SECTION B
SKYLARK GRAN SPORT

CONTENTS

DIVISION I SPECIFICATIONS AND ADJUSTMENTS

71-1 GENERAL SPECIFICATIONS

a. Clutch Specifications

	V/8 (400 cu. in. Engine)
Type	Single Plate-Dry Disc
Pedal Pressure	28-33 lbs.
Pedal Lash	See Par. 71-2
Driven Plate Diameter	11"
Driven Plate Facings	Woven Molded
Number of Facings	2
Facing Attachment	Rivets
Facing Area (Sq. In.)	123.7
Vibration Damping	-5 Torsional Springs-

b. Bolt Tightening Specifications

Location	Thread Size	Torque lb. ft.
Clutch Cover to Flywheel	5/16-18	25-35
Clutch Equalizer Ball to Release Shaft	7/16-20	60-85
Clutch Equalizer Bracket to Frame	5/16-18 x 3/4	10-18

71-2 CLUTCH LASH ADJUSTMENT

Pedal lash, free pedal, must be adjusted occasionally to compensate for normal wear of the clutch facings. As the driven plate wears thinner, pedal lash decreases. Adjust pedal lash as shown in Figure 71-100.

DIVISION II DESCRIPTION AND OPERATION

71-3 DESCRIPTION AND OPERATION

A single plate, dry disc clutch is used on all Skylark Gran Sport models equipped with either 3 or 4 speed manual transmission. The clutch is of conventional design with a diaphragm spring assembly. The clutch assembly and controls are specific to the Skylark Gran Sport. The clutch assembly and controls are not interchangeable with Special and Skylark models.

