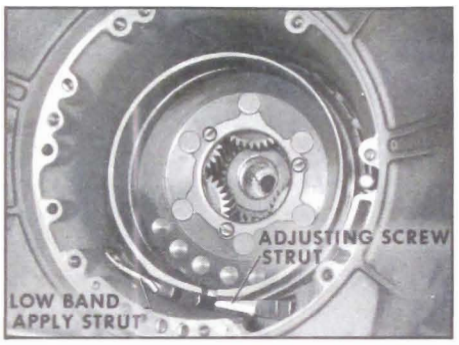


Figure 5-131

1. Remove low band and struts from inside the case. See Figure 5-131.

2. Remove low band adjusting screw. See Figure 5-132.

5-12 REMOVE SPEEDOMETER DRIVEN GEAR, REAR BEARING RETAINER, RETAINER OIL SEAL RETAINER BUSHING, AND GOVERNOR

a. Removal of Speedometer Driven Gear

NOTE: Transmission need not be removed from the car to perform the following operations, paragraphs 5-12 and 5-13.

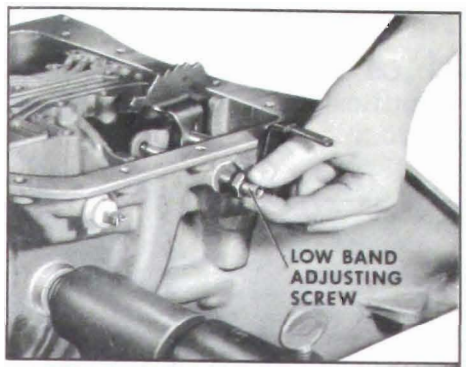


Figure 5-132

1. With transmission in horizontal position, remove speedometer driven gear sleeve retainer with a 1/2" wrench. See Figure 5-133.

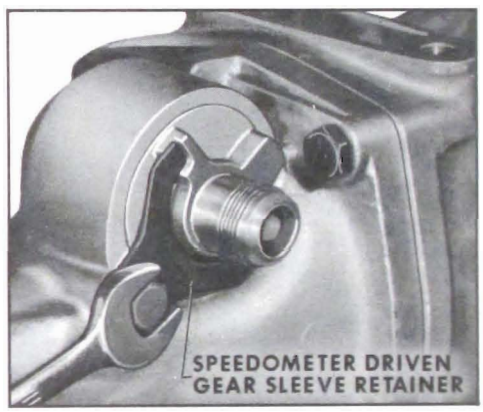


Figure 5-133

2. Remove speedometer driven gear sleeve. See Figure 5-134.

Figure 5-134

b. Removal of Rear Bearing Retainer

1. Remove four (4) rear bearing retaining bolts with a 9/16"

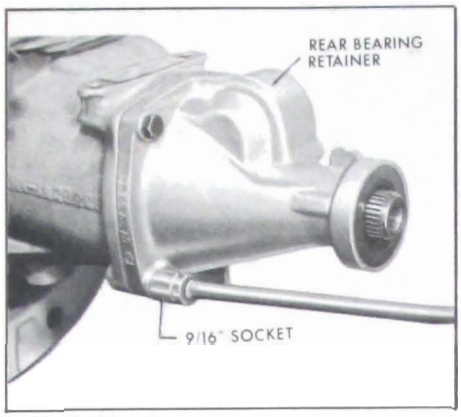


Figure 5-135

socket. Remove rear bearing retainer from case. See Figure 5-135.

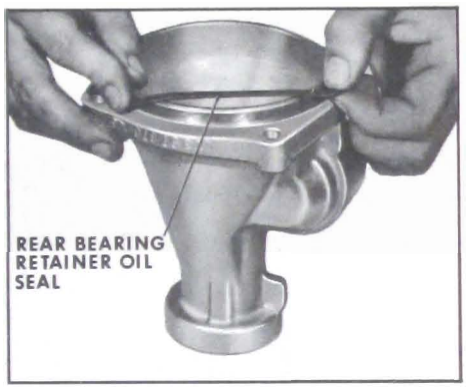


Figure 5-136

2. Remove rear bearing retainer oil seal. See Figure 5-136.

c. Removal of Rear Bearing Retainer Oil Seal

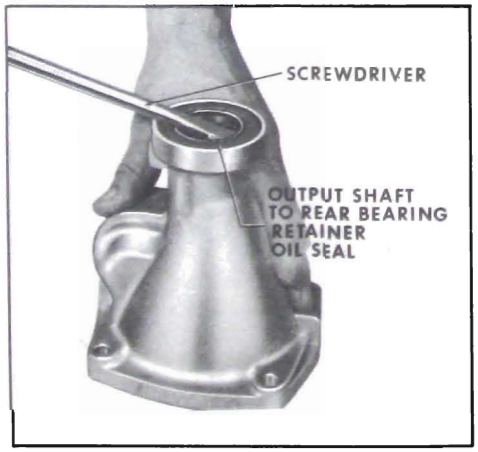


Figure 5-137

1. Inspect and if necessary remove output shaft to rear bearing retainer oil seal. See Figure 5-137.

d. Removal of Rear Bearing Retainer Bushing

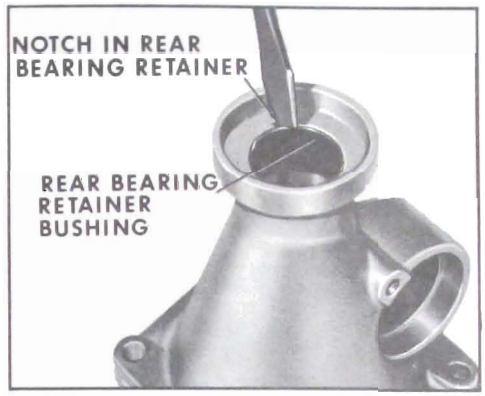


Figure 5-138

1. Inspect and if necessary replace rear bearing retainer bushing. Place screwdriver in notch in rear bearing retainer, then tap screwdriver with hammer to collapse bushing. See Figure 5-138.

e. Removal of Governor

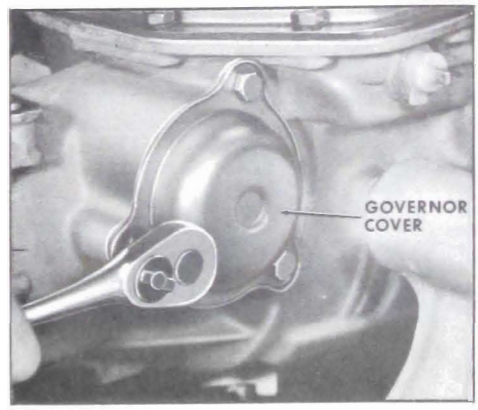


Figure 5-140

1. Remove three (3) attaching bolts retaining governor cover to case using a 1/2" socket. Remove cover and gasket. See Figure 5-140.

2. With a twisting motion slide governor assembly out of its bore in case. See Figure 5-141.

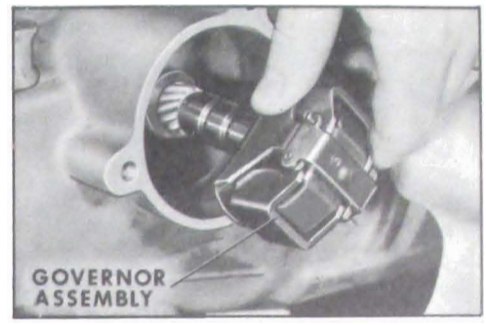


Figure 5-141

5-13 SPEEDOMETER DRIVE GEAR AND VACUUM MODULATOR

a. Removal of Speedometer Driving Gear

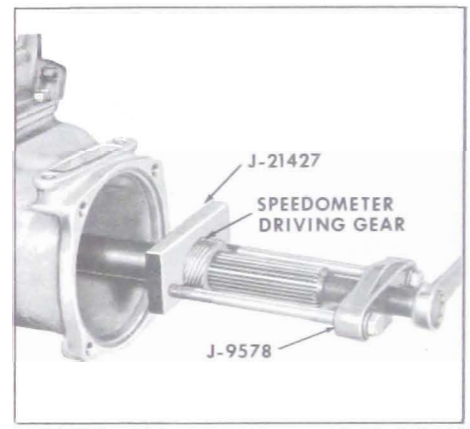


Figure 5-142

1. Place transmission in Park range, then remove speedometer driving gear with J-9578. See Figure 5-142.

2. When removing speedometer driving gear on extended wagons use slide hammer bolts in conjunction with detail J-9578.

b. Removal of the Vacuum Modulator Assembly

1. Remove vacuum modulator retainer bolt and retainer using a 1/2" socket. Remove vacuum modulator and valve assembly. See Figure 5-143.

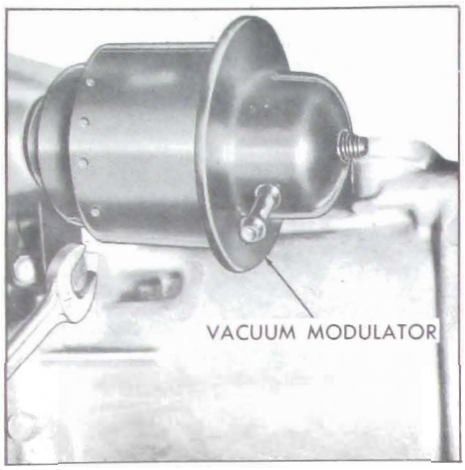


Figure 5-143

2. Inspect and if necessary remove vacuum modulator to case oil seal. See Figure 5-144.

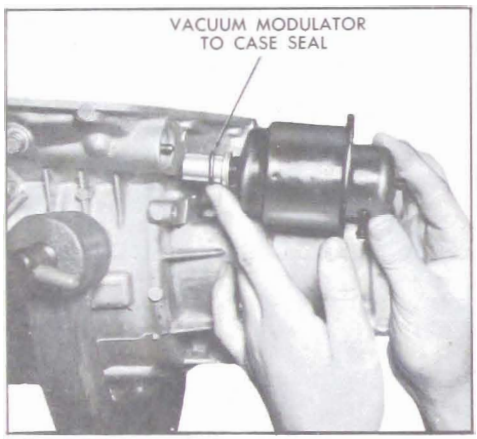


Figure 5-144

5-14 REMOVAL OF PLANETARY GEAR SET, REVERSE CLUTCH AND PARKING LOCK MECHANISM

a. Removal of Planetary Gear Set

1. Remove planet carrier assembly from case, using care not to damage case bushing. See Figure 5-145.

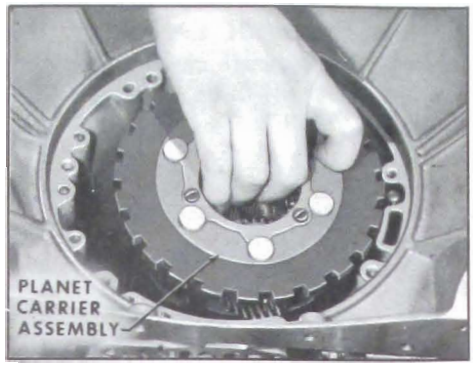


Figure 5-145

2. Remove reverse ring gear from case. See Figure 5-146.

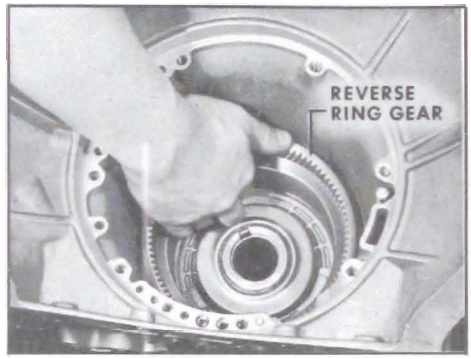


Figure 5-146

3. Remove needle bearing and two (2) bearing races from rear of planet carrier. See Figure 5-147.

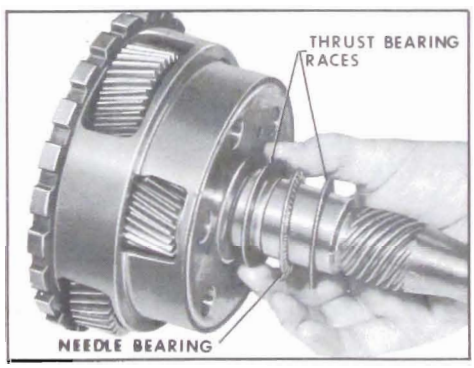


Figure 5-147

b. Removal of Reverse Clutch

1. Place transmission in vertical position and remove reverse clutch pack snap ring with screwdriver. See Figure 5-148.

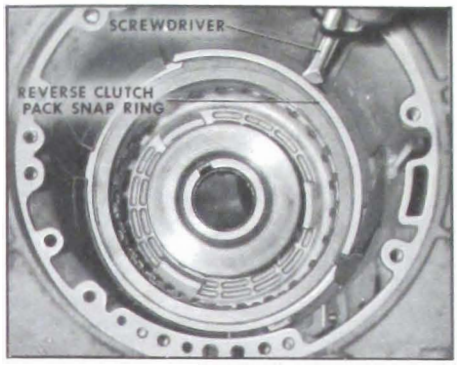


Figure 5-148

2. Lift reverse clutch pressure plate from transmission case. See Figure 5-150.

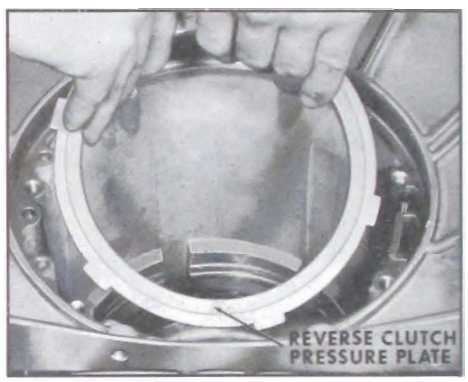


Figure 5-150

3. Remove reverse clutch pack from transmission case. See Figure 5-151.

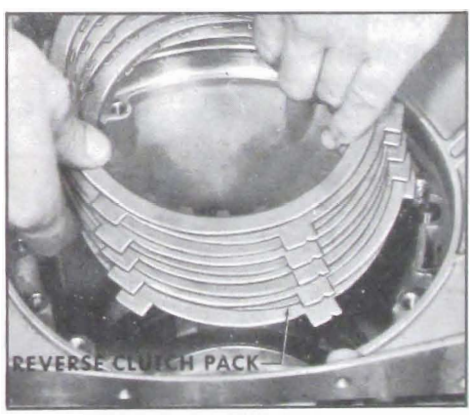


Figure 5-151

4. Remove reverse clutch cushion spring. See Figure 5-152.

5. To remove reverse piston, center Tool J-21420-1 on reverse

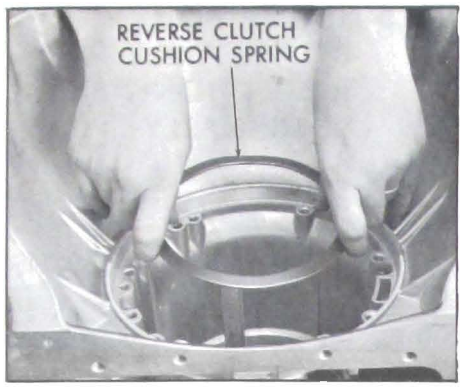


Figure 5-152

piston return seat. Install Flat Plate J-21420-2 over threaded shaft at rear of case. Tighten wing nut to compress piston return seat; then remove snap ring with Pliers J-5586. See Figure 5-153.

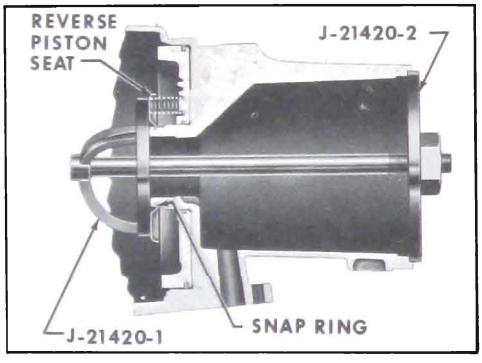


Figure 5-153

6. Remove Tool J-21420-2 being careful that piston return seat does not catch in snap ring groove. Lift off piston return seat and remove seventeen (17) piston return springs. See Figure 5-154.

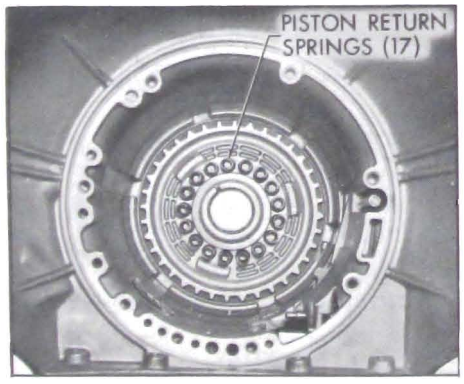


Figure 5-154

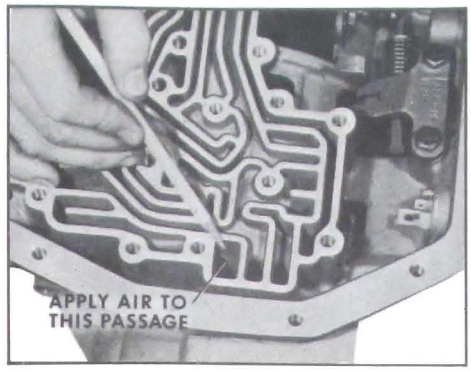


Figure 5-155

7. Place transmission in a horizontal position and remove reverse clutch piston with compressed air. As air is applied to the rear surface of the piston, it will pop out far enough so it can be removed. Insert air nozzle to rear of case as shown in figure. See Figure 5-155.

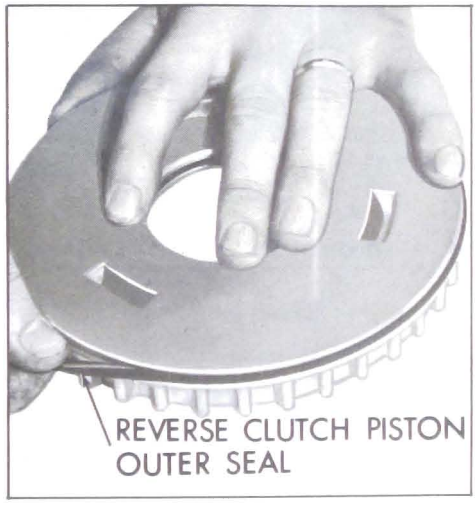


Figure 5-156

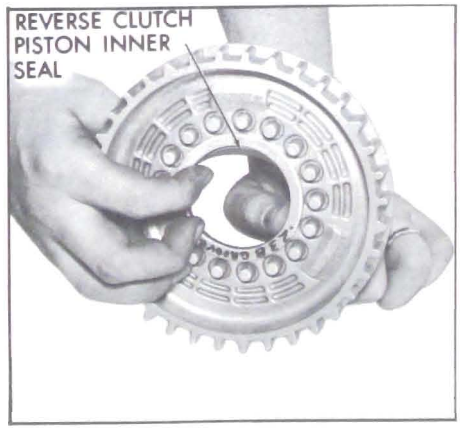


Figure 5-157

8. Examine reverse clutch piston outer seal. If nicked, torn or worn, remove seal. See Figure 5-156.

9. Examine reverse clutch piston inner seal. If nicked, torn or worn, remove seal. See Figure 5-157.

c. Removal of Range Selector Lever and Shaft, and Parking Lock Actuator

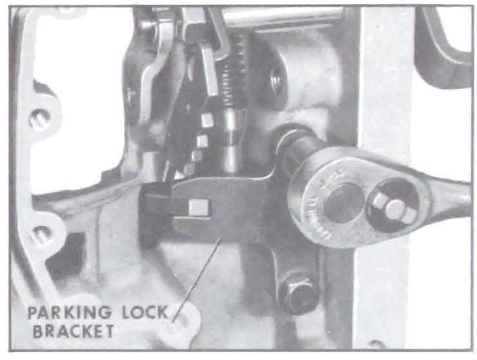


Figure 5-158

1. Remove two (2) parking lock bracket bolts with 1/2" socket. Remove parking lock bracket. See Figure 5-158.

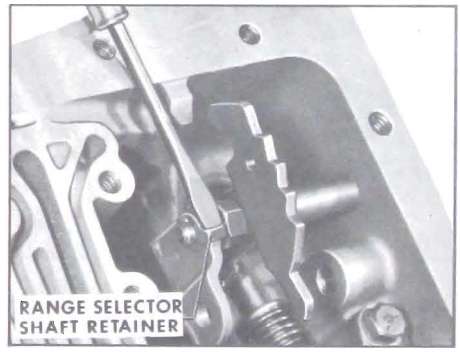


Figure 5-160

2. Remove range selector shaft retainer. See Figure 5-160.

3. With a 9/16" wrench fully loosen nut that retains outer range selector lever to inner park lock and range selector lever. See Figure 5-161.

4. Slide outer range selector lever out of case. Remove nut,

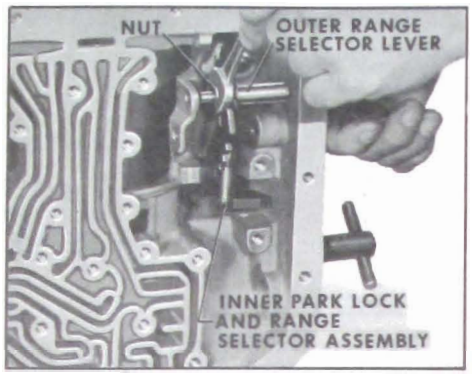


Figure 5-161

inner park lock and range selector lever. See Figure 5-162.

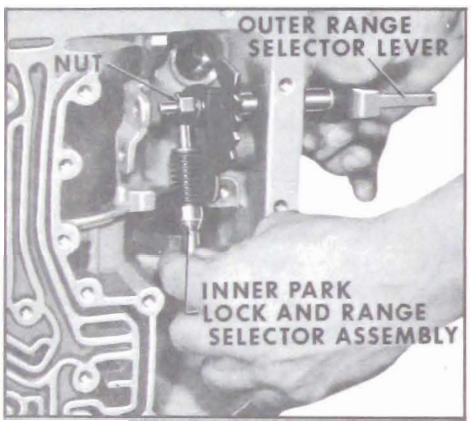


Figure 5-162

5. Remove retaining ring which holds inner park lock and range selector to park lock assembly. See Figure 5-163.

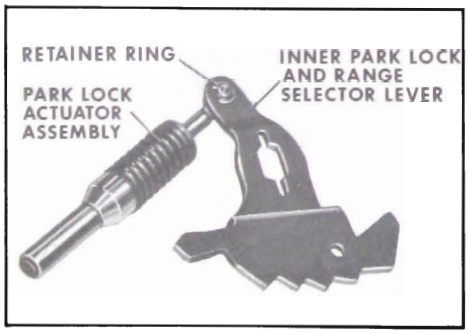


Figure 5-163

6. Slide parking lock pawl shaft out of parking lock pawl. Remove parking lock pawl and spring. See Figure 5-164.

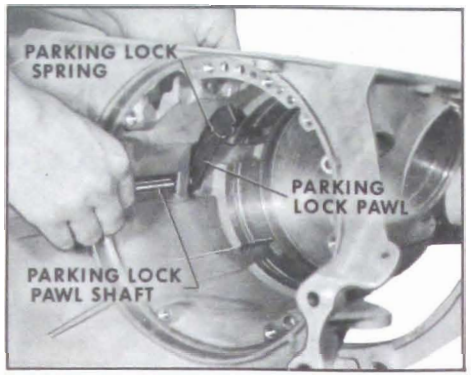


Figure 5-164

7. Examine outer shift lever oil seal. If nicked, torn or worn, replace seal. See Figure 5-165.

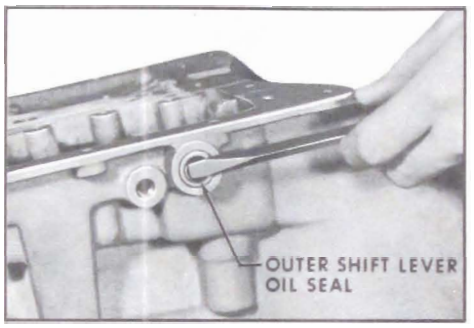


Figure 5-165

d. Removal of Case Bushing

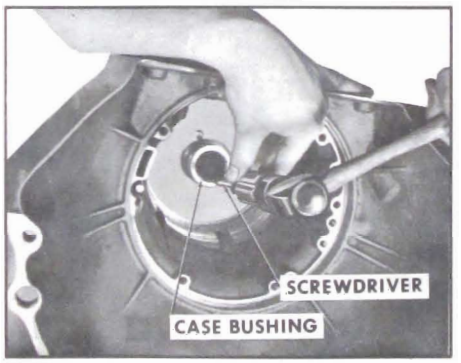


Figure 5-166

1. Inspect case bushing for nicks, scoring or excessive wear. If damaged, replace as follows: Place screwdriver in notch in case, then tap screwdriver with hammer to collapse bushing. See Figure 5-166.

5-15 VALVE BODY DISASSEMBLY INSPECTION AND REASSEMBLY

a. Disassembly

NOTE: Transmission need not be removed from the car to perform the following operations. Paragraphs 5-15, 5-16 and 5-17.

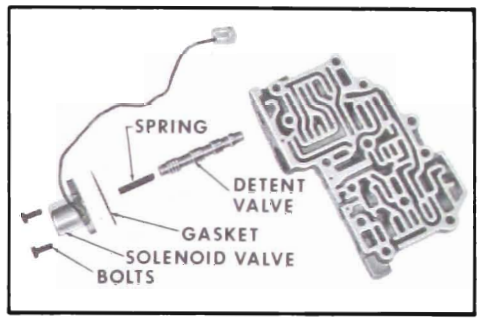


Figure 5-167

1. Remove two (2) bolts attaching stator and detent solenoid valve. Remove the solenoid valve, gasket, spring and stator and detent valve. See Figure 5-167.

