

**CLUTCH****SECTION I. TROUBLE SHOOTING****1-1. Clutch Slips, Chatters, or Grabs.**

- a. Check for sufficient free pedal (see Section 2-3).
- b. Inspect clutch facings for oil or grease.
- c. Inspect clutch visually for loose or damaged parts.

**1-2. Clutch Noisy with Pedal Depressed.**

- a. Check for worn or damaged pilot bearing.
- b. Check for worn release bearing or sleeve.

**1-3. Clutch Noisy at Free Pedal Position.**

- a. Inspect release bearing and sleeve for wear or damage.

**1-4. Clutch Linkage Noisy with Engine Inoperative.**

- a. Lubricate the linkage. Check all bushings in linkage for wear.
- b. Check pressure plate bosses and lubricate if necessary.
- c. Check return spring installation.

**SECTION II. PEDAL AND LINKAGE****2-1. Disassembly.**

- a. Detach the return spring (3-1) and hook (3-2) from the clutch pedal assembly (3-3).
- b. Remove the cotter pin from the clutch pedal (3-3) to bellcrank rod clevis pin. Pull the clevis pin (3-4).
- c. Remove the cotter pin from the clutch pedal (3-3) to bellcrank rod (3-5). Remove the rod (3-5) from the bellcrank (3-6).
- d. Remove the cotter pin from the brake and clutch pedal shaft (3-7). Pull the clutch pedal assembly (3-3) from the shaft (3-7). See Fig. 3.
- e. Remove the cotter pin (1-25) from the bellcrank to yoke rod (1-26). Snap the adjusting nut (1-28) from the yoke assembly (1-32).
- f. Remove the bolts and lockwashers securing the bellcrank brackets (1-23) to the frame. Use care to avoid losing the pivot ball bushing (1-17) from one end of the bellcrank.
- g. Remove one pivot bushing (1-17) and the spring (1-18) from the bellcrank (1-19).
- h. Remove the nut (1-13) and lockwashers (1-14) securing the pivot ball stud (1-15) to the bracket.
- i. Remove the retaining ring holding the second pivot ball (1-21) and bushing (1-20) in the bellcrank.
- j. Pull the yoke and stone shield assembly from the clutch housing (1-32).
- k. Clean all metal parts with solvent.

**2-2. Reassembly.**

- a. Inspect the bearings in the clutch pedal assembly for wear or damage. Replace if necessary.
- b. Check the clevis and clevis pin for wear. If the holes in the bellcrank are enlarged, replace the bellcrank or fill holes by welding and then redrill.
- c. Check the pedal to bellcrank rod and bushing, and the bellcrank to yoke rod (1-26) and bushing. Replace bushings if worn.
- d. Inspect the bellcrank pivot balls (1-15, 21) and bushings (1-17, 20) for scoring or wear. Check the bushing spring. Replace these parts if necessary.
- e. Reassemble the bushing (1-20) and retaining ring (1-16) on one end of the bellcrank. Position the pivot ball stud with its lockwasher (1-22) in the bracket plate (1-23).
- f. Assemble the other pivot ball stud (1-15) and lockwasher (1-14) in its bracket (1-10). Hold the bushing spring (1-18) and bushing (1-17) in the bellcrank bore and replace the bellcrank (1-19). Tighten bracket plate (1-23) to frame.
- g. Replace the yoke (1-32) and the clutch pedal assembly (3-3).
- h. Reassemble the bellcrank to yoke rod (1-26) and the clutch pedal to bellcrank rod (3-5). Use new cotter pins.

