



Automotive Technology



Automatic Transmission
Fundamentals:
Bands and Servos

*North Montco
Technical Career Center*

Objectives

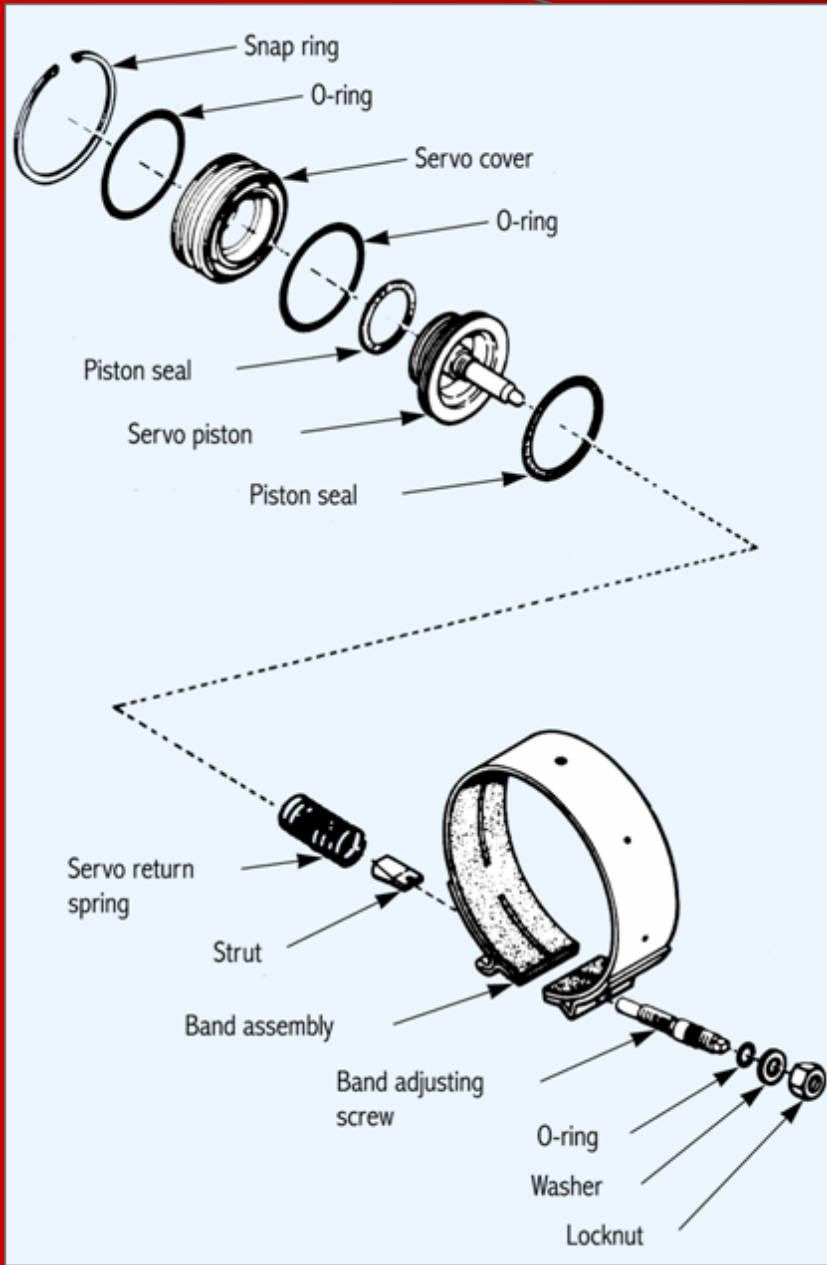
- Identify a transmission band and servo
- Describe the function and operation of the band and servo
- Explain how a band and servo shifts gears
- Compare the different types of bands and servos
- Follow all safety rules while working on an automatic transmissions

Automatic Transmission Fundamentals

Transmission Band Operation

- Bands are friction devices for holding planetary gears sets
- Two or more bands are used in modern transmissions
- Servos are apply pistons that operate the bands

