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

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Modern Automotive Technology Chapter 63

Transaxle and Front Drive Axle Fundamentals

North Montco Technical Career Center

Learning Objectives

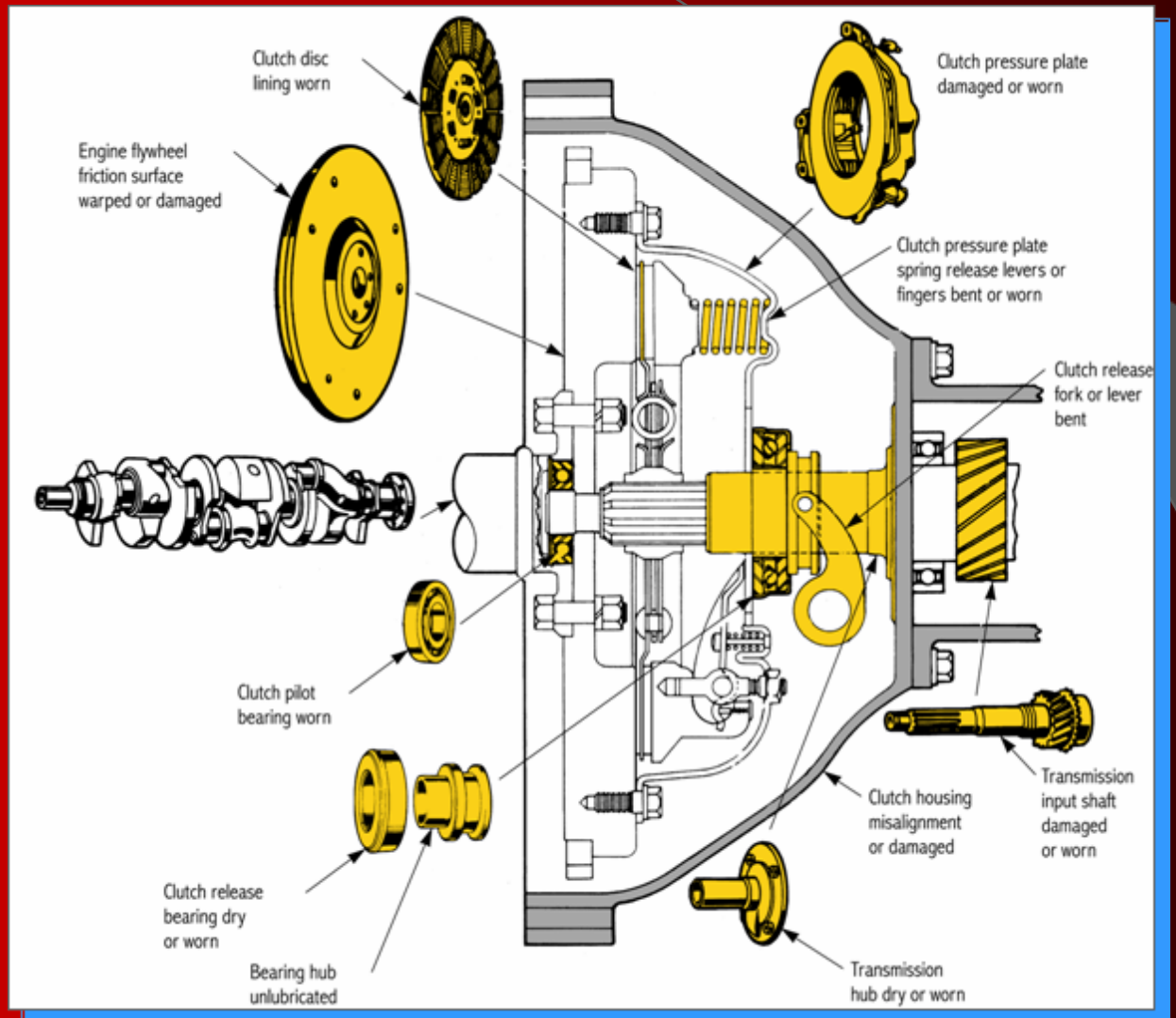
- Identify the major parts of a transaxle assembly.
- Explain the operation of a manual transaxle.
- Explain the operation of an automatic transaxle.
- Trace the flow of power through manual and automatic transaxles.
- Describe design differences in transaxles.
- Identify the parts of constant velocity drive axles.
- Compare design differences in CV-joints.

Chapter 63

1. The Transaxle Input Shaft is splined to the clutch disc; turning the gears in the transaxle.

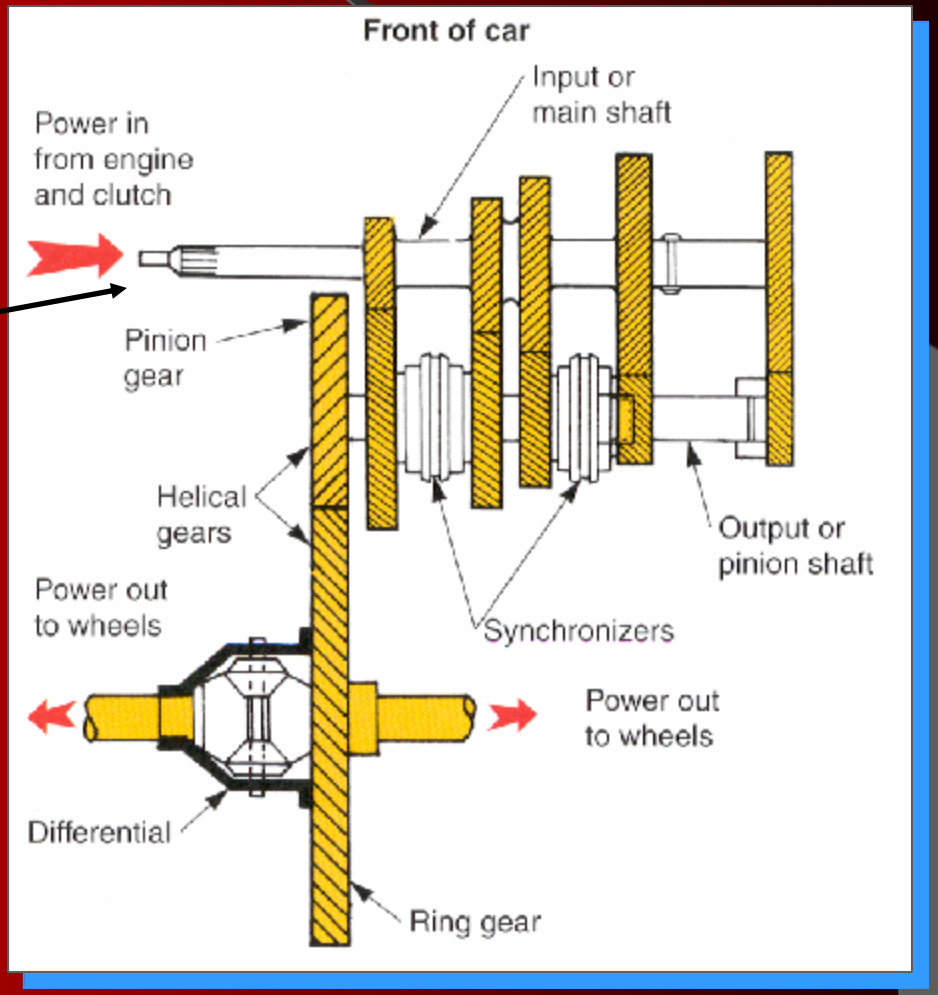
2. The Transaxle Output Gears are either freewheeling or fixed gears driven by input gears.