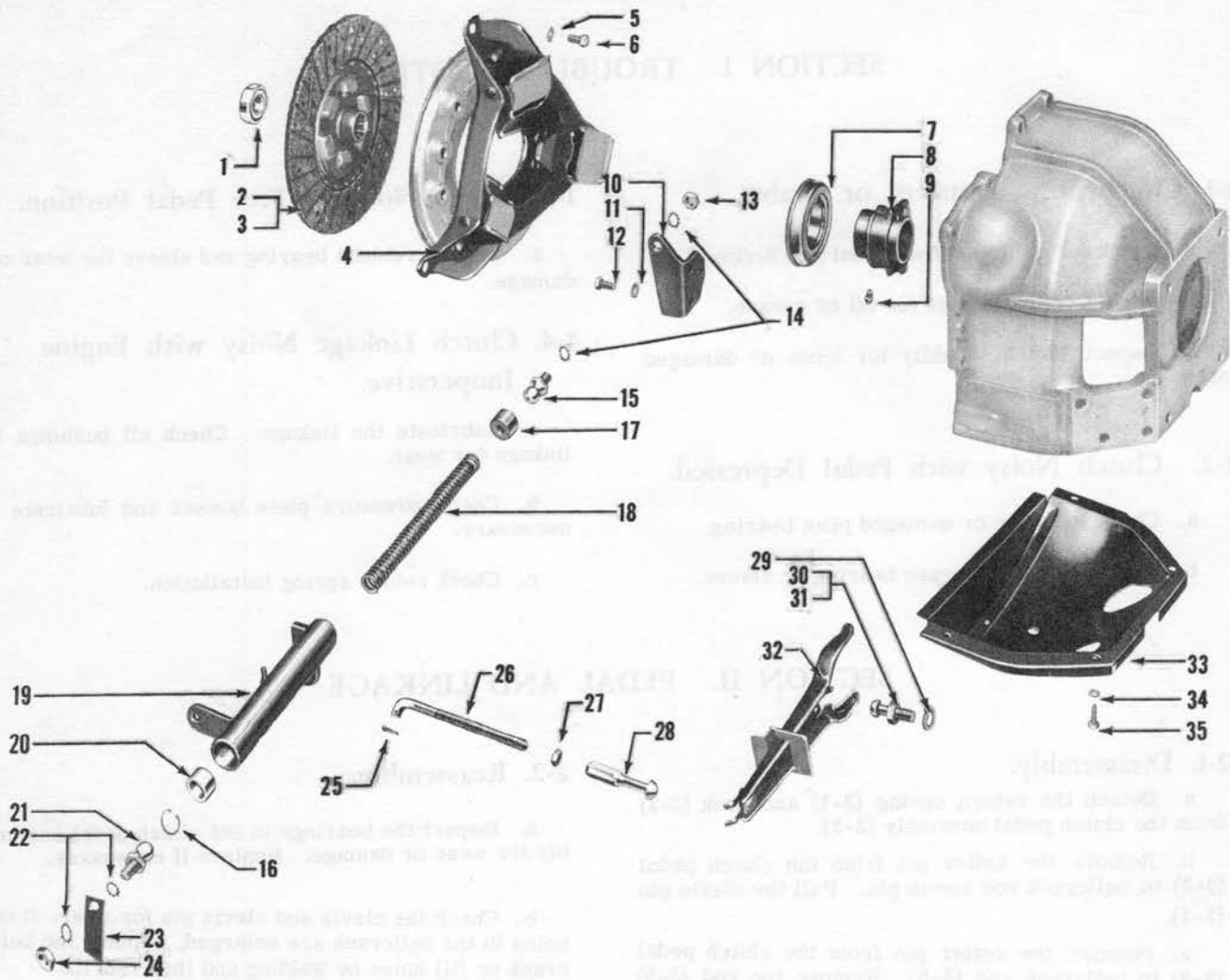


Fig. 1 - Clutch and Clutch Control Assembly

### 2-3. Adjusting the Clutch Linkage.

a. Jack up the front of the vehicle and install trestles under the chassis frame.

b. Put the gearshift lever into neutral. Start the engine and operate it at idle speed.

c. Loosen the bellcrank to yoke rod jam nut (1-27) and turn the adjusting nut (1-28) until the release bearing (1-7) contacts the clutch pressure plate levers (1-4) and turns with the clutch (the bearing may be seen through the clutch housing inspection hole).

d. While the release bearing (1-7) rotates, shorten the rod assembly by turning the adjusting nut (1-28) until the bearing just stops moving.

e. Retighten the jam nut (1-27).

f. Adjust the clutch pedal stop screw (3-8) in its bracket to obtain a pedal operating range of 6" to 7", measured from the center of the pedal pad.

g. To set free pedal travel, place a .187" feeler between the rubber cap of the stop screw (3-8) and pedal shaft stop. Remove clevis pin (3-4). Hold the clutch pedal to bellcrank rod (3-5) down to engage the levers of the clutch pressure plate. Adjust the clutch pedal to the bellcrank rod clevis (3-9). To align with hole in clutch pedal replace clevis pin and cotter pin and tighten locknut.

h. Measure the free pedal travel. This should be 1" to 1-3/8", measured at the center of the pedal pad. If the measurement falls outside these limits, readjust the clevis.