Band and Servo Assembly

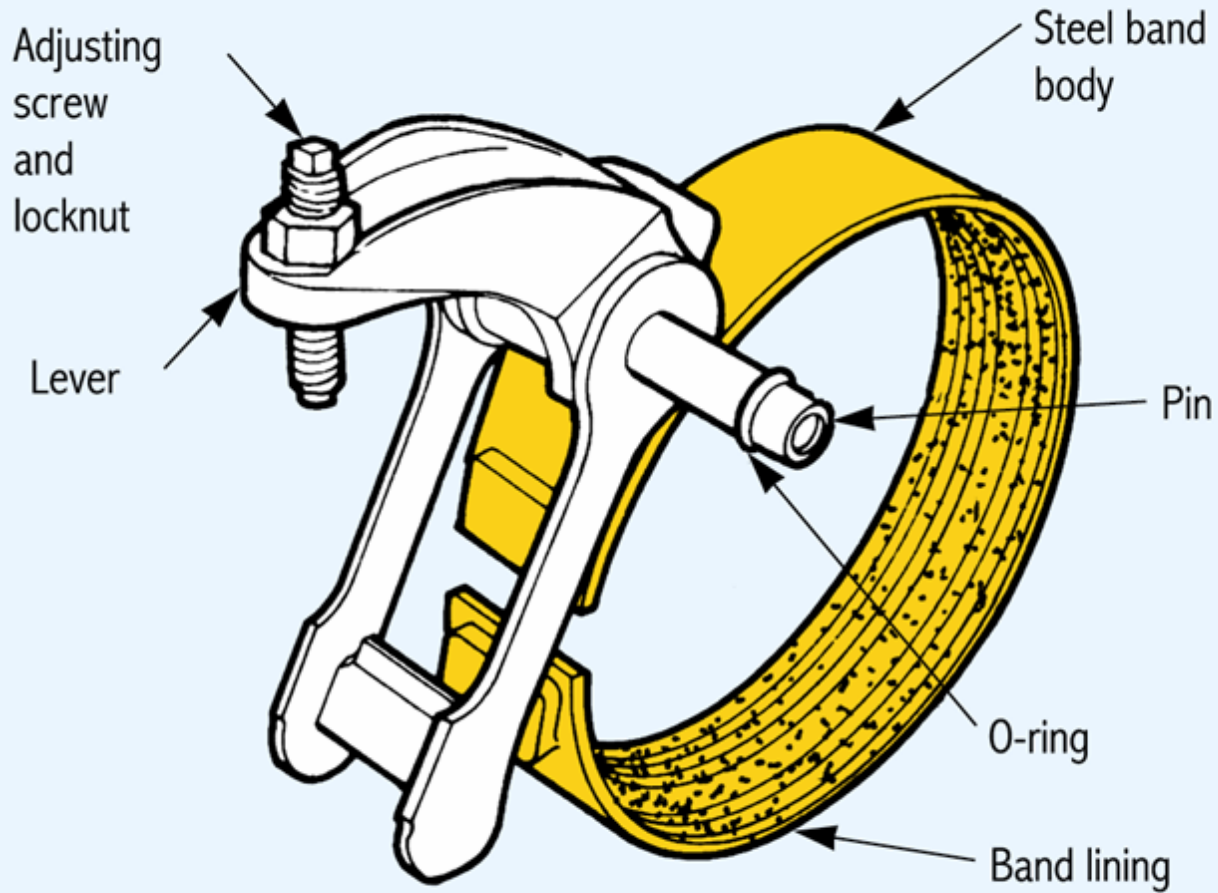


Automatic Transmission Fundamentals

Transmission Band Operation

- A Bands is a steel strap lined with friction material on its inner surface
- The bands' lining is clamped around a clutch drum to stop drum rotation
- The friction material is designed to operate in AT oil by resisting its lubricating qualities