Clutch Disc Splined to Transmission Input Shaft

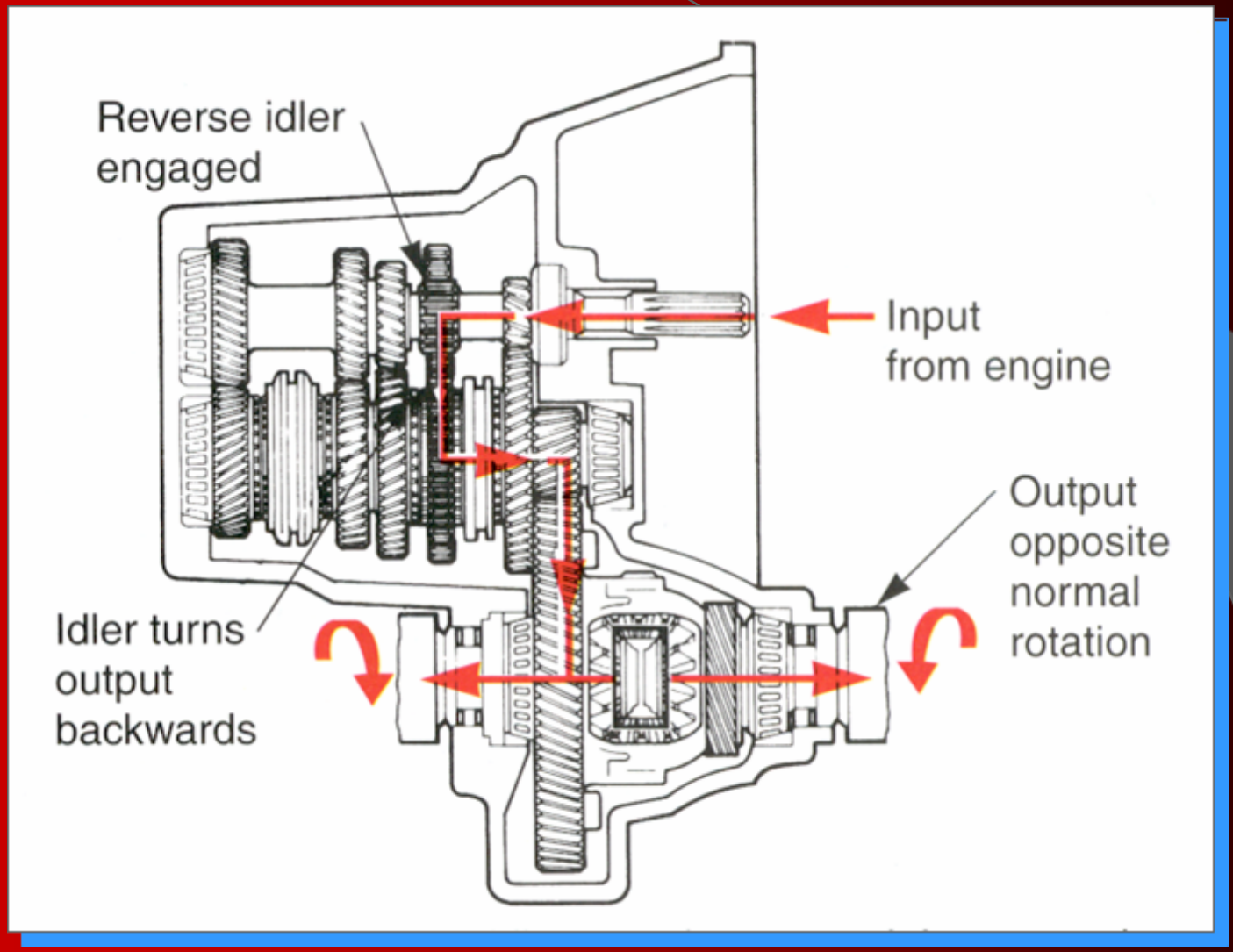


Transaxle Powerflow
(Transverse Engine)

Input Shaft



Input to Output Gear Power Flow

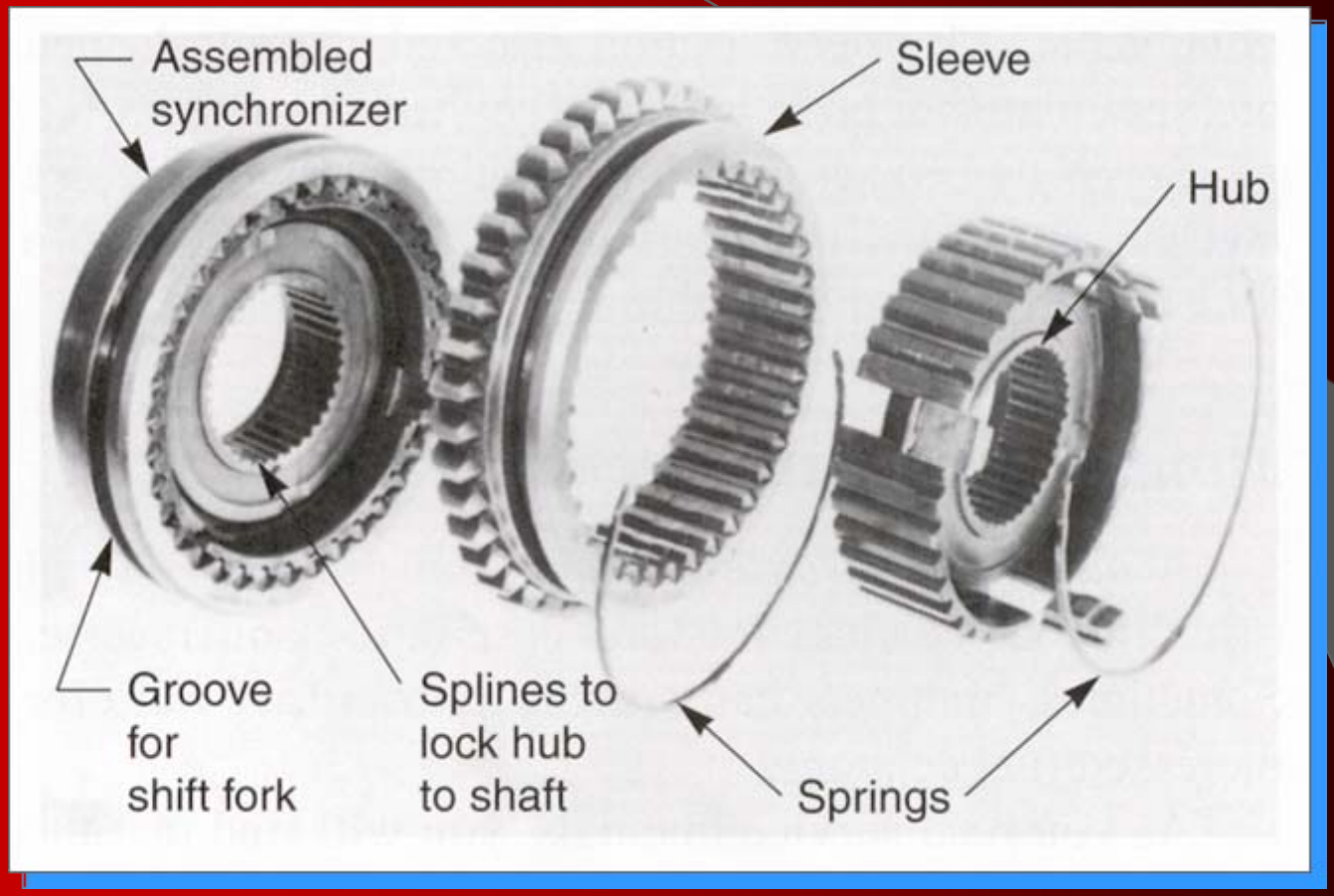


Chapter 63

3. Transaxle Synchronizers are splined hub assemblies that can be used to lock freewheeling gears to their shafts for engagement.