**CLUTCH****SECTION I. TROUBLE SHOOTING****1-1. Clutch Slips, Chatters, or Grabs.**

- a. Check for sufficient free pedal (see Section 2-3).
- b. Inspect clutch facings for oil or grease.
- c. Inspect clutch visually for loose or damaged parts.

**1-2. Clutch Noisy with Pedal Depressed.**

- a. Check for worn or damaged pilot bearing.
- b. Check for worn release bearing or sleeve.

**1-3. Clutch Noisy at Free Pedal Position.**

- a. Inspect release bearing and sleeve for wear or damage.

**1-4. Clutch Linkage Noisy with Engine Inoperative.**

- a. Lubricate the linkage. Check all bushings in linkage for wear.
- b. Check pressure plate bosses and lubricate if necessary.
- c. Check return spring installation.

**SECTION II. PEDAL AND LINKAGE****2-1. Disassembly.**

- a. Detach the return spring (3-1) and hook (3-2) from the clutch pedal assembly (3-3).
- b. Remove the cotter pin from the clutch pedal (3-3) to bellcrank rod clevis pin. Pull the clevis pin (3-4).
- c. Remove the cotter pin from the clutch pedal (3-3) to bellcrank rod (3-5). Remove the rod (3-5) from the bellcrank (3-6).
- d. Remove the cotter pin from the brake and clutch pedal shaft (3-7). Pull the clutch pedal assembly (3-3) from the shaft (3-7). See Fig. 3.
- e. Remove the cotter pin (1-25) from the bellcrank to yoke rod (1-26). Snap the adjusting nut (1-28) from the yoke assembly (1-32).
- f. Remove the bolts and lockwashers securing the bellcrank brackets (1-23) to the frame. Use care to avoid losing the pivot ball bushing (1-17) from one end of the bellcrank.
- g. Remove one pivot bushing (1-17) and the spring (1-18) from the bellcrank (1-19).
- h. Remove the nut (1-13) and lockwashers (1-14) securing the pivot ball stud (1-15) to the bracket.
- i. Remove the retaining ring holding the second pivot ball (1-21) and bushing (1-20) in the bellcrank.
- j. Pull the yoke and stone shield assembly from the clutch housing (1-32).
- k. Clean all metal parts with solvent.

**2-2. Reassembly.**

- a. Inspect the bearings in the clutch pedal assembly for wear or damage. Replace if necessary.
- b. Check the clevis and clevis pin for wear. If the holes in the bellcrank are enlarged, replace the bellcrank or fill holes by welding and then redrill.
- c. Check the pedal to bellcrank rod and bushing, and the bellcrank to yoke rod (1-26) and bushing. Replace bushings if worn.
- d. Inspect the bellcrank pivot balls (1-15, 21) and bushings (1-17, 20) for scoring or wear. Check the bushing spring. Replace these parts if necessary.
- e. Reassemble the bushing (1-20) and retaining ring (1-16) on one end of the bellcrank. Position the pivot ball stud with its lockwasher (1-22) in the bracket plate (1-23).
- f. Assemble the other pivot ball stud (1-15) and lockwasher (1-14) in its bracket (1-10). Hold the bushing spring (1-18) and bushing (1-17) in the bellcrank bore and replace the bellcrank (1-19). Tighten bracket plate (1-23) to frame.
- g. Replace the yoke (1-32) and the clutch pedal assembly (3-3).
- h. Reassemble the bellcrank to yoke rod (1-26) and the clutch pedal to bellcrank rod (3-5). Use new cotter pins.

