AUTOMOTIVE Youth Educational Systems YES The Passport to a Rewarding Automotive Career

ASE CERTIFIED

Modern Automotive Technology Chapter 54

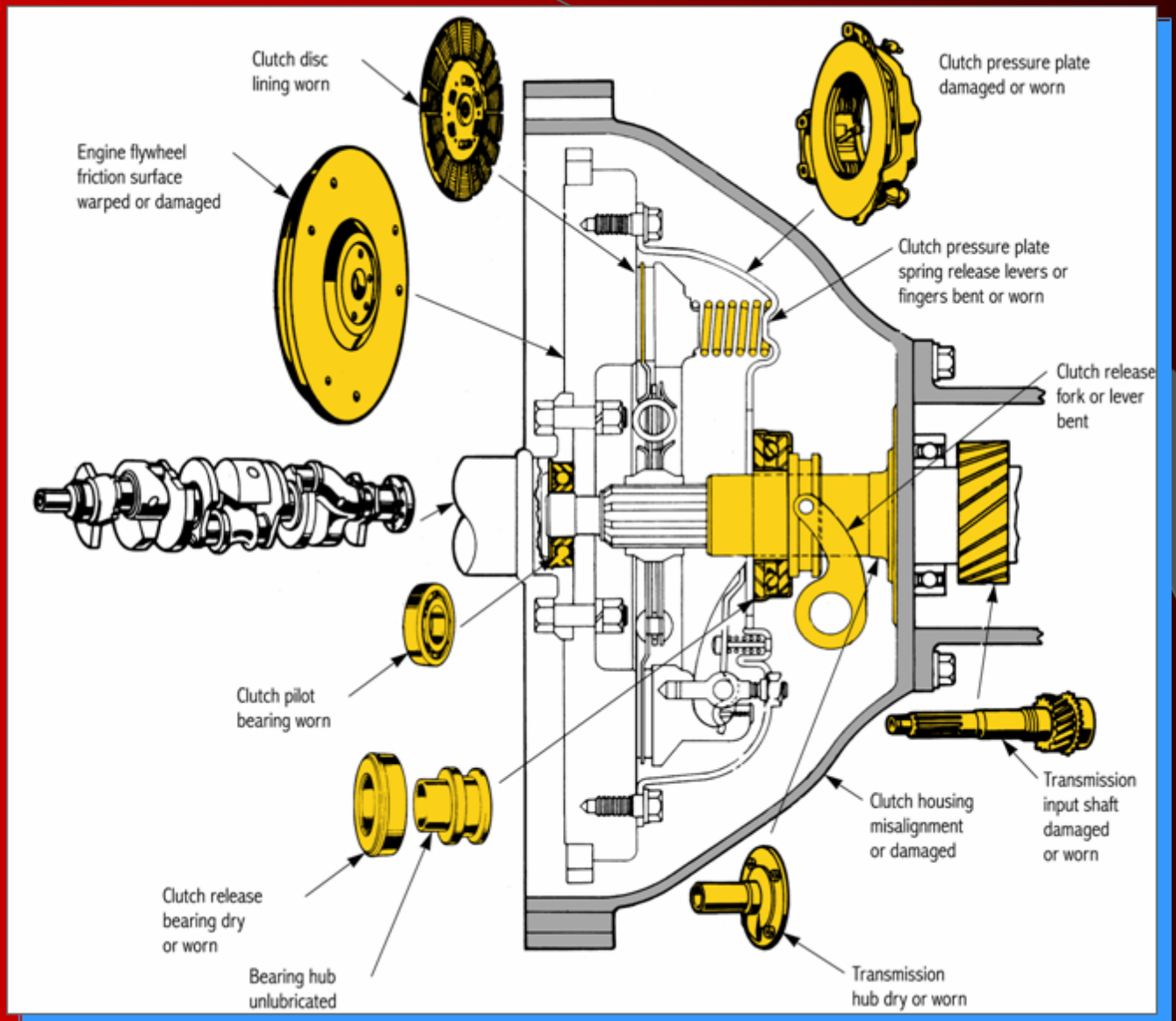
Clutch Diagnostics and Repairs

North Montco Technical Career Center

Learning Objectives

- List the basic parts of an automotive clutch
- Explain the operation of a clutch
- Describe the construction of major clutch components
- Compare clutch design differences
- Explain the different types of clutch release mechanisms
- Correctly answer ASE certification test questions that require a knowledge of clutch

Clutch Problems



Clutch Diagnostics and Repairs

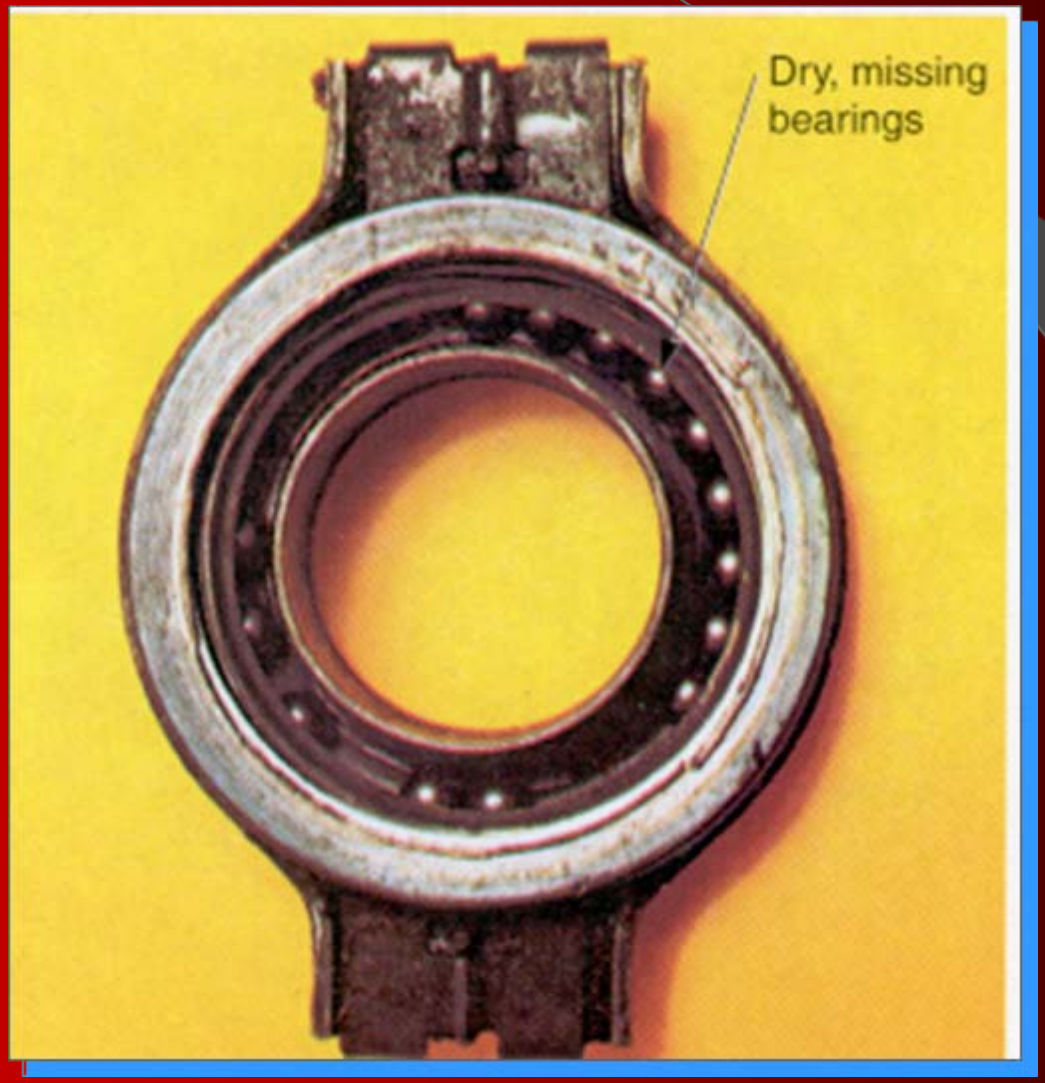
1. A Dragging Clutch normally makes the transmission or transaxle grind when trying to engage or shift gears.

