



Modern Automotive Technology Chapter 1

The Automobile



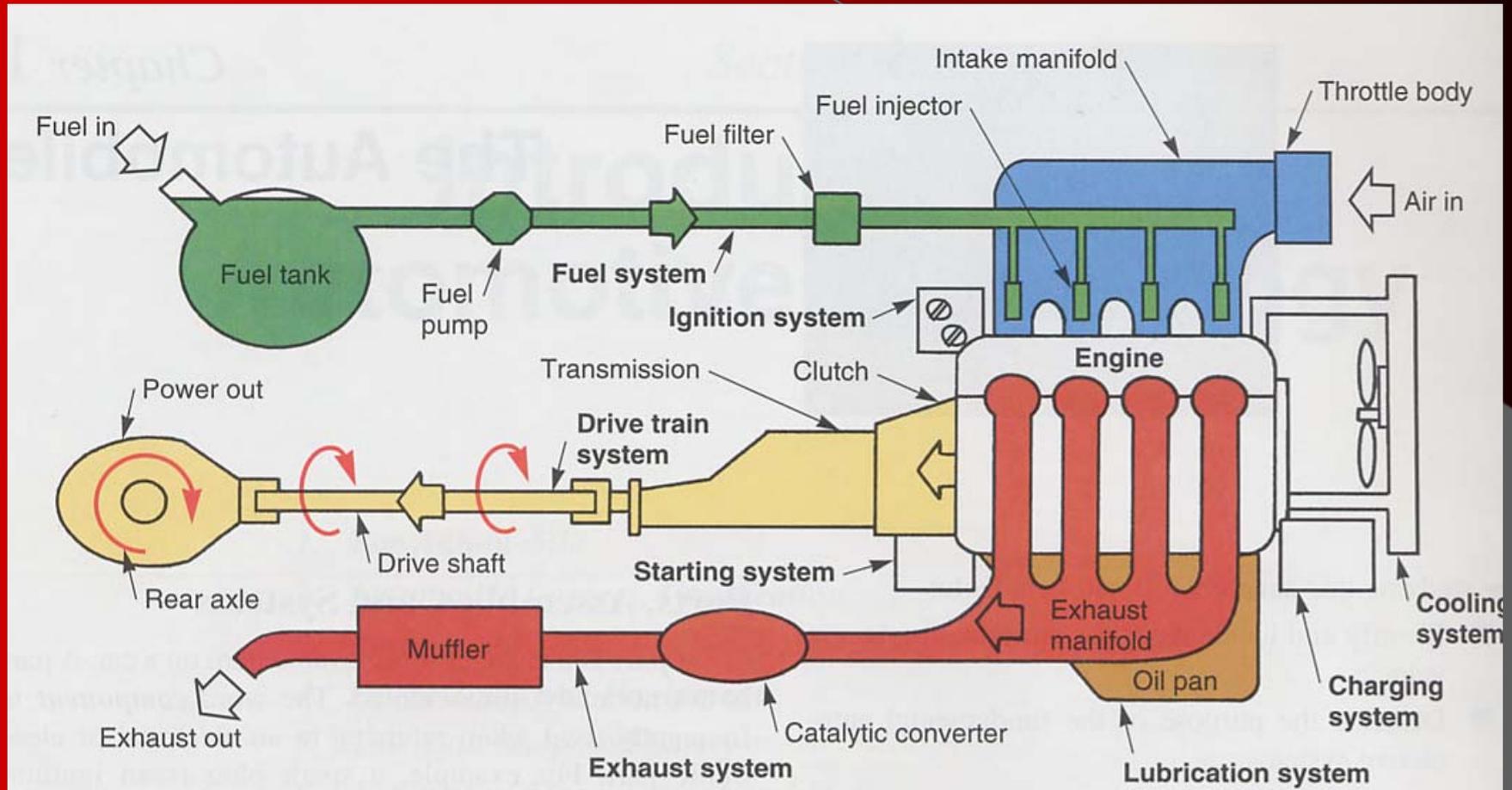
*North Montco
Technical Career Center*

Learning Objectives

- Identify and locate the most important parts of a vehicle
- Describe the purpose of the fundamental automotive systems
- Explain the the interaction of automotive systems
- Describe major automobile design variations
- Discuss safety procedures when working on a cooling system



