

ENGINE CLUTCH

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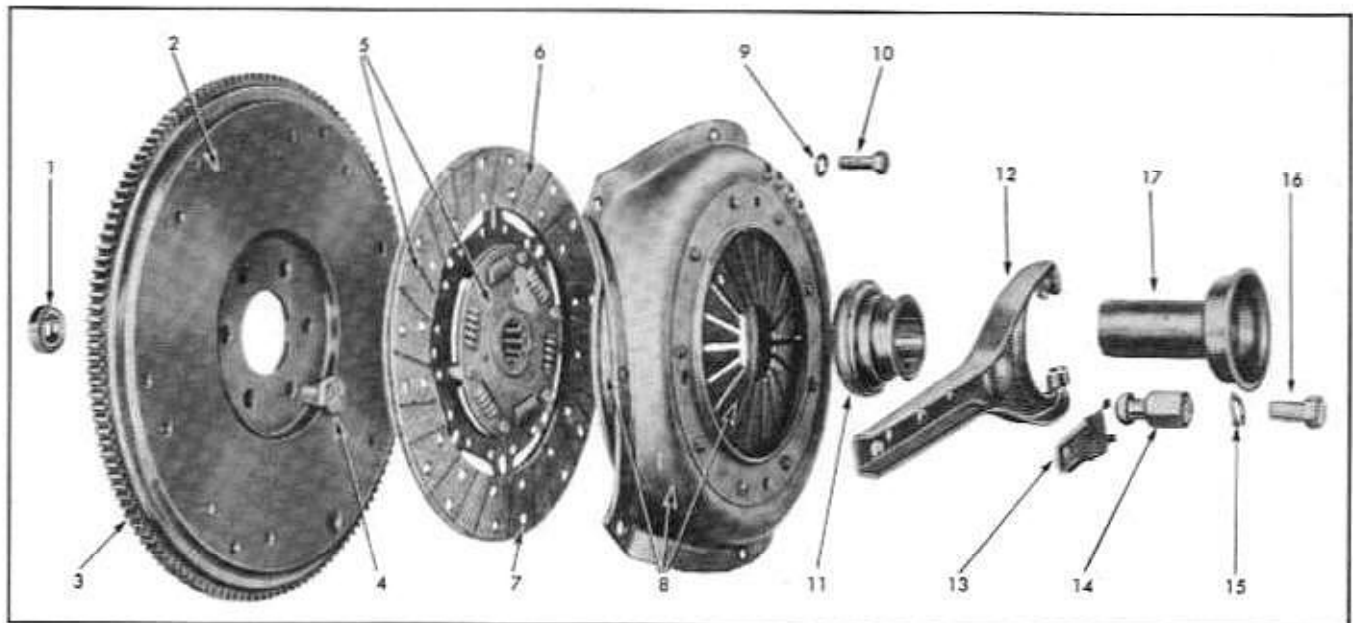
GENERAL DESCRIPTION

A single plate, dry disc type clutch is used on all models. The clutch assembly consists of the clutch driven plate assembly, the clutch cover and spring assembly, and the clutch release mechanism (Fig. 6C-1).

The clutch driven plate is 10" in diameter. Six vibration dampener coil springs encircle the hub to prevent transmission of vibration from the engine to the transmission. The grooves on both sides of the clutch plate lining prevent the sticking of the plate to the flywheel and pressure plate due to vacuum between the members.

The clutch cover and spring assembly (Fig. 6C-2) is made up of the cover, pressure plate, drive release straps, and clutch spring. The clutch spring is a diaphragm disc type spring which acts on the pressure plate and forces the clutch plate against the flywheel, thereby coupling the engine to the transmission. The drive release straps connect the pressure plate to the clutch cover and act as release springs when the clutch is disengaged.

The clutch release mechanism is made up of the ball clutch release bearing and appropriate levers and linkage to manually control the action of the bearing. The ball clutch release bearing is piloted by a tubular support, concentric with and enclosing the transmis-



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|---------------------------------------|-----------------------------------------|------------------------------------------|
| 1. Crankshaft Clutch Pilot Bearing | 7. Clutch Facing Rivet | 13. Clutch Release Fork Ball Seat Spring |
| 2. Engine Flywheel | 8. Clutch Cover and Pressure Plate | 14. Clutch Release Fork Ball |
| 3. Flywheel Ring Gear | 9. Clutch Cover to Flywheel Bolt Washer | 15. Clutch Fork Ball Support Bolt Washer |
| 4. Flywheel to Crankshaft Bolt | 10. Clutch Cover to Flywheel Bolt | 16. Clutch Fork Ball Support Bolt |
| 5. Clutch Driven Plate (With Facings) | 11. Clutch Release Bearing | 17. Clutch Release Bearing Support |
| 6. Clutch Driven Plate (Facings) | 12. Clutch Release Fork | |