## SECTION III. SERVICING THE CLUTCH

## 3-1. Disassembly.

- a. Raise the vehicle and support it on trestles.
- b. If the vehicle is equipped with a floor shift transmission, perform the following operations:
  - (1) Remove the sheet metal screws from the floor shift seal ring. Remove the ring.
  - (2) Remove ten sheet metal screws from the top cover and rubber assembly. Remove the cover and rubber assembly and the water shield.
  - (3) Set the control lever in neutral position. Remove the six bolts and lockwashers holding the control housing cover assembly to the transmission case and remove the cover assembly. Disconnect wiring at back-up light switch.

c. Disconnect the drive shaft at the rear axle and at the transmission or overdrive housing (see Group 13, Propeller Shaft). Slide the shaft to the rear.

d. With remote-shift transmissions, remove two cotter pins and disconnect the shift levers at the transmission.

e. Disconnect the speedometer or taximeter at the transmission. On overdrive transmission, disconnect overdrive cable, governor and solenoid wire at transmission.

f. Place a rolling jack under the transmission. Raise the jack to support the transmission. Remove four bolts holding the transmission to the clutch bell housing. Slide the transmission back, away from the bell housing.

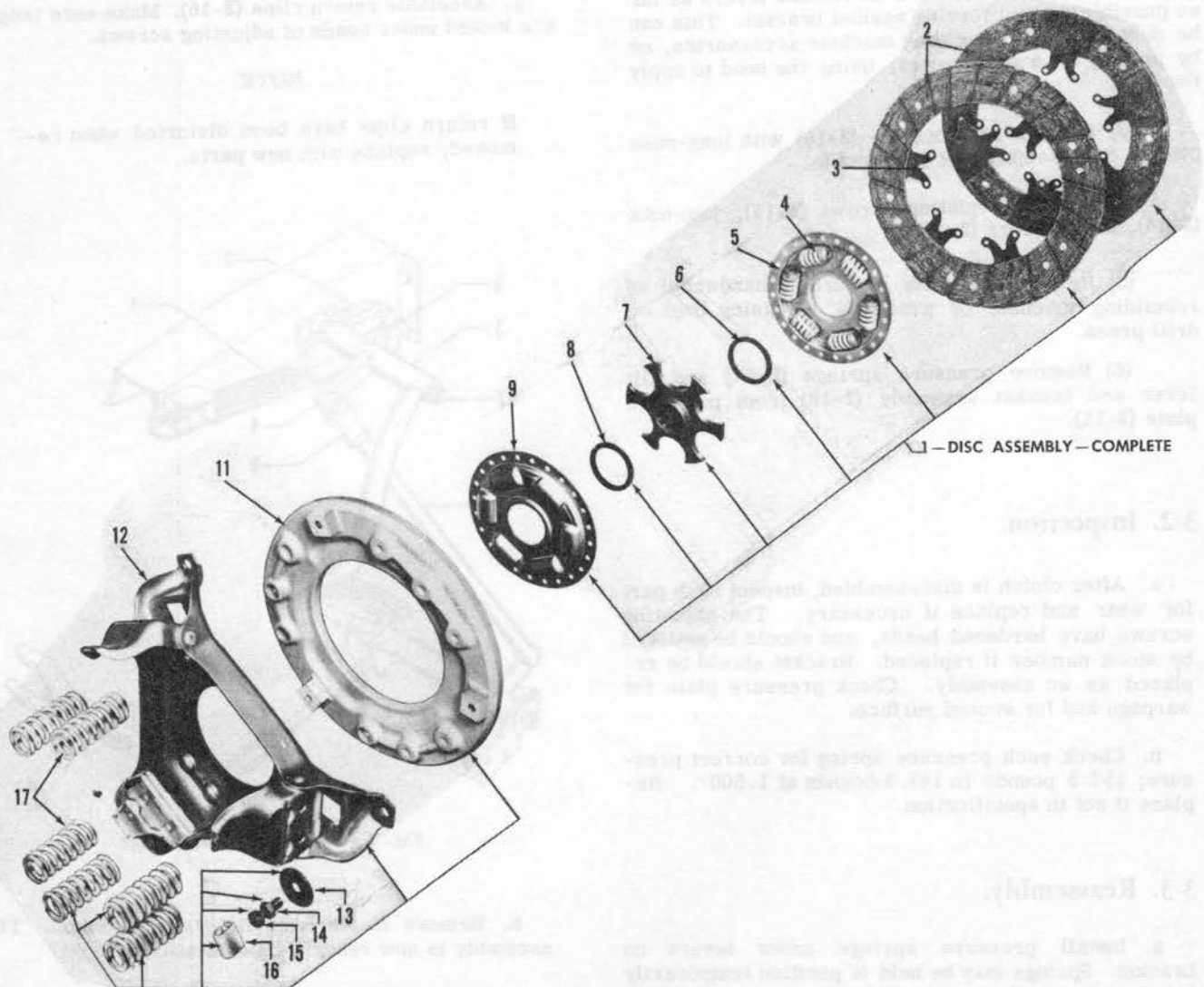


Fig. 2 - Clutch Disc and Pressure Plate Assembly



g. Remove and inspect the clutch release bearing (1-7).