NOTE: Notice cutout notch on solenoid valve gasket.

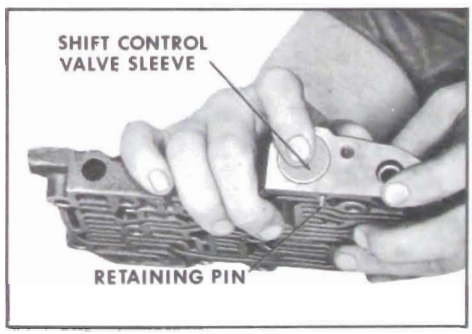


Figure 5-168

2. Depress shift control valve sleeve and remove retaining pin by turning valve body over so pin will fall free. Remove shift control valve sleeve, shift control valve, spring, washer, and shift valve. See Figure 5-168.

3. Depress modulator limit spring with Tool J-21547-1. Turn

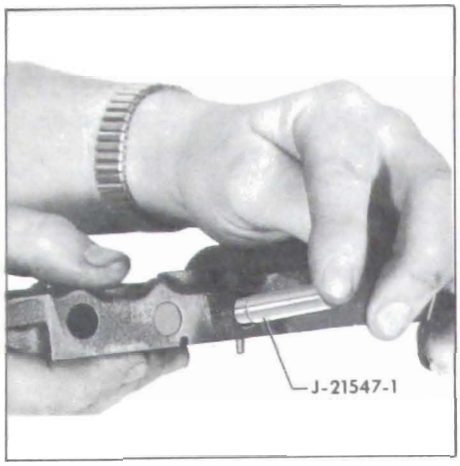


Figure 5-170

valve body over and retaining pin will fall free. Remove spring and valve from body. See Figure 5-170.

NOTE: Modulator limit spring is under moderate pressure. Care should be exercised in removal.

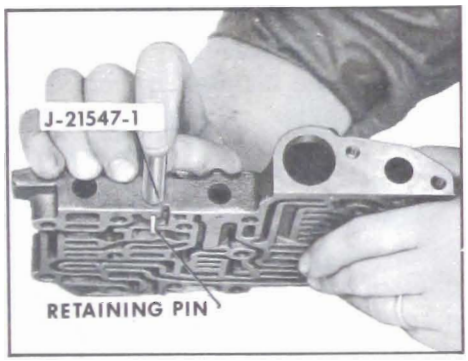


Figure 5-171

4. Depress high speed down shift timing valve plug and remove pin by turning valve body over so pin will fall free. See Figure 5-171.

b. Inspection

1. Thoroughly clean all valves and valve body in solvent. Inspect valves and valve body for evidence of wear or damage due to foreign material. Dry valve body and valves with clean air blast.

2. Test each valve in its bore. All valves must move freely of their own weight.

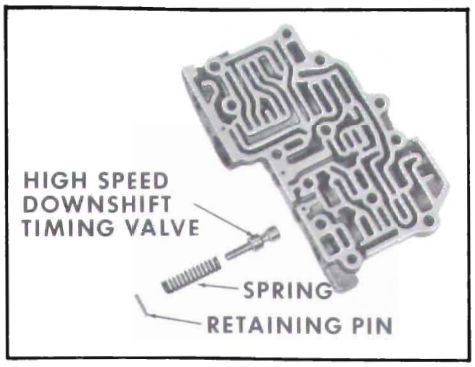


Figure 5-172

c. Reassembly of Valve Body

1. Install high speed down shift timing valve and spring. Depress spring with J-21547 and install retaining pin. See Figure 5-172.

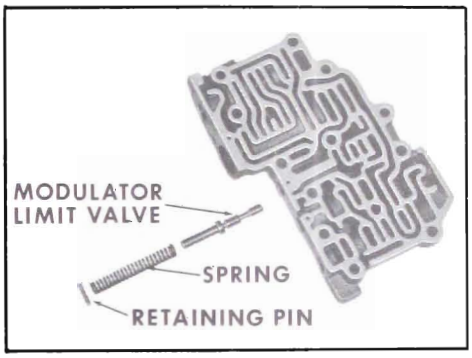


Figure 5-173

2. Install modulator limit valve, and spring into bore of valve body. With aid of Tool J-21547 compress spring and install retaining pin. See Figure 5-173.

3. Install shift valve, washer, spring, shift control valve and shift control valve sleeve. Depress shift control valve sleeve

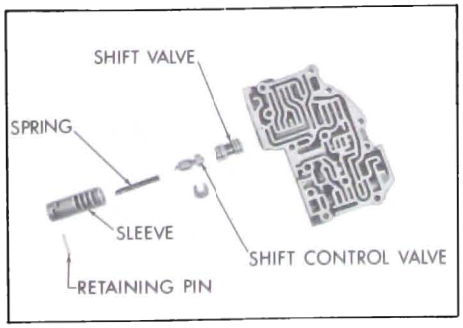


Figure 5-174

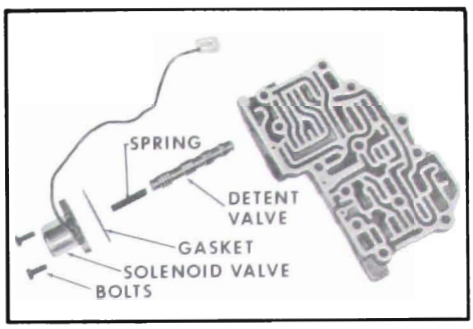


Figure 5-175

with thumb and install retaining pin. See Figure 5-174.

4. Install detent valve and spring. Install gasket to solenoid with notch facing bottom of valve body. Install solenoid to valve body using two 7/16" bolts. See Figure 5-175.

5-16 STATOR CONTROL VALVE BODY DISASSEMBLY AND REASSEMBLY

a. Disassembly

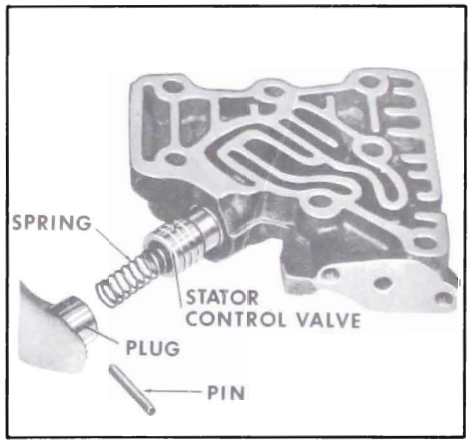


Figure 5-176

1. Compress stator control valve plug. Turn valve body over and retaining pin will fall free. Remove plug, spring and valve from body. See Figure 5-176.

b. Reassembly

2. Install stator control valve, spring and plug into bore of valve

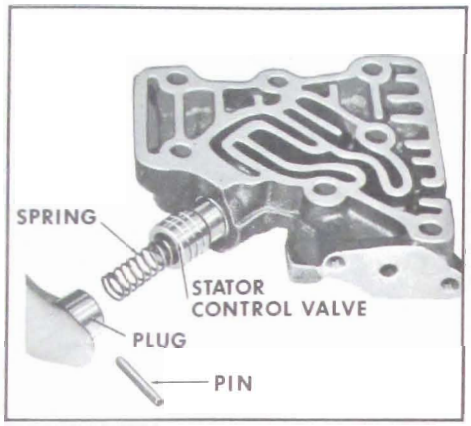


Figure 5-177

body. Compress plug and install retaining pin. See Figure 5-177.

5-17 LOW SERVO DISASSEMBLY AND REASSEMBLY

a. Disassembly

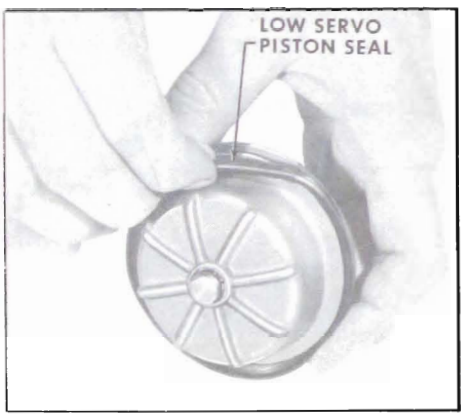


Figure 5-177A

1. Remove low servo piston seal. See Figure 5-177-A.

2. Compress low servo piston. EXTREME CAUTION MUST BE TAKEN WHEN THE LOW SERVO IS BEING COMPRESSED. Install J-9522-2 to hydraulic ram. Install J-21421-1 on top of servo piston. Install a piece of metal 6" x 1-1/2" x 1/2 between J-9522-2 and J-21421-1. Using hydraulic press compress piston and remove retaining pin.

NOTE: After retaining pin has been removed released hydraulic ram very slowly. See Figure 5-178.

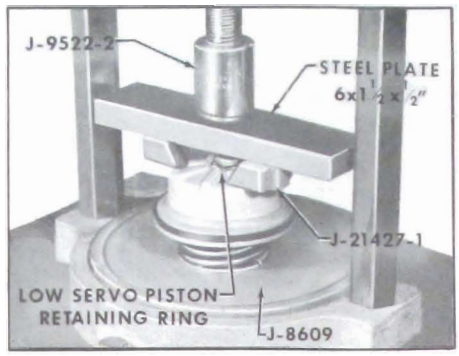


Figure 5-178

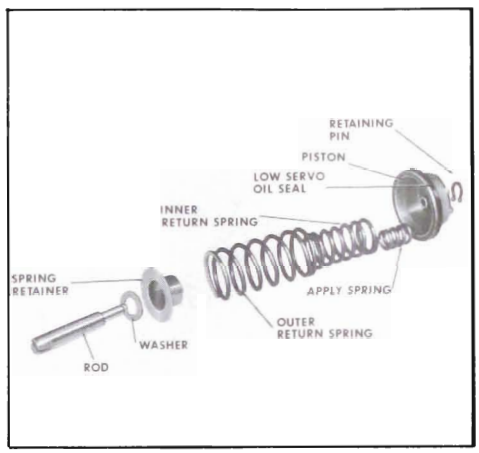


Figure 5-179

3. After hydraulic ram has been released remove piston low servo apply piston spring inner, outer return springs, spring retainer, washer and piston apply rod. See Figure 5-179.

b. Reassembly

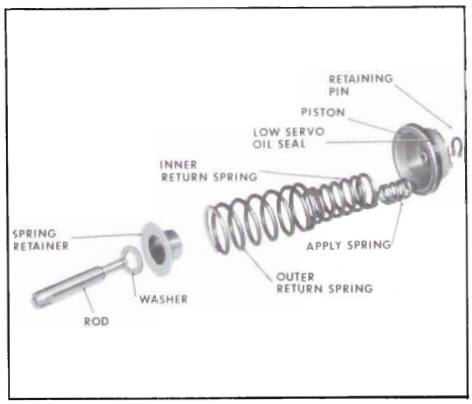


Figure 5-180

1. Assemble the inner and outer return springs into the piston. Install spring retainer. See Figure 5-180. Install this assembly into the ram press as shown in Figure 5-180.

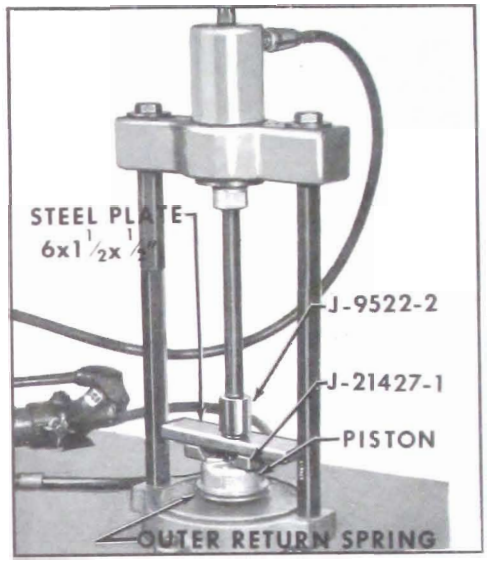


Figure 5-181

2. Assemble tools on top of piston in same manner as removing. Center spring retainer over hole in press Plate J-8690. Compress springs. Install piston apply rod and washer through hole in press plate and install retainer pin.

CAUTION: BEFORE RELEASING RAM MAKE CERTAIN RETAINER RING IS PROPERLY INSTALLED.

Install low servo piston seal. See Figure 5-181.

5-18 DISASSEMBLY, INSPECTION, AND THE REASSEMBLY OF THE OIL PUMP

a. Disassembly

1. Remove the two (2) hook type oil sealing rings from pump hub. See Figure 5-182.

2. Remove pump cover to forward clutch drum thrust washer. See Figure 5-183.

Figure 5-182

Figure 5-183

3. Remove oil pump to case seal and discard. See Figure 5-184.

Figure 5-184

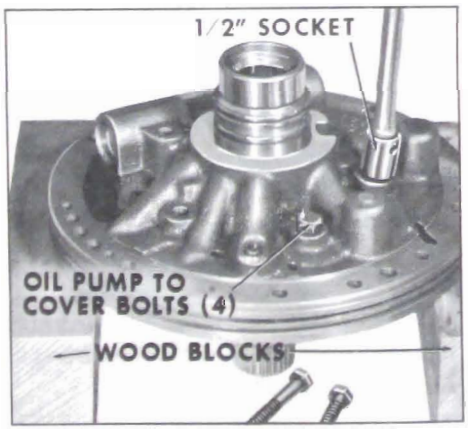


Figure 5-185

4. Support oil pump on wood blocks. Remove five (5) pump cover bolts with a 1/2" socket. Remove pump cover. See Figure 5-185.

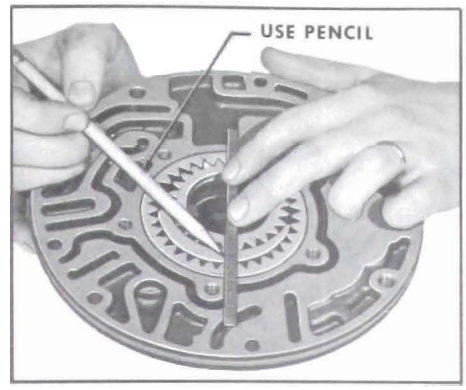


Figure 5-186

5. Mark, but do not scar, gear faces so gears can be reassembled in same manner. See Figure 5-186.

Figure 5-187

6. Remove oil pump drive gear. See Figure 5-187.

Figure 5-188

7. Remove oil pump driven gear. See Figure 5-188.

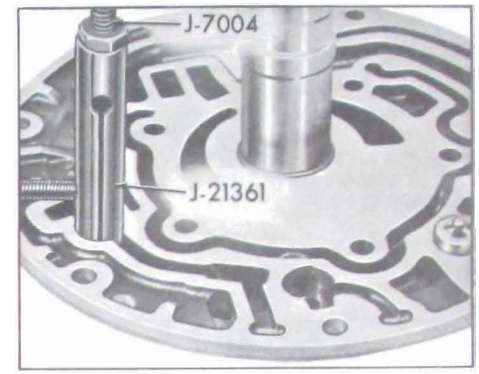


Figure 5-190

8. Remove seat, valve and spring from cooler by-pass valve. Use Tool J-21361 to remove seat from bore in pump cover. See Figure 5-190.

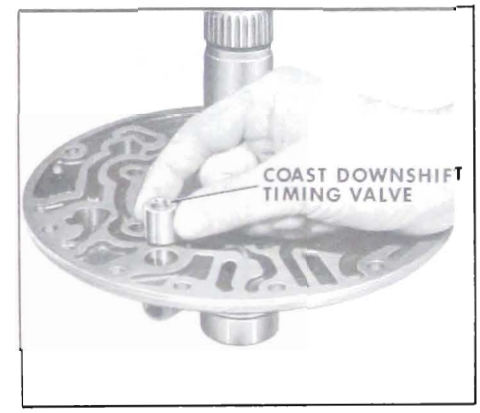


Figure 5-191

9. Remove coast down shift timing valve from the pump cover and inspect for damage. Carefully check to be sure the spring returns the ball to its seat. See Figure 5-191.

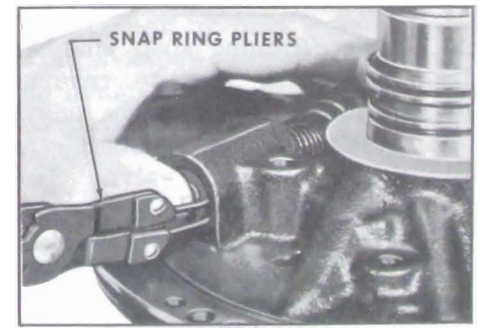


Figure 5-192

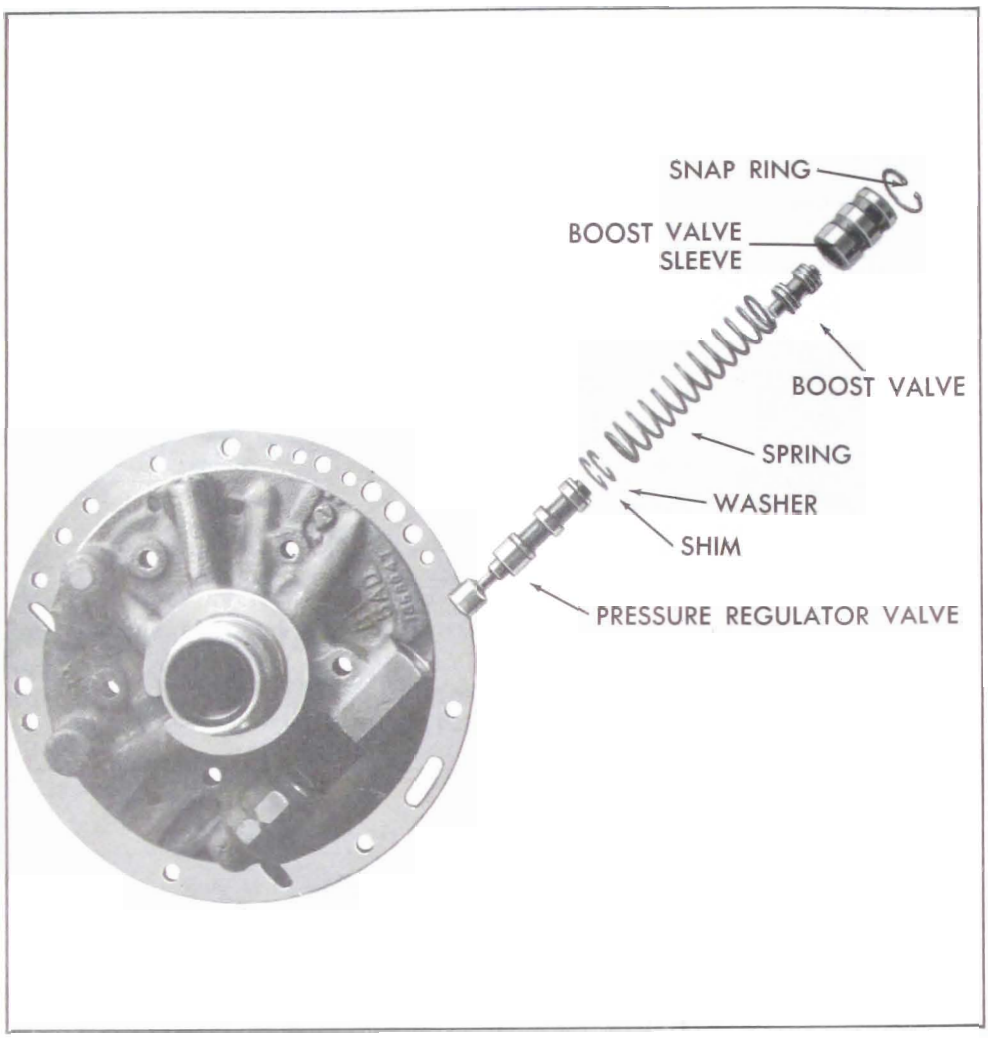


Figure 5-193

10. Compress reverse and modulator boost valve with thumb and remove retaining snap ring. See Figure 5-192.

CAUTION: Reverse and modulator boost valve sleeve is under extreme spring pressure. Extreme care should be taken after retaining snap ring has been removed.

11. After retaining snap ring has been removed, remove reverse and modulator boost valve sleeve and valve, spring, washer, and pressure regulator valve. See Figure 5-193.

12. Examine oil pump seal. If nicked, torn or worn remove seal as follows: Support oil pump body on wood blocks. Remove oil seal

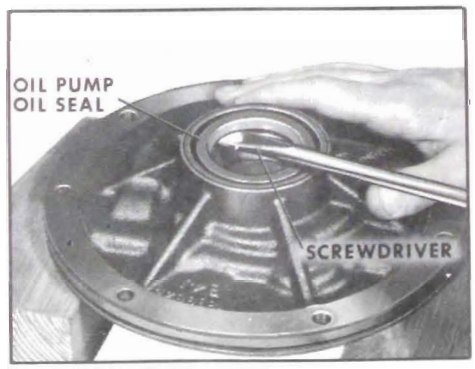


Figure 5-194

with a screwdriver and discard. See Figure 5-194.

13. Check oil pump bushing for nicks, severe scoring or wear. If bushing replacement is necessary proceed as follows: Support pump on wood blocks using Tool J-21465-17 and Drive Handle

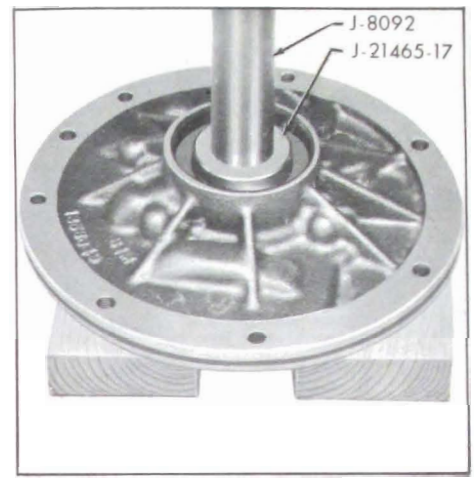


Figure 5-195

J-8092. Press bushing out of pump body. See Figure 5-195.

14. Check stator shaft bushing for

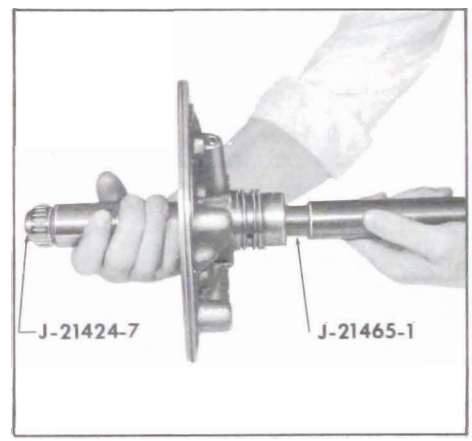


Figure 5-196

nicks, severe scoring or wear. If bushing replacement is necessary proceed as follows: Assemble Bushing Remover J-21424-7 to Extension J-21465-13. Assemble this assembly to Drive Handle J-8092. Grasp stator shaft with hand using other hand and assembled tool drive out bushing. See Figure 5-196.

b. Inspection

1. Wash all parts in a cleaning solvent and blow out oil passages with compressed air.

2. Inspect pump gears for nicks or damage.

Figure 5-197

3. Inspect pump body for nicks or scoring.

4. Check condition of bushing in oil pump body.

5. With parts clean and dry, install pump gears, noting mark on gears for identification of the side that faces the pump cover. After gears have been installed, proceed as follows:

a. Install pump on converter hub. With dial indicator set check end clearance. The clearance allowed is .0005/.0035. See Figure 5-197.

c. Reassembly

1. Using Tool J-21465-17 press new bushing into pump body until it is flush with top of pump hub. See Figure 5-198.

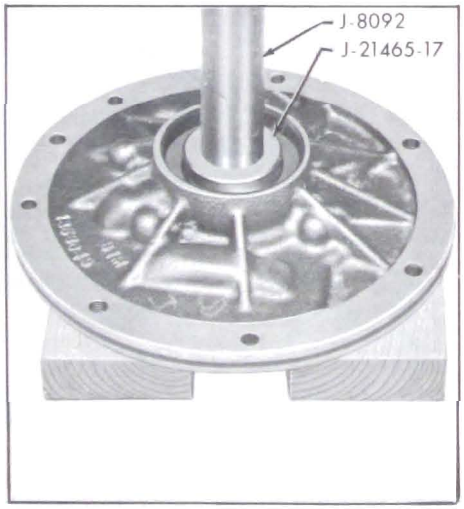


Figure 5-198

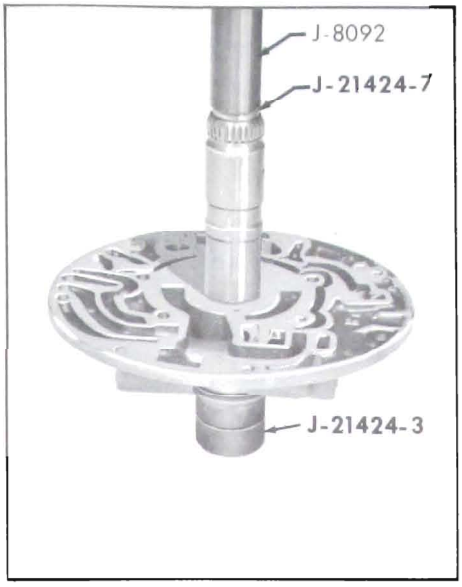


Figure 5-200

2. Install stator shaft bushing as follows: Support pump assembly on J-21424-3 before installing bushing. Install bushing into the front end of stator shaft. Using Installer J-2142-7 and Drive Handle J-8092 tap bushing into shaft until it bottoms in counterbore.