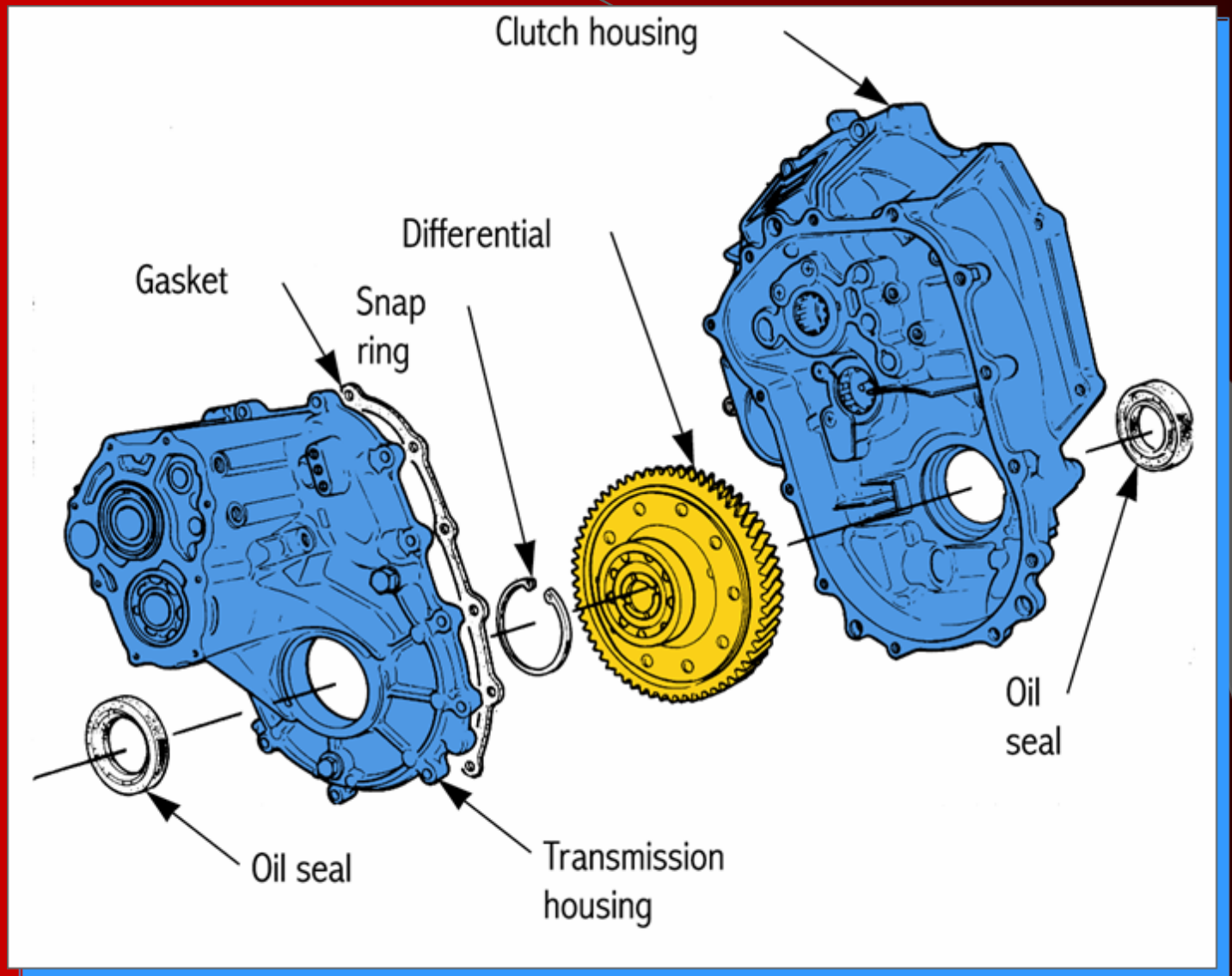
4. The Transaxle Case is an aluminum housing that encloses and supports parts of transaxle.

Transaxle Synchronizer



Inner hub is splined to a transaxle shaft. Outer sleeve is free to slide on the hub