2. A Bad Throw-Out Bearing produces a grinding noise whenever the clutch pedal is pushed down.

Separated Lining

Caused by high-speed shifts

Dry Release (Throw-Out) Bearing

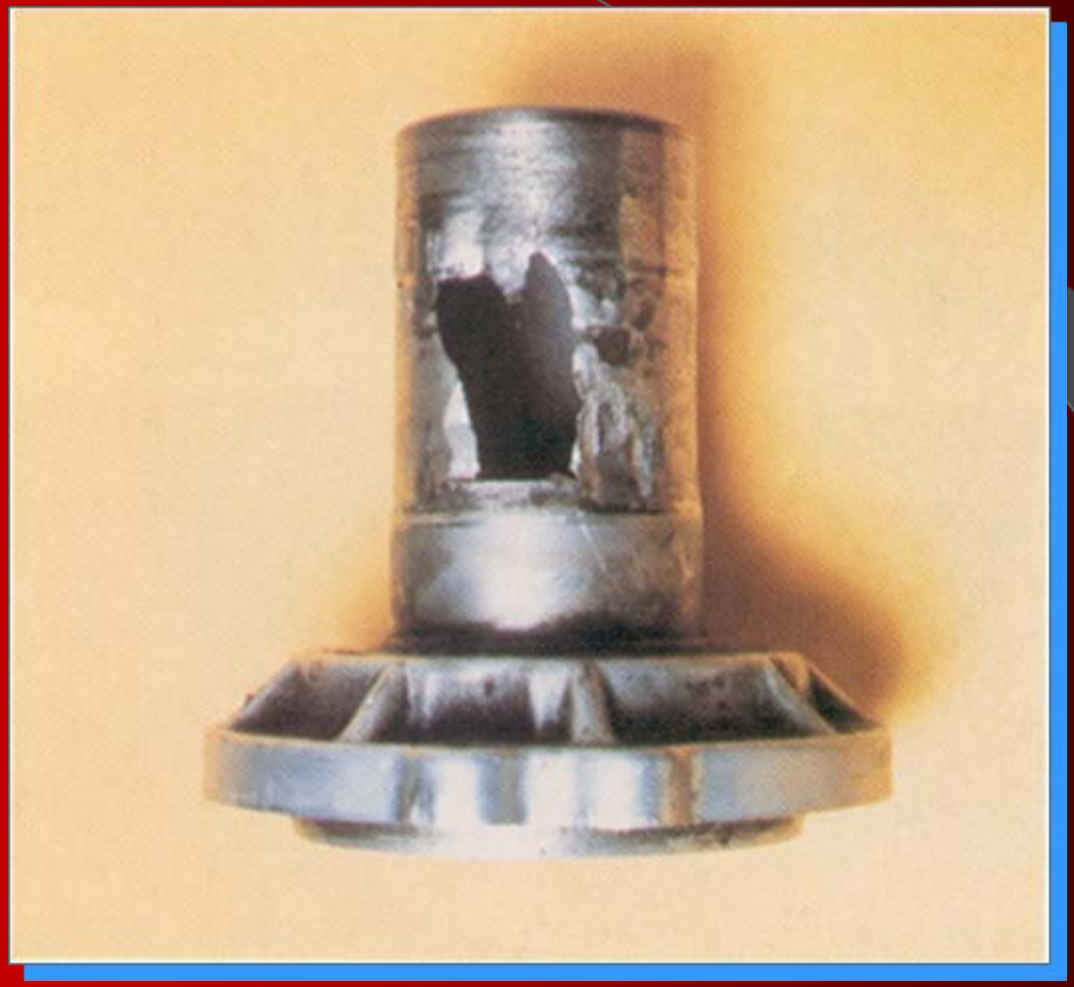


Clutch Diagnostics and Repairs

3. A Worn Pilot Bearing allows the transmission input shaft and clutch disc to wobble up and down.

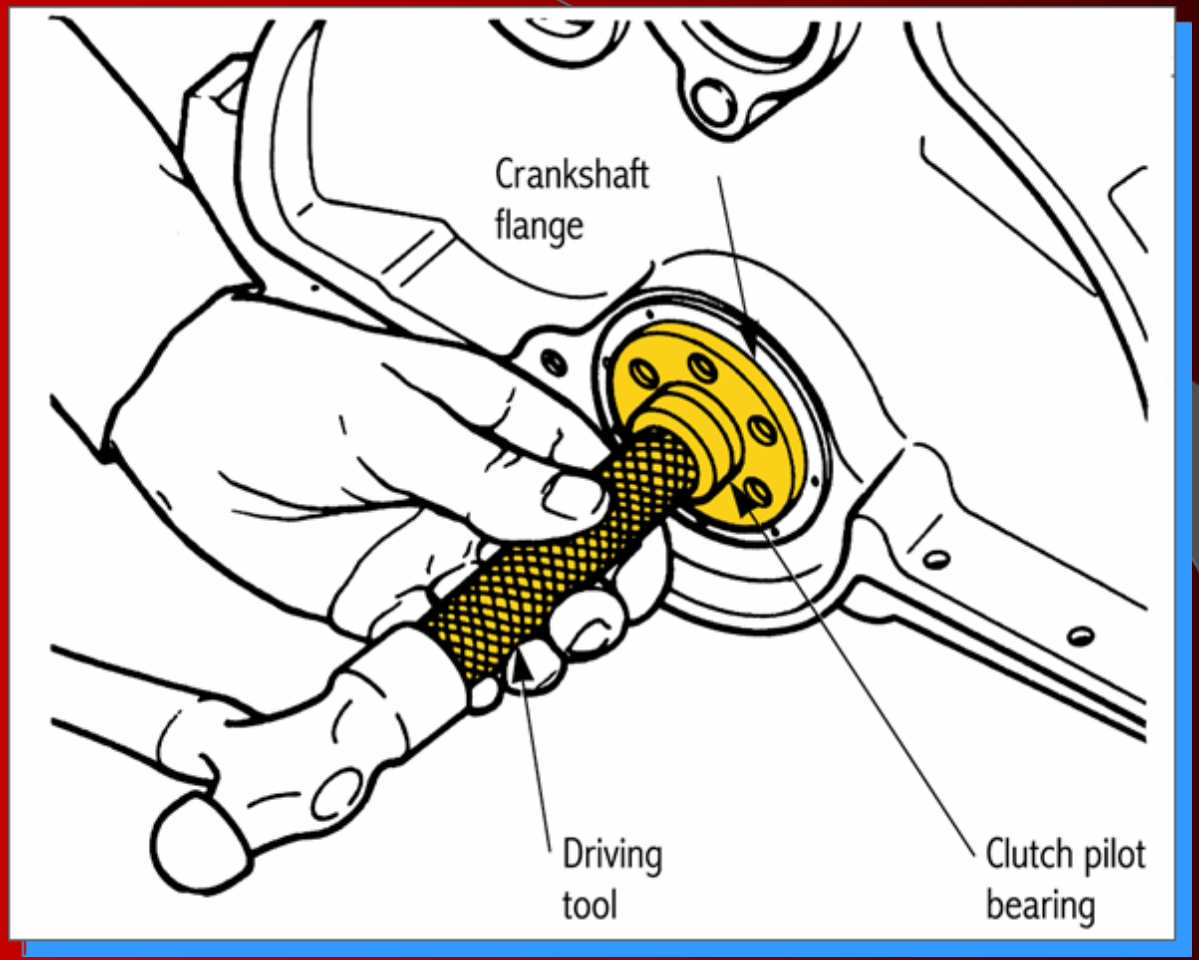