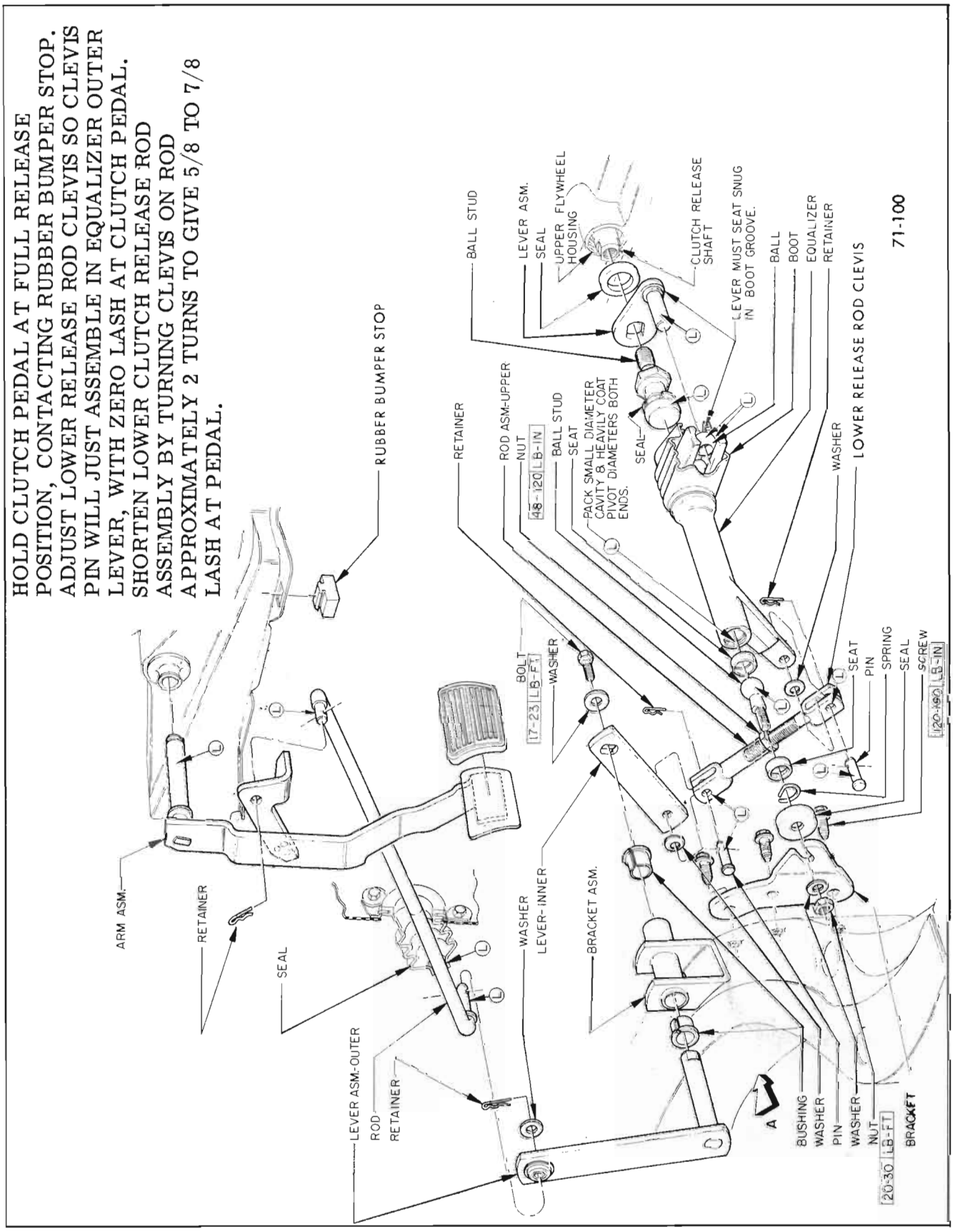

Figure 71-100—Clutch Outer Controls

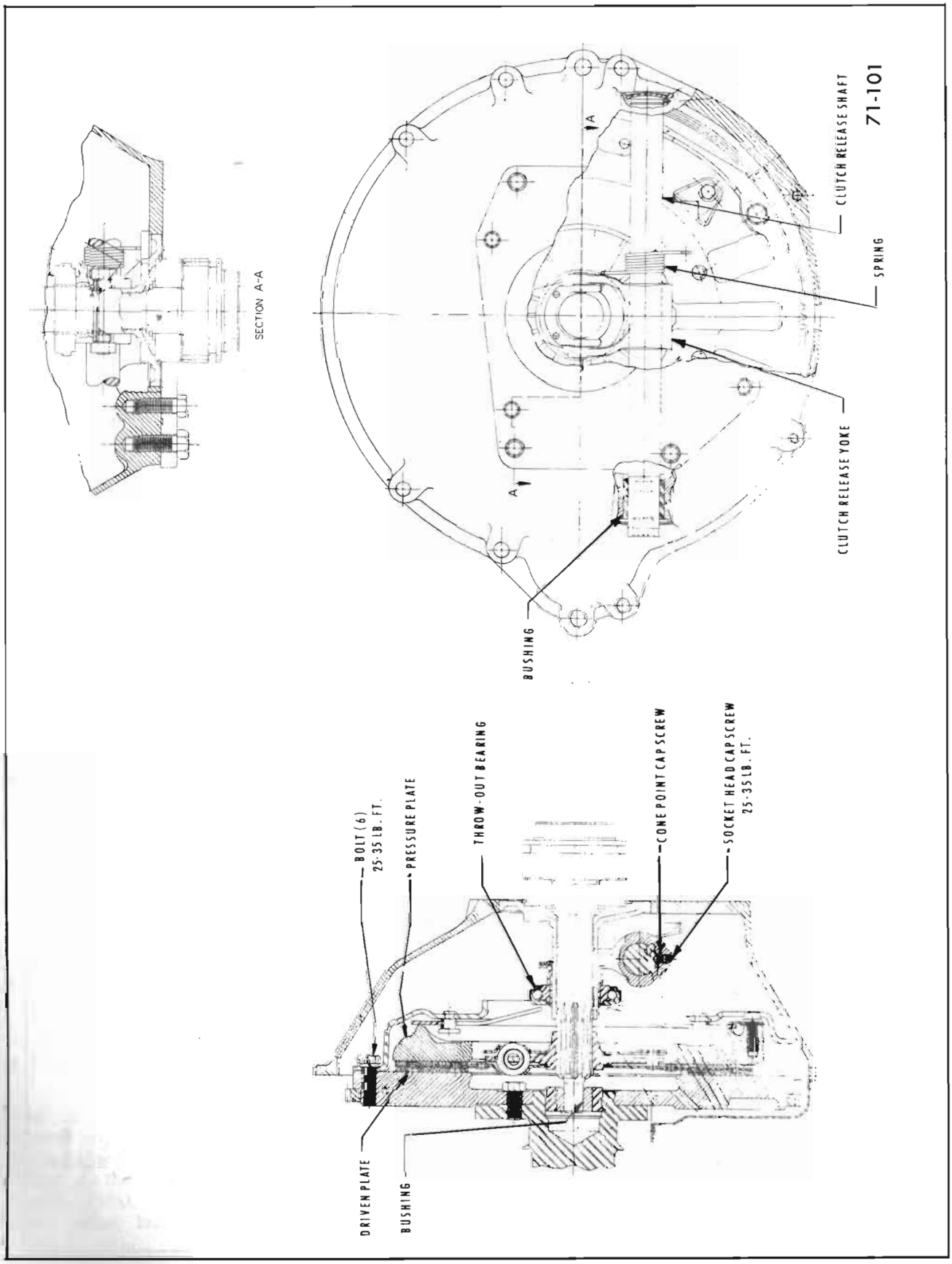

Figure 71-101—Clutch Inner Controls

DIVISION III SERVICE PROCEDURES

71-4 REMOVAL, INSPECTION, LUBRICATION AND INSTALLATION OF CLUTCH

a. Removal from Vehicle

NOTE: For clutch pressure plate and driven plate removal refer to Steps 1, 2, 3, 6, 10, 11 and 12.

For clutch internal controls removal refer to Steps 1 thru 9.

1. Remove transmission.

2. Disconnect lower clutch release rod assembly from equalizer. See Figure 71-100.

3. Loosen nut on frame side of equalizer and remove equalizer.

4. Remove ball stud from clutch release shaft.

5. Remove release lever and seal. See Figure 71-100.

6. Remove flywheel housing.

7. Remove nylon bushing from flywheel housing. See Figure 71-101.

8. Remove socket head cap screw on clutch release shaft from same hole remove second socket head cap screw (cone point). See Figure 71-101.

9. Pull clutch release shaft out approximately three inches. Slide release yoke, throw-out bearing, woodruff key, and return spring off end of release shaft. Remove release shaft. See Figure 71-101.

10. Mark clutch cover and flywheel with a center punch so that cover can be reinstalled in the same position on the flywheel.

11. Loosen each clutch cover bolt one turn at a time in order to relieve clutch spring pressure evenly, thereby avoid distortion of the cover.

12. Support pressure plate and cover assembly while removing last bolts then, remove cover assembly and driven plate.

b. Inspection of Clutch

Wash all metal parts of clutch, except release bearing and driven plate, in suitable cleaning solution to remove dirt and grease. Soaking release bearing in cleaning solution would permit solution to seep into bearing and destroy the lubricant. Soaking driven plate in cleaning solution would damage the facings.