Transaxle Case

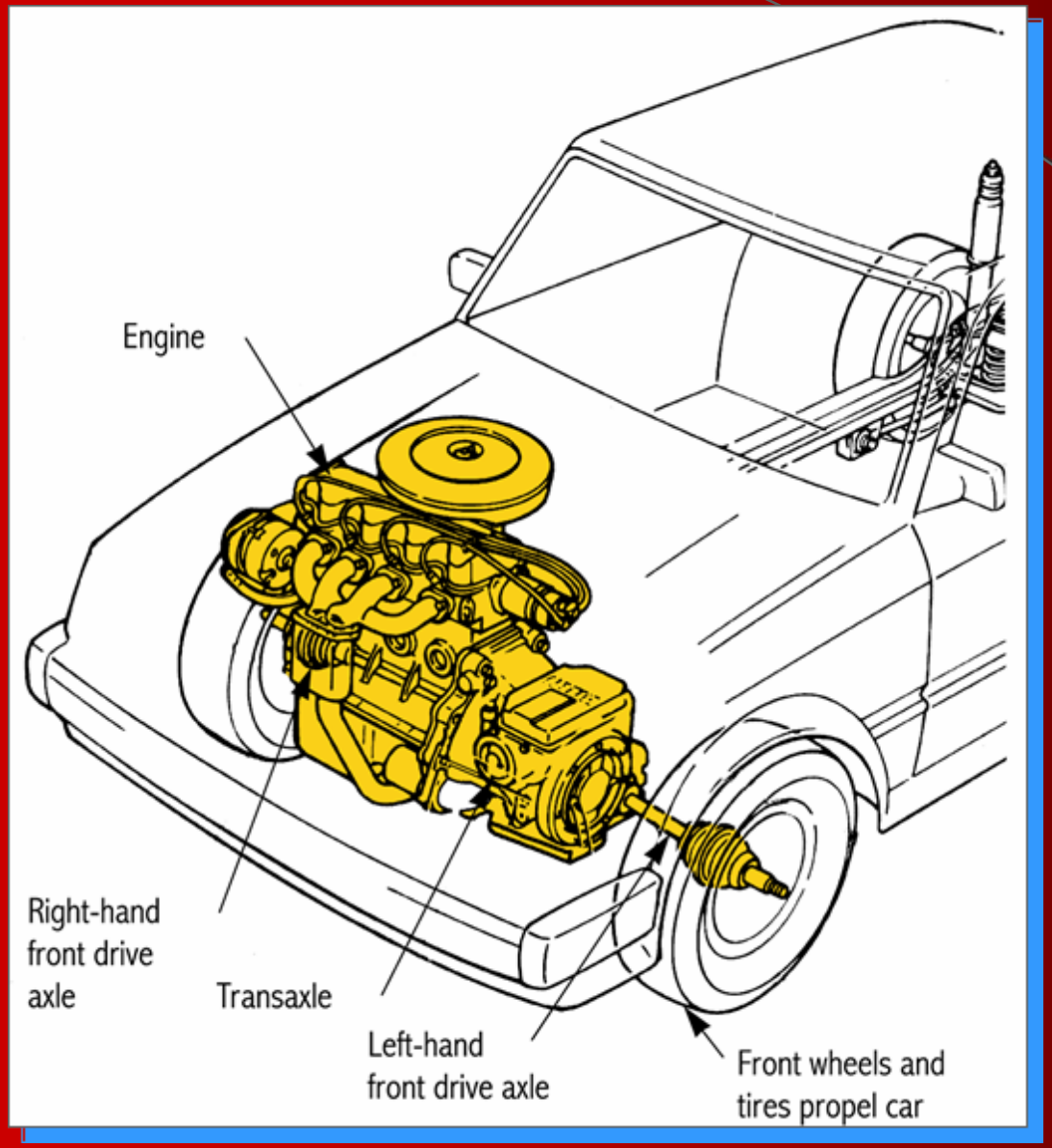


Chapter 63

5. A Transverse Drive system is one in which the engine is mounted sideways in the engine compartment.

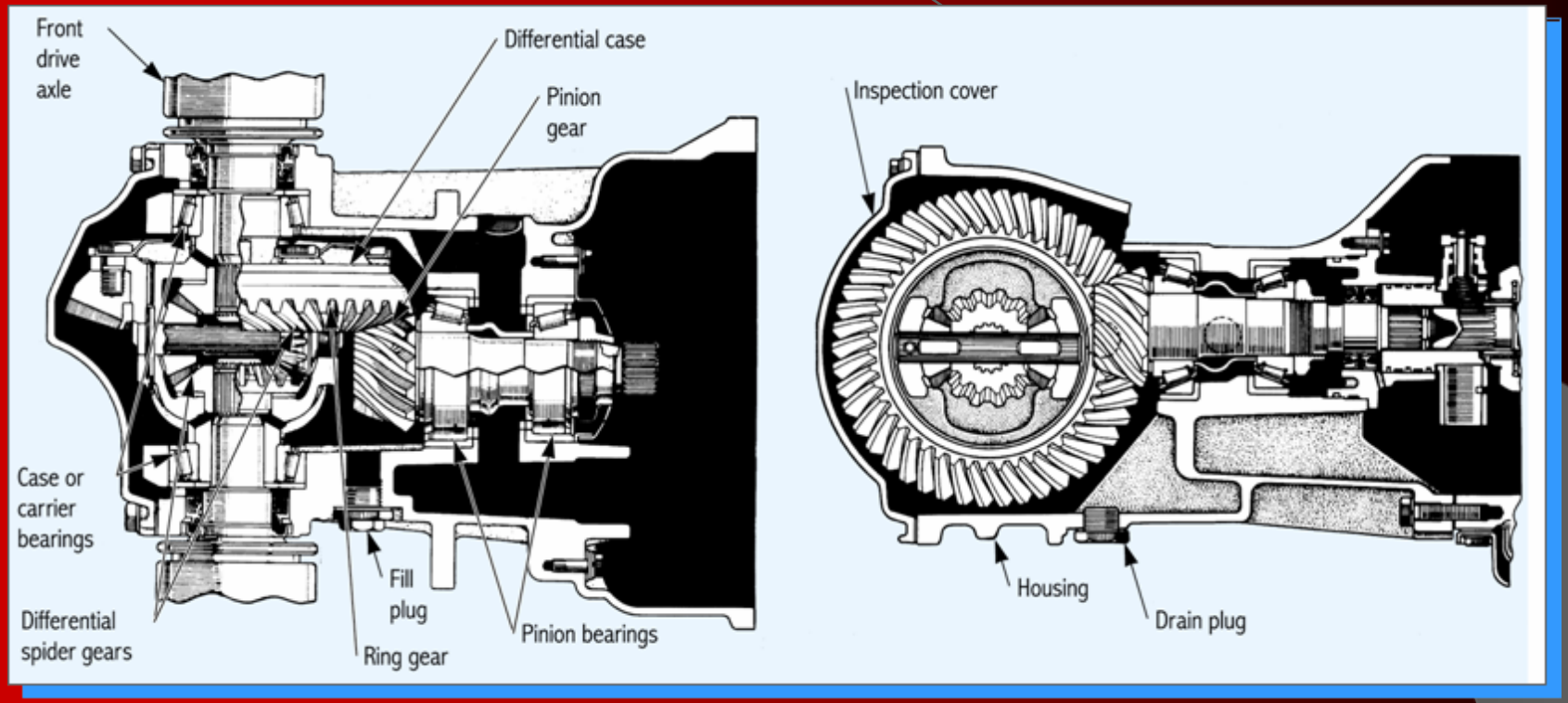
6. A Transaxle Differential transfers power to the axles and wheels and allows one wheel to turn at a different speed than the other.

Transverse Drive



Short drive axle assemblies connect the transaxle output to the hubs and wheels

Transaxle Differential
(Longitudinal Engine)