4. Free Travel (or free-play) is the distance the clutch pedal or clutch fork moves before the throw-out bearing acts on the pressure plate.

Damaged Bearing Retainer Hub



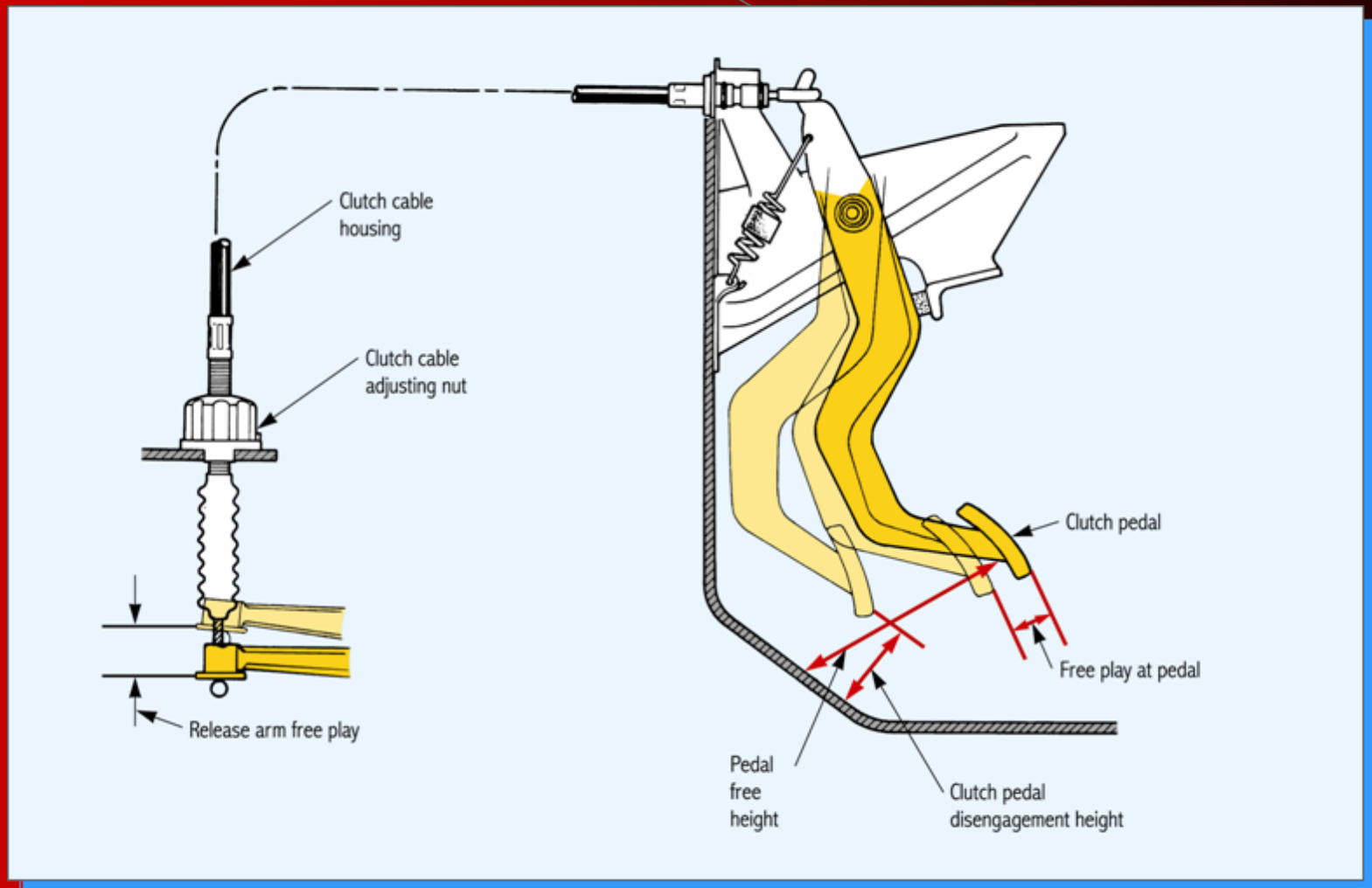
Damaged Bearing Retainer Hub

Pilot Bearing Service



Check pilot bearing for wear. If worn, remove it and install a new one

Free Travel (Free Play)