Band Adjustment

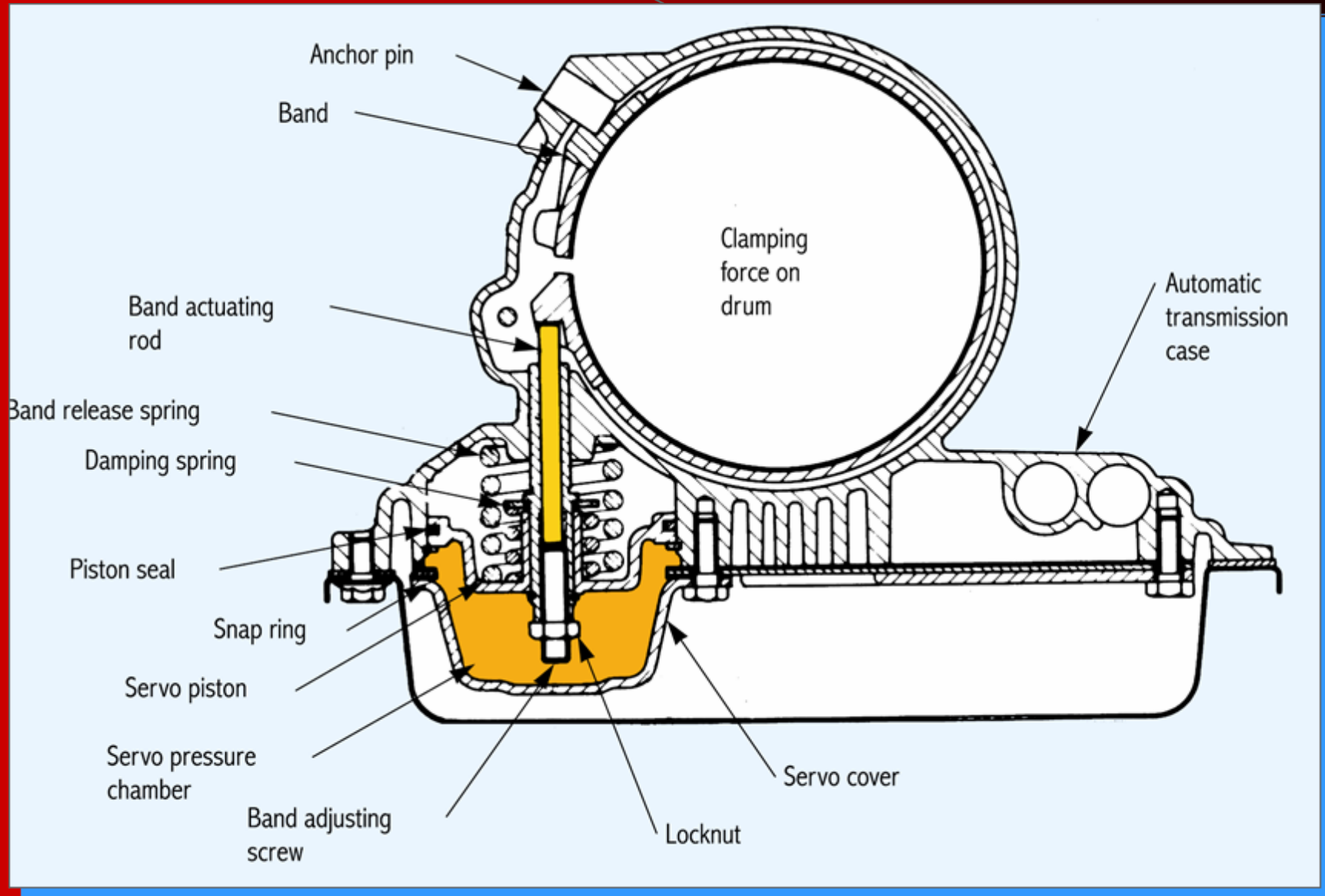


Automatic Transmission Fundamentals

Transmission Band Operation

- A Band adjustment screw provides a means of adjusting band-to-drum clearance
- Adjusting the band keeps the clearance within manufacturers spec as the friction material wears away from normal wear and tear
- Some manufactures use a number of different length pins to compensate for band wear

Band and Servo Assembly



Automatic Transmission Fundamentals

Transmission Band Operation

- The Servo is a metal plunger that operates in a machined cylinder in the AT case
- Rubber seals fit around the outside of the piston to prevent internal oil leakage
- A rod (or pin) attached to the servo piston attaches to one end of the band
- The other end of the band is anchored to the AT case

Servo Pins



A 1-groove pin is slightly longer than the 2-groove pin. The longer pin compensates for any band material that wears away.