NOTE: Extreme care must be taken so bushing is not driven past counterbore.

3. Using Installer J-21359 tap in new oil seal. See Figure 5-201.

4. Install new oil pump to case seal. See Figure 5-202.

5. Assemble pressure regulator valve, washer, spring, reverse

Figure 5-201

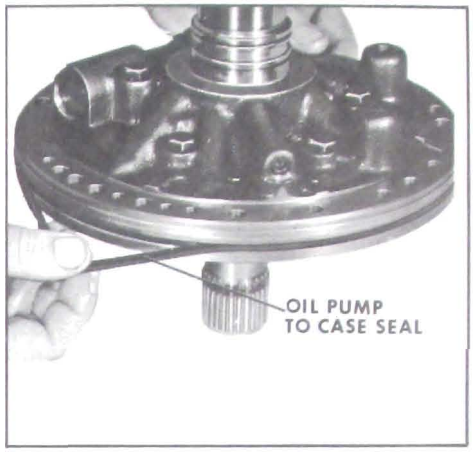


Figure 5-202

and modulator boost valve and sleeve. See Figure 5-203.

When installing spring and shim make certain the same springs and the proper number of shims are installed.

Color of Spring	Number of Shims
Yellow	None
Blue	One
Green	Two
Actual number of shims may vary to meet production standards.	

6. Compress reverse and modulator boost valve with thumb, then install retaining snap ring. See Figure 5-204.

7. Install coast down shift timing valve "button end" up in cover. See Figure 5-205.

8. Install spring, valve, and seat into cooler by-pass valve. Using Tool J-21558 press seat into bore of pump body until tool bottoms on face of pump. See Figure 5-206.

NOTE: Thrust washer and oil pump sealing ring will be installed during later operation.

9. Install pump cover to pump body. Install five (5) retaining

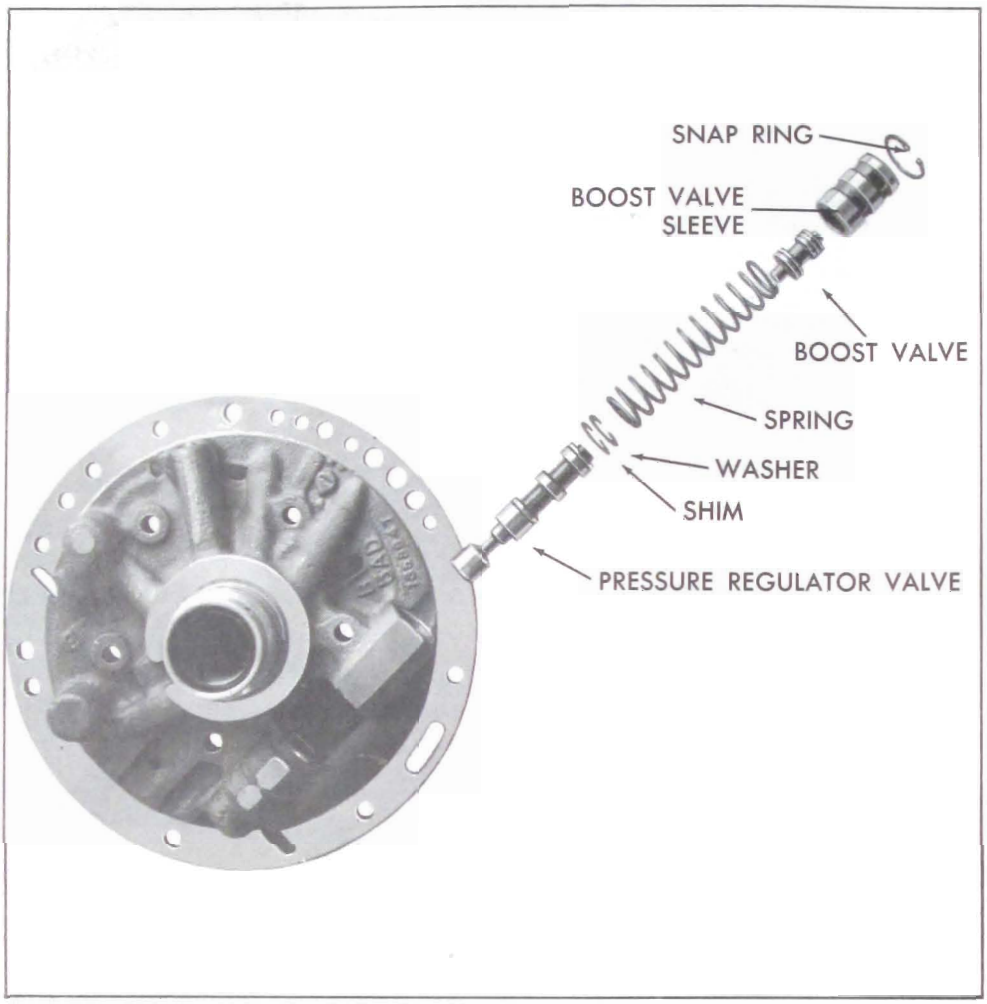


Figure 5-203

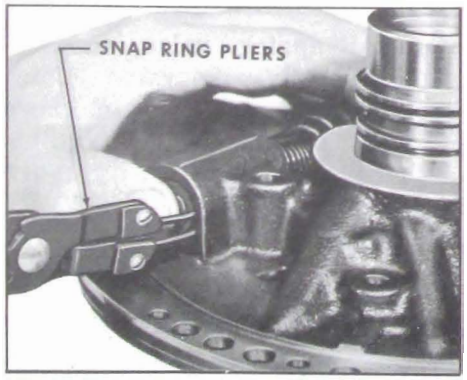


Figure 5-204

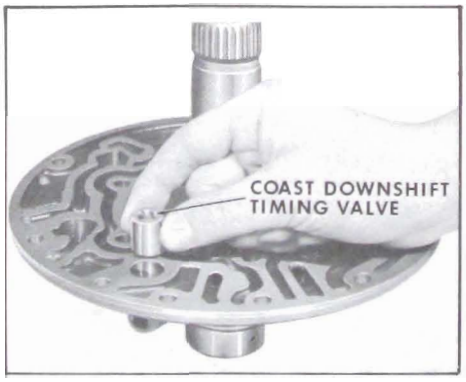


Figure 5-205

Figure 5-206

bolts but do not tighten. Place Tool J-21368 around pump to obtain proper alignment. Tighten bolts to 16-24 ft. lbs. torque. See Figure 5-207.

NOTE: The bolt location at the pressure regulator takes a longer bolt.

5-19 DISASSEMBLY, INSPECTION, AND REASSEMBLY OF FORWARD CLUTCH

a. Disassembly

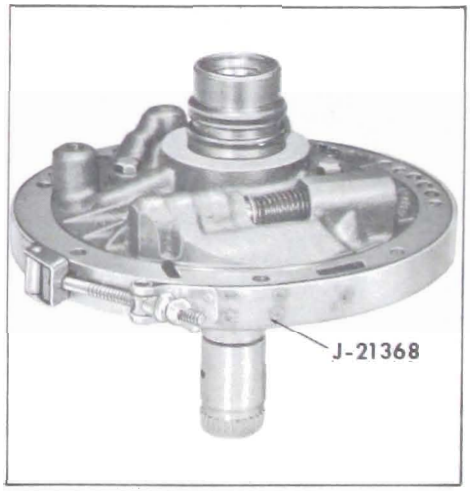


Figure 5-207

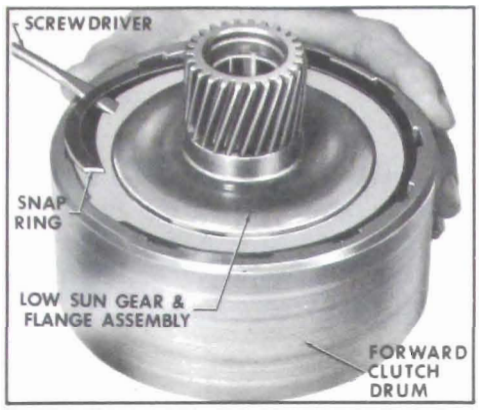


Figure 5-208

1. Remove low sun gear and flange assembly retaining snap ring. See Figure 5-208.

Figure 5-210

2. Remove low sun gear and flange assembly. See Figure 5-210.

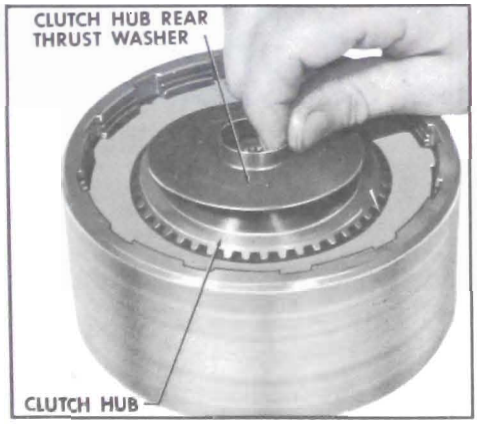


Figure 5-211

3. Remove clutch hub rear thrust washer. See Figure 5-211.

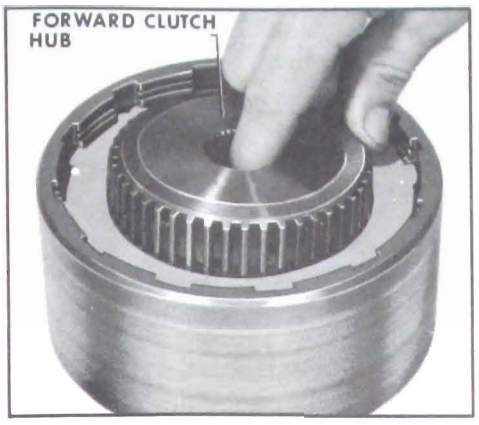


Figure 5-212

4. Lift forward clutch hub from clutch pack. See Figure 5-212.

Figure 5-213

5. Remove clutch hub front thrust washer. See Figure 5-213.

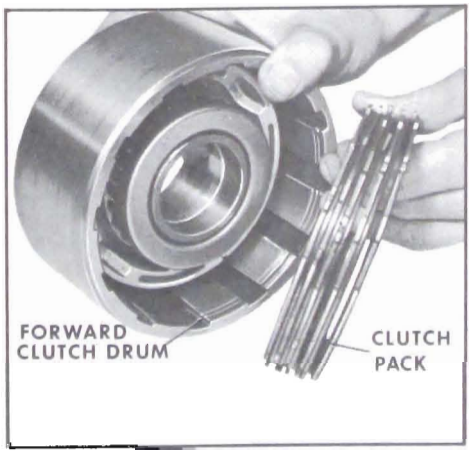


Figure 5-214

6. Remove clutch pack from forward clutch drum. See Figure 5-214.

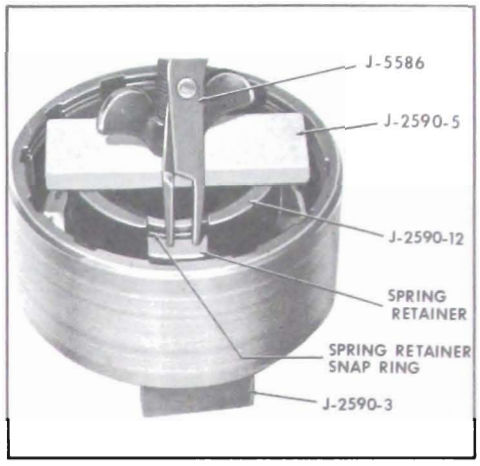


Figure 5-215

7. Using Tools J-2590-3, J-2590-5 and J-2590-12 compress spring retainer. Remove snap ring. Then remove Tool J-2590 and component parts, being careful that spring retainer does not catch in snap ring groove. See Figure 5-215.

NOTE: Place a piece of hard board between Tool J-2590-3 and surface of forward clutch hub.

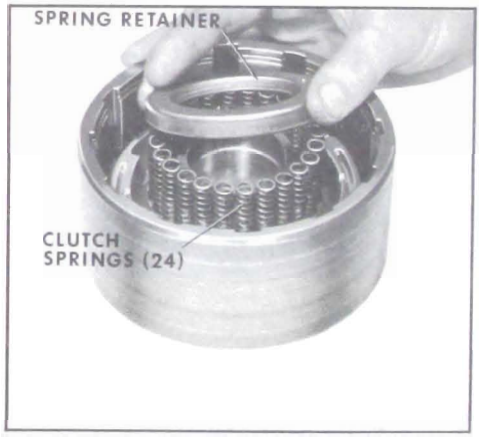


Figure 5-216

8. Lift off spring retainer and twenty-four (24) clutch springs. See Figure 5-216.

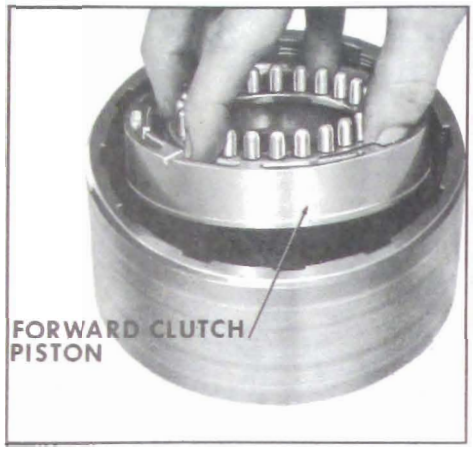


Figure 5-217

9. Lift up on forward clutch piston with a twisting motion and remove. See Figure 5-217.

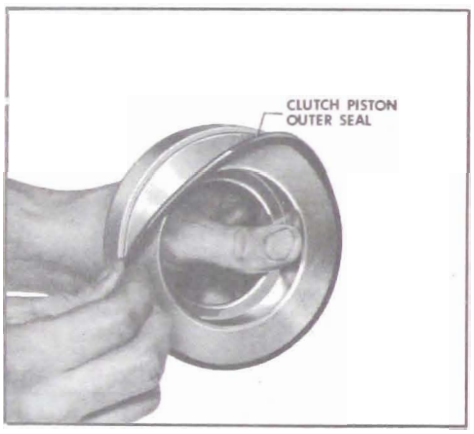


Figure 5-218

10. Examine forward clutch piston outer seal. If nicked, torn or worn, remove seal. See Figure 5-218.

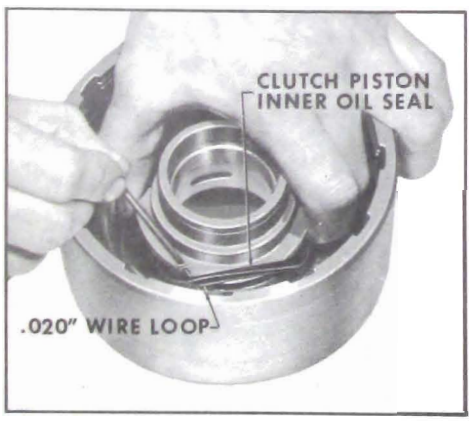


Figure 5-220

11. Examine forward clutch piston inner seal. If nicked, torn or worn, remove seal. See Figure 5-220.

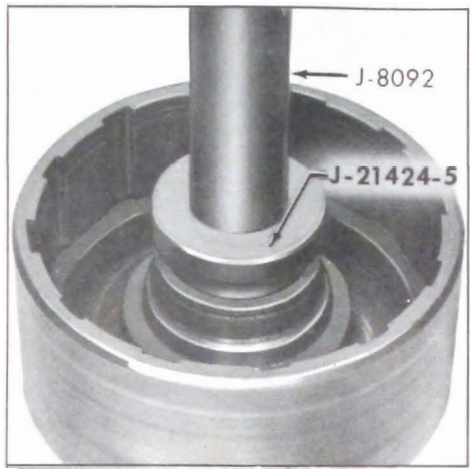


Figure 5-221

12. Check forward clutch drum bushing for nicks, severe scoring or wear. If bushing replacement is necessary proceed as follows: Using Tool J-21424-5, press damaged bushing from forward clutch drum. See Figure 5-221.

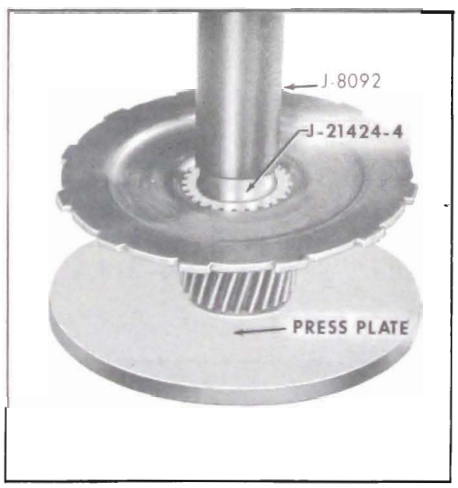


Figure 5-222

13. Check low sun gear and flange assembly bushing for nicks, severe scoring, or wear. If bushing replacement is necessary proceed as follows: Support low sun gear assembly on press plate using Tool J-21424-4 and Drive Handle J-8092 press out bushing. See Fig. 5-222.

b. Inspection

1. Wash all parts in a suitable cleaning solvent. Use compressed air to dry.

2. Check steel ball in the forward clutch drum. Be sure it is free to move in hole and that orifice leading to front of clutch drum is open.

3. Check clutch plates for wear or scoring.

c. Reassembly

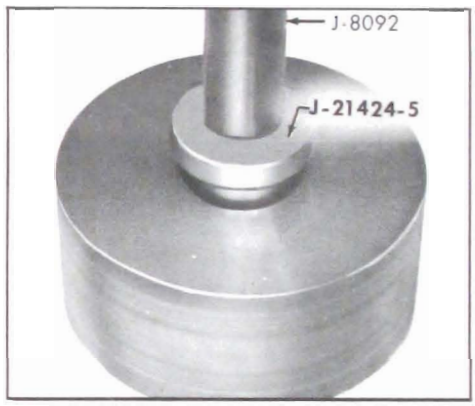


Figure 5-223

1. Install J-21424-5 in front of forward clutch drum. Using Drive Handle J-8092 press bushing into bore until Tool J-21424-5 bottoms on hub. See Figure 5-223.

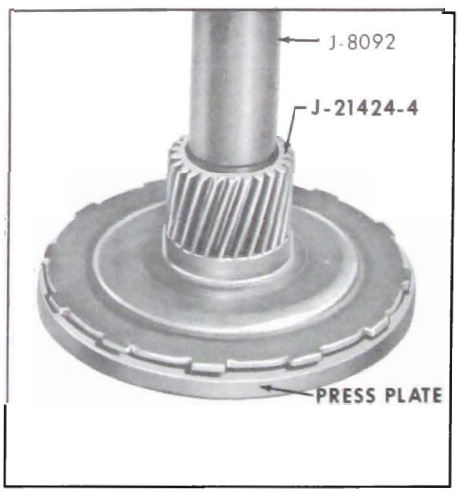


Figure 5-224

2. Install Tool J-21424-4 into low sun gear. Using Drive Handle

J-8092 press bushing into low sun gear until bushing installer is flush with top of low sun gear. See Figure 5-224.

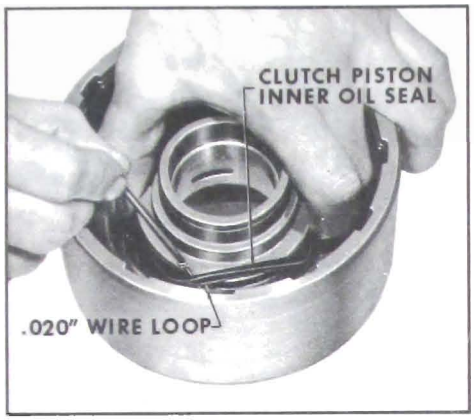


Figure 5-225

3. Lubricate with transmission oil and install new forward clutch piston inner seal with seal lip pointing downward. See Figure 5-225.

NOTE: Run hand around seal after it is installed to see if seal is fully in groove.

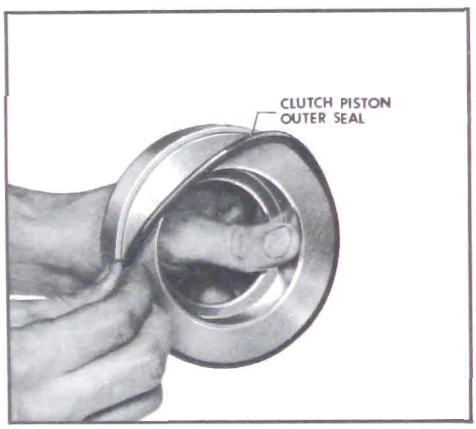


Figure 5-226

4. Lubricate with transmission oil and install new forward clutch piston outer seal in clutch piston. Seal lip must point down. See Figure 5-226.

5. Install forward clutch piston into clutch drum using a loop of smooth wire to start lip of seal into bore. Piston should turn freely. See Figure 5-227.

NOTE: A satisfactory tool can be made by crimping a loop of .020" music wire in a short length of copper tubing.

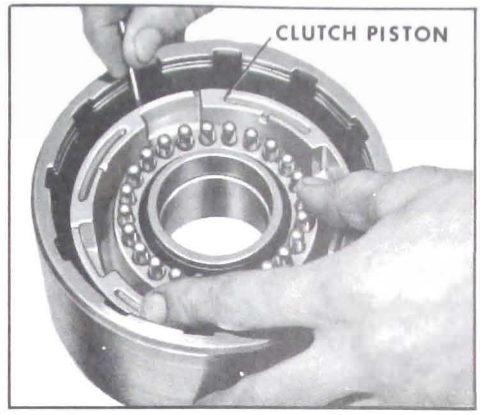


Figure 5-227

Figure 5-228

6. Carefully reassemble return springs, retainer and snap ring. See Figure 5-228.

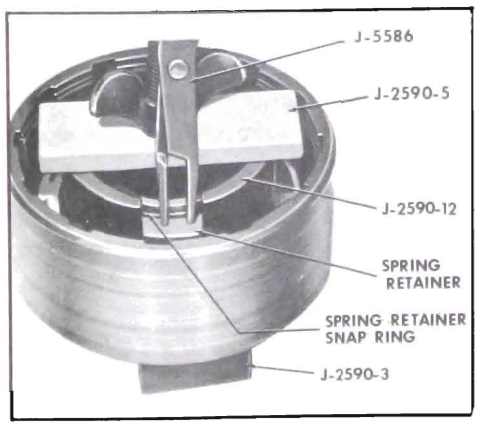


Figure 5-230

7. With spring retainer in place compress spring retainer with Tools J-2590-3, J-2590-4 and J-2590-5 far enough so the spring retainer snap ring can be installed. Make sure retainer doesn't catch in snap ring groove when compressing springs. See Figure 5-230.

NOTE: Place a piece of hard board between Tool J-2590-3 and forward clutch drum.

Figure 5-231

8. Install clutch hub front thrust washer to clutch hub (retain with grease) aligning tangs in clutch hub with grooves in thrust washer. Install clutch hub. See Figure 5-231.

Figure 5-232

9. Align notches on steel driven plates. Install steel driven plates and lined drive plates alternately, beginning with a steel driven plate. See Figure 5-232.

NOTE: Cars equipped with V-6 engines have 4 drive plates and 5 driven plates. Cars equipped with V-8 engines have 5 drive plates and 6 driven plates.

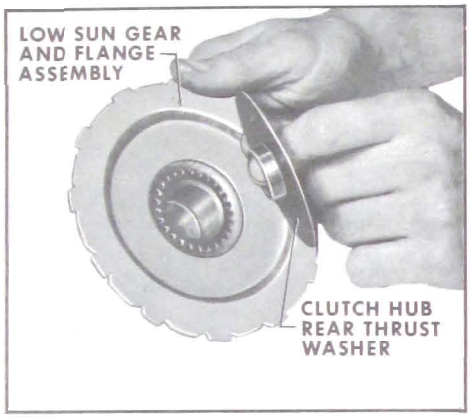


Figure 5-233

10. Install clutch hub rear thrust washer with its flange toward low sun gear and flange assembly. See Figure 5-233.

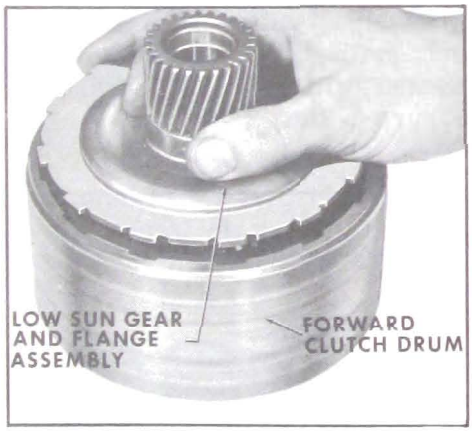


Figure 5-234

11. Install low sun gear and flange assembly. See Fig-5-234.

12. Install low sun gear and flange assembly retaining ring. Position snap ring so gap is centered between slots in drum. See Figure 5-235.

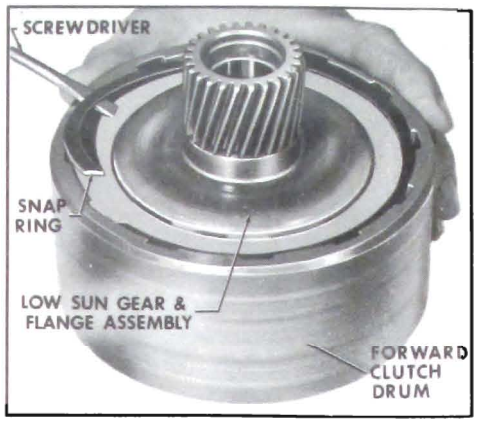


Figure 5-235

5-20 SPEEDO DRIVEN GEAR DISASSEMBLY, AND REASSEMBLY

NOTE: Transmission need not be removed from the car to perform the following operations. Paragraphs 5-20 and 5-21.