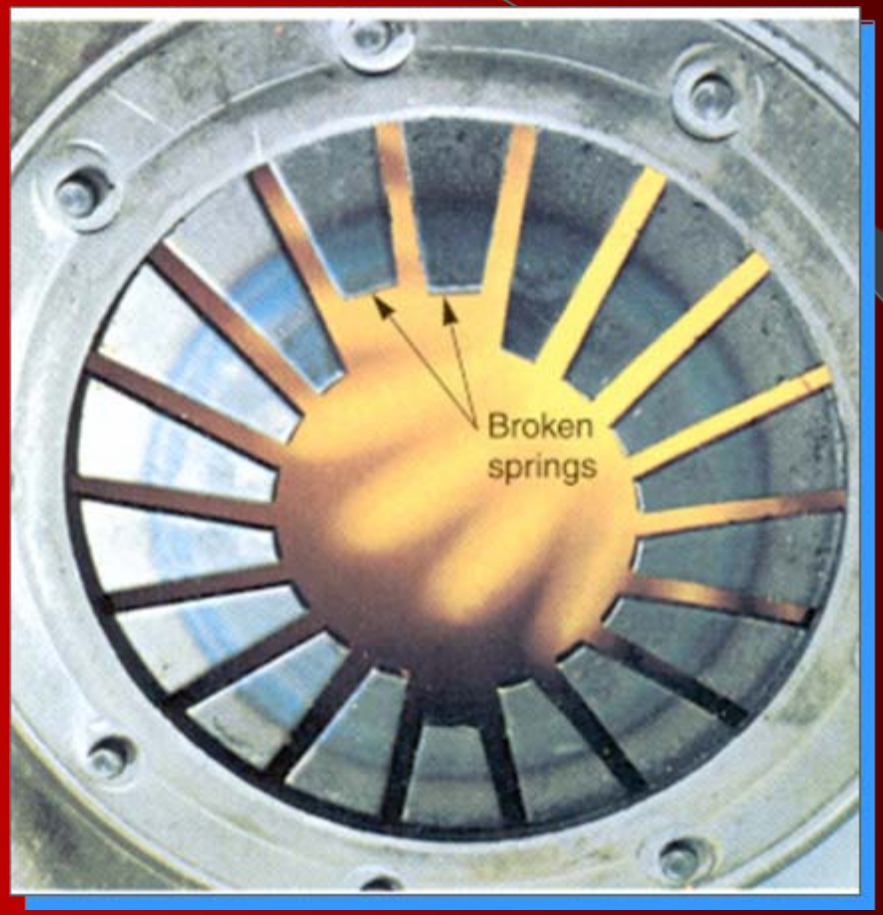


Clutch Diagnostics and Repairs

5. Clutch Slippage causes the engine to race without an equal increase in the vehicle's road speed.

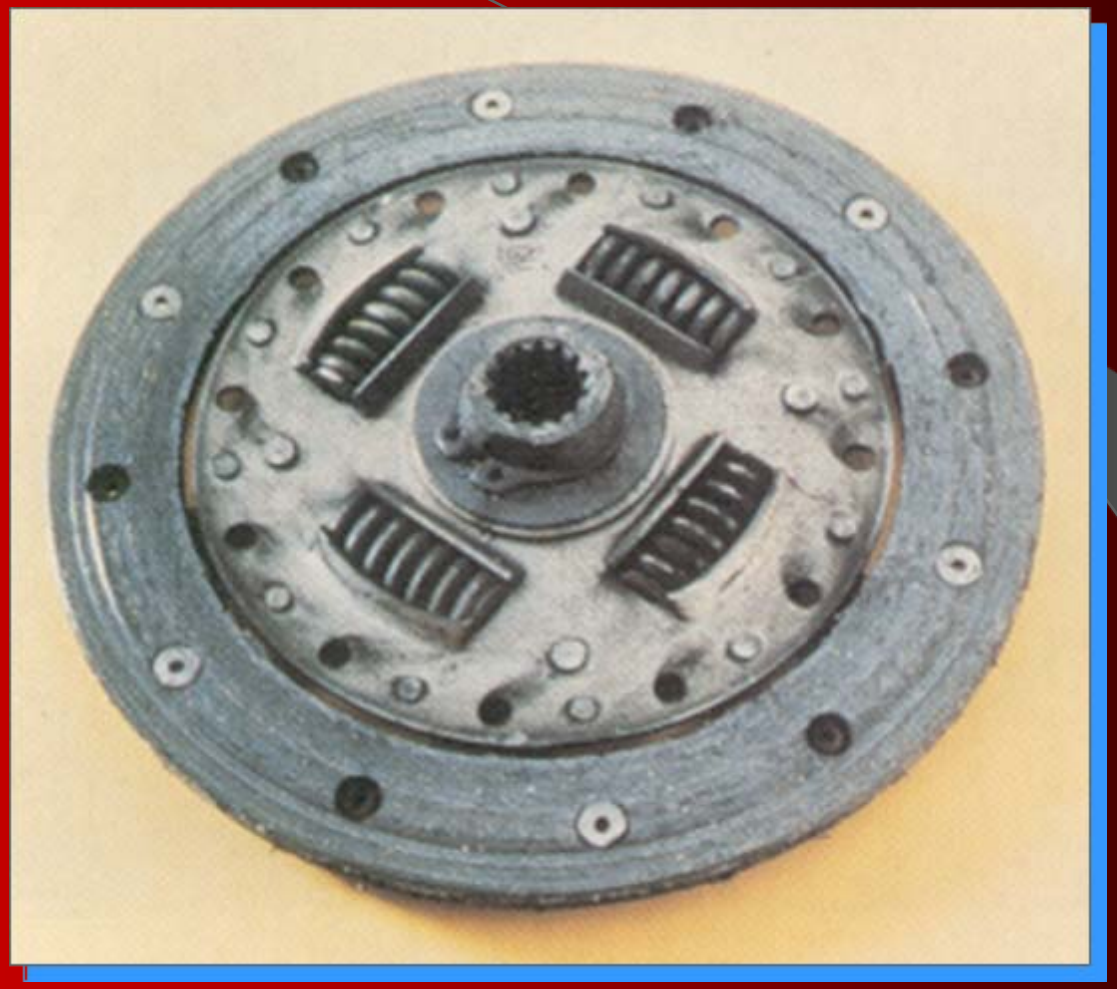
6. To check for a Worn Clutch Disc, inspect the depth of the rivet holes.