1. Flywheel and Pressure Plate. Examine friction surfaces of flywheel and pressure plate for scoring and roughness. Slight roughness may be smoothed with fine emery cloth, but if surface is deeply scored or grooved the part should be replaced.

2. Clutch Cover. Inspect clutch cover for cracks or distortion.

3. Clutch Driven Plate. Inspect driven plate for condition of facings, loose rivets, broken or very loose torsional springs, and flattened cushion springs.

If facings are worn down near rivets or are oily, the plate assembly should be replaced. A very slight amount of oil on clutch facings will cause clutch grab and chatter. A large amount of oil on facings will cause slippage. Removal of oil by solvents or by buffing is not practical since oil will continue to bleed from facing material when hot.

When oil is found on driven plate facings, examine transmission drainback hole, pilot bushing, engine rear main bearing and other points of oil leakage.

Test the fit of driven plate hub on transmission main drive gear; an easy sliding fit should exist. Regardless of whether the old plate or a new one is to be installed, the plate should be checked for run-out. This check can be made by following steps outlined in Figures 71-102 and 71-103.

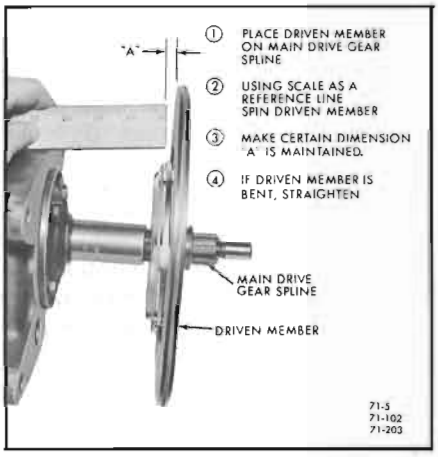

Figure 71-102—Checking Driven Plate Run-out

4. Bearings. Inspect clutch release bearing for scoring or excessive wear on front contact face. Test for roughness of balls and races by pressing and turning front race slowly. Inspect main drive gear pilot bushing in crankshaft. If bushing is rough or worn it should be replaced.