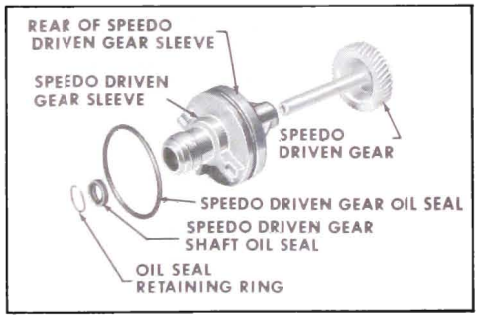


Figure 5-236

a. Disassembly

1. Remove speedo driven gear. See Figure 5-236.

2. Examine speedo driven gear oil seal. If nicked, torn or worn remove seal.

3. Examine speedo driven gear shaft oil seal. If nicked, torn or worn remove seal.

b. Reassembly

1. Install speedo driven gear shaft oil seal with lip of seal pointing toward rear of speedo gear sleeve. Install oil seal retaining ring.

2. Install speedo driven gear oil seal. See Figure 5-236.

3. Install speedo driven gear.

5-21 REMOVAL AND INSTALLATION OF GOVERNOR DRIVEN GEAR

Before any attempt is made to service the governor gear, the following checks must be made.

1. Check secondary governor weight tab wear. See Figure 5-237.

Figure 5-237

2. Check governor feed port opening. See Figure 5-238.

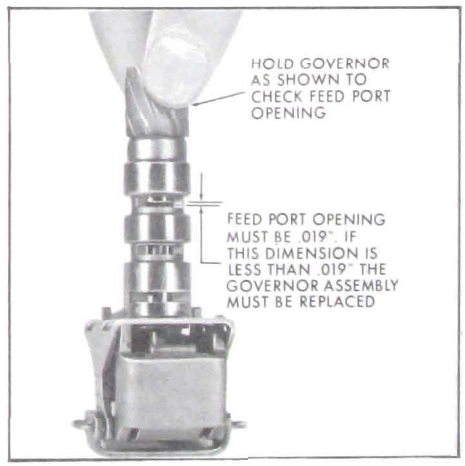


Figure 5-238

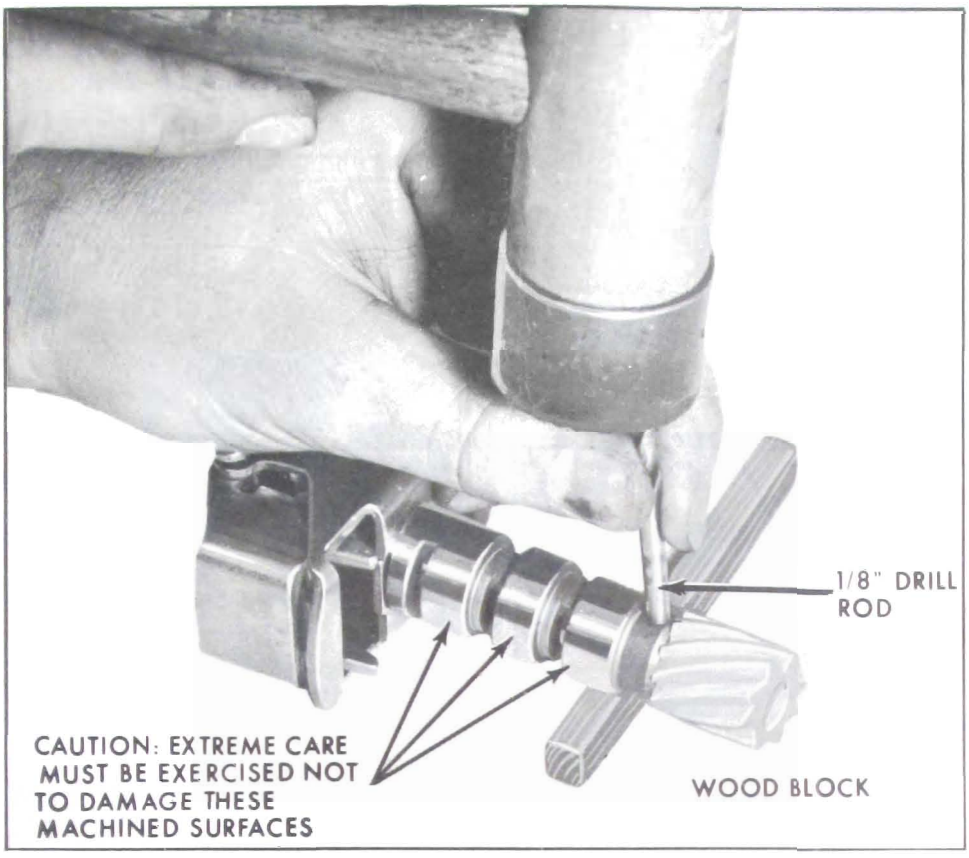


Figure 5-240

If either secondary tab wear or less than .019 feed port opening is found, the complete governor assembly must be replaced.

a. Removal

1. Support governor sleeve on wood block as shown in Figure 5-240, remove roll pin with a 1/8" drill rod.

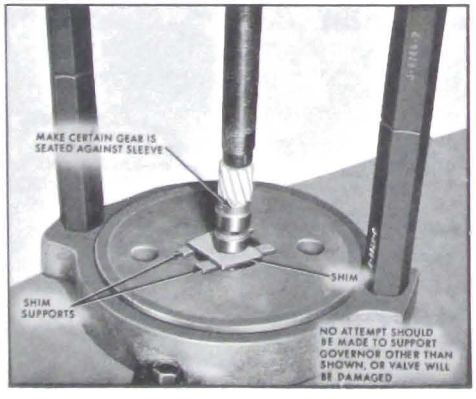


Figure 5-241

CAUTION: If wood block is placed under nylon gear, breakage of gear inside governor sleeve will result. Exercise extreme care not to damage machine surfaces of governor sleeve.

2. Remove driven gear. Remove any chips or burrs from inside governor sleeve.

b. Installation

1. Install replacement gear by carefully pressing new gear into sleeve as follows:

a. Use press plate J-8853.

b. Place shim supplied in replacement gear kit between the second and third lands of governor sleeve. See Figure 5-241.

c. Make certain new gear is positioned squarely on sleeve and press gear onto sleeve. Gear must be seated against sleeve. See Figure 5-241.

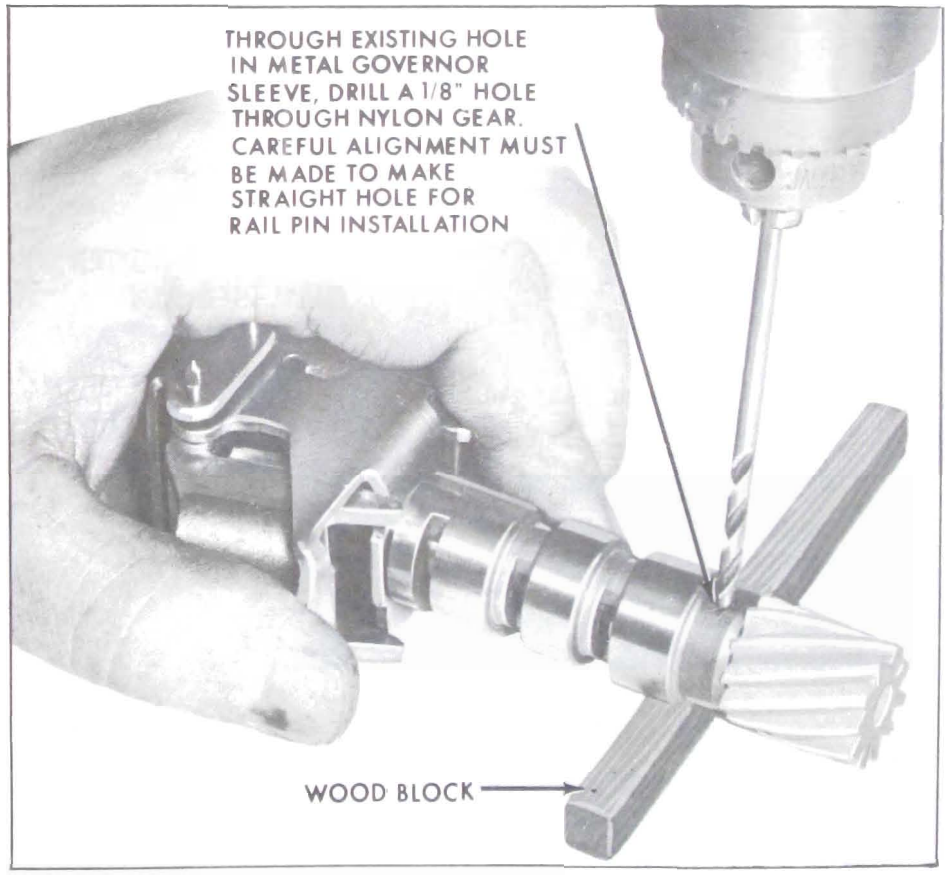


Figure 5-242

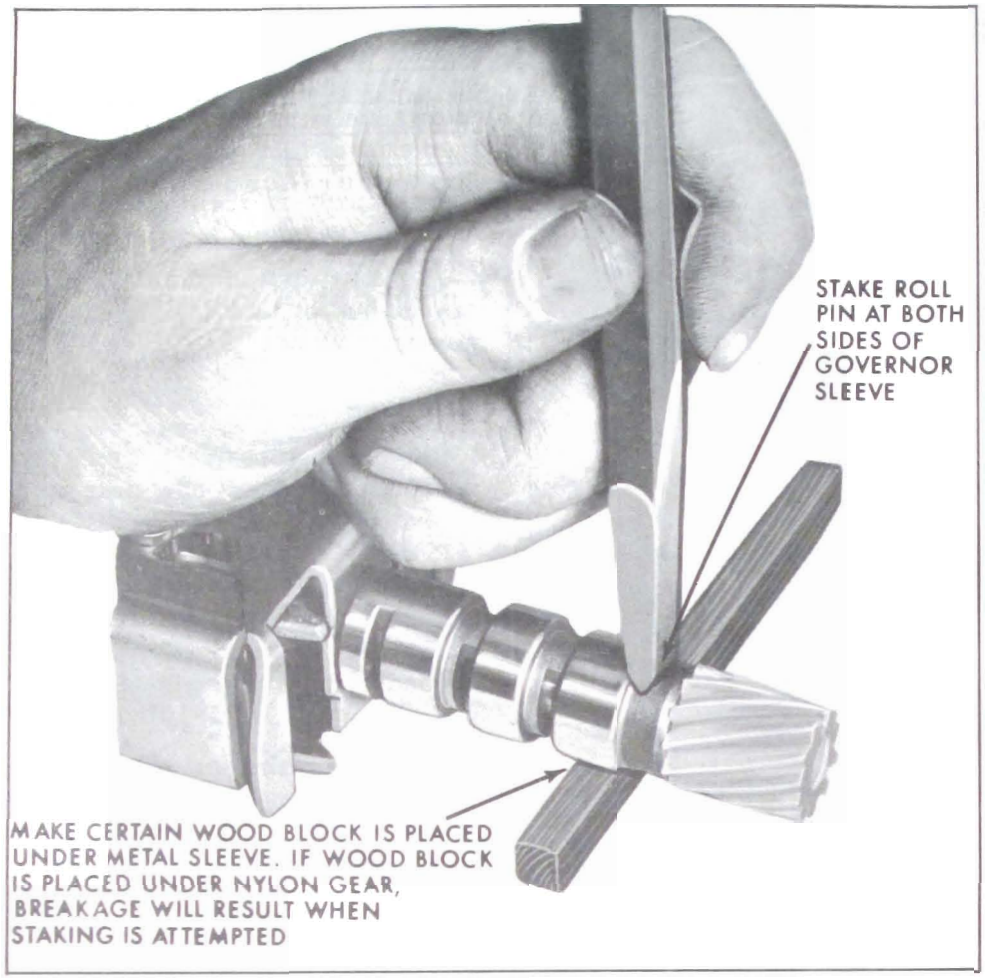


Figure 5-243

CAUTION: DO NOT SUPPORT OR HAMMER ON REAR OF GOVERNOR.

2. Through existing hole in governor sleeve, drill a 1/8" hole half-way through from each end. See Figure 5-242.

NOTE: It is important that the hole for roll pin be drilled straight as possible to insure proper retention and installation of roll pin and gear. This can be best accomplished by above method.

3. Support end of governor sleeve (not gear) on a wooden block. Install new roll pin; then using a small chisel, stake pin in place at both ends of pin to prevent pin from becoming loose. See Figure 5-243.

4. Check for burrs on sleeve and if valve is free in its bore. Any burrs that are left on governor sleeve will damage the case.

5-22 PLANET CARRIER DISASSEMBLY INSPECTION, AND ASSEMBLY

a. Disassembly

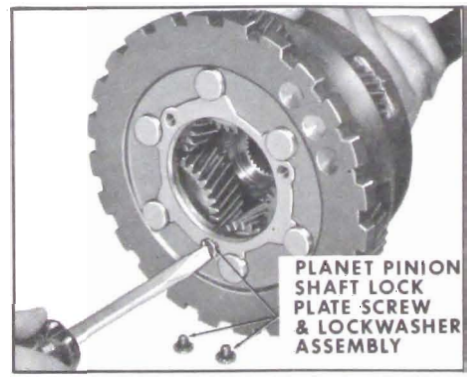


Figure 5-244

1. Remove three (3) planet pinion shaft lock plate screw and lock washers. See Figure 5-244.

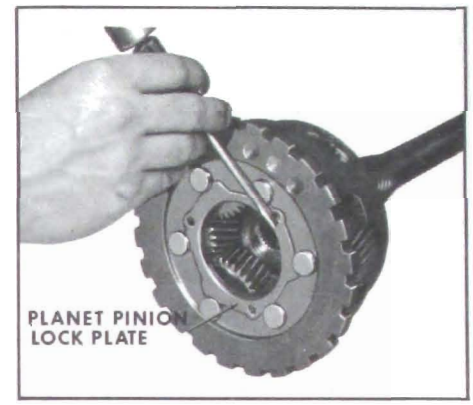


Figure 5-245

2. Rotate planet pinion lock plate and remove. See Figure 5-245.

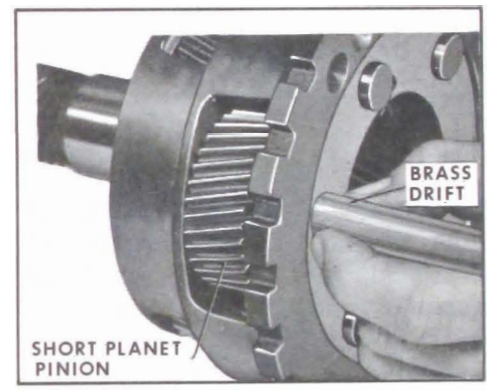


Figure 5-246

3. Start with the short planet pinion first. Insert Brass Drift into front of carrier. See Figure 5-246.

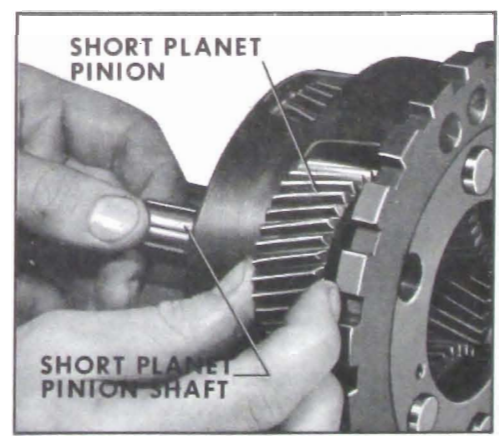


Figure 5-247

4. Remove pinion shaft and pinion gear from planet carrier. See Figure 5-247.

NOTE: Remove the other two (2) short planet pinion gears in same manner as described in Steps 4 and 5.

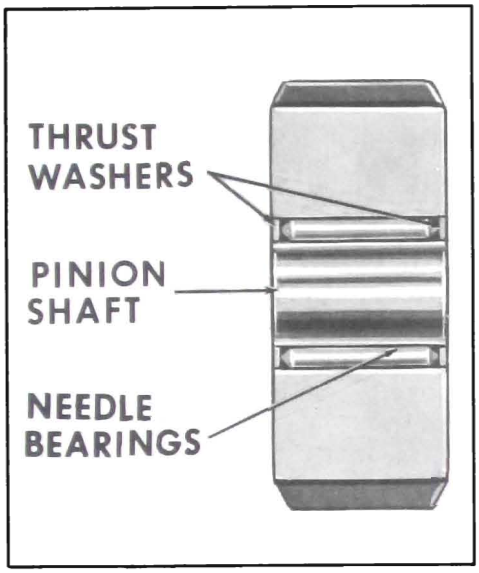


Figure 5-248

5. Remove needle bearings, and thrust washers (2) from the short planet pinion gear. See Figure 5-248.

Figure 5-250

6. Remove low sun gear needle thrust bearing. See Figure 5-250.

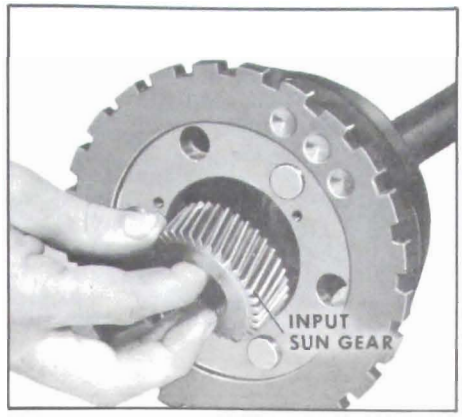


Figure 5-251

7. Remove input sun gear. See Figure 5-251.

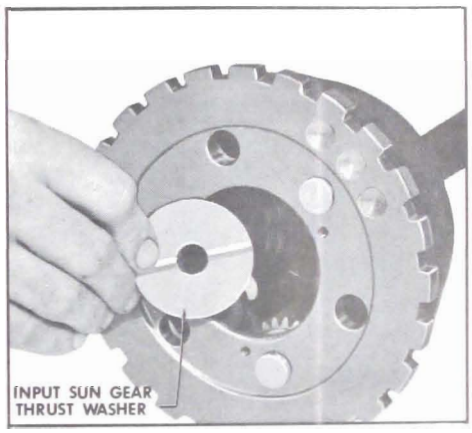


Figure 5-252

8. Remove input sun gear thrust washer. See Figure 5-252.

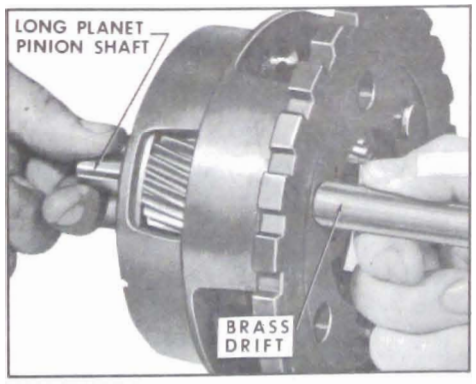


Figure 5-253

9. Insert Brass Drift through long planet pinion. Remove the long planet pinion shaft. See Figure 5-253.

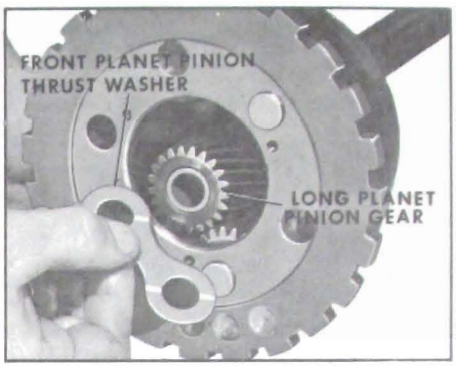


Figure 5-254

10. Remove front planet pinion thrust washer and long planet pinion gear. See Figure 5-254.

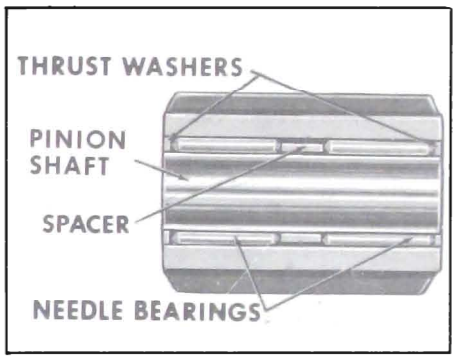


Figure 5-255

11. Remove needle bearings, spacer and two (2) thrust washers from the long planet pinion gear. See Figure 5-255.

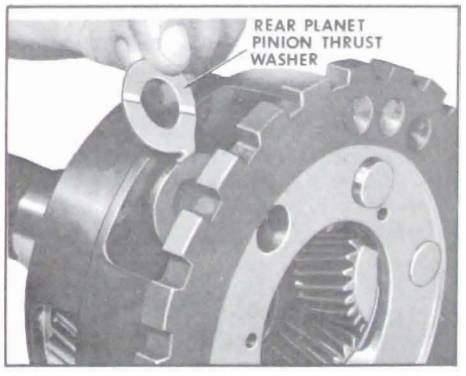


Figure 5-256

12. Remove rear planet pinion thrust washer. See Figure 5-256.

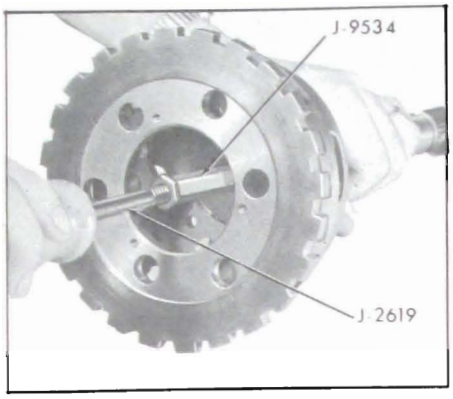


Figure 5-257

13. Check output shaft bushing for nicks, severe scoring or wear. If bushing replacement is necessary continue as follows: Install Bushing Remover J-9534 into bushing. Install Slide Hammer J-2619 into J-9534, using slide hammer remove bushing from planet carrier. See Figure 5-257.

b. Inspection of Planet Carrier Parts

1. Wash all parts in a cleaning solvent. Air dry all parts.

2. Check the planet pinion gears and input sun gear tooth damage.

3. Check the planet pinion thrust washers and input sun gear thrust washer.

4. Check planet pinion needle bearings. If bearings show excessive wear, all the needle bearings must be replaced.

5. Check the planet pinion shafts closely, if worn replace the worn shafts.

6. Check the output shaft bushing, if worn replace.

c. Reassembly

1. Using tool J-21424-3 and J-8092 press the new bushing in until J-21424-3 touches the machined surface of the planet carrier assembly. See Figure 5-258.

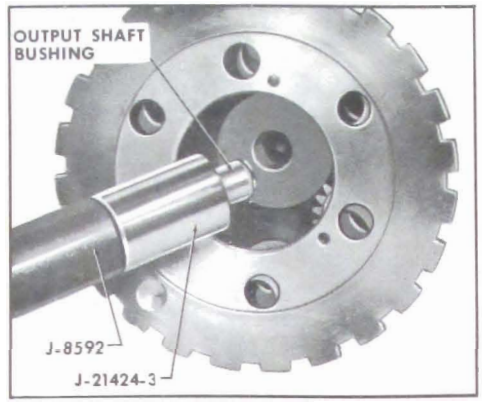


Figure 5-258

2. Install the long planet pinion gears first. Install the rear planet pinion thrust washer. Oil groove must be toward pinion gear. See Figure 5-260.

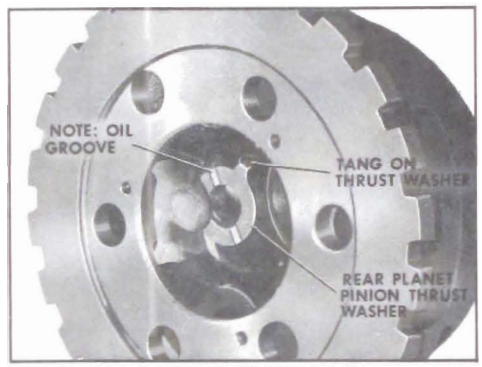


Figure 5-260

3. Install front planet pinion thrust washer. Retain thrust washer to case with grease. Oil grooves on the thrust washer must be toward the pinion gears. See Figure 5-261.

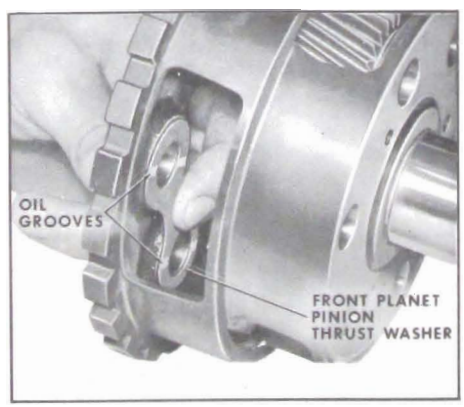


Figure 5-261

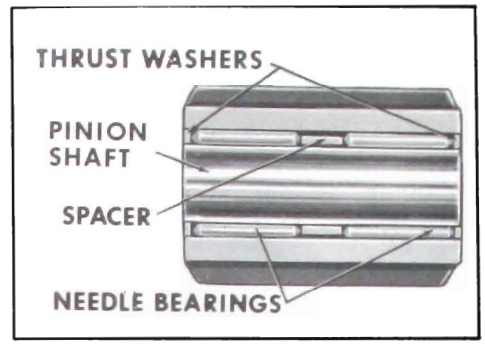


Figure 5-262

4. Coat inside pinion gear with petrolatum. Install Pinion Shaft into long planet pinion gear. Install twenty (20) needle bearings, spacer, twenty more needle rollers, and two (2) thrust washers. See Figure 5-273. Carefully remove pinion shaft. With a twisting motion lock both sets of needle rollers in place. See Figure 5-263.

