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 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
Check pilot bearing for wear. If worn, remove it and install a new one.
Free Travel (Free Play)

- Clutch cable housing
- Clutch cable adjusting nut
- Release arm free play
- Clutch pedal
- Pedal free height
- Clutch pedal disengagement height
- Free play at pedal
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
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

- Pivot bolt
- Bushing
- Clutch pedal
- Bumper bolt for adjusting height or release pedal
- Clutch pedal-to-bellcrank rod
- Bellcrank assembly
- Outer bushing
- Bellcrank spring
- Inner bushing
- Bellcrank-to-throw-out lever rod
- Support bracket
- Throw-out spring
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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