Fig. 6C-1 Engine Flywheel and Clutch

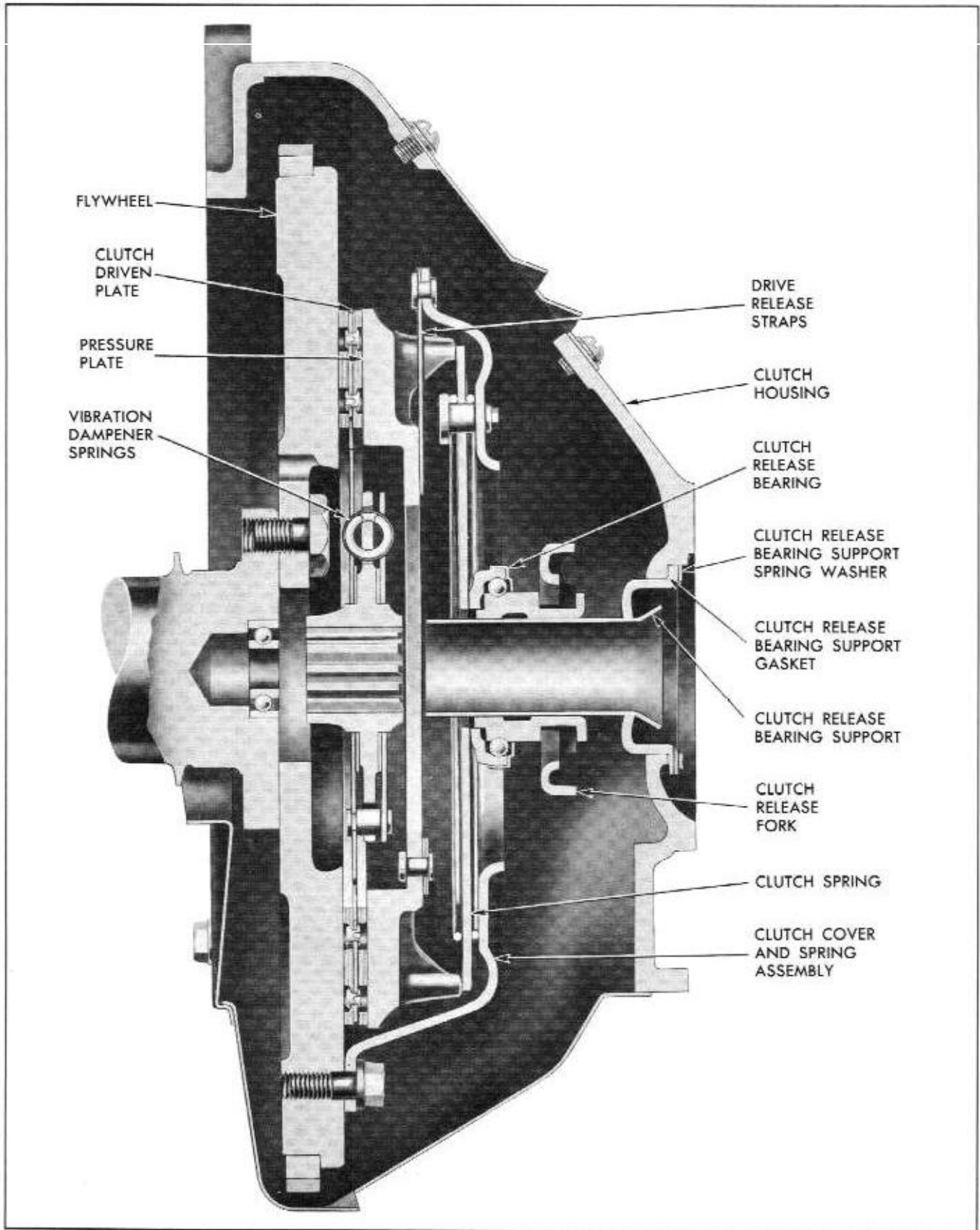


Fig. 6C-2 Cross Section of Clutch

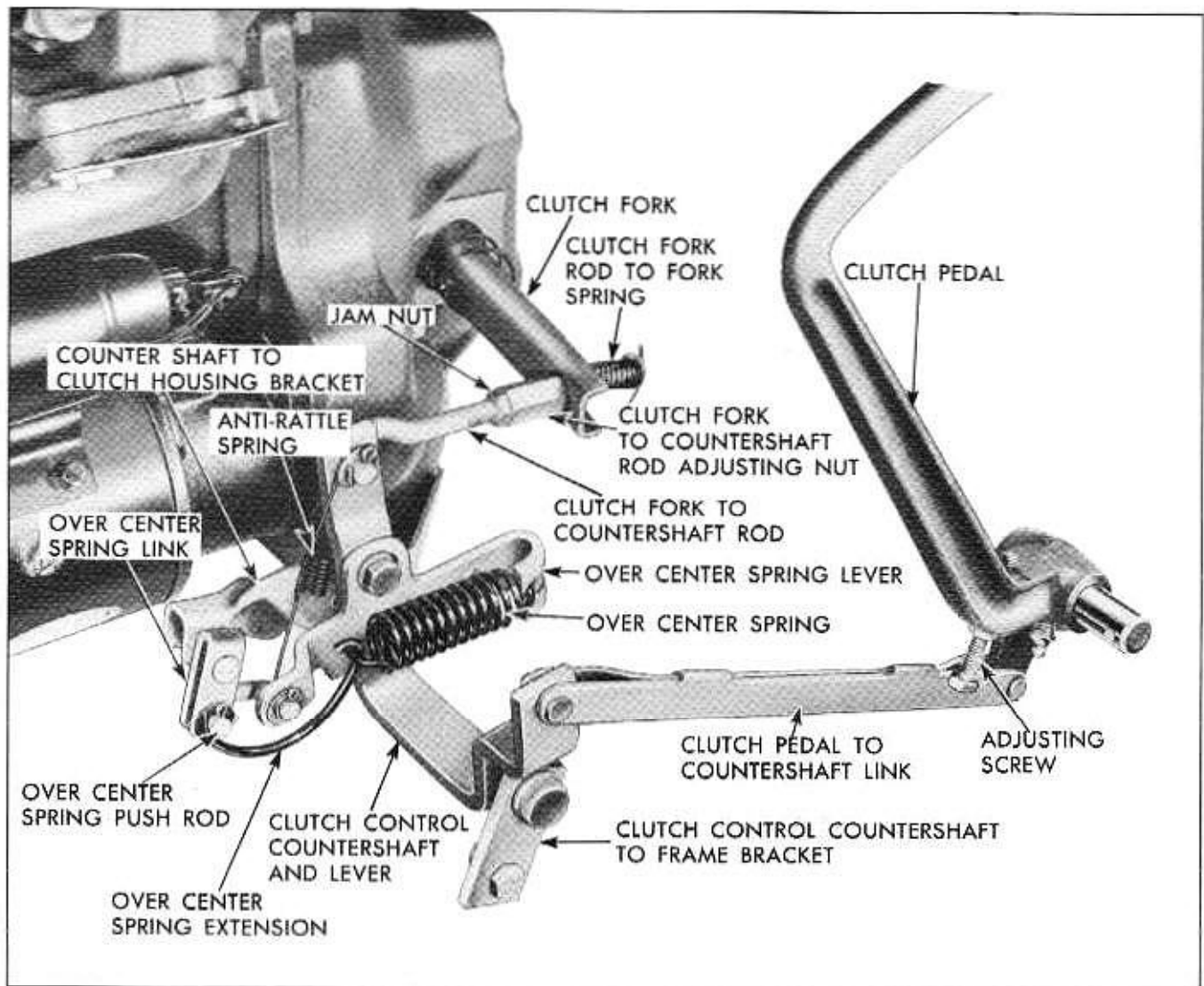


Fig. 6C-3 Clutch Control Linkage

sion main drive gear in the clutch housing. When pressure is applied to the clutch pedal to release the clutch, the clutch fork pivots on its ball socket. The inner end then pushes the release bearing forward so that the outer race presses against the inner ends of the clutch release springs, releasing the clutch. Pedal effort is transmitted by the pedal to countershaft link (Fig. 6C-3) to the countershaft and lever assembly and thence through the clutch-fork-to-countershaft rod to the clutch fork.