Basic Automotive Systems

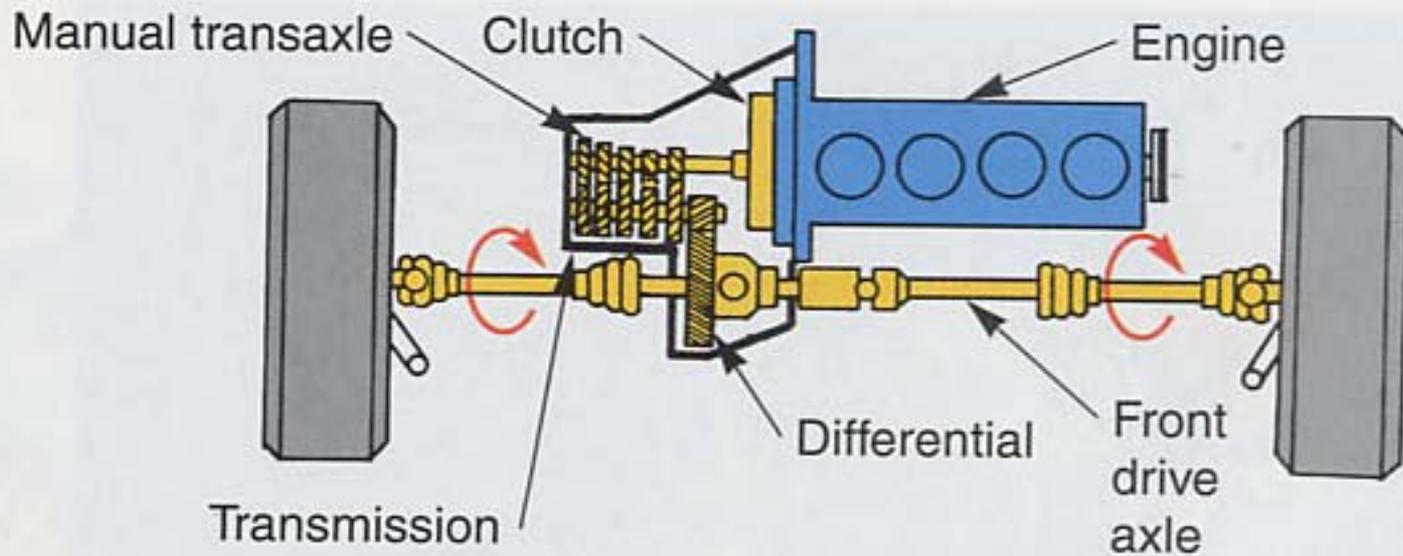


Chapter 1

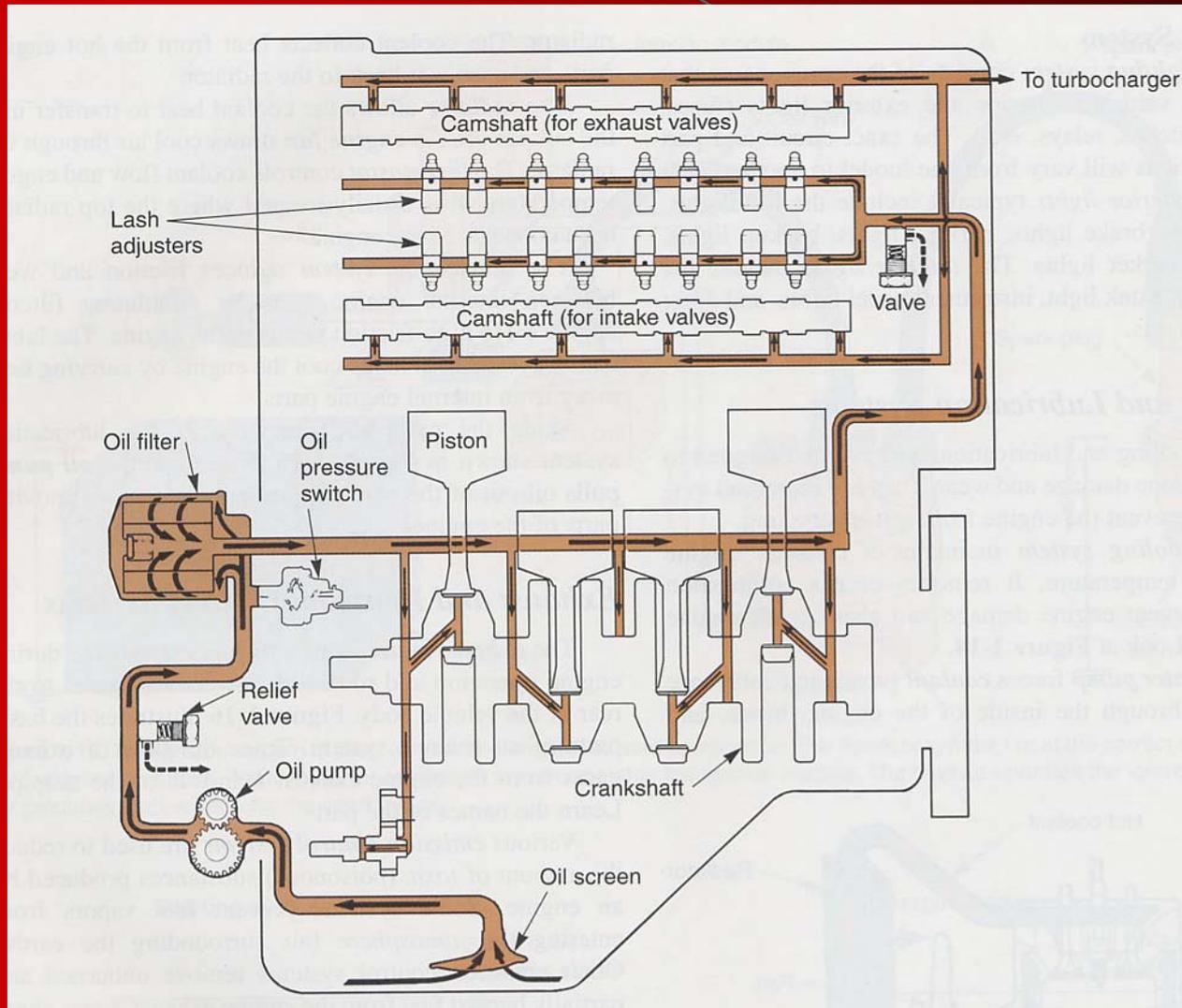
1. The TRANSAXLE contains a transmission and a differential in one case.
2. The CLUTCH is used to engage or disengage the engine from the transmission
3. The LUBRICATION SYSTEM helps reduces friction and wear between internal engine parts