Damaged Bearing Retainer Hub



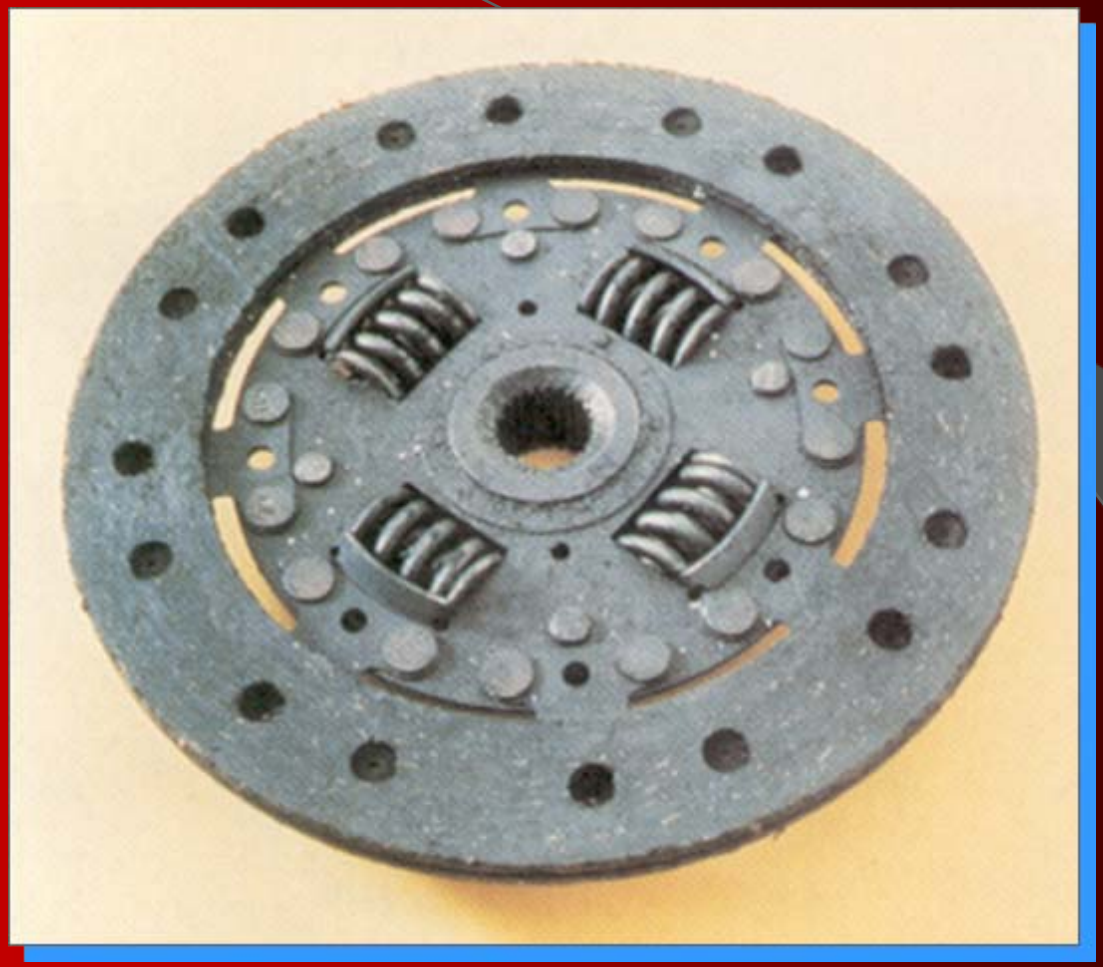
Caused by installation error, or adjustment too tight

Worn Clutch Plate



Causes clutch slippage and may damage flywheel and pressure plate

Burned Clutch Disc



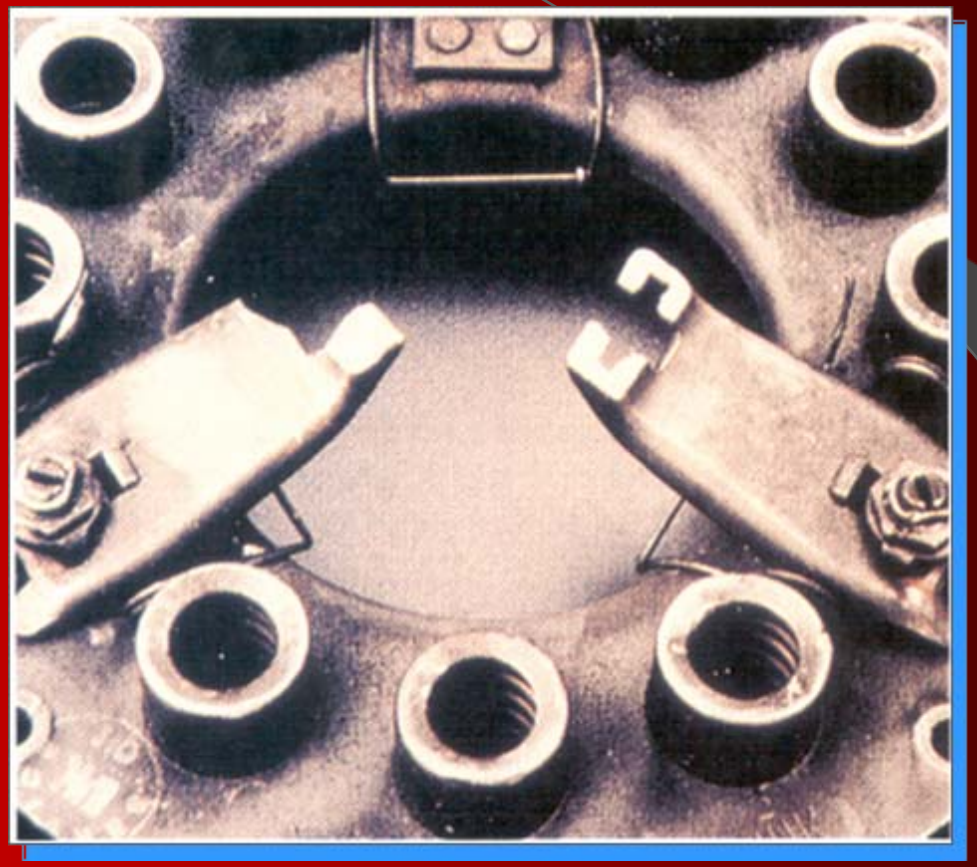
Caused by oil contamination, not enough clearance, or driver riding clutch

Clutch Diagnostics and Repairs

7. A Bad Pressure Plate causes clutch slippage as well as clutch release problems; springs inside the clutch can lose tension or break.