The clutch pedal is equipped with an overcenter spring so that as the clutch pedal is depressed beyond a certain point, the overcenter spring aids in releasing the clutch; this reduces the force exerted by the driver in disengaging the clutch.

Overcenter spring action is provided by the over-

center spring, overcenter spring extension, countershaft overcenter spring lever, overcenter spring push rod, and overcenter spring link. The countershaft overcenter spring lever has an adjustable position on the countershaft. Proper adjustment of this position is essential for easy clutch pedal operation.

PERIODIC SERVICE

Periodic service of the clutch consists of placing a few drops of engine oil on the joints of the clutch control linkage and lubricating the fitting on the clutch pedal as directed on the lubrication chart. The ball type release bearing is lubricated and sealed for life and requires no lubrication.

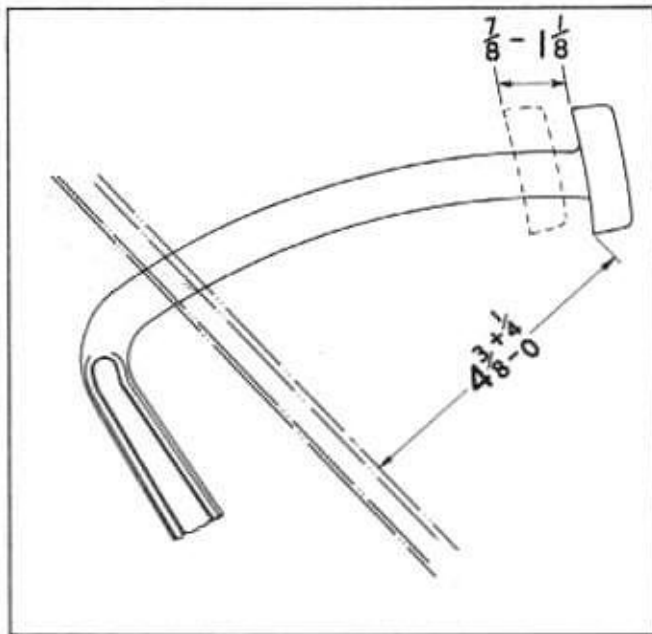


Fig. 6C-4 Clutch Pedal Adjustment

ADJUSTMENTS ON CAR

Wear on the clutch parts necessitates occasional adjustment of the clutch pedal. Adjustment should be made so as to maintain clutch pedal free movement (movement until pressure due to contacting bearing is felt at pedal) at $\frac{7}{8}$ " to $1\frac{1}{8}$ " (Fig. 6C-4). NOTE: If pedal is left with too little free movement, frequent readjustment will be necessary. If left with too much free movement, disengagement of clutch may be incomplete.

CLUTCH PEDAL ADJUSTMENT

1. With clutch pedal against stop, adjust stop screw on pedal so distance from bottom of pedal to floor mat is $4\frac{3}{8}$ " to $4\frac{5}{8}$ " (Fig. 6C-4). Tighten stop screw lock nut.
2. Set clutch fork to countershaft rod (Fig. 6C-3) to get $\frac{7}{8}$ " to $1\frac{1}{8}$ " free movement of clutch pedal.

OVERCENTER SPRING ADJUSTMENT

1. Remove overcenter spring and overcenter spring extension (Fig. 6C-3).
2. Remove overcenter spring push rod.
3. Loosen lock screw which clamps overcenter spring lever to countershaft.
4. Install gauge J-5819, inserting pins which are closest together into holes in overcenter spring link

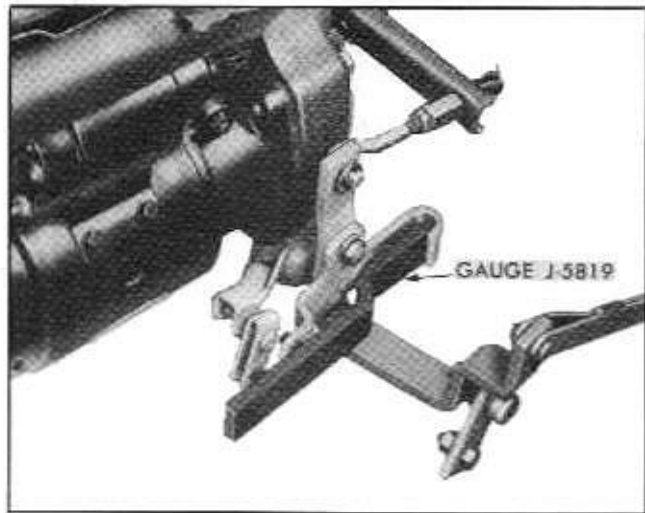


Fig. 6C-5 Gauge in Place to Adjust Overcenter Spring Lever

and lever from which push rod was removed. Then, while applying rotation to the clutch countershaft to hold clutch pedal against stop, rotate overcenter spring lever until third pin in gauge can be inserted in hole in overcenter spring lever (Fig. 6C-5).