5. Check clutch pilot bearing for excessive wear or damage. If replacement is necessary, remove bearing with Puller J-1448. For installation use Driver J-1522.

c. Lubrication of Clutch

Lubrication of the clutch is required only when the clutch is removed from the car.

Figure 71-103—Checking Driven Plate Run-out

NOTE: Before clutch release shaft is installed apply a heavy coat of wheel bearing lubricant where right side of clutch release shaft pilots in flywheel housing.

1. Very sparingly apply wheel bearing lubricant in pilot bushing in crankshaft. If too much lubricant is used, it will run out on face of flywheel when hot and ruin driven plate facings. Make sure that surface of flywheel is clean and dry.

2. Make certain that splines in driven plate hub are clean and apply a light coat of wheel bearing lubricant. Apply a light coat of wheel bearing lubricant on transmission drive gear splines. Slide driven plate over transmission drive gear several times. Remove driven plate and wipe off all excess lubricant pushed-up by hub of plate. Driven plate facings must be kept clean and dry.

3. Fill recess on inside of throw-out bearing with wheel bearing lubricant. Make sure transmission front bearing retainer sleeve is clean and apply a light coat of wheel bearing lubricant. Slide throw-out bearing over transmission retainer several times. Remove throw-out bearing and wipe off all excess lubricant pushed up by hub of bearing.

d. Installation of Clutch

1. Install the pressure plate and driven plate. Support both assemblies with a spare main drive gear.

NOTE: Make certain to align marks on clutch cover with mark made on disassembly.

2. Install clutch release shaft part way into upper flywheel housing and install woodruff key into shaft.

3. Slide clutch release yoke and return spring onto shaft. Before sliding release shaft into bore on right of housing, lubricate with wheel bearing grease. Slide shaft into place. See Figure 71-101.

4. Install clutch release yoke over woodruff key. Install cone point socket head cap screw first. Install second socket head cap screw. See Figure 71-101.

5. Lubricate inside of nylon bushing and install.

6. Install clutch release seal and lever.

7. Install ball stud to clutch release shaft. See Figure 71-100.

8. Install flywheel housing to cylinder block. Torque bolts to 45-60 ft. lbs.

9. Install clutch equalizer and lubricate as shown in Figure 71-100. Torque nut on frame side of equalizer to 20-30 lb. ft.

10. Install lower rod assembly to equalizer.

11. Install transmission.

CAUTION: It is very important that guide pins be used to install transmission to avoid damage to clutch driven plate.

12. Adjust clutch lash as described in paragraph 71-2.

71-5 ALIGNMENT OF FLYWHEEL HOUSING

The flywheel upper housing which joins the synchromesh transmission to the engine crankcase is attached to the crankcase by bolts, with two straight dowels to maintain alignment.

Misalignment between the pilot hole which receives the main drive gear bearing in rear wall of housing and the pilot bushing in rear end of crankshaft may