Transverse Mounted Engine and Transaxle



Engine Lubrication System



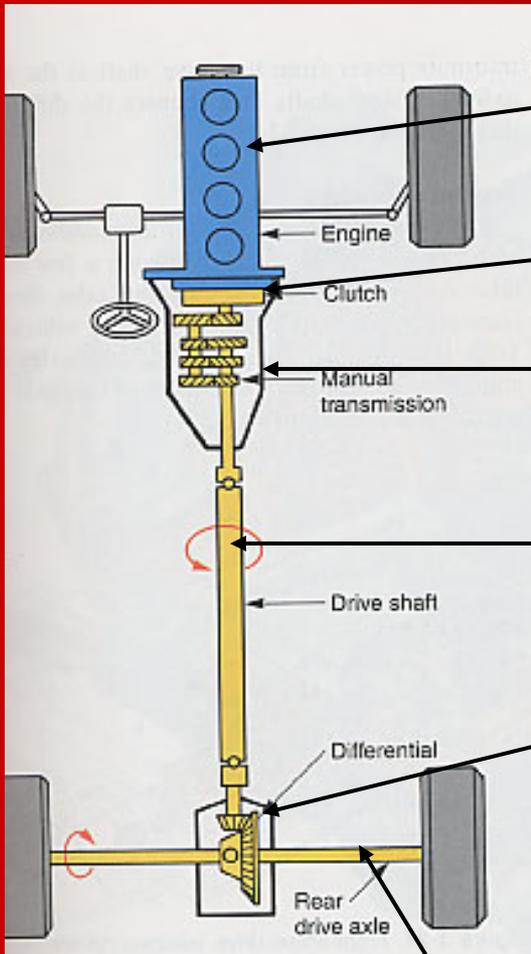
Chapter 1

4. The **AUTOMATIC TRANSMISSION** uses an internal hydraulic system to shift gears.

5. The **DRIVE TRAIN** transfers turning force from the engine crankshaft to the drive wheels.



Automotive Systems



Engine

Clutch

Manual Transmission

Drive Shaft

Differential

Rear Drive Axle



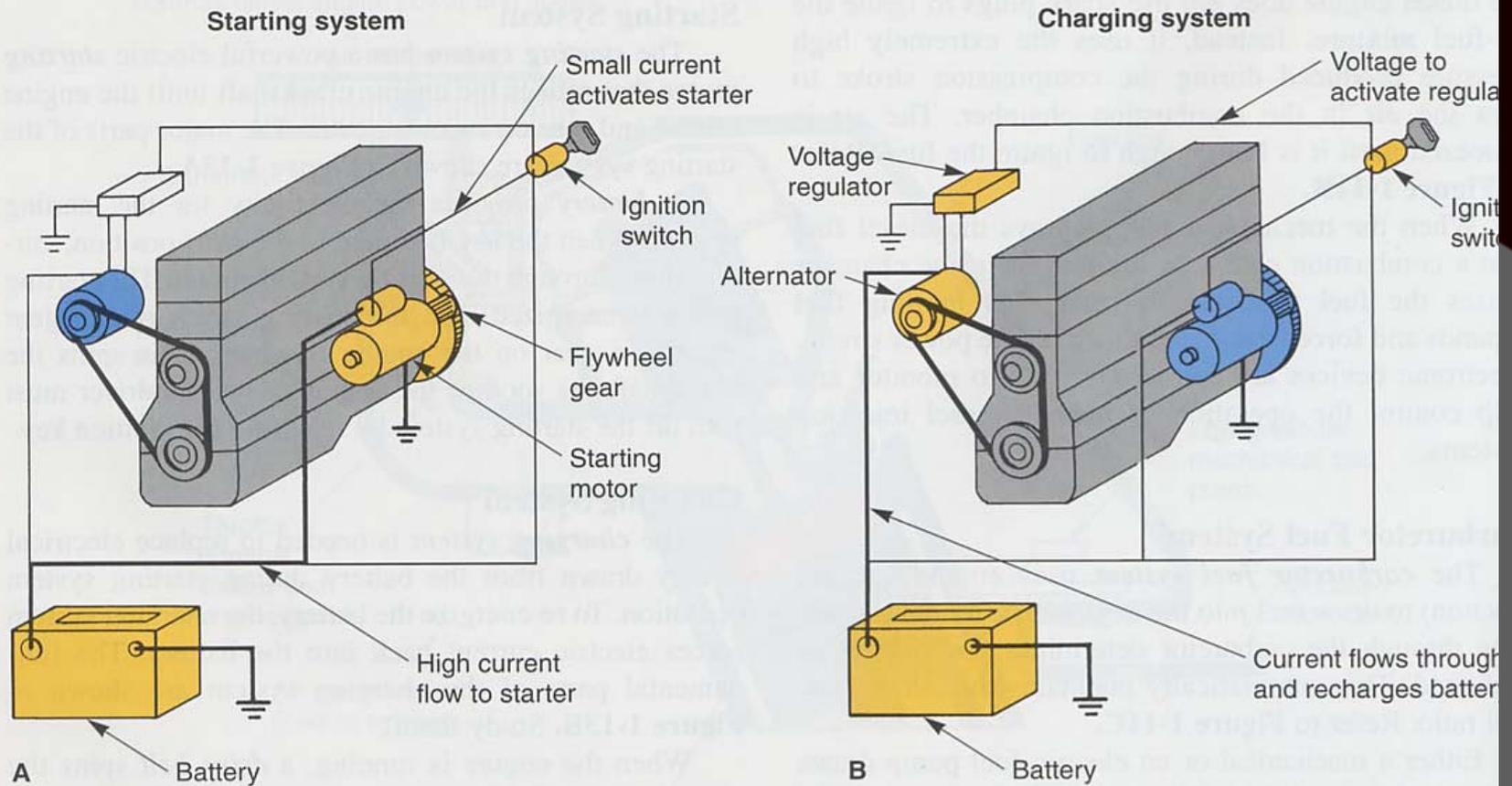
Chapter 1

6.The CHARGING SYSTEM replaces electrical energy used during the starting system operation.