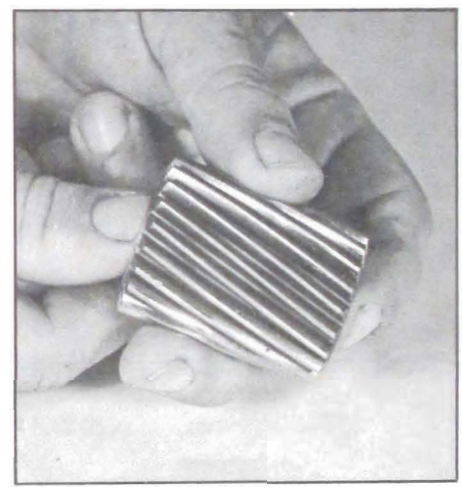


Figure 5-263

5. Position the long planet pinion assembly with the thrust washers at each end, in the planet carrier. Install the pinion shaft from the front of the carrier. As the shaft is being pushed in, make certain that it picks up the thrust washer. Turn the pinion shaft so the groove faces the center of the planet carrier. See Figure 5-264.

NOTE: Install the other two (2) long planet pinion gears as described in Steps 2-3-4-5.

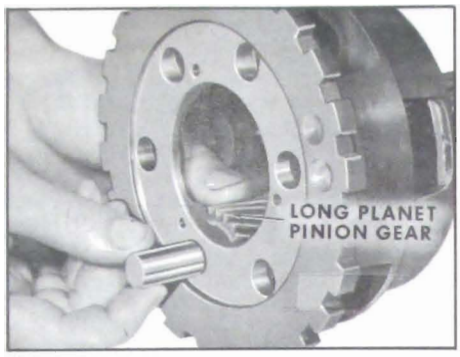


Figure 5-264

6. Install the input sun gear thrust washer with the oil groove facing input sun gear. See Figure 5-265.

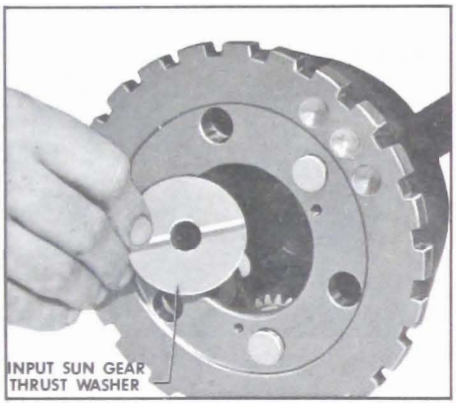


Figure 5-265

7. Install input sun gear into planet carrier. See Figure 5-266.

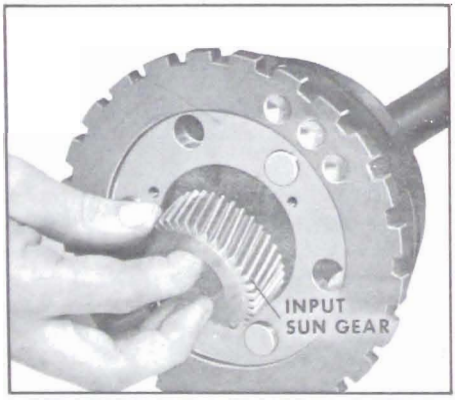


Figure 5-266

8. Install low sun gear needle thrust bearing. See Figure 5-267.

Figure 5-267

9. Install the rear planet pinion thrust washer. Oil groove must be toward pinion gear. See Figure 5-268.

NOTE: The front thrust washer already installed with the long planet pinions also is used for the short planet pinions as the two (2) pinions are paired together on one set of thrust washers.

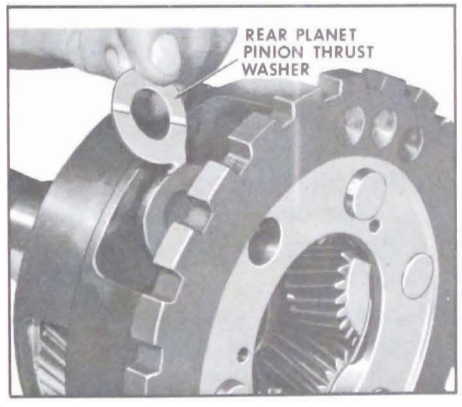


Figure 5-268

10. Install twenty (20) needle bearings, and one thrust washer in the pinion gear. See Figure 5-270. With a twisting motion, lock the needle rollers in place. See Figure 5-271.

11. Position short planet pinion assembly and thrust washers at each end of the planet carrier. Install pinion shaft from the front of planet carrier. As the pinion shaft is being pushed in, make

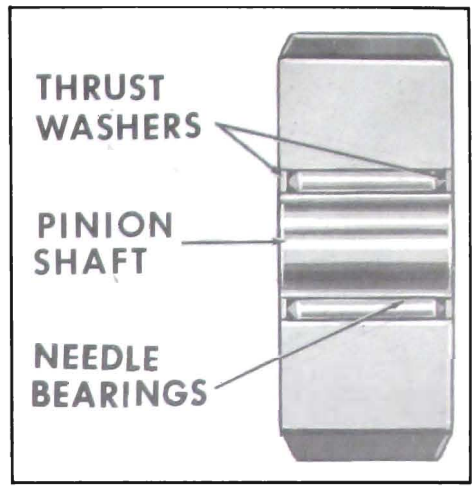


Figure 5-270

certain that it picks up the thrust washers. Turn the pinion shaft so the groove faces center of planet carrier. See Figure 5-272.

Figure 5-271

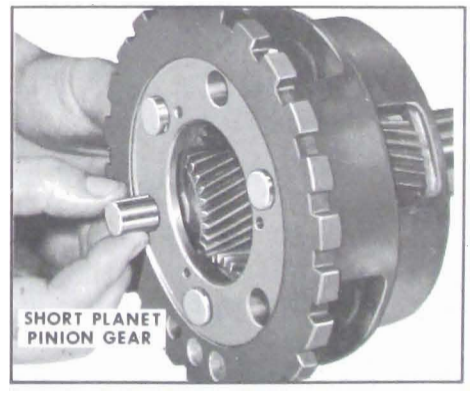


Figure 5-272

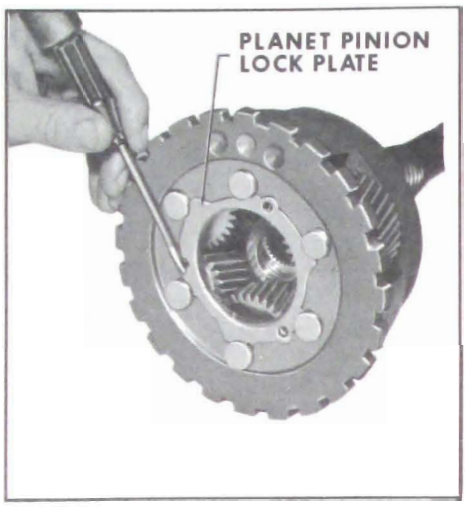


Figure 5-273

12. Install planet pinion lock plate. Rotate plate so extended portions align with slots in planet pinion shafts, and three (3) attaching screw holes. See Figure 5-273.

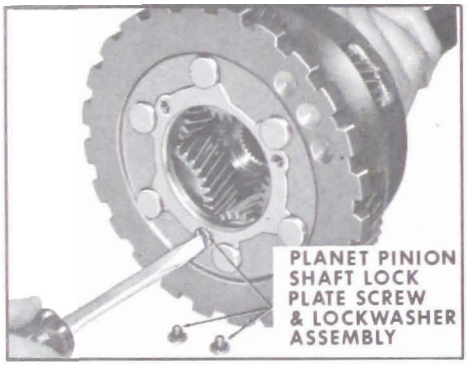


Figure 5-274

13. Install three (3) planet pinion shaft lock plate screw and lock washers. See Figure 5-274.

5-23 ASSEMBLY OF TRANSMISSION FROM MAJOR PARTS AND UNITS

a. General Instructions

1. Before starting to assemble the transmission make certain that all parts are absolutely clean. Keep hands and tools clean to avoid getting dirt into assembly. If work is stopped before assembly is completed cover all openings with clean cloths.

2. All moving parts should be given a light coating of transmission oil before installation. Thrust washers may be held in place with petroleum jelly, sparingly applied.

3. Do not take a chance on used gaskets and seals - use new ones to avoid oil leaks.

4. Use care to avoid making nicks or burrs on parts, particularly at bearing surfaces and surfaces where gaskets are used.

5. It is extremely important to tighten all parts evenly and in proper sequence, to avoid distortion of parts and leakage at gaskets and other joints. Use a reliable torque wrench to tighten all bolts and nuts to specified torque and in the specified sequence.

b. Installation of Range Selector Lever, Shaft and Parking Lock Actuator

1. Install case bushing, make certain split on bushing is opposite notch in case. See Figure 5-275.

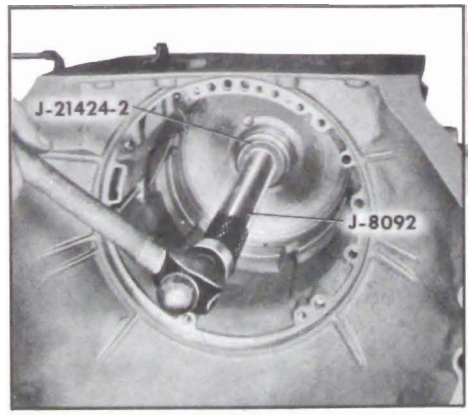


Figure 5-275

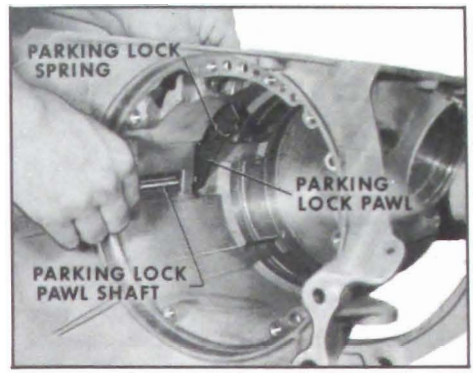


Figure 5-276

2. Retain parking lock pawl and spring in case with parking lock pawl shaft. See Figure 5-276.

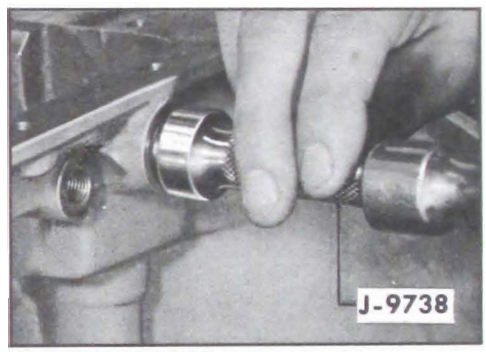


Figure 5-277

NOTE: Make certain parking pawl shaft is bottomed in its bore in case.

3. Install outer shift lever seal using J-9738. Make certain lip of

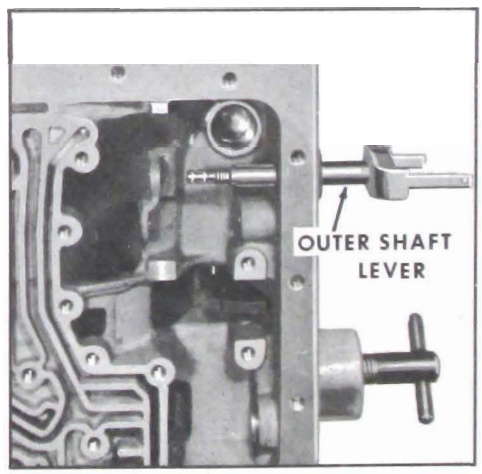


Figure 5-278

seal points toward center of case. See Figure 5-277.

4. With a twisting motion insert outer range selector lever into case. See Figure 5-278.

5. Assemble park lock actuator assembly to inner park lock and range selector. See Figure 5-280.

Figure 5-280

6. Install outer range selector lever to selector lever shaft.

7. Install inner park lock and range selector assembly to outer range selector lever. Install nut on range selector lever. See Figure 5-281.

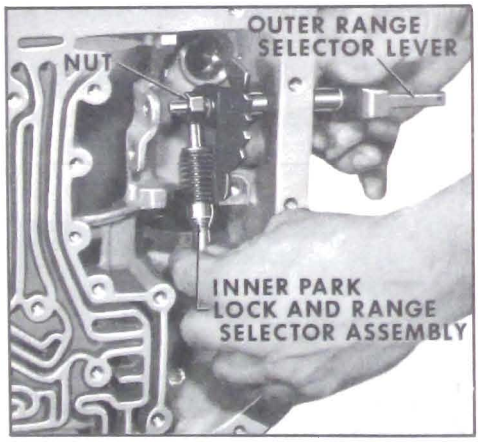


Figure 5-281

NOTE: Make certain longest end on range selector lever is to the bottom of transmission.

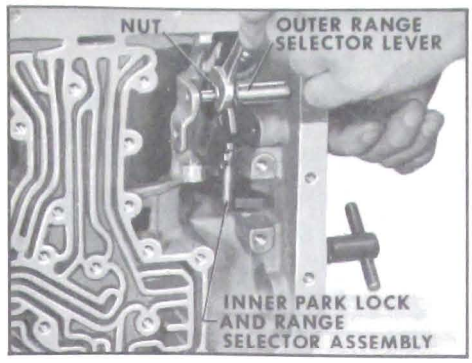


Figure 5-282

8. Slide outer range selector lever into case and tighten nut using a 9/16" wrench. See Figure 5-282.

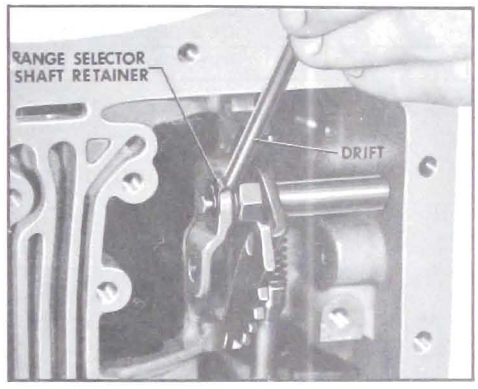


Figure 5-283

9. Install range selector shaft retainer. See Figure 5-283.

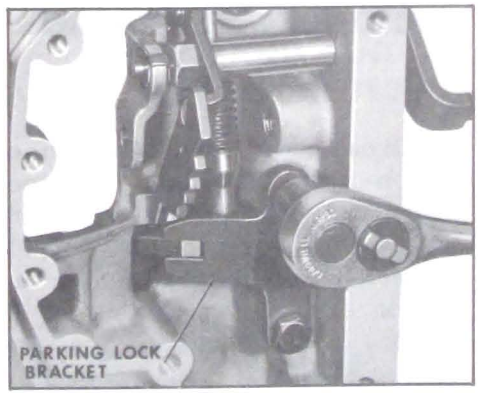


Figure 5-284

10. Install parking bracket to transmission case. Torque bolts to 8-12 ft. lbs. torque. See Figure 5-284.

11. If outer range selector lever was removed install nut torque to 20-30 ft. lbs.

c. Installing Reverse Clutch

Figure 5-285

1. Lubricate with transmission oil and install reverse clutch piston outer seal. See Figure 5-285.

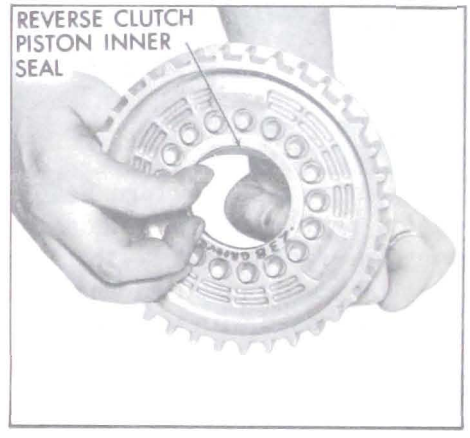


Figure 5-286

2. Lubricate with transmission oil and install reverse clutch piston inner seal. See Figure 5-286.

3. With transmission in vertical position install the reverse clutch piston into case. Tap piston with hammer handle to make certain piston is seated in case. See Figure 5-287.

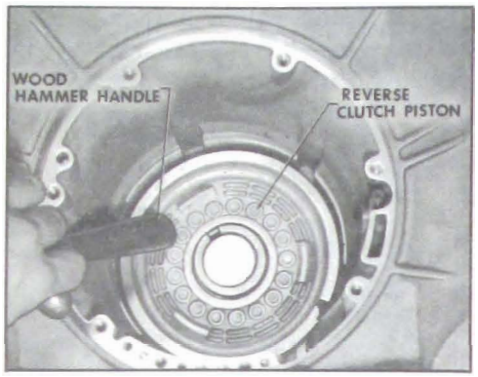


Figure 5-287

4. Install seventeen (17) clutch piston return springs. See Figure 5-290.

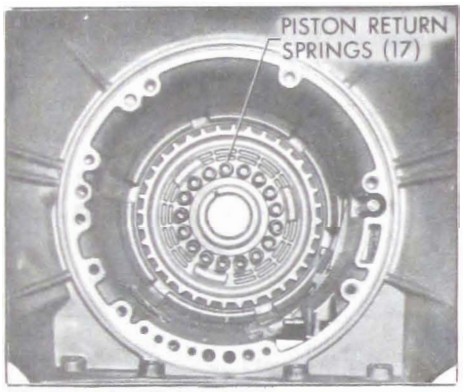


Figure 5-290

5. Position piston return seat on piston return springs. Place snap ring on return seat so that ring may be easily installed when seat is compressed with tool. See Figure 5-291.

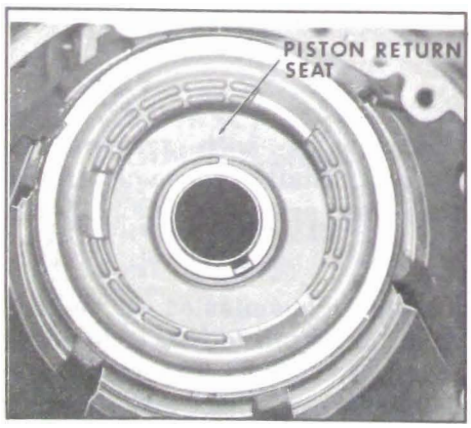


Figure 5-291

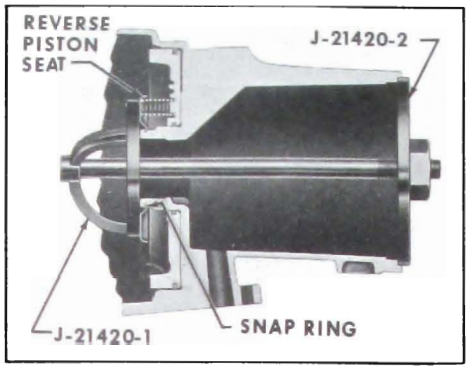


Figure 5-292

6. Using J-21420-1 and J-21420-2 compress piston return seat so snap ring may be installed with J-5586 Pliers. See Figure 5-292.

CAUTION: Make certain inner edge of seat does not hang up on snap ring groove while being compressed.

7. Install reverse clutch cushion spring. See Figure 5-293.

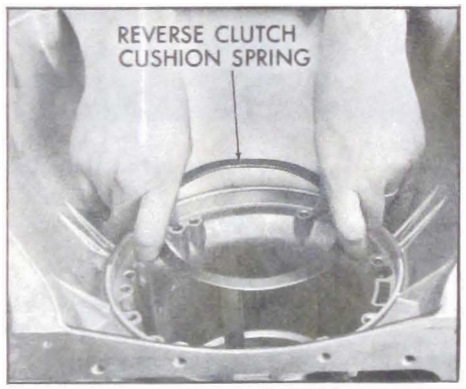


Figure 5-293

8. Align notches on the steel driven plates. Install the steel driven plates and lined drive plates alternately, beginning with a steel driven plate. The notched lug on each driven plate goes in the 5 o'clock groove in case. See Figure 5-294.

CAUTION: Steel plates are waved and should all face same direction. For this reason notches are provided to indicate correct installation.

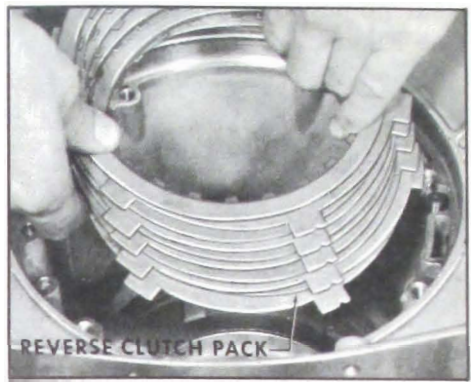


Figure 5-294

NOTE: Cars equipped with V-6 engines have 4 driven and 4 drive clutch plates. Cars equipped with V-8 engine have 5 driven and 5 drive clutch plates.

9. Install reverse clutch pressure plate with the identification mark being installed in the 5 o'clock groove in case. See Figure 5-295.

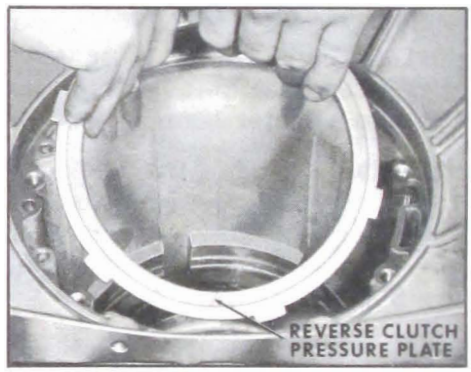


Figure 5-295

10. Install reverse clutch pack snap ring. See Figure 5-296.

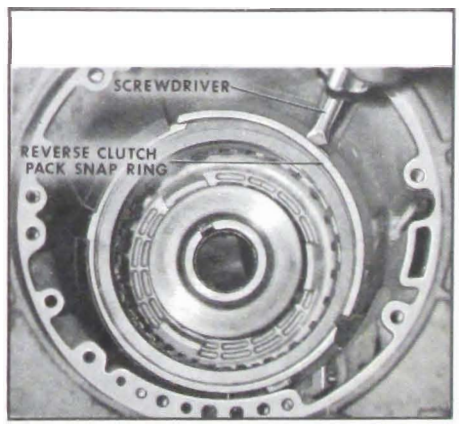


Figure 5-296

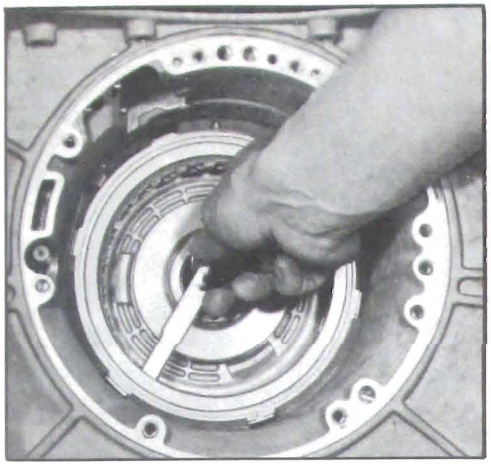


Figure 5-297

11. Insert feeler gauge between reaction plate and adjacent faced plate. See Figure 5-297. Clearance for the reaction plates are shown below:

Three selective plates are released for service. These plates are identified with one, two or three identification marks. Plates are graduated in size with one identification mark being the smallest. The clearance should be .020" - .058".

d. Installing Planetary Gear Set

1. Install thrust bearing race with a lip, needle bearing, and a second plain thrust bearing race to the rear face of the planetary gear set. Retain with grease. See Figure 5-298.