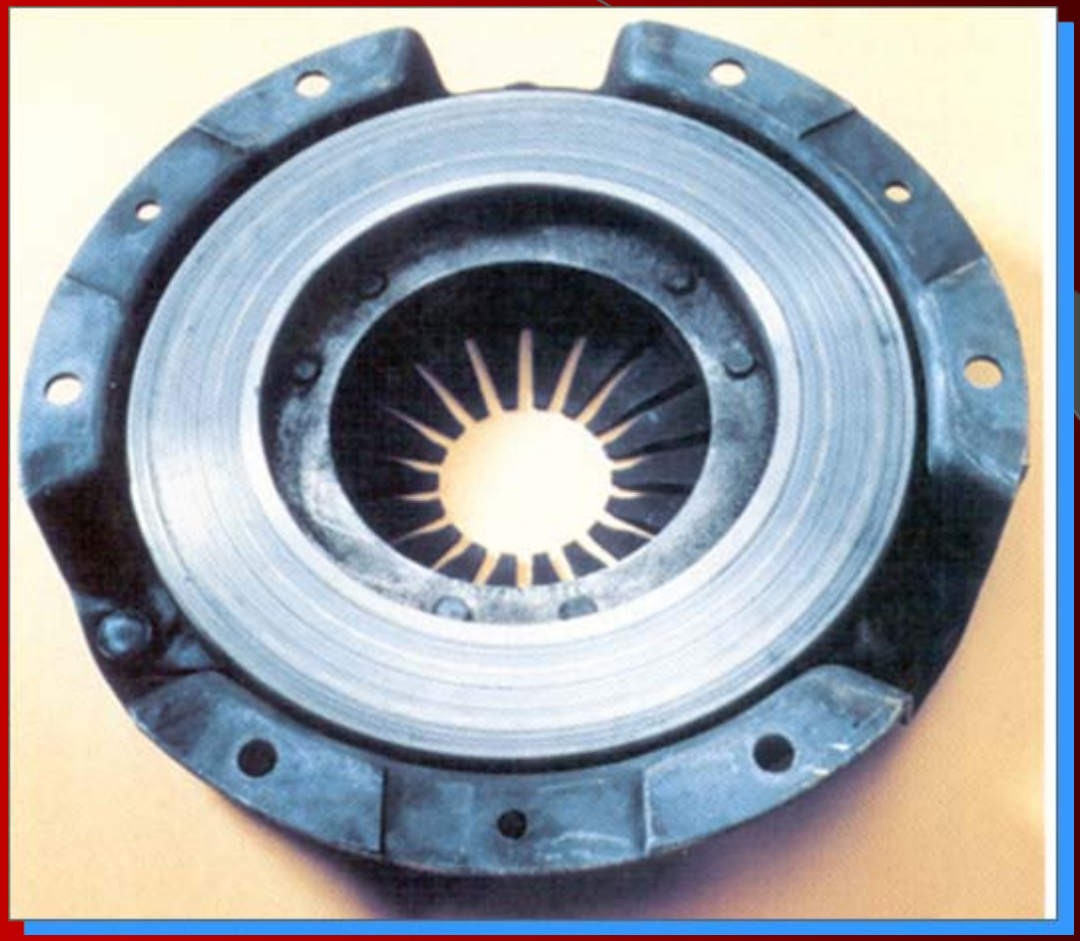
8. A Pulsating Clutch Pedal normally is caused by excess runout of one of the rotating components of the clutch assembly.

Broken Release Levers



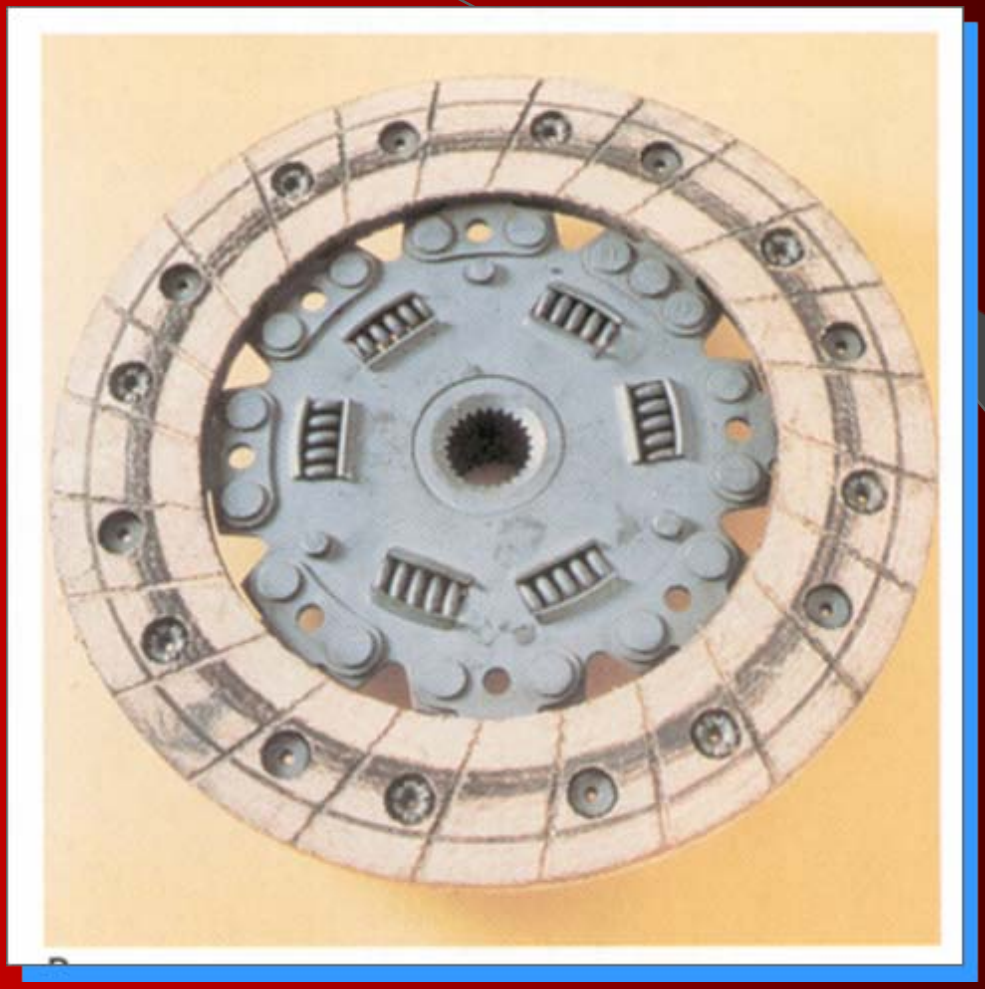
Caused by no free play, bad release bearing, or improper part alignment