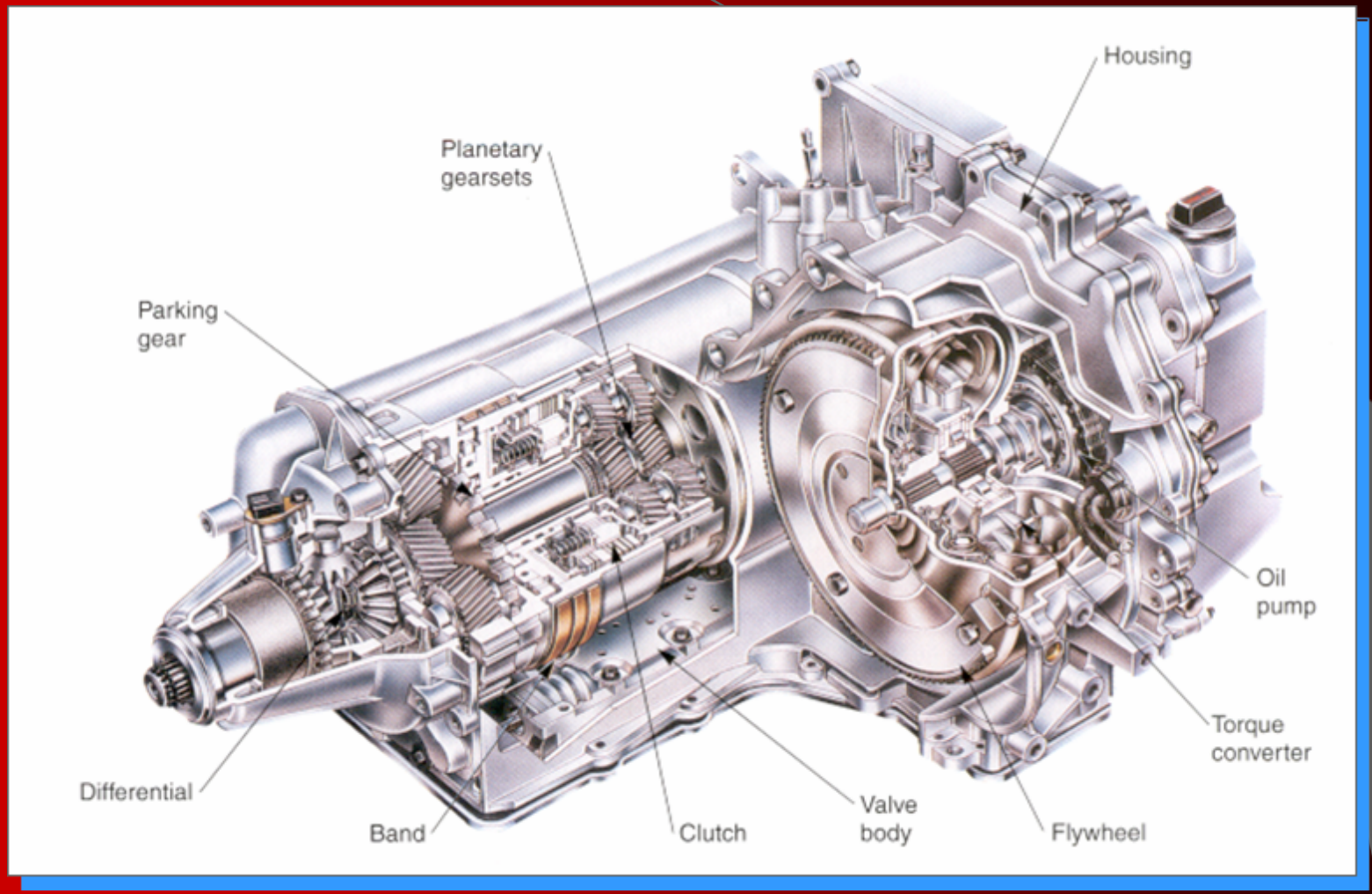
Hypoid gears transfer driving power

Chapter 63

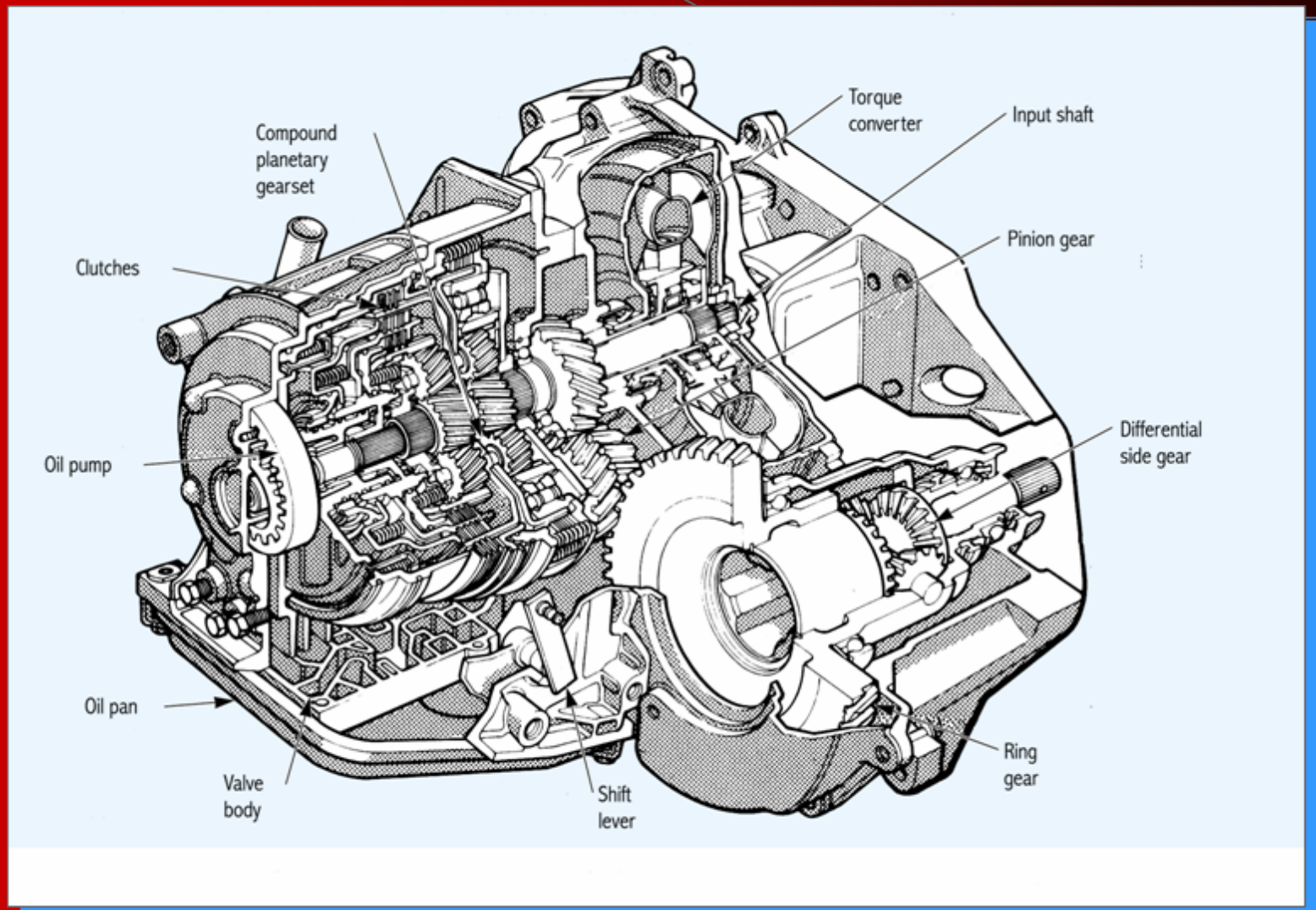
7. The Transaxle Output Shaft is a pinion shaft that transfers torque to ring and pinion gears and differential.

8. Transaxle Input Gears are either freewheeling or fixed gears on input shaft and mesh with output gears.

Automatic Transaxle



Automatic Transaxle



Chapter 63

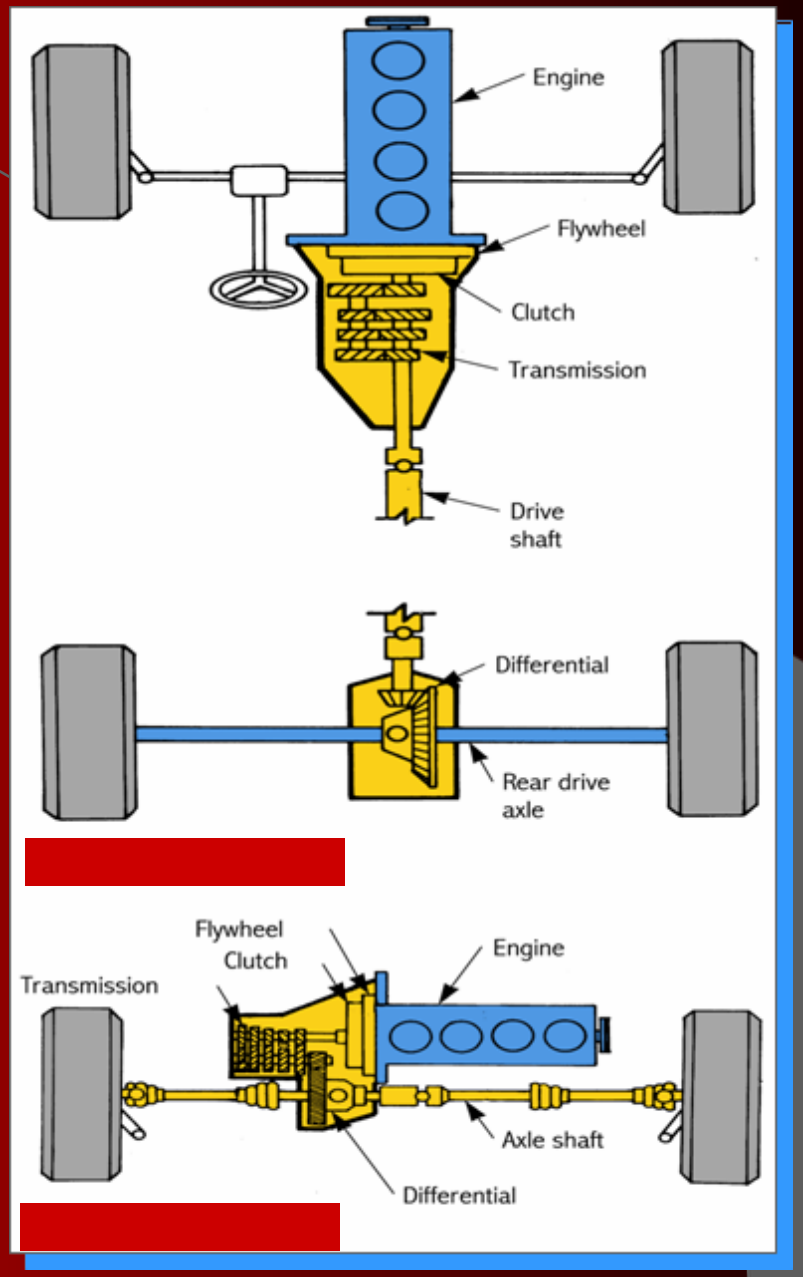
9. A Longitudinal drive system in which the engine is mounted lengthwise in the engine compartment.