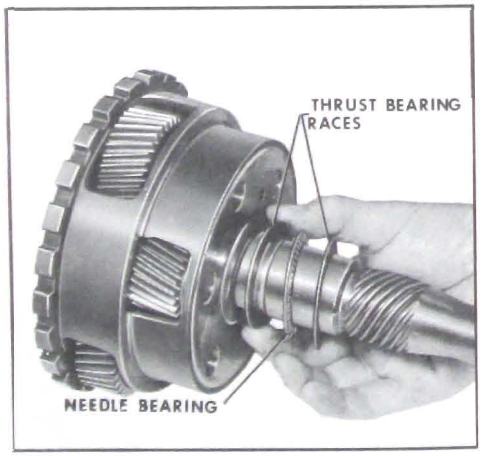


Figure 5-298

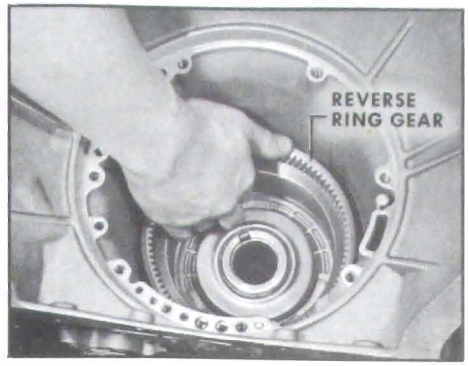


Figure 5-300

2. Install reverse ring gear into case. Rock and turn ring gear to pick up clutch plate splines. See Figure 5-300.

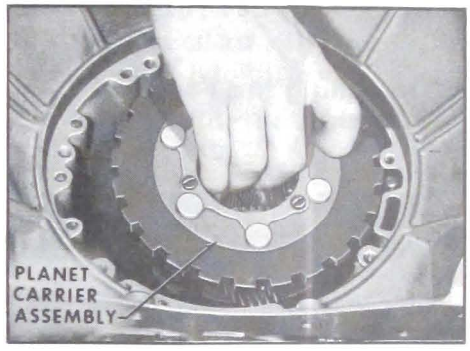


Figure 5-301

3. Install planetary gear set into case. See Figure 5-301.

5-24 INSTALLATION OF LOW SERVO ASSEMBLY, LOW BAND, AND FORWARD CLUTCH

a. Installation of Low Servo

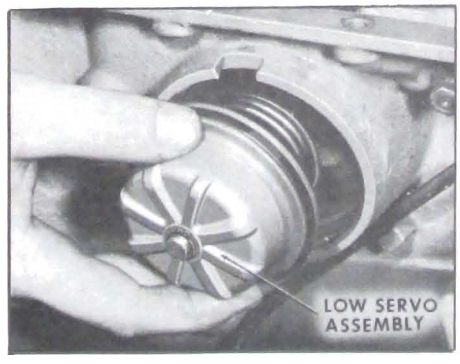


Figure 5-302

1. Install low servo piston assembly into case. See Figure 5-302.

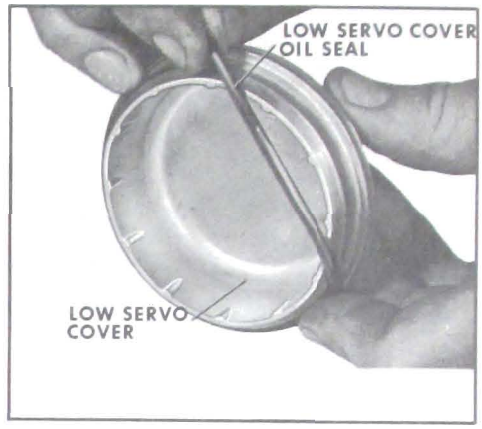


Figure 5-303

2. Install low servo cover oil seal. See Figure 5-303.

Figure 5-304

3. Install low servo cover to case. See Figure 5-304.

4. Compress low servo cover with J-21495 and install retaining snap ring. See Figure 5-305.

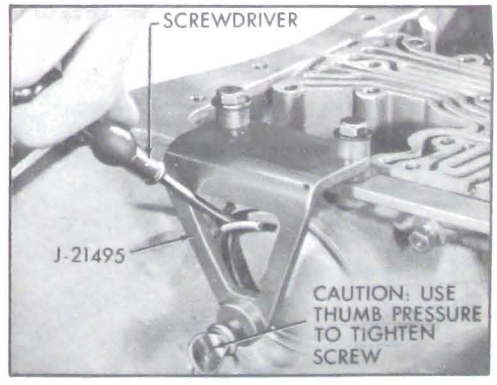


Figure 5-305

b. Installation of Low Band

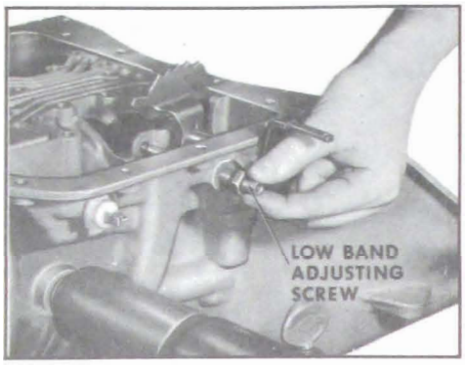


Figure 5-306

1. With transmission in vertical position install band adjusting screw into case. See Figure 5-306.

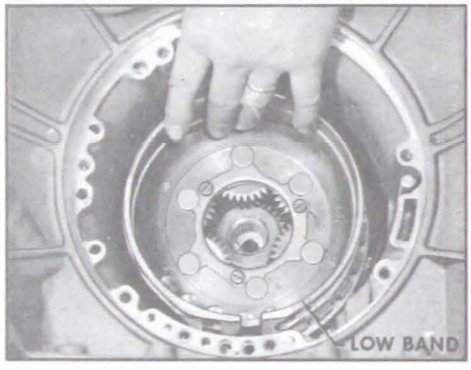


Figure 5-307

2. Install low band into case. See Figure 5-307,

3. This picture is for illustration purposes only. It shows the proper positioning of the low band apply strut and band adjusting screw anchor strut. See Figure 5-310.

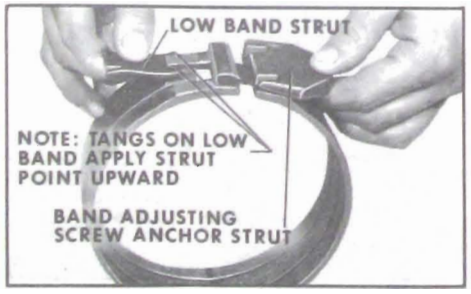


Figure 5-310

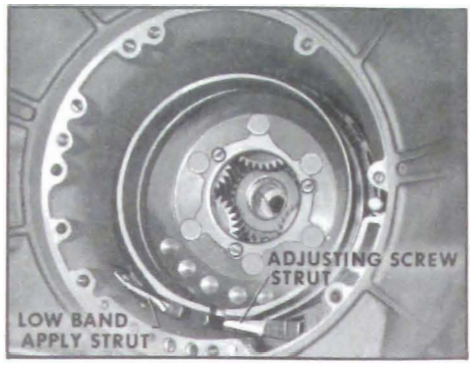


Figure 5-311

4. Install low band apply strut and band adjusting screw strut. After both struts have been installed, tighten low band adjusting screw enough to prevent struts from falling out. See Figure 5-311.

c. Installing the Forward Clutch Assembly

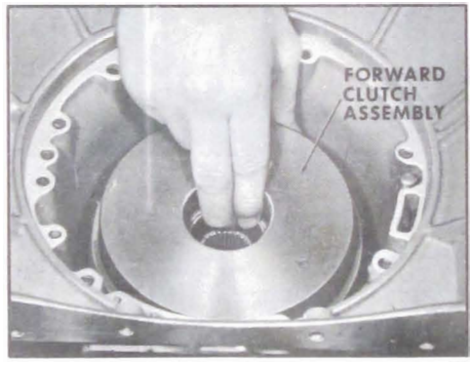


Figure 5-312

1. Install forward clutch assembly turning slightly to engage low sun gear with planet pinions. See Figure 5-312.

d. Check Forward Clutch to Oil Pump Clearance

1. Attach slide hammer bolt to threaded hole in oil pump. With flat of hand on end of input shaft move so parts are clear back. Install dial indicator set on rod and "O" dial indicator on end of input shaft. Push on end of output shaft to move everything forward, the reading obtained will be the

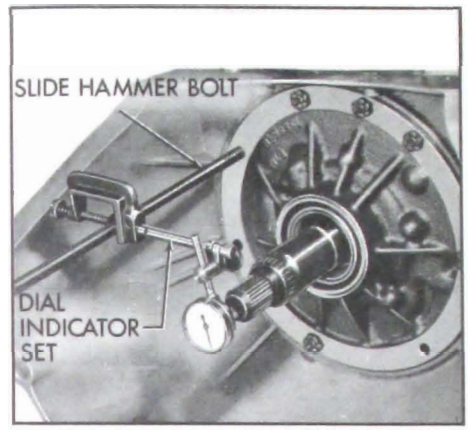


Figure 5-313

clearance. There are three selective thrust washers available, .099/.095, .081/.077 and .063/.059. Select end washer so the clearance will be between .022" and .054". See Figure 5-313.

Figure 5-314

2. Grease and install selective fit washer to pump cover hub. See Figure 5-314.

Figure 5-315

3. Install two (2) pump cover to clutch drum oil sealing rings. See Figure 5-315.

5-25 INSTALLATION OF OIL PUMP GUIDE PIN, GASKET AND OIL PUMP ASSEMBLY

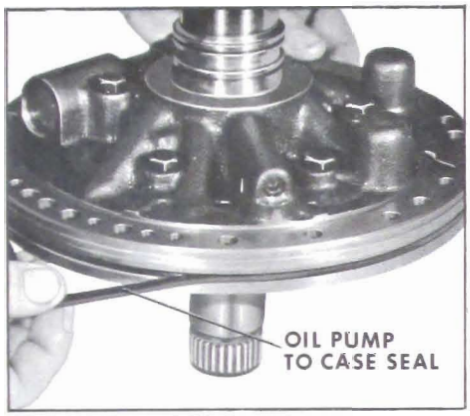


Figure 5-316

1. Install oil pump to case seal. See Figure 5-316.

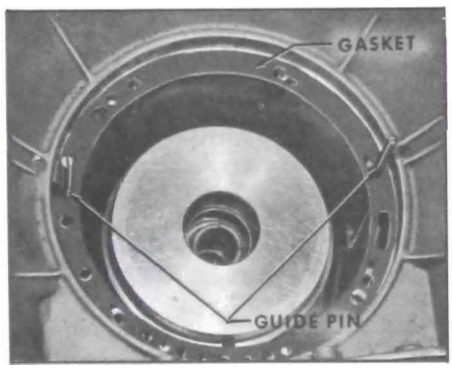


Figure 5-317

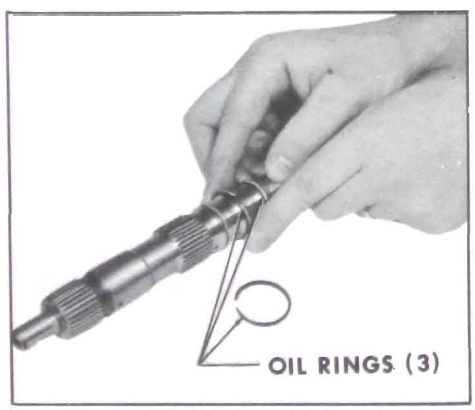


Figure 5-318

2. Install new pump gasket and guide pins. See Figure 5-317.

3. Install input shaft oil rings. See Figure 5-318.

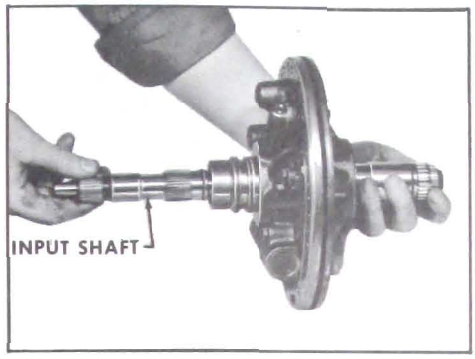


Figure 5-320

4. Coat input shaft oil rings with oil and install into oil pump. Then install pump into case. Apply a thin coat of oil around edge of pump. See Figure 5-320.

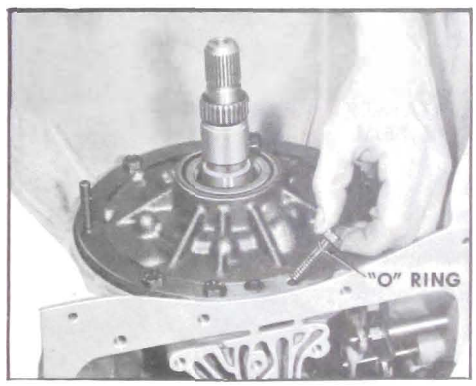


Figure 5-321

5. Remove guide pins and install eight (8) retaining bolts (with new "O" rings under head). See Figure 5-321.

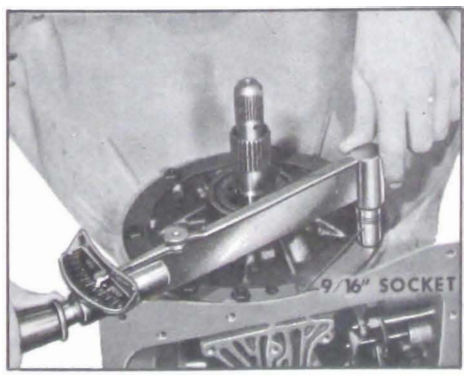


Figure 5-322

6. Torque the eight (8) pump retaining bolts to 16-24 ft. lbs. See Figure 5-322.

5-26 LOW BAND ADJUSTMENT

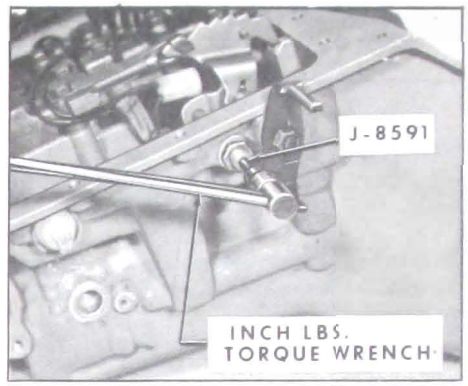


Figure 5-323

1. Adjust low band by first tightening adjusting screw to 40 in. lbs. torque. See Figure 5-323.

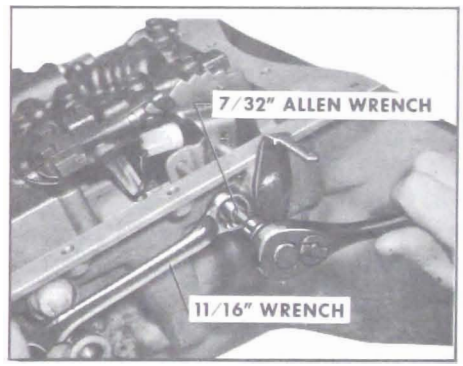


Figure 5-324

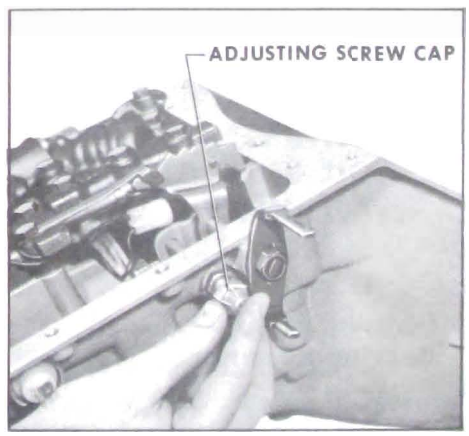


Figure 5-325

2. Back off band adjusting screw four (4) turns and lock nut. See Figure 5-324.

3. Install adjusting screw, cap. See Figure 5-325.

5-27 INSTALLATION OF SPEEDOMETER DRIVING GEAR

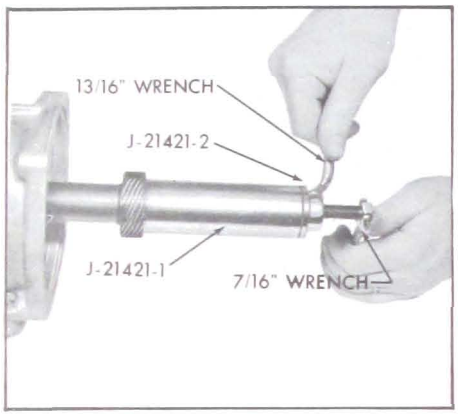


Figure 5-326

1. With transmission in a horizontal position install speedometer driving gear. Place transmission in Park range. Using Tools J-21421-1 and J-21421-2 drive speedometer driving worm gear onto output shaft. Drive gear on until J-21421-2 bottoms on end of output shaft. When tool bottoms speedometer driving gear is in proper location. See Figure 5-326. When installing speedometer driven gear on "55" and "65" Style wagons use Detail J-21421-3 instead of J-21421-1.

5-28 INSTALLATION OF REAR BEARING RETAINER BUSHING, OIL SEAL, BEARING RETAINER AND SPEEDO DRIVEN GEAR

a. Installation of Rear Bearing Retainer Bushing

1. Using Drive Handle J-8092 and Installer J-21424-1 install rear

Figure 5-327

bearing retainer bushing. See Figure 5-327.

b. Installation of Output Shaft to Rear Bearing Retainer Oil Seal

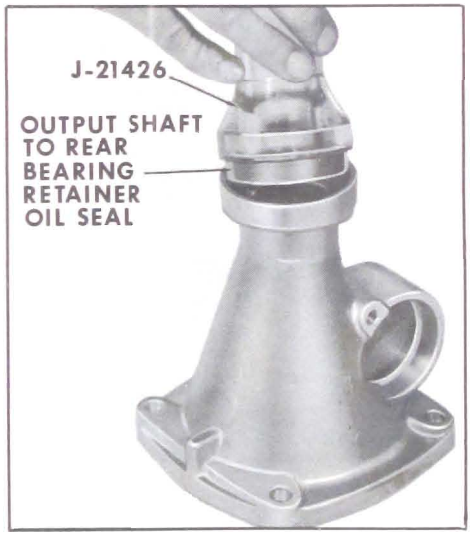


Figure 5-328

1. Install output shaft to rear bearing retainer oil seal using Installer J-21426. See Figure 5-328.

c. Installation of Rear Bearing Retainer

1. Install rear bearing retainer oil seal. See Figure 5-330.

2. Install rear bearing retainer to case and install four (4) retaining bolts, using a 9/16" socket.

Figure 5-330

Torque bolts to 25-35 ft. lbs. torque. See Figure 5-331.

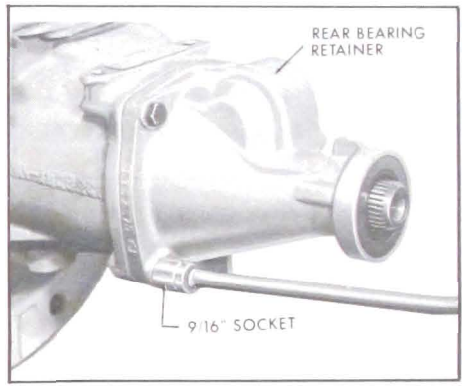


Figure 5-331

d. Installing Speedometer Driven Gear Assembly

1. Install speedo driven gear assembly into rear bearing retainer. See Figure 5-332.

Figure 5-332

2. Install speedometer driven gear sleeve retainer. Torque bolt

Figure 5-333

to 5-10 ft. lb. torque. See Figure 5-333.

5-29 INSTALLATION OF VALVE BODY

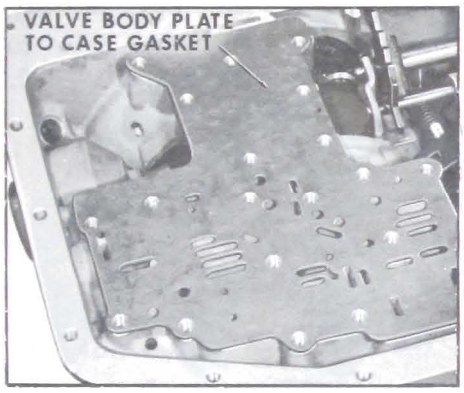


Figure 5-334

1. With transmission in horizontal position, install valve body to plate gasket. See Figure 5-334.

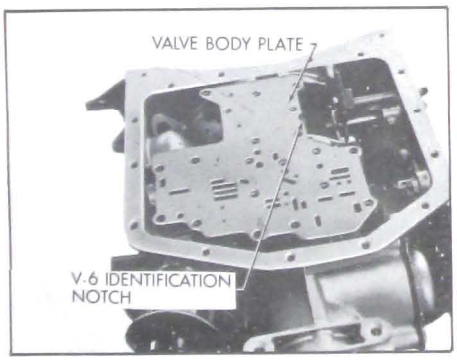


Figure 5-335

2. Install valve body plate.

NOTE: V-6 valve body plate have identification notch. See Figure 5-120.

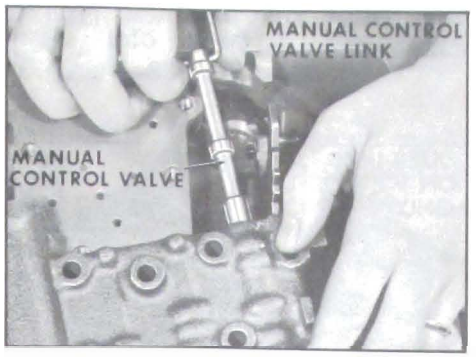


Figure 5-336

3. Install manual control valve and link into valve body assembly. See Figure 5-336.

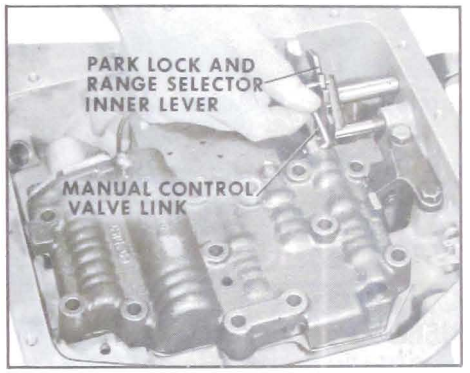


Figure 5-337

4. Install manual control valve link into park, lock and range selector inner lever. See Figure 5-337.

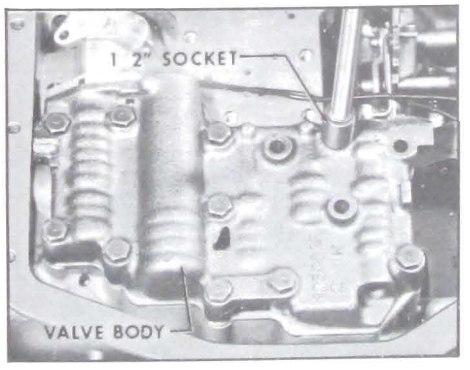


Figure 5-338

5. Install eleven (11) valve body to case retaining bolts. Torque bolts to 8-11 ft. lbs. See Figure 5-338.

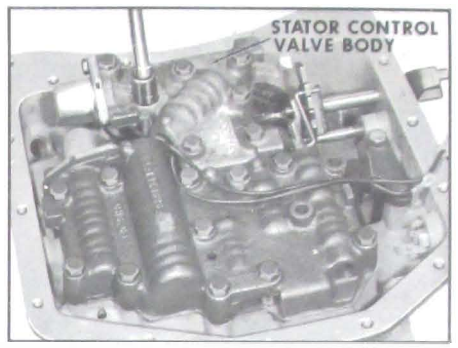


Figure 5-340

6. Install stator control valve body and seven (7) bolts retaining the stator control valve body. Torque bolts to 8-12 ft. lbs. See Figure 5-340.

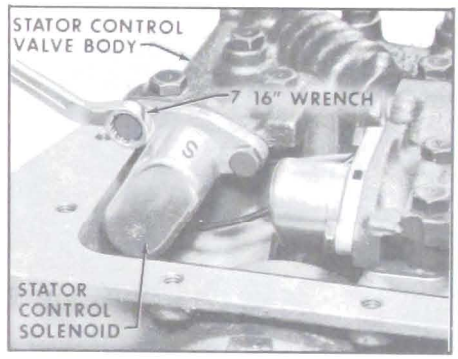


Figure 5-341

7. Install stator control solenoid and gasket to stator control valve body. Torque bolts to 8-12 ft. lbs. See Figure 5-341.

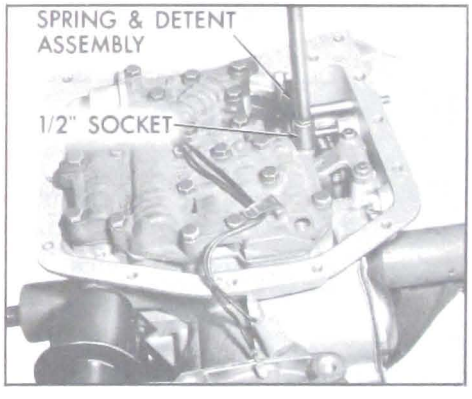


Figure 5-342

8. Before installing spring detent assembly note routing of solenoid wires. Install spring detent assembly. Torque bolt to 8-12

ft. lbs. Center spring over detent plate. See Figure 5-342.