5. Tighten lock screw to clamp overcenter spring lever securely to countershaft. Clutch pedal can then be released.

REMOVAL OF CLUTCH

1. Remove transmission (Transmission Section, page 7-1). Avoid damaging release bearing support while transmission is pulled back to free main drive gear.
2. Remove clutch bearing support spring washer (Fig. 6C-2).
3. Remove clutch housing bottom cover and countershaft lever inner bracket.
4. Disconnect clutch fork return spring and remove clutch fork ball support and clutch fork from housing.
5. Remove release bearing support and release bearing. Tap bearing support from inside clutch housing to aid in removal. Avoid striking tube surface of support on which release bearing is piloted. CAUTION: Do not pry between clutch housing and flange on release bearing support. Do not place release bearing in any degreasing solvent after removal as this bearing is packed with lubricant for life and sealed at factory.

6. Mark clutch cover and flywheel so they can be reassembled in same position.

7. Loosen bolts holding cover to flywheel one turn at a time until tension is relieved.

8. Remove bolts and move clutch assembly away from flywheel at bottom so as to permit removal of clutch driven plate.

9. Lower cover and pressure plate assembly through bottom of clutch housing.

INSPECTION OF CLUTCH PARTS

1. Inspect clutch driven plate for broken or distorted torsion springs, worn or loose facings, oil on facings, and damaged spline which could cause binding. If any of the above defects are present, replace driven plate with new assembly. **NOTE:** Servicing of clutch driven plate should be by replacement of plate assembly only.

2. Inspect pressure plate and cover assembly to see that it is free of oil and grease. Check to see that diaphragm spring is not broken and fingers of spring are not distorted.

3. Examine release bearing support to see that support flange is not distorted causing misalignment. Check to see that support flange seats fully into recess in clutch housing.

Examine support carefully to be certain there are no burrs on outer surface which pilots clutch release bearing. Also, be certain there are no burrs on surface which contacts clutch housing counterbore at paper gasket surfaces. Irregularities on these surfaces may cause abnormal clutch action and transmission oil leakage into clutch.

If a slight step is found in clutch housing counterbore which prevents seating of bearing support flange (Fig. 6C-6) chamfer edge of support flange to allow it to seat and remove any burrs on edge of flange (Fig. 6C-7).

4. Try release bearing on bearing support to make sure no binding exists.

5. Check release bearing by placing thrust load on bearing by hand and turning bearing race. Replace if bearing feels rough when turning. **CAUTION:** Never place release bearing in any degreasing solvent as this will wash lubricant out of bearing. Bearing is lubricated for life and sealed at the factory.