10. A Transaxle is a transmission and a differential combined in a single assembly.

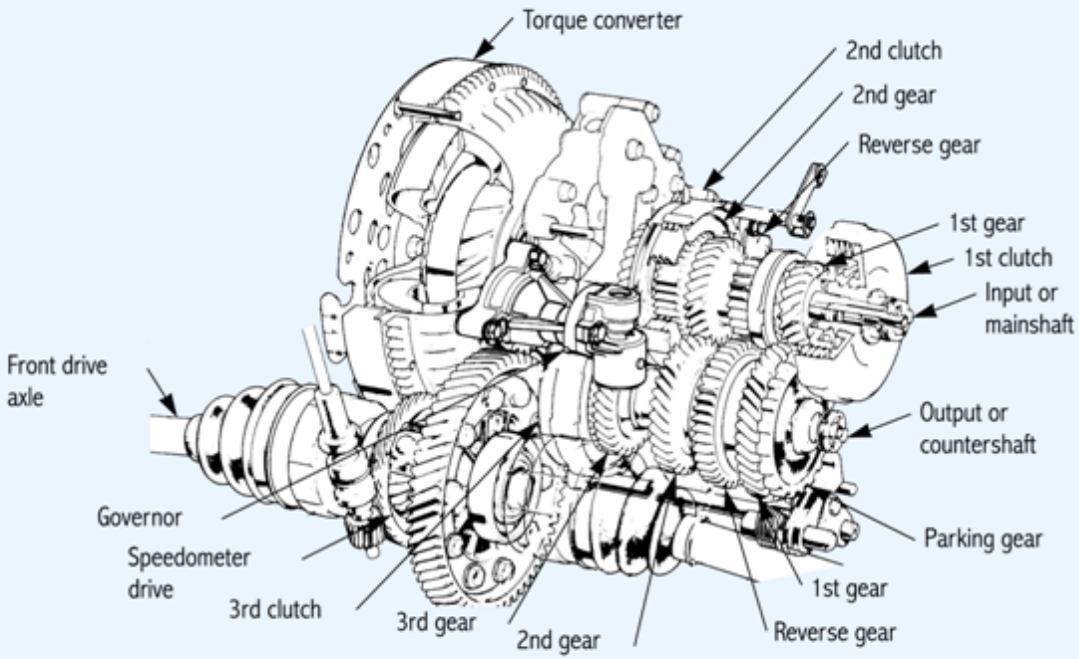
Drive Trains

Rear-Wheel Drive Vehicle

Front-Wheel Drive Vehicle

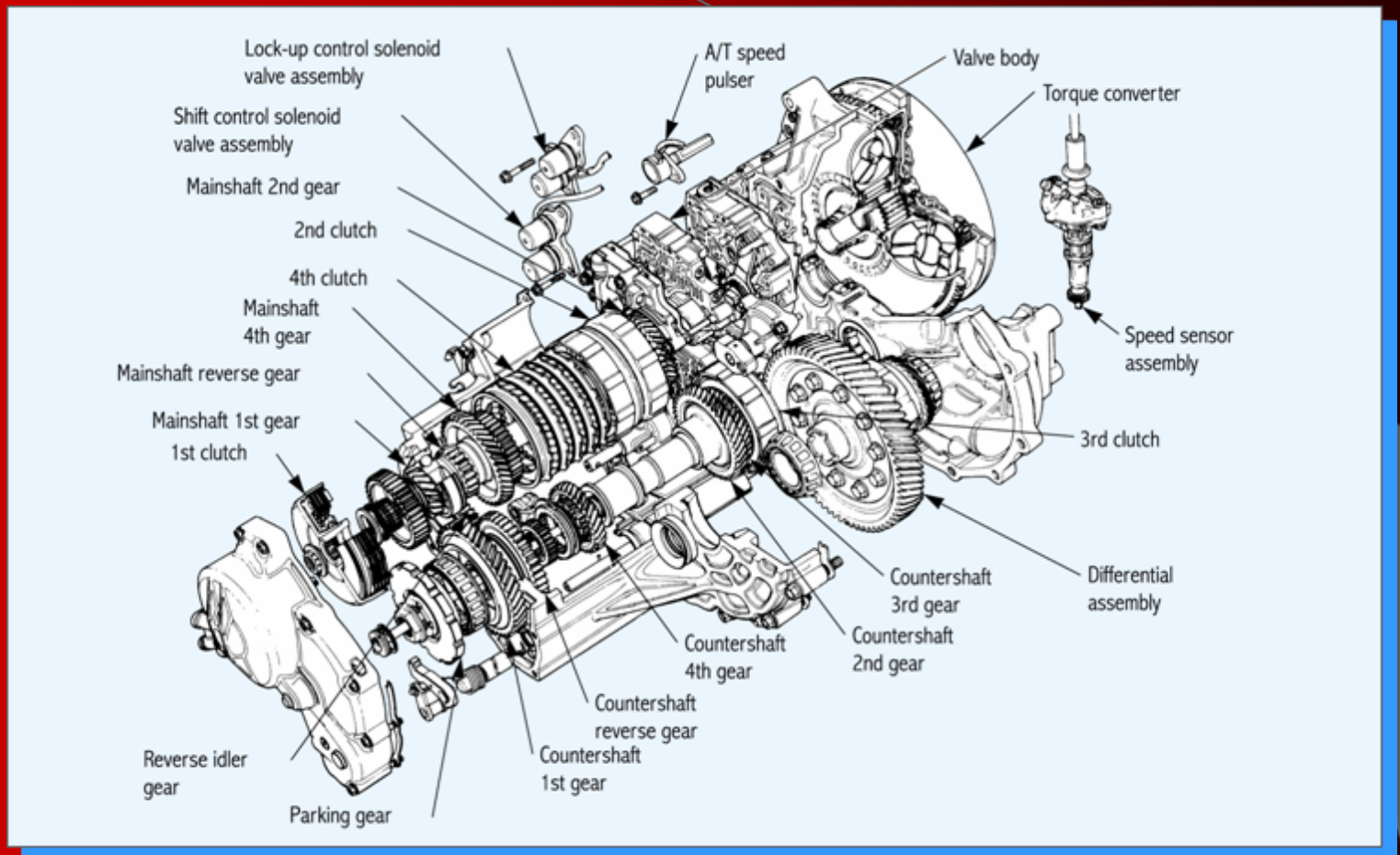