Scored Pressure Plate



Caused by worn clutch disc, driver slipping the clutch, or binding linkage

Scored Clutch Lining



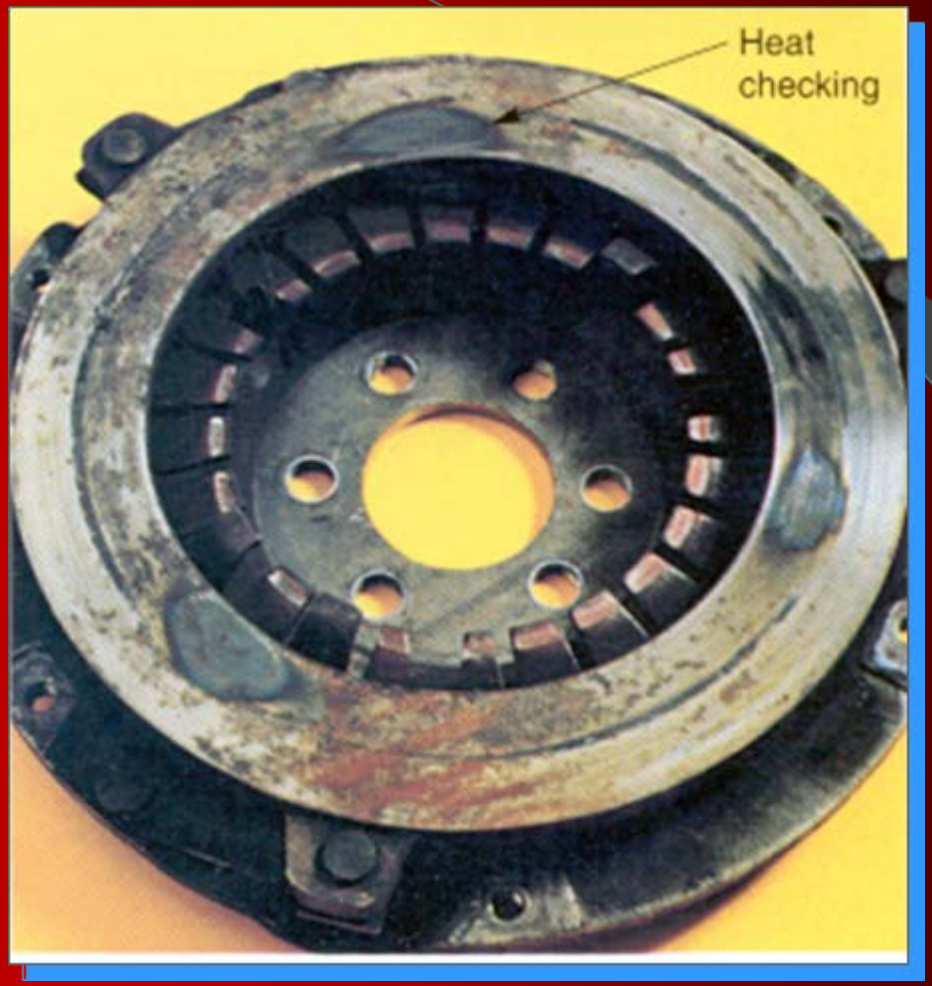
Caused by the use of an unmachined flywheel or badly scored pressure plate

Clutch Diagnostics and Repairs

9. An Overheated Flywheel can have surface cracks, or hardened or warped areas that can upset clutch operation.

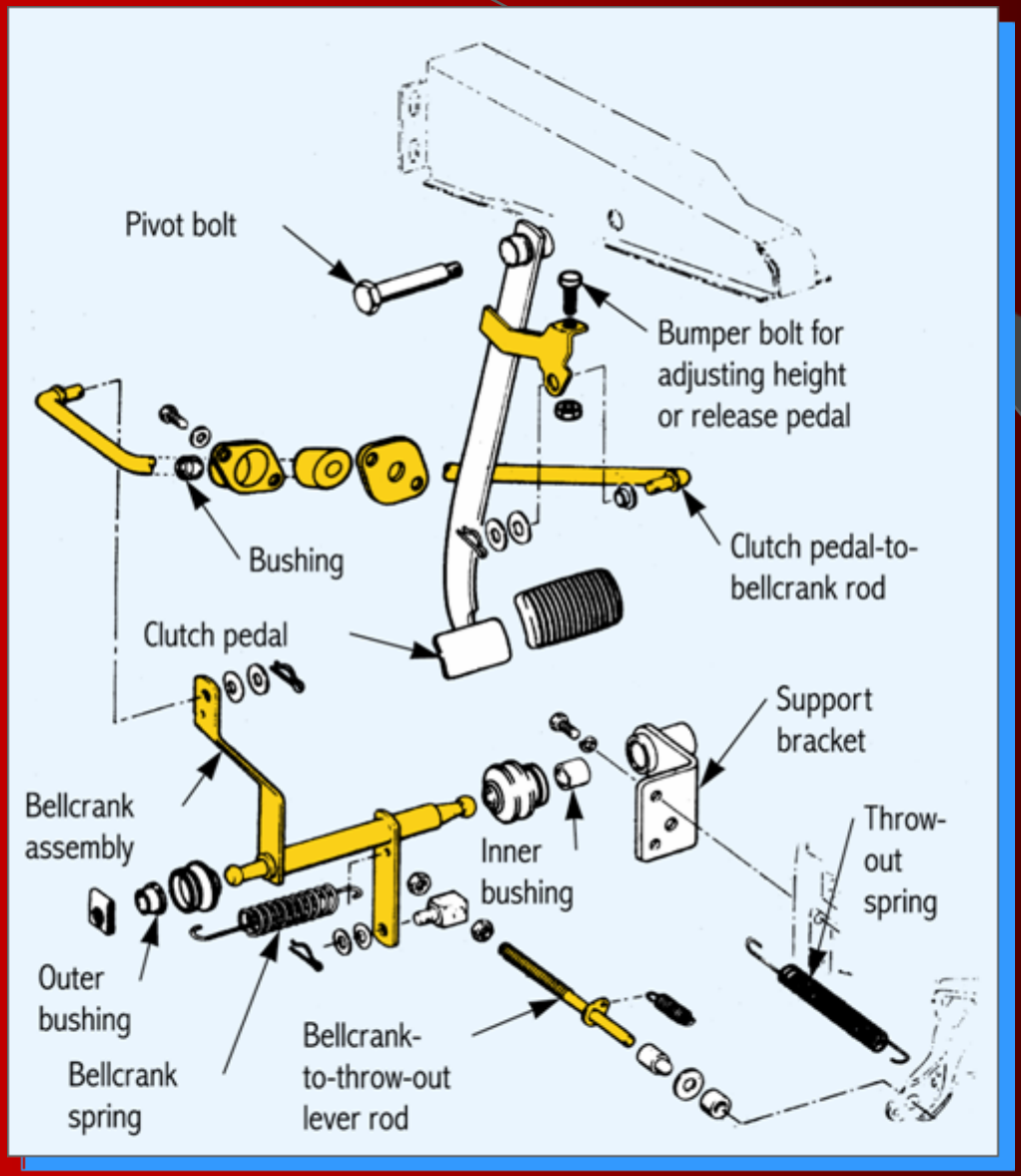
10. A Grabbing Clutch produces a very severe vibration or jerking motion when the vehicle is accelerated from a standstill.