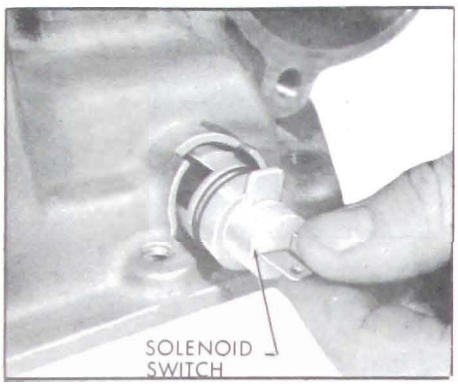


Figure 5-343

9. Install solenoid switch into case. See Figure 5-343.

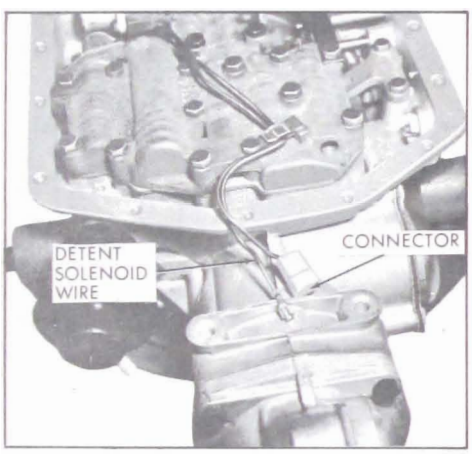


Figure 5-344

10. Install detent solenoid wire to connector. See Figure 5-344.

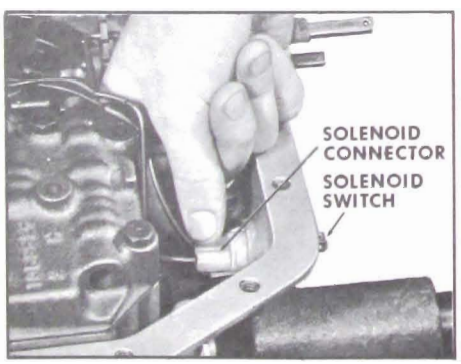


Figure 5-345

11. Install solenoid connector to solenoid switch. See Figure 5-345.

12. Install oil strainer pipe to case seal.

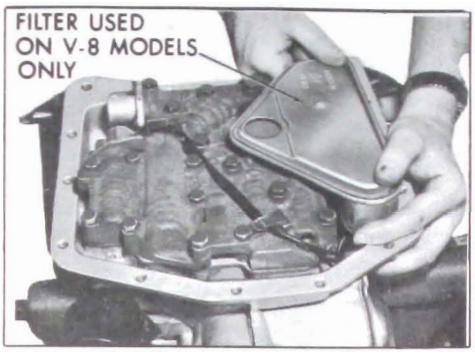


Figure 5-346

13. Install oil filter on V-8 models. See Figure 5-346.

14. Install oil strainer on V-6 models. See Figure 5-347.

15. Install oil pan gasket and pan. See Figure 5-348.

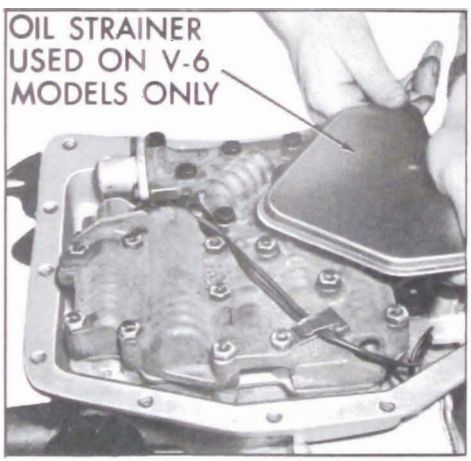


Figure 5-347

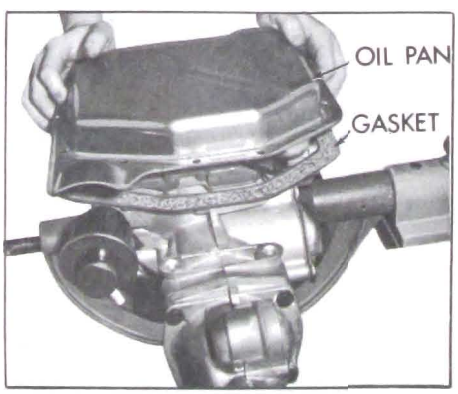


Figure 5-348

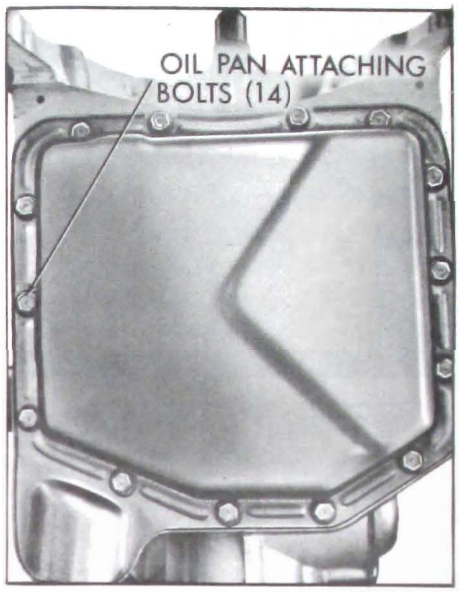


Figure 5-350

16. Install fourteen (14) oil pan attaching bolts. Torque bolts to 10-12 ft. lbs. See Figure 5-350.

5-30 INSTALLATION OF GOVERNOR AND VACUUM MODULATOR

a. Installation of Governor

1. Slide governor into its bore in case. Turn governor assembly so teeth on governor gear engage teeth on output shaft. See Figure 5-351.

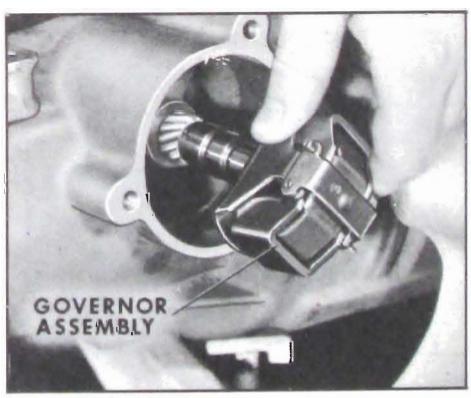


Figure 5-351

2. Install governor gasket and cover to case. Torque bolts to 8-12 ft. lbs. See Figure 5-352.

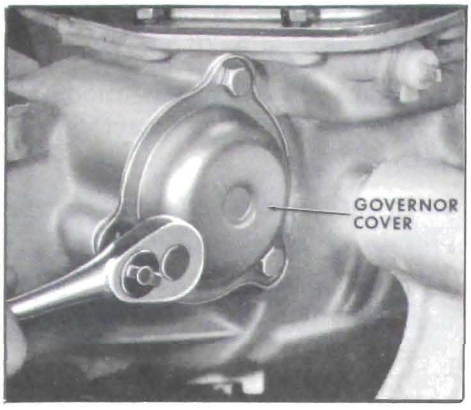


Figure 5-352

b. Installation of Vacuum Modulator

1. Slide rear modulator valve into front modulator valve then install into bore in case. See Figure 5-353.

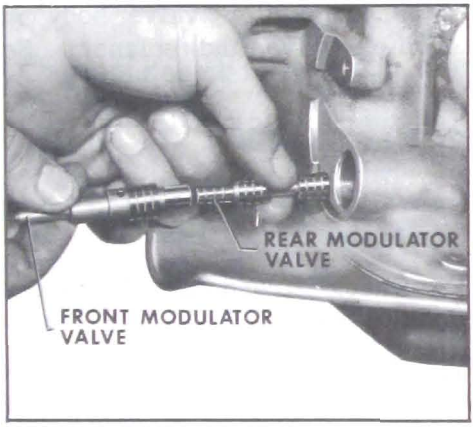


Figure 5-353

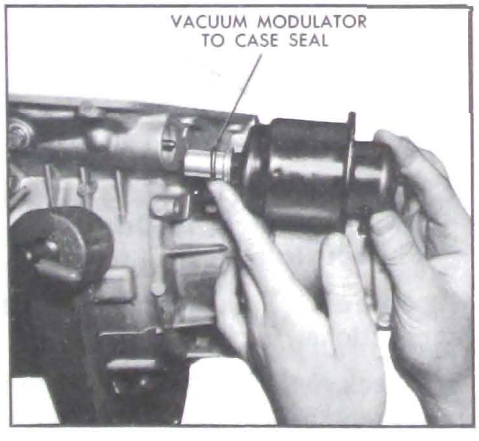


Figure 5-354

2. Install case to vacuum modulator oil seal. Install modulator into case. See Figure 5-354.

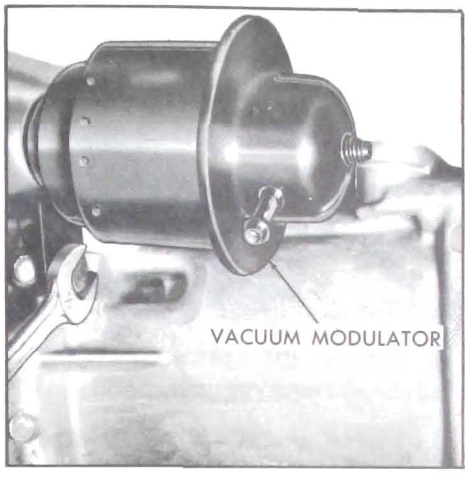


Figure 5-355

NOTE: V-6 vacuum modulators have a brown daub of paint for identification. V-8 has no paint identification.

3. Install vacuum modulator retainer. Install retainer so tang points toward vacuum modulator. Torque bolt to 8-12 ft. lbs. See Figure 5-355.

5-31 CHECKING CONVERTER

Figure 5-356

1. Check converter for leaks as follows:

a. Install Tool J-21369 and tighten. See Figure 5-356.

b. Fill converter with air; 80 psi.

c. Submerge in water and check for leaks.

2. Check converter end clearance as follows:

a. Install Tool J-21371-2 and tighten brass nut. See Figure 5-357.

Figure 5-357

b. Install Tool J-21371-3 and tighten hex nut. See Figure 5-358.

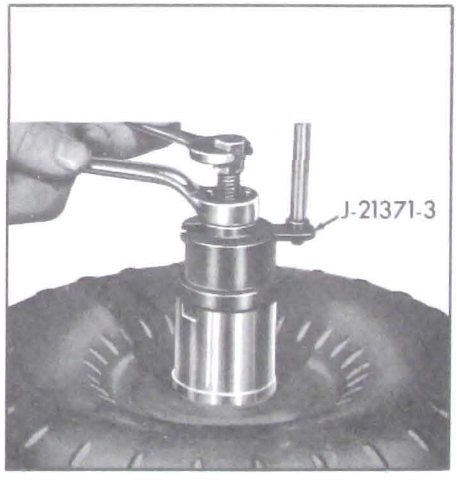


Figure 5-358

Figure 5-360

c. Install dial indicator set at 0 as shown in Figure 5-365.

d. Loosen hex nut. When nut is fully loosened the reading obtained on the dial indicator will be converter end clearance. If clearance is .050" or over and the oil has the appearance of having been mixed with aluminum paint, replace the converter. See Figure 5-360.

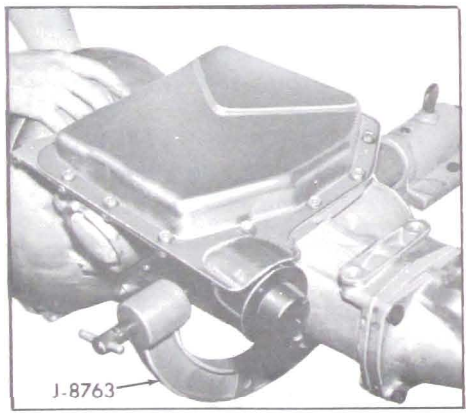


Figure 5-361

3. Install converter. See Figure 5-361.

5-32 TROUBLE DIAGNOSIS GUIDE

a. Oil Check

Before diagnosis of any transmission complaint is attempted, the oil level should be checked. At the same time, it should be observed on the dipstick whether the oil is solid in texture or aerated. Aerated oil gives an indication of an oil leak in the suction line, which can cause erratic operation and slippage. Water in the oil imparts a milky, pink cast to the oil and can cause spewing.

b. No Drive In Any Selector Position

1. Check oil level.

2. Check oil pressure as described in paragraph 5-33.

3. Check manual shift linkage adjustment. See Section 4A.

4. Check internal linkage. See Figure 5-282.

5. Check for defective pressure regulator valve.

6. Check for pressure regulator valve retaining ring out of groove.

7. Check for defective front pump.

c. Erratic Operation and Slippage (Light to Medium Acceleration)

1. Check filter or screen and suction pipe assembly for leaks.

2. Check suction pipe "O" ring.

3. Low oil level.

4. Check for defective modulator. See Figure 5-362.

d. Excessive Slip or Engine Flare on Coasting to A Stop or When Cornering

1. Check engine idle. See paragraph 3-8.

2. Check for suction leak as described in items 1 and 3.

3. Check low band adjustment. See paragraph 5-26.

4. Check for proper modulator can assembly. See chart on page 5-1.

5. In severe customer complaints, proceed as follows:

a. Remove transmission from car.

b. Check pump cover and stator shaft for cross leakage. See Figure 5-363.

c. Remove coast downshift timing valve. See Figure 5-205.

e. Transmission Sluggish From A Standing Start

1. Check idle stator switch. See Figure 5-38.

2. Check stator valve body including valve and solenoid. See Figure 5-371.

f. No Reverse

1. Check reverse clutch piston seals.

2. Check freedom of reverse clutch piston.

3. Check for open feed lines to reverse clutch. See Figures 5-364 thru 5-372.

4. Loose stator valve body attaching bolts. Specification is 8-12 ft. lbs.

g. Slips (In Any Range)

1. Refer to items 3 and 20.

h. Harsh Neutral To Drive Shift At Idle

1. Check vacuum line connections.

2. Check engine idle speed. See paragraph 3-8.

3. Check for three (3) springs in the low servo assembly or improper assembly of washers. See Figure 5-179.

4. Check to see if center spring of low servo assembly has end coils ground.

5. Check for broken engine mounts.

i. No Upshift

1. Check vacuum line connections.

2. Check governor for failed pinion or stuck valve.

3. Check freedom of shift valve and detent valve.

4. Check for plugged orfice in detent valve.

5. Check for open detent solenoid and loose attaching bolts.

6. Check for plug in front pump cover assembly. See Figure 5-373.

7. Check clutch piston seals.

8. Check for broken clutch piston oil seal rings.

9. Check clutch lines in front pump cover and stator shaft assembly. See Figure 5-366.

j. Long Shift Time—Shift Does Not Have Positive Engagement

1. Check for proper modulator can assembly. See chart on page 5-1.

2. Check for leak in clutch circuit. See Figures 5-364 thru 5-372.

3. Check valve body port between modulator boost and clutch feed in shift valve bore. See Figure 5-372.

4. If foreign material in oil pan indicates a clutch failure, replace clutch plates and necessary parts.

k. Engine Flares On Upshift

1. Refer to item 19.

l. Late Upshift

1. Check vacuum line connections.

2. Stuck detent valve.*

3. Open detent solenoid or loose solenoid attaching bolts.*

4. Sticky shift valve.

5. Check governor assembly. See paragraph 5-21.

*Transmission will upshift only at wide-open throttle.

m. Upshifts-Downshifts Erratic

1. Refer to paragraph 5-21.

2. Refer to item (3).

3. Check for crossed solenoid wires. See Figure 5-374.

n. No Wide Open Throttle Downshift

1. Check detent control switch adjustment and continuity in wiring. (Wiring fused with windshield wiper.)

2. Check for stuck detent valve and shift valves. See Figure 5-32.

3. Check orfice hole in detent valve.

4. Check solenoid on valve body.

o. Engine Flares On Wide Open Throttle Downshift

1. Check low band adjustment. See paragraph 5-26.

2. Check item 20.

3. Check for restriction in vacuum line or fitting to transmission.

4. Check for correct valve body plate. See Figures 5-118 and 5-120.

p. Delayed Engagement Of Manual Low

1. Check freedom of 2-piece modulator valve.

q. No Stator Action

1. Check stator idle and detent control switch adjustments and wiring.

2. Check stator solenoid and stator valve body.

3. Check stator bushings for excessive wear and scoring.

4. Check reaction shaft bushing for extreme wear and scoring.

5. Check front oil seal ring on input shaft. See Figure 5-129.

r. Oil Spews Out Breather

1. High oil level.

2. Water in oil.

3. Chip or burr between pump cover and housing or between complete pump assembly and case.

4. Direct leak from front pump pressure line into vent chamber. See Figure 5-

s. Drive Clutch Plates Burned (Usually Low Band and Reverse Clutch Good)

1. Check for leakage in clutch circuit. See Figures 5-364 thru 5-372.

a. Check ball in forward clutch drum.

b. Clutch lines in front pump cover and stator shaft assembly. See Figure 5-366.

c. Plug in pump cover assembly missing. See Figure 5-373.

d. Clutch piston seals.

e. Clutch feed oil rings.

f. Check for proper number of clutch plates and correct piston. See chart on page 5-1.

t. Drive Clutch Plates, Low Band and Reverse Clutch Plates—All Burned

1. Check for following causes of

low maximum line pressue.

a. Modulator can load check. See Figure 5-362.

b. Check for proper modulator can. See chart on page 5-1.

c. Check modulator valve and bore in case for freedom of movement.

d. Check freedom of boost valve in front pump regulator.

2. Valve body bolts loose. Torque specification is 8-12 ft. lbs.

3. Low oil level.

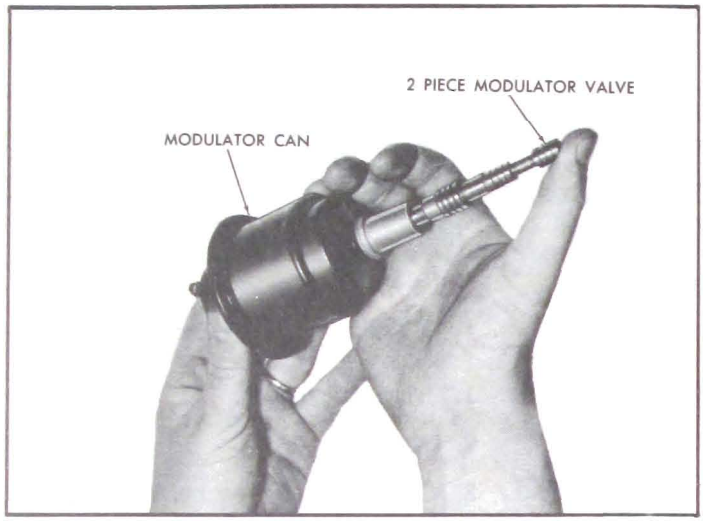


Figure 5-362—Checking Modulator Can Assembly

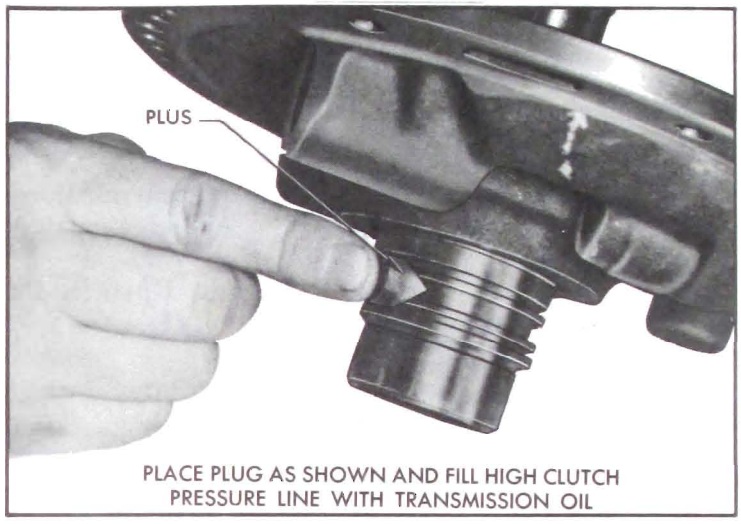


Figure 5-363—Checking Cross Leakage Between Pump Cover and stator shaft

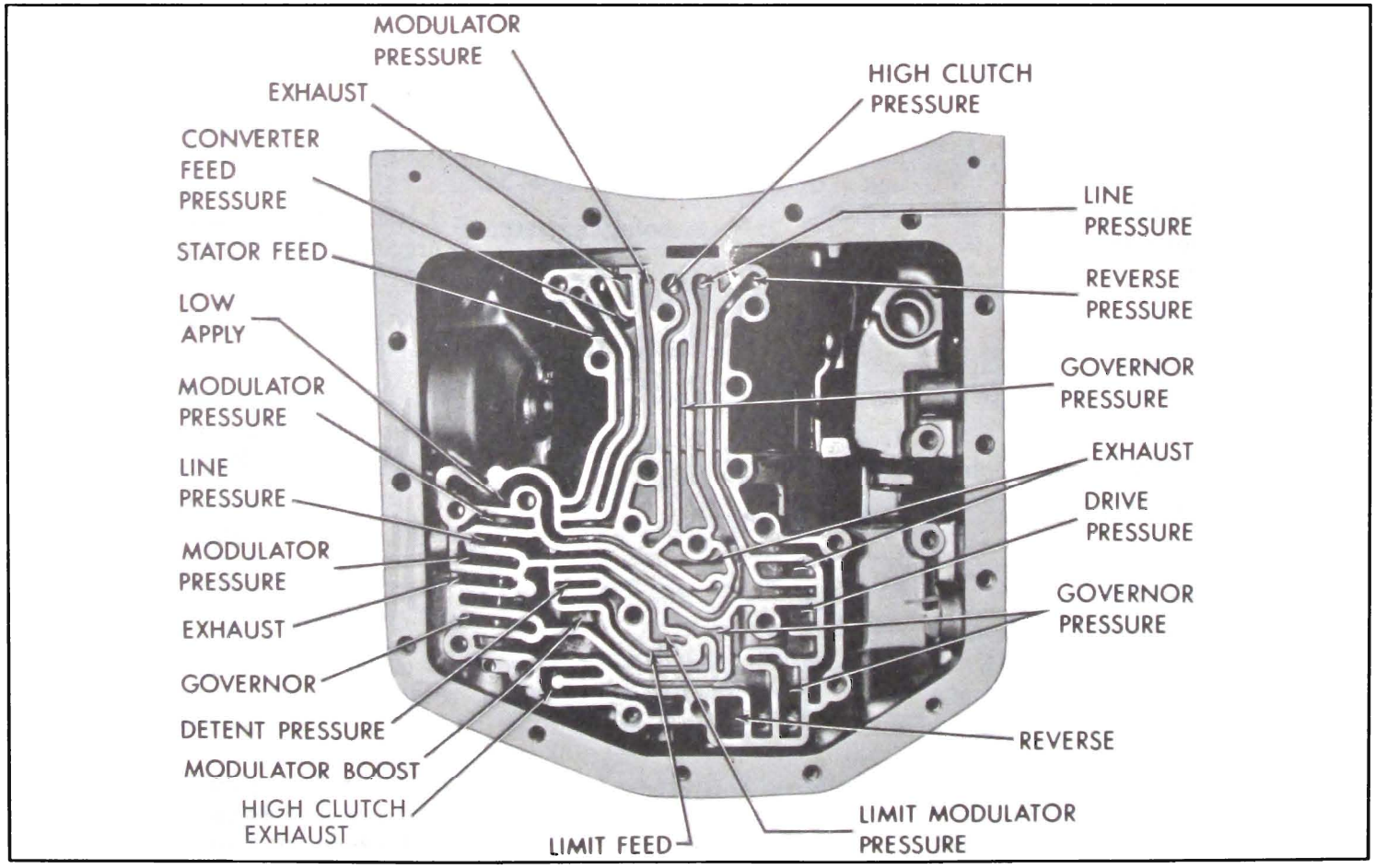
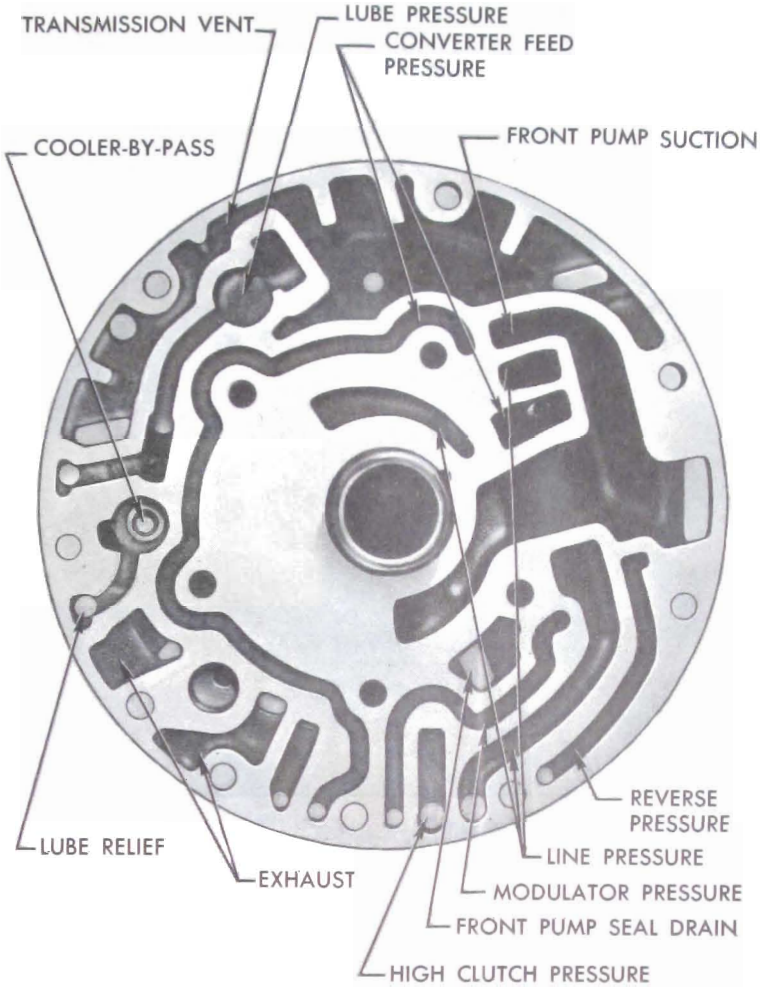