Automatic Transaxle



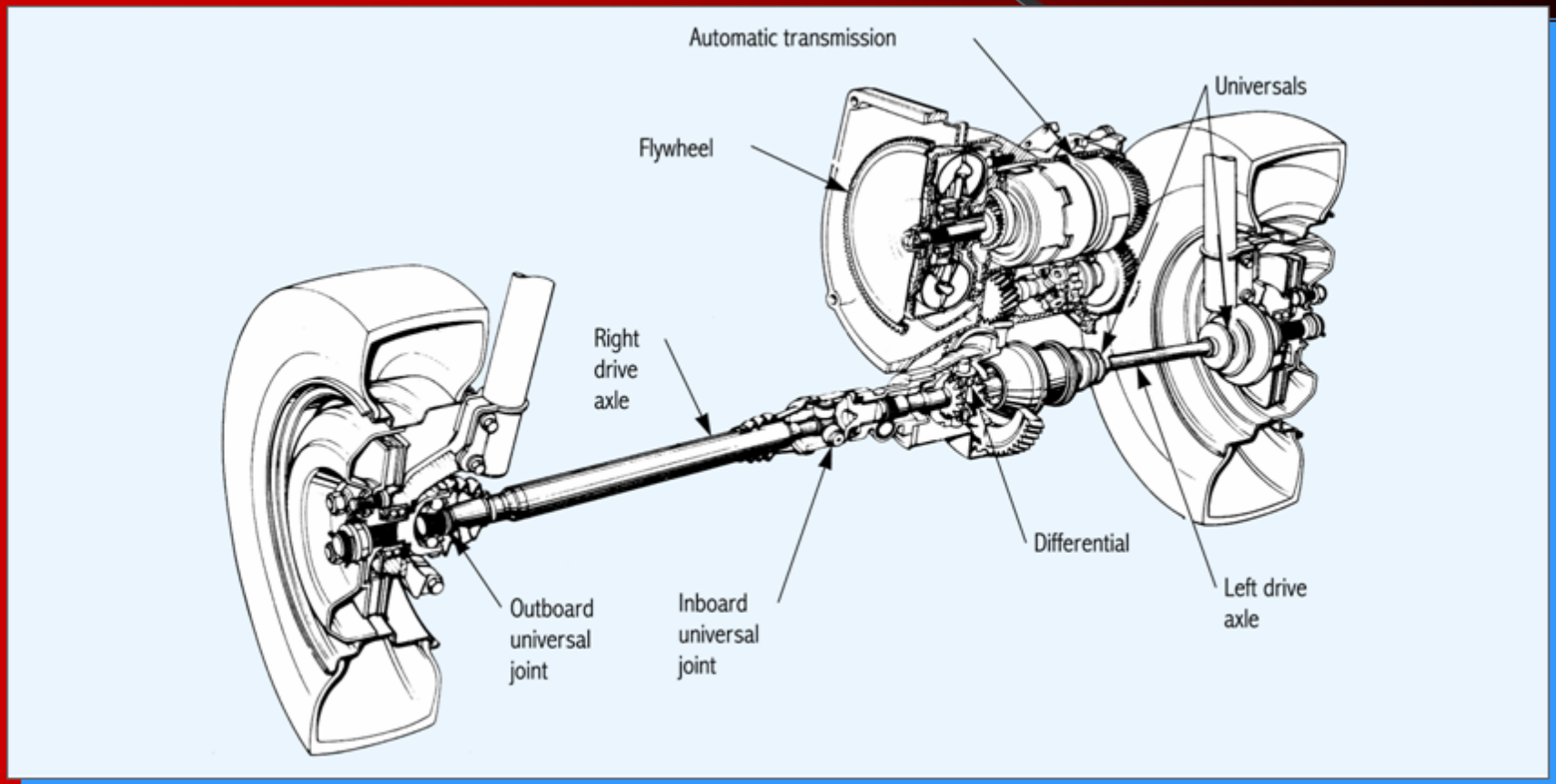
No planetary gear set is used

Automatic Transaxle

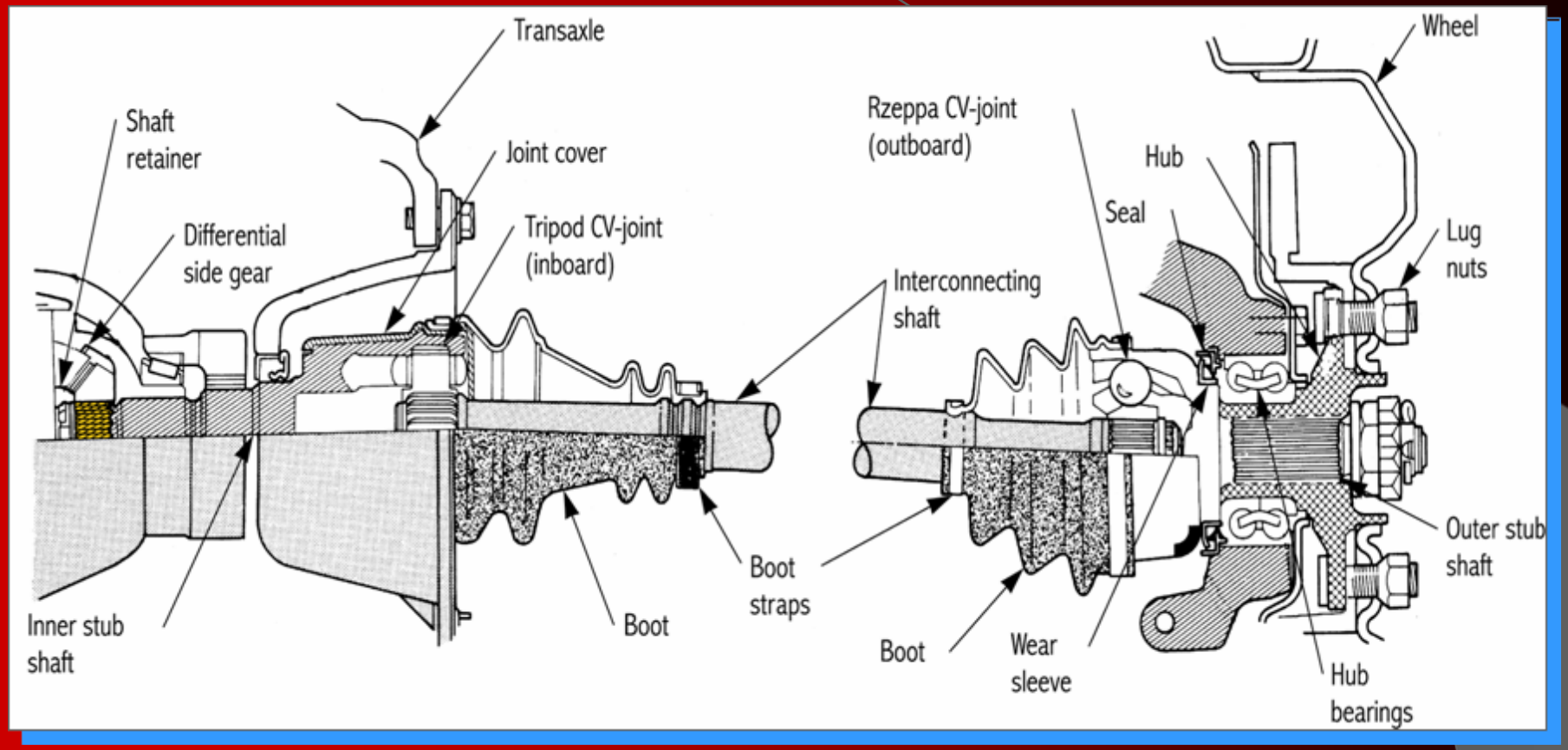


Solenoids and clutches control helical gears and torque converter lockup

Front Drive Axles