h. Remove the four bolts (1-35) and lockwashers (1-34) holding the pan (1-33) to the clutch housing and remove the pan.

i. Working through the inspection cover opening, remove the bolts (1-6) holding the pressure plate (1-4) to the flywheel. The pressure plate (2-10) and driven disc (2-1) assemblies will drop from the housing.

j. Inspect clutch pilot bearing. Inspect the flywheel facing and pressure plate facing for scores and grooves. Reface or replace flywheel and clutch plate if necessary. If clutch assemblies require refacing or replacing, proceed as follows:

(1) Mark the pressure plate (2-11) and the bracket (2-12) with a prick punch so they may be reassembled in the same position.

(2) Place cover assembly on a flywheel or clutch rebuilding machine, pressure plate down and centrally located. Depress inner ends of release levers as far as possible without forcing against bracket. This can be done by using rebuilding machine accessories, or by placing on a drill press, using the head to apply the load.

(3) Remove return clips (2-16) with long-nose pliers, or assembly tool if available.

(4) Remove adjusting screws (2-15), jam nuts (2-14), and washers (2-13).

(5) Release assembly by turning handwheel of rebuilding machine or gradually releasing load on drill press.

(6) Remove pressure springs (2-17) and lift lever and bracket assembly (2-12) from pressure plate (2-11).

### 3-2. Inspection.

a. After clutch is disassembled, inspect each part for wear and replace if necessary. The adjusting screws have hardened heads, and should be ordered by stock number if replaced. Bracket should be replaced as an assembly. Check pressure plate for warpage and for scored surface.

b. Check each pressure spring for correct pressure; 157.5 pounds to 142.5 pounds at 1.500". Replace if not in specification.

### 3-3. Reassembly.

a. Install pressure springs under levers on bracket. Springs may be held in position temporarily by placing small blocks of wood or metal between outer ends of levers and bracket.

b. Place pressure plate (2-11) on rebuilding machine or flywheel. Place bracket, lever, and pressure spring sub-assembly over pressure plate, making sure slots in bracket are lined up with lugs in pressure plate. Make sure punch marks made during disassembly are in line. If flywheel is used, place flywheel on drill press.

c. Depress inner ends of levers as far as possible without forcing against bracket.

d. Remove blocks from outer ends of release levers. Install washers (2-13), jam nuts (2-14), and adjusting screws (2-15).

e. With the cover assembly clamped on rebuilding machine or bolted to a flywheel, the clutch can be adjusted using data given in Fig. 4.

f. After levers are adjusted, exercise several times by applying load on lever noses. Recheck and change if necessary. Repeat until setting is permanent.

g. Assemble return clips (2-16). Make sure tangs are locked under heads of adjusting screws.

#### NOTE

If return clips have been distorted when removed, replace with new parts.

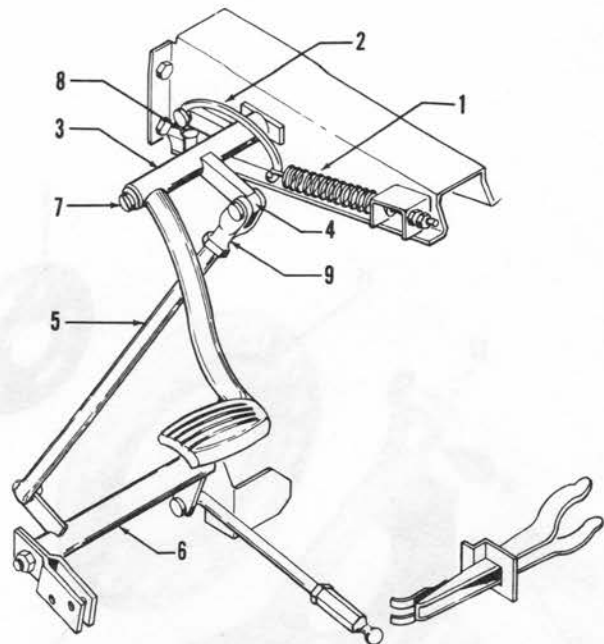


Fig. 3 - Clutch Pedal and Linkage

h. Remove clutch from fixture or flywheel. The assembly is now ready for installation.