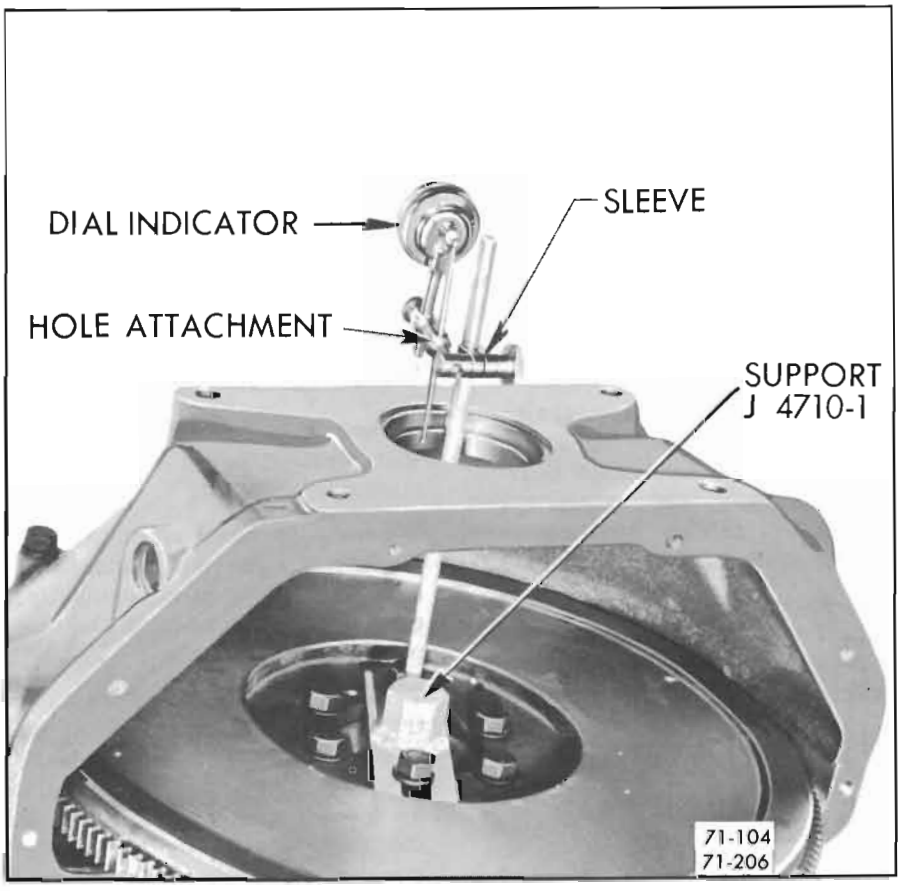

Figure 71-104—Checking Alignment of Pilot Hole

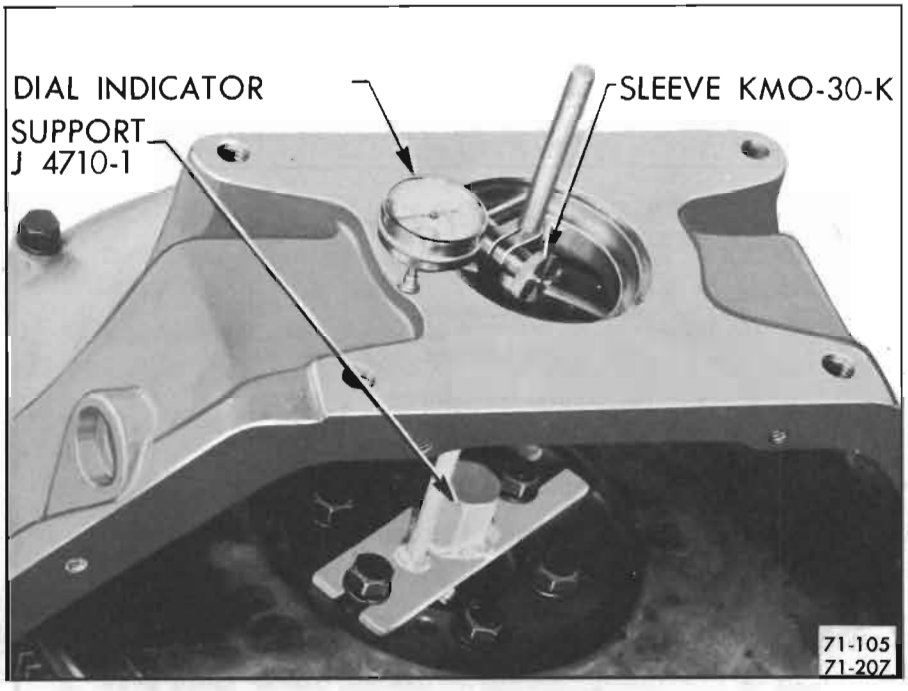

Figure 71-105—Checking Alignment of Rear Face

cause the transmission to be noisy or to slip out of high gear. To insure correct alignment in production, the pilot hole is bored in the housing after it is assembled to the cylinder crankcase. The flywheel housing furnished for service is completely machined, but it must be checked for alignment after installation.

If an existing housing is suspected of being out of alignment it may be checked after removal of the transmission and clutch assemblies. If a new housing or cylinder crankcase is being installed, alignment should be checked before the flywheel, clutch and transmission are installed. When checking alignment the engine must be in an upright position, dowel pins must be installed, and all housing bolts must be tight.

a. Checking Alignment of Flywheel Upper Housing

1. Remove transmission and clutch, leave flywheel in place.

2. Attach Indicator Support J-4710-1 to flywheel with two flywheel bolts. Mount dial indicator and hole attachment on pilot as shown in Figure 71-104. Adjust ball end of hole attachment to bear against side of pilot hole in flywheel housing.