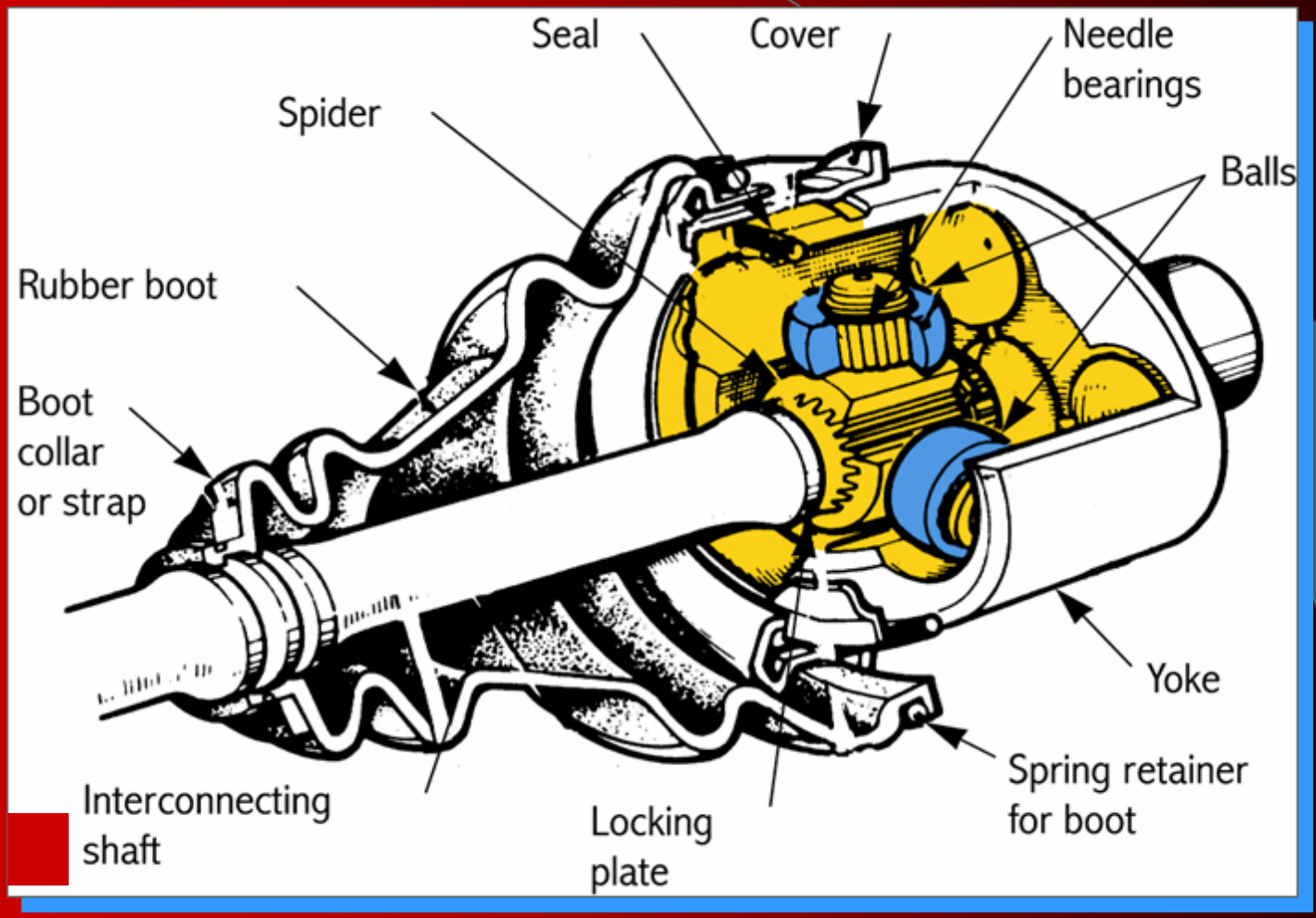


CV-Joints

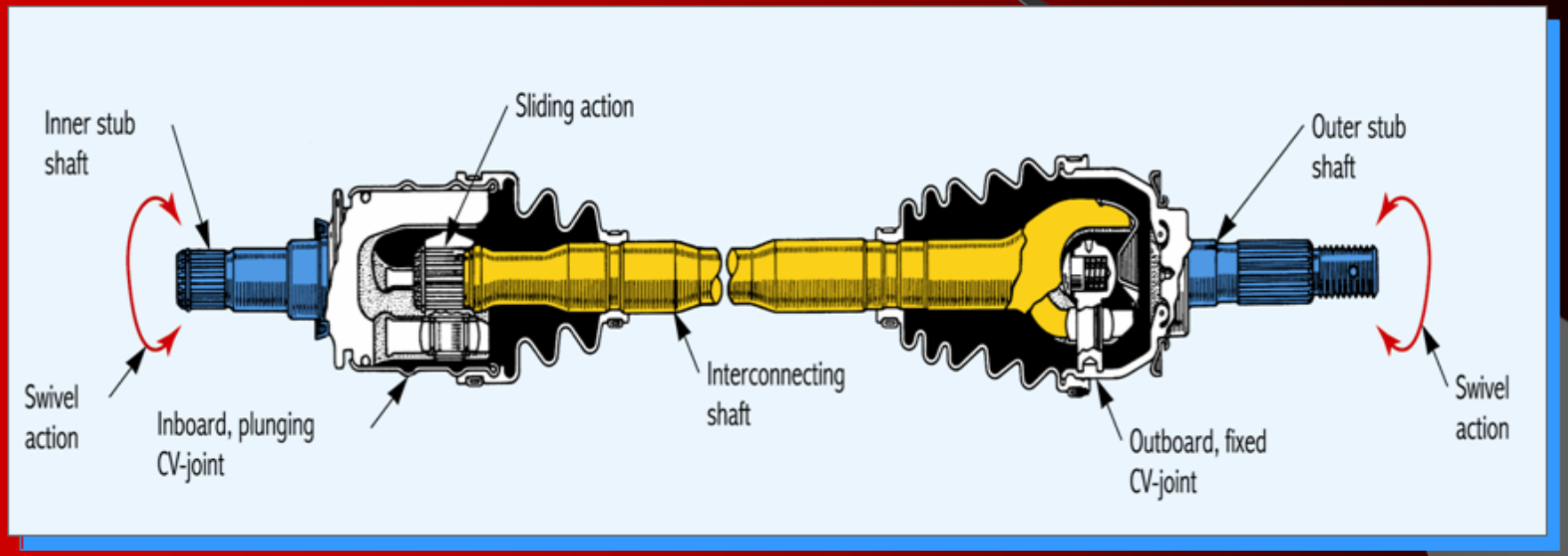


Constant Velocity Joint

Tripod CV-Joint



Axle Shafts



Three-piece drive axle

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