i. Inspect driven disc assembly (2-1) for cracked facings, loose facing rivets, worn splines, warped or

dished condition. Straighten if dished or warped; runout should be .015" maximum. If facings are cracked or if splines are worn, replace with new assembly.

j. Replace disc facings (2-2) if they are glazed, scored, worn down to rivet heads, burned, or if grease or oil are on facings. The proper thickness of clutch facings on cushion elements is .361"-.350" closed height. When refacing make sure facings are of proper thickness, .153" to .149". Proper riveting is essential. A kit consisting of two facings and 27 rivets is available.

k. Wipe and check the release bearing (1-7). Hold the inner race and rotate the outer race while applying pressure. Replace the bearing if it is noisy or rough in operation.

l. Check the engine flywheel and housing face for runout (see Group 10, Engine) to make sure it is within specified limits. The indicator reading should not exceed .008".

m. Reinstall the sleeve (1-8) and release bearing (1-7).

n. Replace the pressure plate and driven disc assemblies in the clutch housing. Replace the bolts holding the pressure plate to the flywheel.

o. Install the transmission (see Group 12a, Transmission, Manual).

p. Connect the speedometer or taximeter to the transmission.

q. With remote-shift transmissions, connect the shift levers at the transmission and install the cotter pins. On overdrive transmission connect overdrive cable, governor and solenoid wires.

r. Install the propeller shaft at the front and rear yokes.

s. With floor shift transmissions, install the control housing assembly, the water shield, the cover and rubber assembly, and the seal ring, and connect back-up light switch wires.

t. Coat the sides of the pressure plate bosses and the return clips with Lubriplate.

u. Reassemble the clutch linkage. Replace pan (1-33).

v. Adjust the linkage.

w. Lower the vehicle.

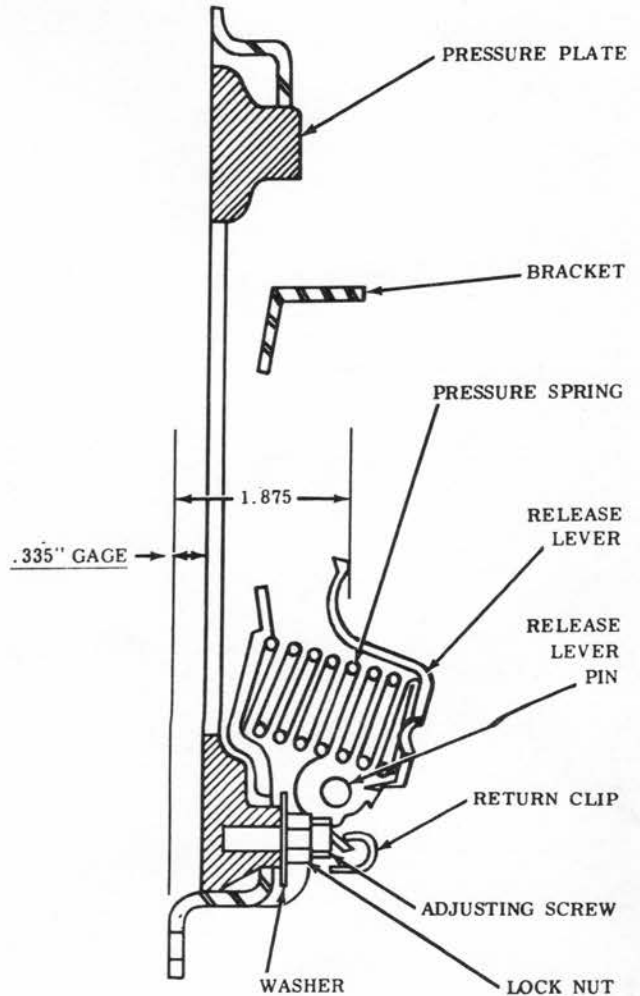


Fig. 4 - Adjustment Data