3. Turn flywheel very slowly and note total run-out of pilot hole as shown by dial indicator. If total indicator reading is .005" or less, flywheel housing alignment is satisfactory. If run-out exceeds .005", correction must be made as follows:

b. Correction of Flywheel Upper Housing Misalignment

1. Remove flywheel upper housing and dowel pins from crankcase.

2. Drill out bolt holes in flywheel housing with a 1/2" drill.

3. Install flywheel housing without dowel pins, and leave bolts just loose enough to permit shifting of housing by tapping with lead hammer.

4. Install dial indicator as shown in Figure 71-104, and check run-out at pilot hole in housing.

5. Shift housing by tapping with lead hammer as required to bring run-out at pilot hole within .003" indicator reading. Tighten housing bolts and recheck run-out.

6. Using Special Reamer J-2548-3 and Ratchet Wrench J-808-6, ream the dowel holes and install two oversize dowel pins J-808-5.

7. Mount dial indicator to bear against rear face of flywheel housing at a radius of 2 1/2", as shown in Figure 71-105.

8. Turn crankshaft and note run-out of housing rear face, making sure that end thrust of crankshaft is all one way while making this check. If total indicator reading exceeds .003", check for dirt or burrs between housing and crankcase.

9. If no dirt or burrs are present, cement paper shims of proper thickness to crankcase in position required to give an indicator reading of .003" or less, when all bolts are securely tightened.

10. Install clutch and transmission.

DIVISION IV TROUBLE DIAGNOSIS

71-6 CLUTCH TROUBLE DIAGNOSIS

SYMPTOM AND PROBABLE CAUSE	PROBABLE REMEDY
FAILS TO RELEASE (PEDAL PRESSED TO FLOOR-SHIFT LEVER DOES NOT MOVE FREELY IN AND OUT OF REVERSE GEAR)	
a. Improper linkage adjustment	a. Adjust linkage
b. Improper pedal travel	b. Adjust linkage
c. Loose linkage	c. Replace bushings
d. Faulty pilot bearing	d. Replace bearing
e. Faulty driven disc	e. Replace disc
f. Clutch disc hub binding on main drive gear spline	f. Lubricate if worn replace
SLIPPING	
a. Improper adjustment (no lash)	a. Adjust linkage
b. Oil soaked driven disc	b. Install new disc and correct oil leak at its source
c. Worn facing or facing torn from disc	c. Replace disc
d. Warped pressure plate or flywheel	d. Replace same
e. Weak diaphragm spring	e. Replace cover assembly
f. Driven plate not seated in	f. Make 20-50 normal starts
g. Driven plate overheated	g. Allow to cool—Check lash
GRABBING	
a. Oil on facing or burned or glazed facings	a. Install new disc
b. Worn splines on clutch gear	b. Replace transmission clutch gear
c. Loose engine mountings	c. Tighten or replace mountings
d. Warped pressure plate or flywheel	d. Replace pressure plate or flywheel
e. Burned or smeared resin on flywheel or pressure plate	e. Sand off if superficial, replace burned or heat checked parts
RATTLING-TRANSMISSION	
a. Oil in driven plate damper	a. Replace driven disc
b. Driven plate damper spring failure	b. Replace driven disc

SYMPTOM AND PROBABLE CAUSE	PROBABLE REMEDY
THROW-OUT BEARING NOISE WITH CLUTCH FULLY ENGAGED	
a. Improper adjustment	a. Adjust linkage
b. Throw-out bearing binding on transmission bearing retainer	b. Clean, relubricate, check for burrs, nicks, etc.
c. Weak linkage return spring	c. Replace spring
NOISY	
a. Worn throw-out bearing	a. Replace bearing
PEDAL STAYS ON FLOOR WHEN DISENGAGED	
a. Bind in linkage	a. Lubricate and free up linkage
b. Weak pedal return spring	b. Replace
HIGH PEDAL EFFORT	
a. Bind in linkage	a. Lubricate and free up linkage
b. Driven plate worn	b. Replace driven plate