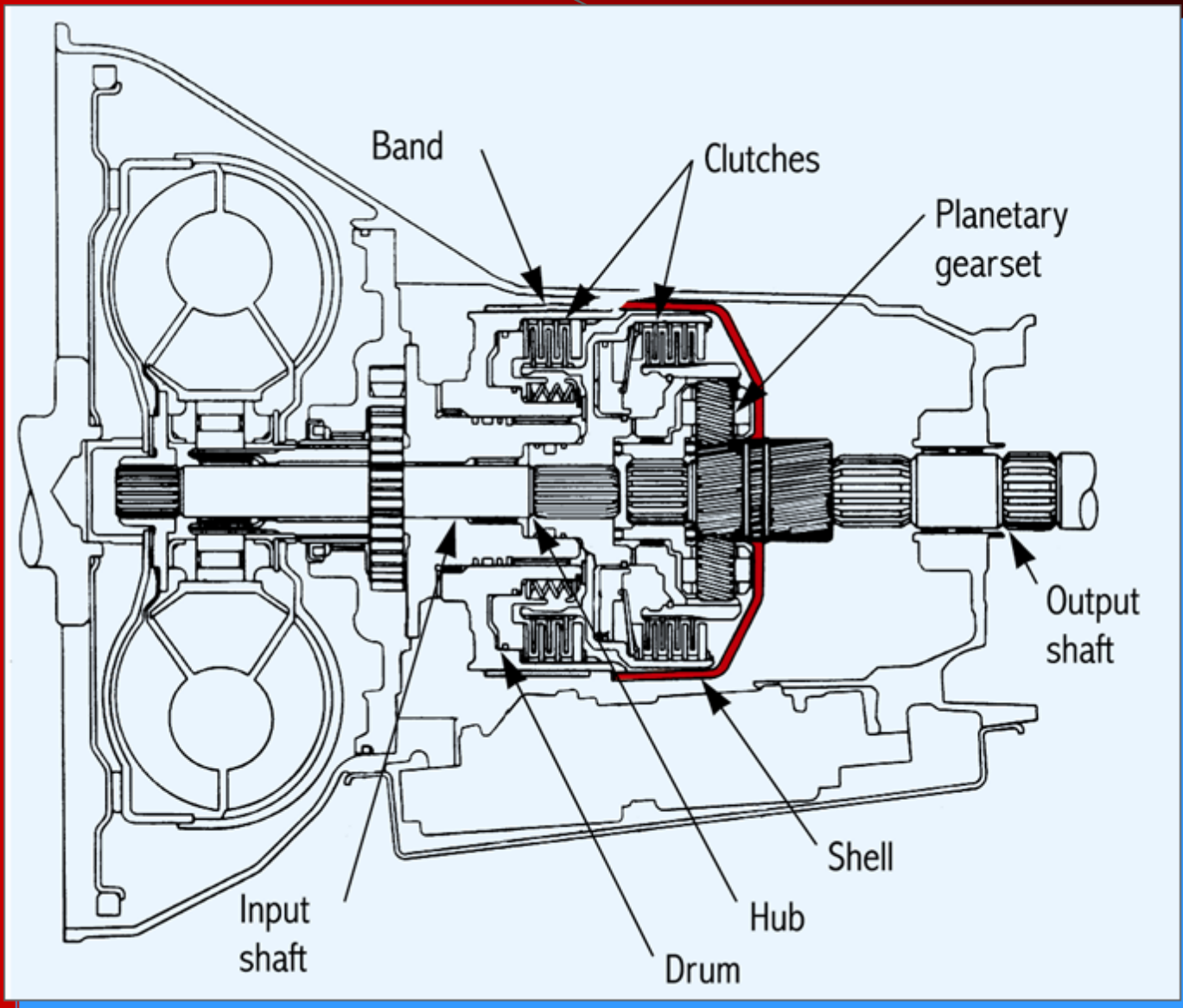
Not shown: a no-groove pin, which is slightly longer than the 1-groove pin

Automatic Transmission Fundamentals

Transmission Band Operation

- To activate the band, oil pressure is sent to the servo cylinder
- Pressure acts on the servo piston
- The piston then slides in the cylinder
- The servo rod or pin pushes on one end of the band
- With the band anchored on the other end, the friction material stops the drum from turning
- This keeps one planetary set from rotating

Bands



Automatic Transmission Fundamentals

Transmission Band Operation

- When AT fluid to the servo piston is blocked, the piston (and the rod/pin) moves away from the band via spring pressure
- This releases the band from the drum and the planetary gear set can now turn
- This is one step in a very complicated series of events that allow an AT to shift

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