Heat-Checked Pressure Plate



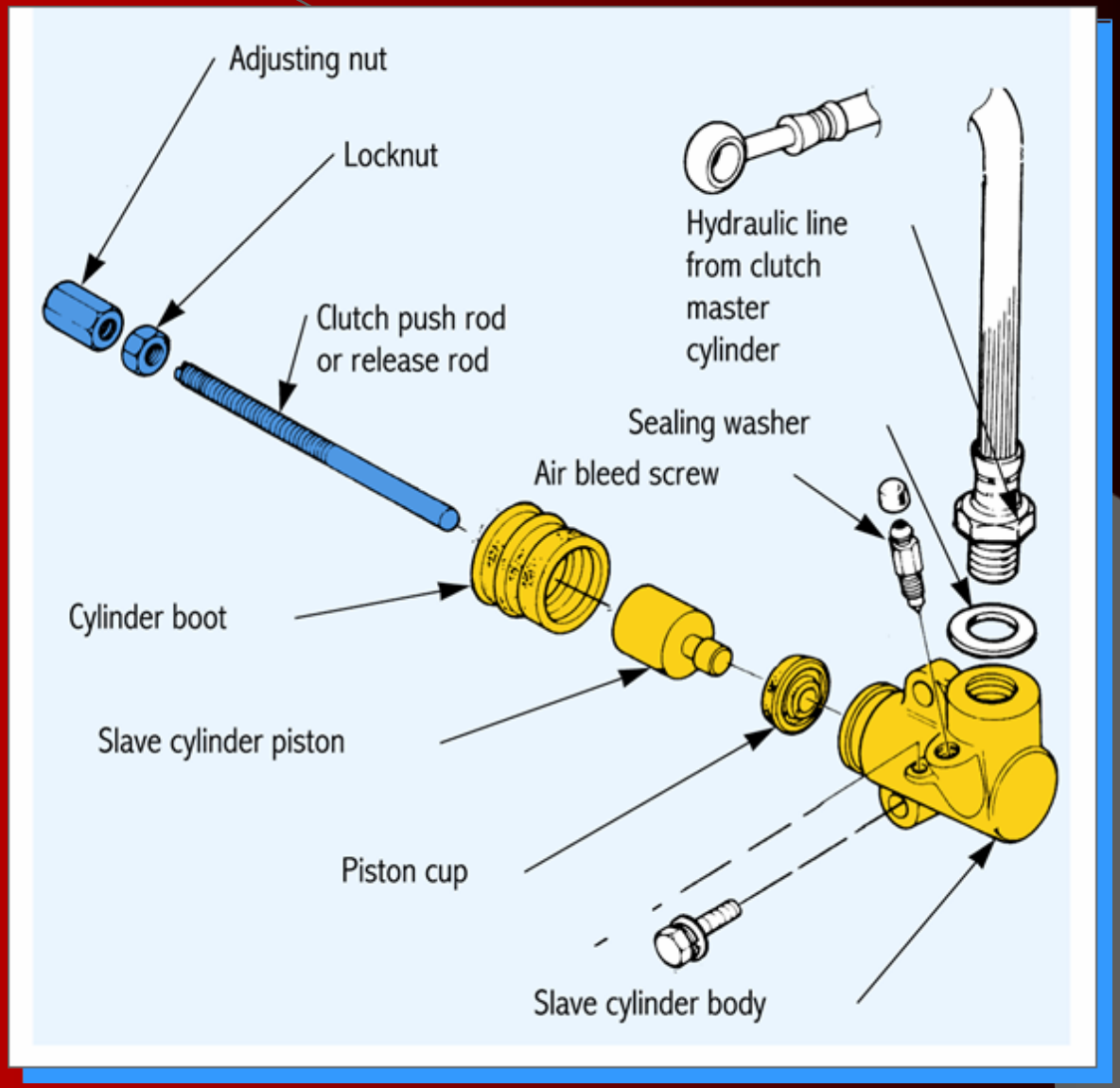
Caused by extreme slippage

Manual Clutch Linkage



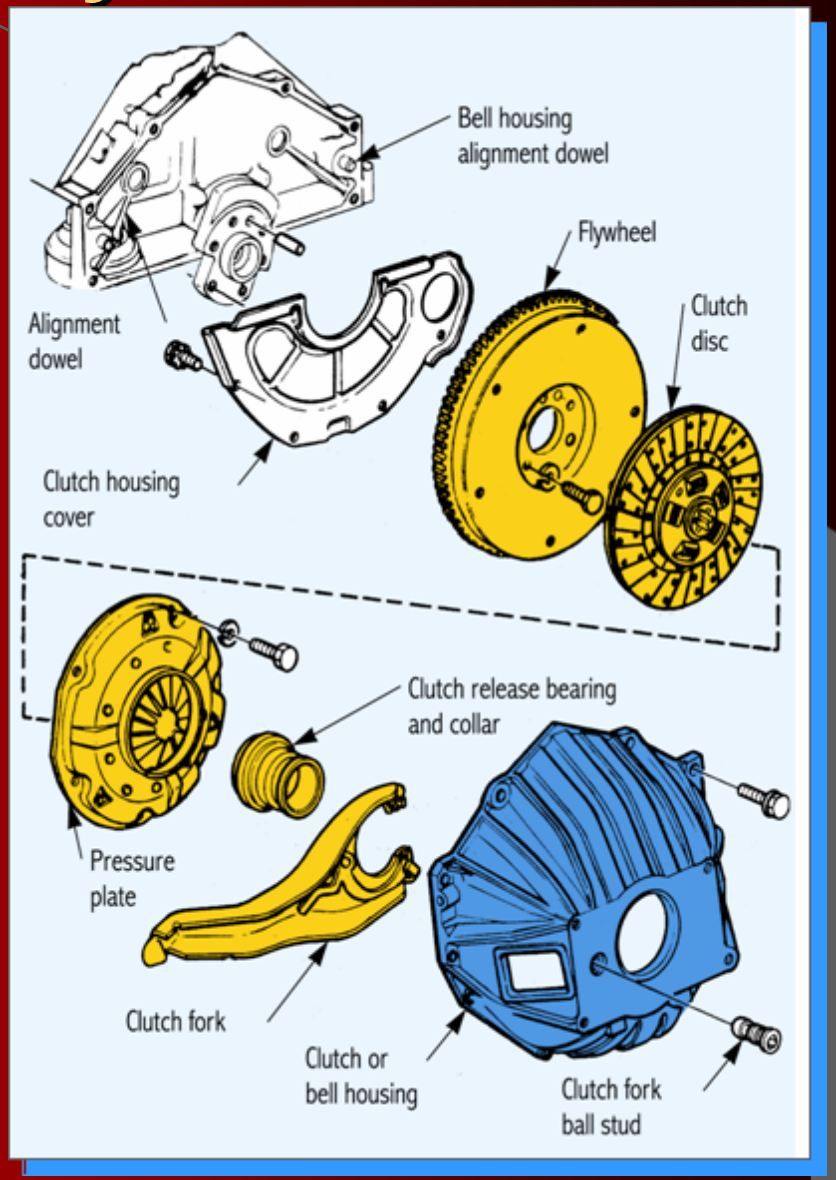
Clutch Slave Cylinder

To rebuild unit, hone cylinder, and replace cup and boot — Just like a wheel cylinder



Clutch System

Always Inspect each part as it is removed



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