Figure 5-364—Oil, Passages in Bottom of Transmission Case



Figures 5-366—Oil Passages in Pump Cover

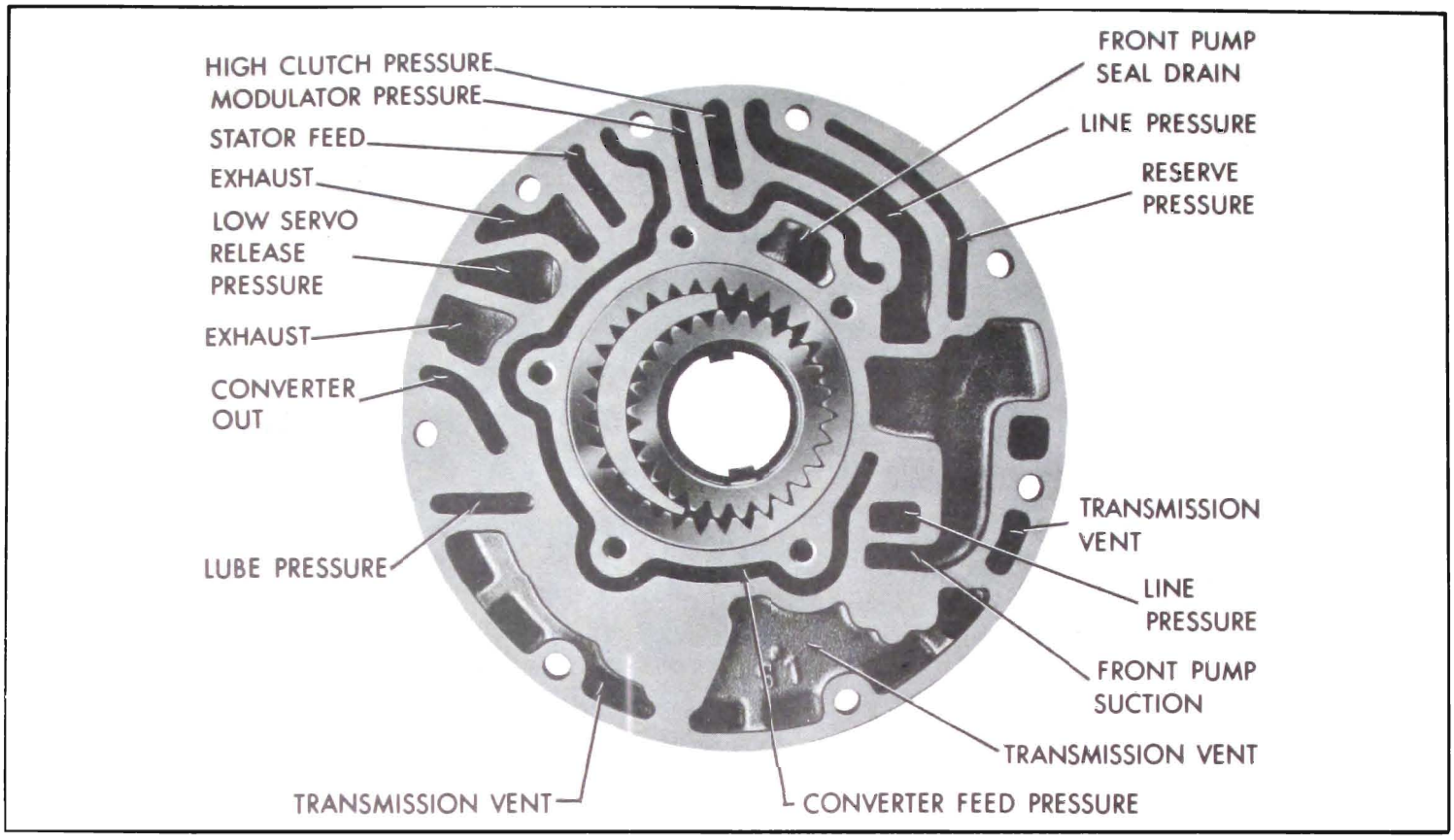


Figure 5-367—Oil Passages in Pump Body

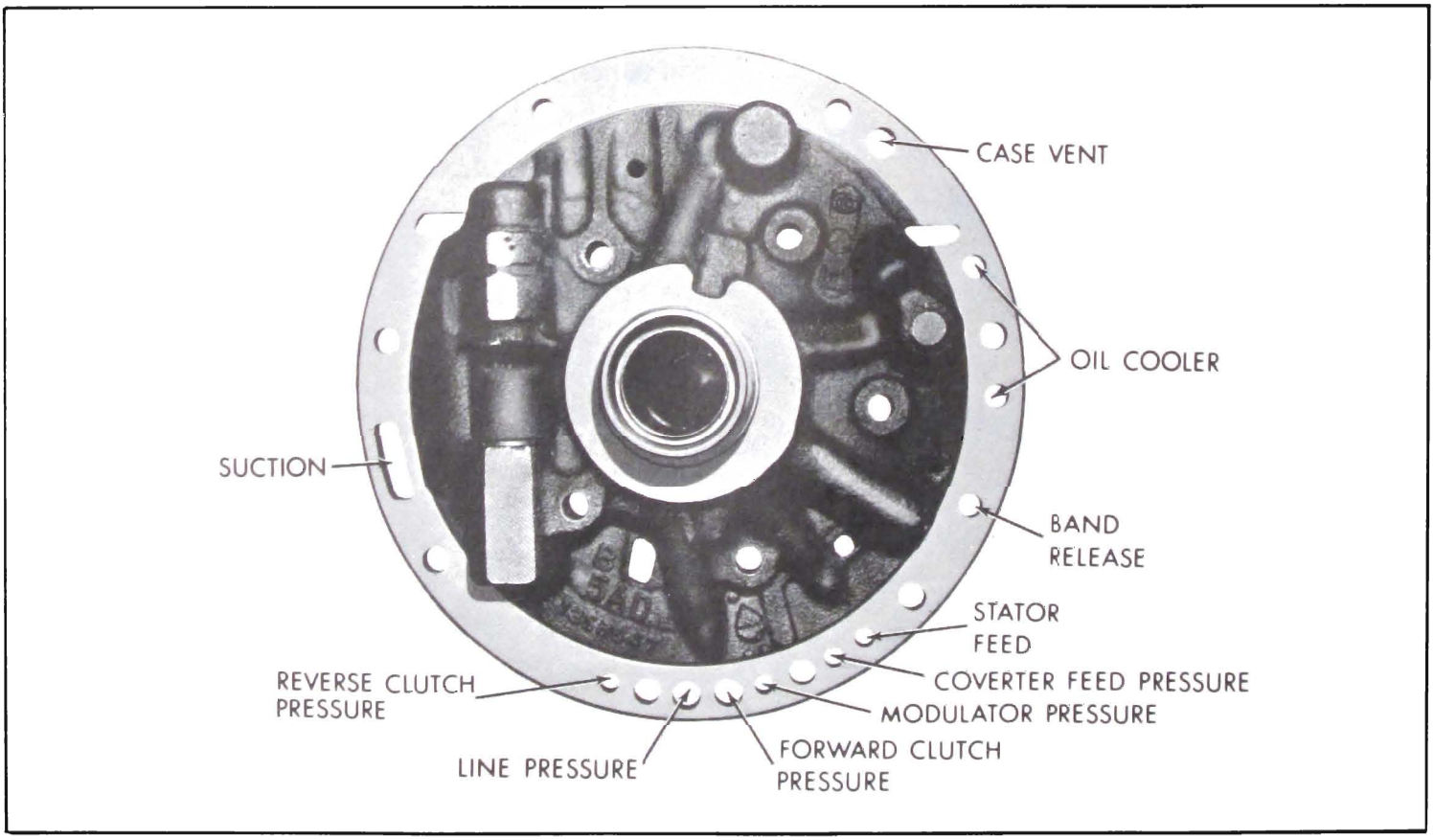


Figure 5-368—Oil Passages in Rear Face of Pump Cover

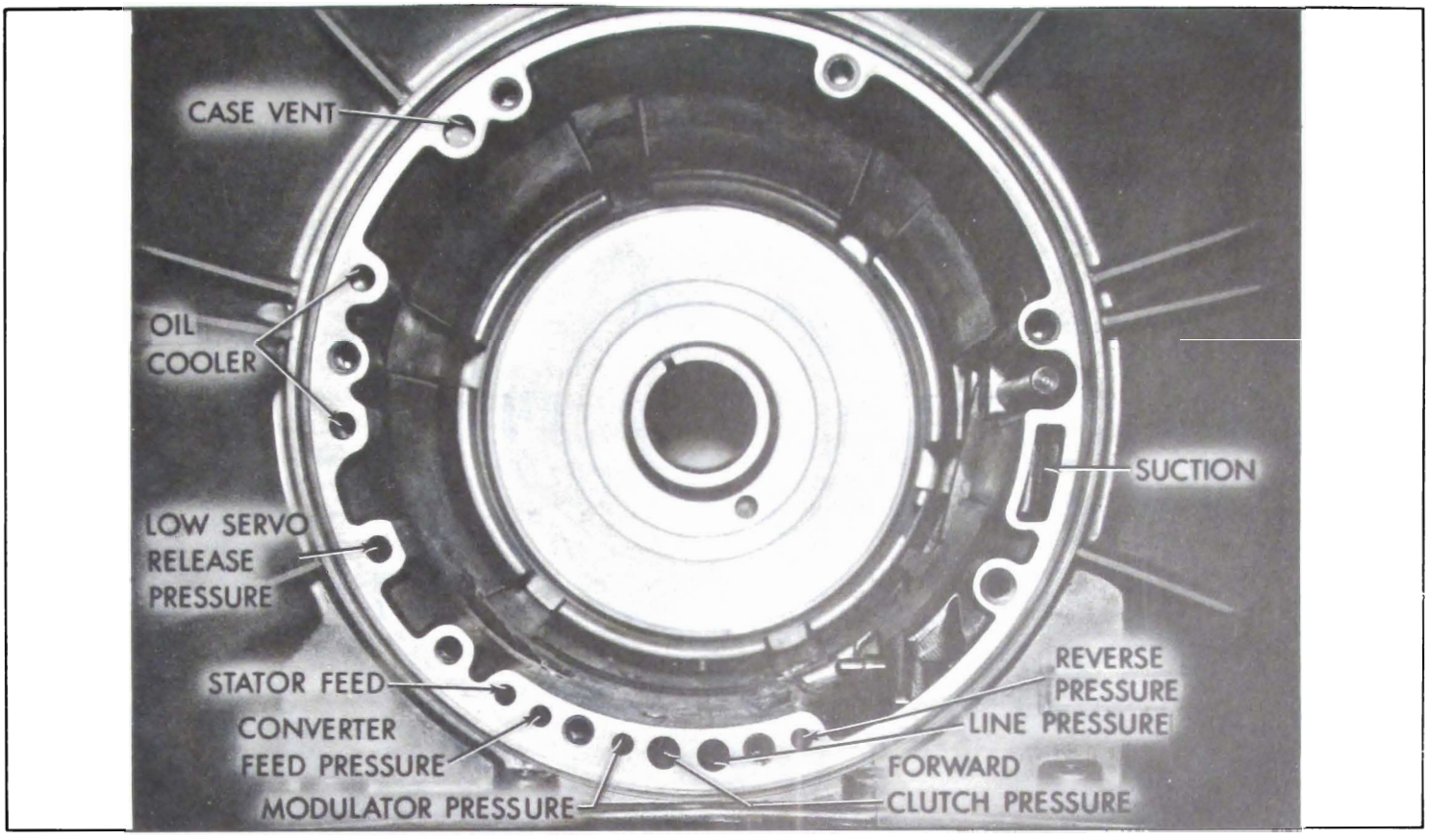


Figure 5-370—Oil Passages in Front Transmission Case

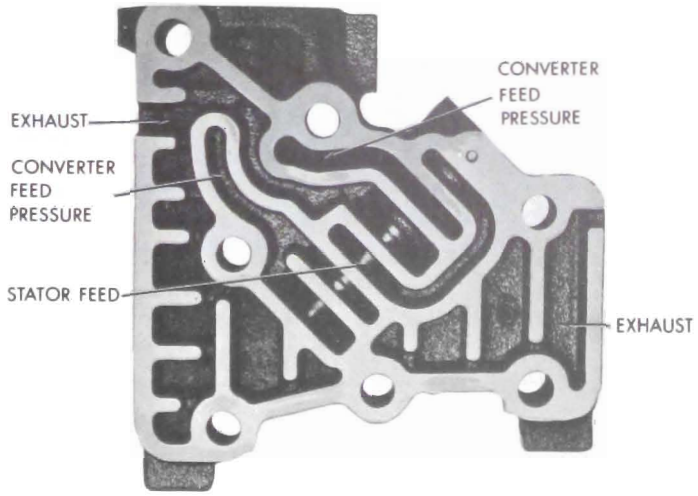


Figure 5-371—Oil Passages in Stator Valve Body

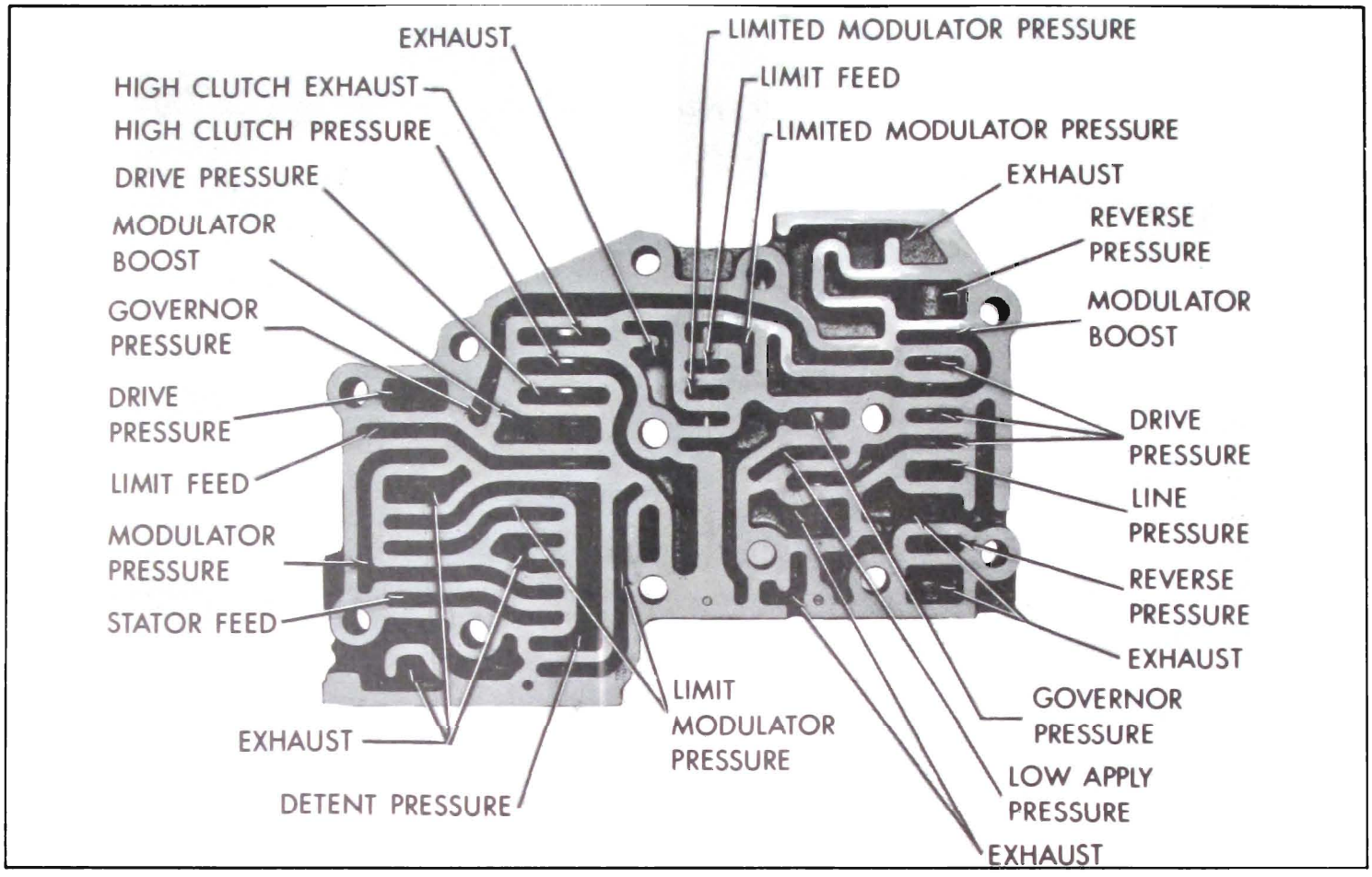


Figure 5-372—Oil Passages in Main Valve Body

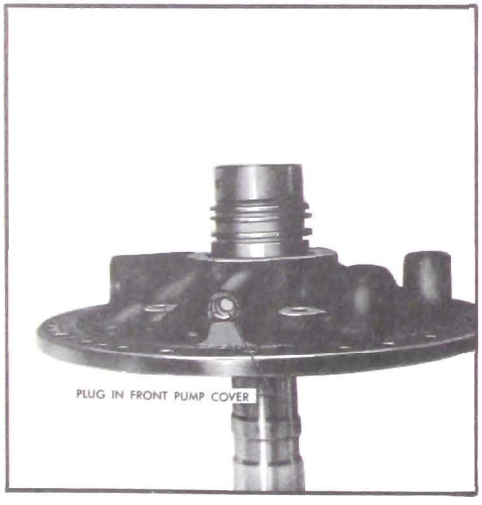


Figure 5-373—Checking for Plug in Front Pump Cover

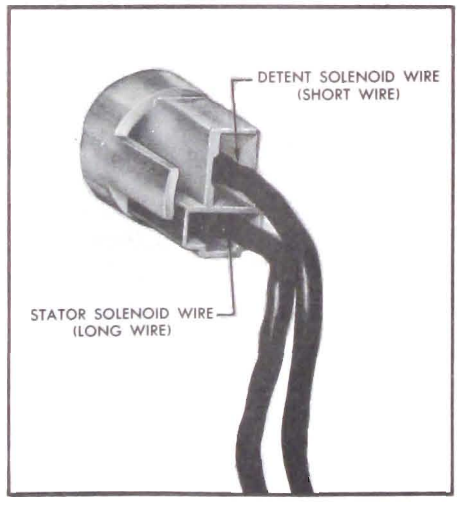


Figure 5-374—Location of Solenoid Wires

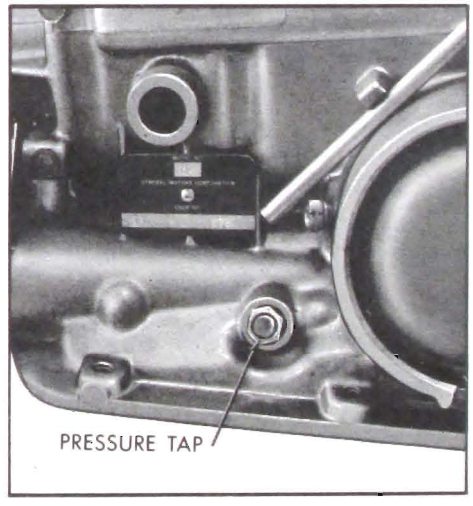


Figure 5-375—Super Turbine "300" Transmission Pressure Checks

5-33 OIL PRESSURE CHECKS

SUPER TURBINE "300"
TRANSMISSION PRESSURE CHECKS

MAXIMUM MAIN LINE PRESSURE CHECKS are to be made in the garage bay with the vacuum modulator line disconnected and plugged. The engine speed set at 1000 RPM.

ALTITUDE	Barometric Pressure (in Hg.) at Standard Conditions*	25 V-6 Vacuum Modulator Part No. 1365186 or 1365187		25 V-6 Vacuum Modulator Part No. 1367031 or 1367032		35 V-8 Vacuum Modulator Part No. 8623364 or 8623365	
		D and L ±4 PSI	R ±6 PSI	D and L ±4 PSI	R ±6 PSI	D and L ±4 PSI	R ±6 PSI
Sea Level	29.92	137	213	141	219	149	230
2,000 Ft.	27.82	130	202	134	207	142	219
5,000 Ft.	24.89	120	186	124	192	131	203
10,000 Ft.	20.58	105	163	109	168	117	183

MINIMUM LINE PRESSURE CHECKS are to be made while road testing car. The vacuum modulator line connected. Engine and/or car speed as shown in note below.**

MINIMUM LINE PRESSURE CHECKS FOR ALL MODELS REGARDLESS OF VACUUM MODULATOR USED. (Pressures not affected by Altitude or Barometric Pressure)

Park, Neutral, and Drive	60 ± 2 PSI
Low	90 ± 4 PSI
Reverse	93 ± 4 PSI

*Line pressures vary 3.5 PSI for each 1 in. hg. change in Barometric Pressure.
**Minimum line pressure checks to be made as follows:
1. Drive 20-40 mph coast with foot off throttle. Park and Neutral can be checked at 1000 RPM.
2. Low 20-40 mph coast with foot off throttle.
3. Reverse-coast with foot off throttle.

NOTE: PRESSURE TAP IS LOCATED BESIDE THE LOW SERVO COVER. See Figure 5-375.

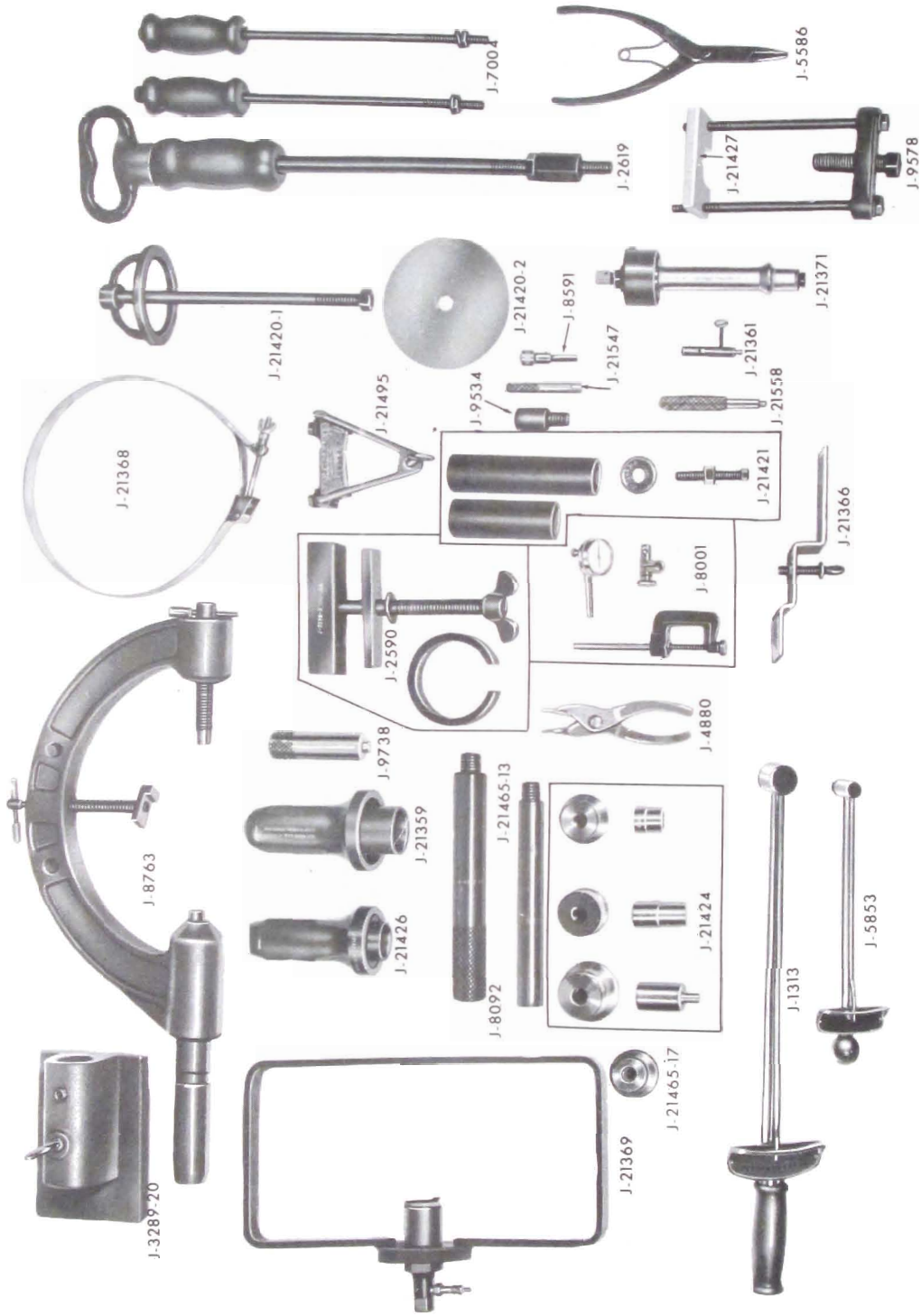


Figure 5-376—Special Tools

J-3289-20	-	HOLDING FIXTURE BASE
J-8763	-	HOLDING FIXTURE
J-21368	-	PUMP BODY TO COVER ALIGNMENT BAND
J-21420-1 J-21420-2	-	REVERSE CLUTCH SPRING COMPRESSOR
J-21495	-	LOW SERVO COVER REMOVER AND INSTALLER
J-7004	-	SLIDE HAMMER
J-2619	-	SLIDE HAMMER
J-5586	-	SNAP RING PLIERS
J-9578	-	SPEEDO GEAR REMOVER
J-21371	-	CONVERTER END PLAY CHECKING FIXTURE
J-21361	-	CHECK VALVE SEAT REMOVER
J-21558	-	CHECK VALVE SEAT INSTALLER
J-21547	-	MODULATOR LIMIT VALVE SPRING COMPRESSOR
J-9534	-	PLANET CARRIER BUSHING REMOVER
J-21421	-	SPEEDO GEAR INSTALLER
J-8001	-	DIAL INDICATOR SET
J-21366	-	CONVERTER HOLDING STRAP
J-4880	-	SNAP RING PLIERS
J-2590	-	FORWARD CLUTCH SPRING COMPRESSOR
J-9738	-	OUTER SHIFT LEVER SEAL INSTALLER
J-21359	-	OIL PUMP SEAL INSTALLER
J-21426	-	CASE EXTENSION OIL SEAL INSTALLER
J-8093	-	DRIVE HANDLE
J-21424	-	BUSHING SET
J-1313	-	FT. LB. TORQUE WRENCH
J-5853	-	IN. LB. TORQUE WRENCH
J-21369	-	CONVERTER PRESSURE CHECK FIXTURE
J-21465-17	-	PUMP BODY BUSHING REMOVER AND INSTALLER

Figure 5-377—Special Tool Identification