6. Clean flywheel face. If pilot bearing in crankshaft must be replaced see page 6-24.

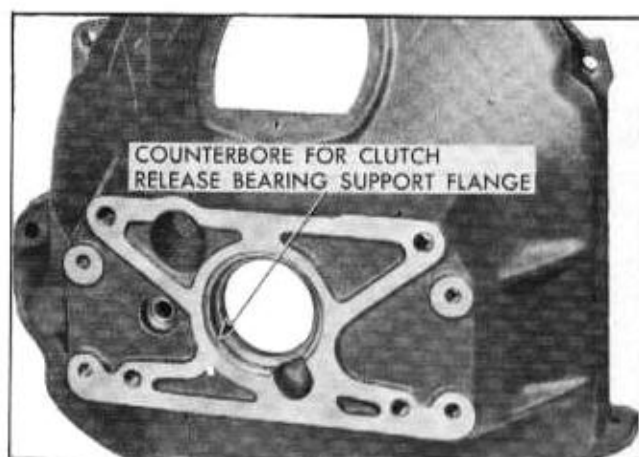


Fig. 6C-6 Clutch Housing Counterbore

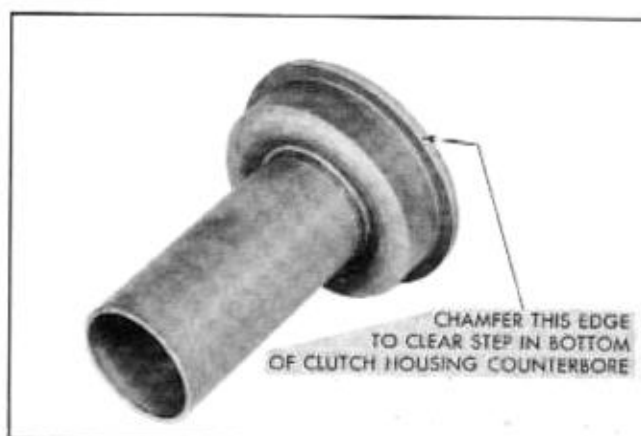


Fig. 6C-7 Clutch Release Bearing Support

INSTALLATION OF CLUTCH

1. Position driven disc so long end of hub is in flywheel and install clutch pressure plate and cover assembly on flywheel but do not tighten bolts (install lockwasher under each cover to flywheel bolt). **NOTE:** See that marks placed on flywheel and on cover during disassembly are lined up.

2. Use a spare transmission main drive gear inserted in spline of clutch driven disc to move disc into correct alignment so pilot on end of drive gear will enter clutch pilot bearing. Tighten clutch cover to flywheel bolts one turn at a time until tight. Remove spare main drive gear used to align clutch disc.

3. Apply coat of high melting point wheel bearing grease to full length of outer diameter of release bearing support. **CAUTION:** Do not overlubricate.

4. See that excess lubricant is wiped out of inner diameter of clutch release bearing; grease should be

confined only to recess in the inner diameter.

5. Place new paper gasket on clutch release bearing support and install release bearing support and release bearing (Fig. 6C-2).

6. Install clutch bearing support spring washer (Fig. 6C-2).

7. Lubricate surface of release fork fingers, which contact release bearing, and the release fork ball fulcrum with high melting point wheel bearing lubri-

cant and install release fork. See that lockwasher is used under screw fastening fork ball fulcrum to clutch housing.

8. Connect clutch linkage to release fork.

9. Install transmission (page 7-16). **CAUTION:** Be sure to use two transmission guide pins in upper holes in clutch housing, new main drive gear felt seal, and new transmission to clutch housing gasket.

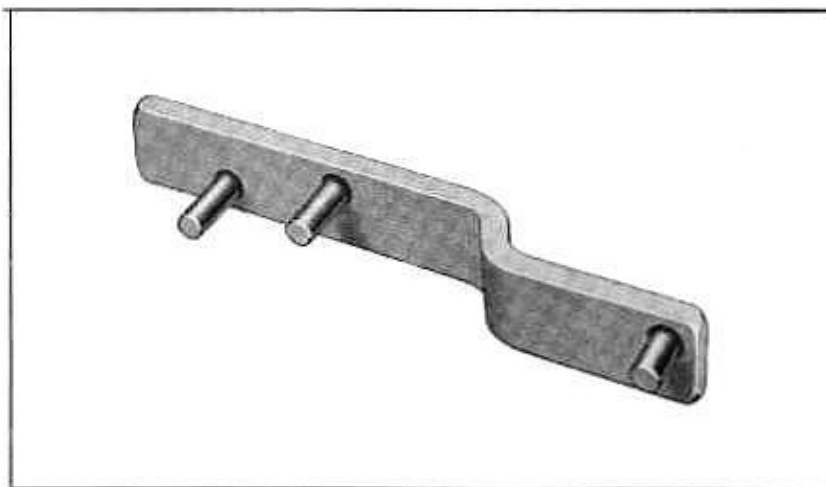
10. Adjust clutch (page 6C-4).

SPECIFICATIONS

Clearance between pedal and floor mat	4 $\frac{3}{8}$ "-4 $\frac{5}{8}$ "
Pedal lash (free travel)	3 $\frac{1}{4}$ "-1 $\frac{1}{8}$ "
Disc facings	
Type	Single plate dry
Diameter of disc	10"
Facing size	10" x 6 $\frac{3}{4}$ " x $\frac{1}{8}$ "
Release bearing	Sealed ball bearing
Release levers	Integral with spring
Number of pressure springs	1

TORQUE SPECIFICATIONS

	Lb. Ft.
Water Pump to Timing Chain Cover	15
Fan to Water Pump Hub Bolts	20



SPECIAL TOOLS

J-5819 Clutch Linkage Gauge