

TROUBLESHOOTING THE CLUTCH

To test a clutch for slipping, set the hand brake lightly, open the throttle until the engine is running at about 30 mph (48 km./h.) road speed, depress the clutch pedal, and shift into high gear. Now, release the clutch; the engine should stall if the clutch is good. If the clutch is slipping, the engine will continue to run.

Check to see that the slipping is not due to a tight adjustment of the clutch pedal linkage. There must be $\frac{3}{4}$ " (20 mm.) free play at the pedal, before the clutch thrust bearing contacts the clutch pressure plate levers.

The only other clutch trouble is chattering when starting in first or reverse gear. Loose engine mounts and uneven clutch finger adjustments contribute to this trouble.

CLUTCH TROUBLESHOOTING CHART

TROUBLES & CAUSES

Slipping

- 1a. Worn facings
- 1b. Weak pressure plate springs
- 1c. Pedal linkage out of adjustment
- 1d. Sticking release levers
- 1e. Pressure plate binding against the drive lugs

Dragging

- 2a. Pedal linkage adjustment too loose
- 2b. Warped clutch disc
- 2c. Splined hub sticking on clutch shaft
- 2d. Torn disc facings
- 2e. Release fingers adjusted unevenly
- 2f. Sticking pilot bearing
- 2g. Sticking release sleeve
- 2h. Warped pressure plate
- 2i. Misalignment of clutch housing

Noise

- 3a. Clutch release bearing requires lubrication
- 3b. Pilot bearing requires lubrication
- 3c. Loose hub in clutch disc
- 3d. Worn release bearing
- 3e. Worn driving pins in pressure plate
- 3f. Uneven release lever adjustment
- 3g. Release levers require lubrication

Chattering

- 4a. Oil or grease on clutch disc facings
- 4b. Glazed linings
- 4c. Warped clutch disc
- 4d. Warped pressure plate
- 4e. Sticking release levers
- 4f. Unequal adjustment of release levers
- 4g. Uneven pressure plate spring tension
- 4h. Loose engine mounts
- 4i. Loose splines on clutch hub
- 4j. Loose universal joints or torque mountings
- 4k. Misalignment of clutch housing

TROUBLESHOOTING A TRANSMISSION

Transmission noises can be heard much better

with the engine shut off and the car coasting. By moving the shift lever from neutral into the various gearing positions, different gears can be meshed for testing purposes.

TRANSMISSION TROUBLESHOOTING CHART

TROUBLES & CAUSES

1. Noisy with car in motion, any gear

- 1a. Insufficient lubrication
- 1b. Worn clutch gear
- 1c. Worn clutch gear bearing
- 1d. Worn countergear
- 1e. Worn countershaft bearings
- 1f. Worn mainshaft rear bearing
- 1g. Worn mainshaft front bearing
- 1h. Worn sliding gears
- 1i. Excessive mainshaft end play
- 1j. Speedometer gears worn
- 1k. Misalignment between transmission and clutch housing

2. Noisy in neutral

- 2a. Insufficient lubrication
- 2b. Worn clutch gear
- 2c. Worn clutch gear bearing
- 2d. Worn countergear drive gear
- 2e. Worn countershaft bearings

3. Slips out of high gear

- 3a. Misalignment between transmission and clutch housings
- 3b. Worn shift detent parts
- 3c. Worn clutch shaft bearing
- 3d. Worn teeth on dog clutch
- 3e. Improper adjustment of shift linkage

4. Slips out of second gear

- 4a. Misalignment between transmission and clutch housings
- 4b. Weak shift lever interlock detent springs
- 4c. Worn mainshaft bearings
- 4d. Worn clutch shaft bearing
- 4e. Worn countergear thrust washers allowing too much end play
- 4f. Improper adjustment of shift linkage

5. Slips out of first/reverse gear

- 5a. Worn detent parts
- 5b. Improper adjustment of shift linkage
- 5c. Worn mainshaft bearings
- 5d. Worn clutch shaft bearing
- 5e. Excessive mainshaft end play
- 5f. Worn countergear
- 5g. Worn countergear bearings
- 5h. Worn first/reverse sliding gear

6. Difficult to shift

- 6a. Clutch not releasing
- 6b. Improper adjustment of shift linkage

7. Clashing when shifting

- 7a. Worn synchronizing cones
- 7b. Excessive mainshaft end play

8. Backlash

- 8a. Excessive mainshaft end play
- 8b. Excessive countergear end play
- 8c. Broken mainshaft bearing retainer
- 8d. Worn mainshaft bearing