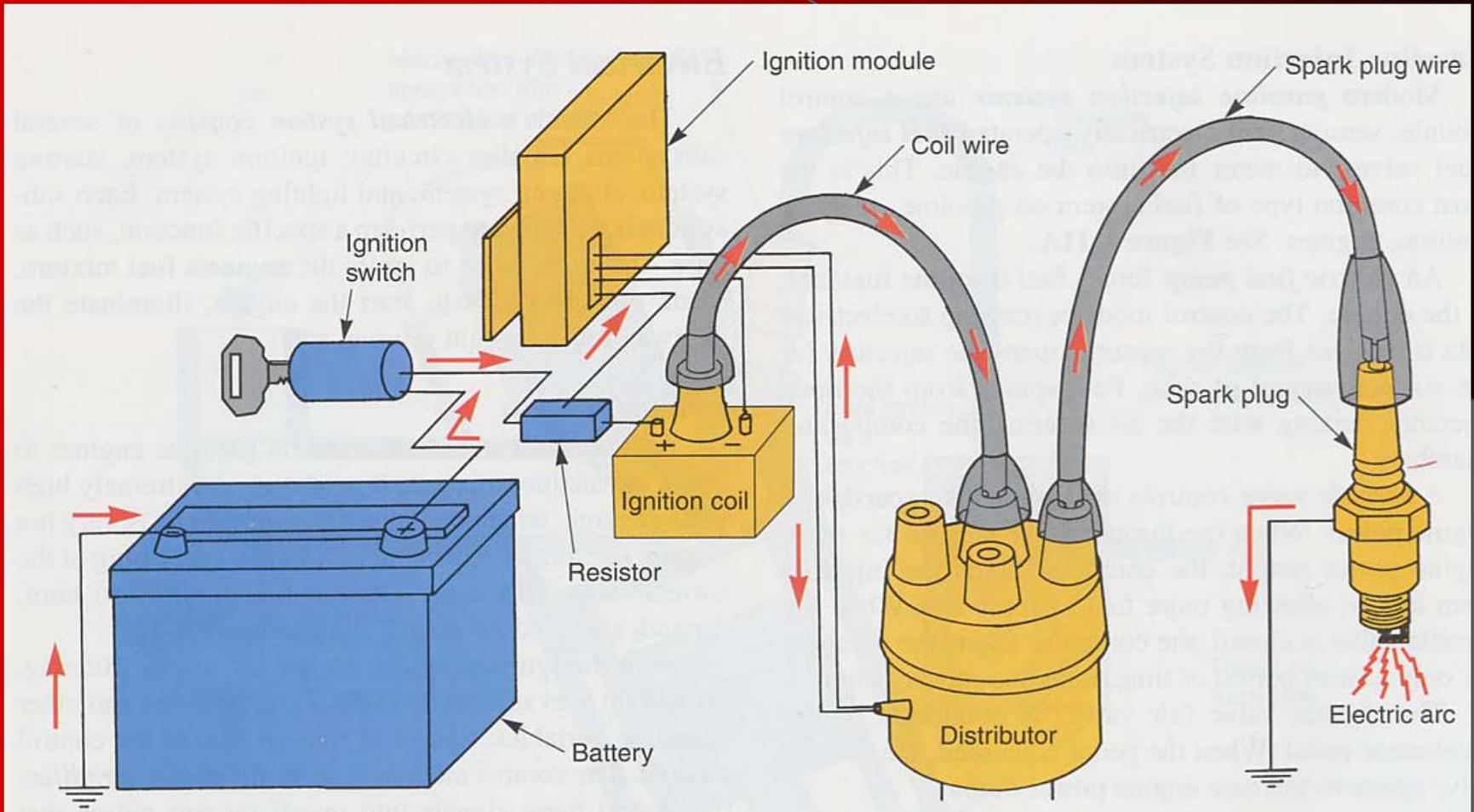
7.The IGNITION SYSTEM produces extremely high voltage that operates the spark plugs.



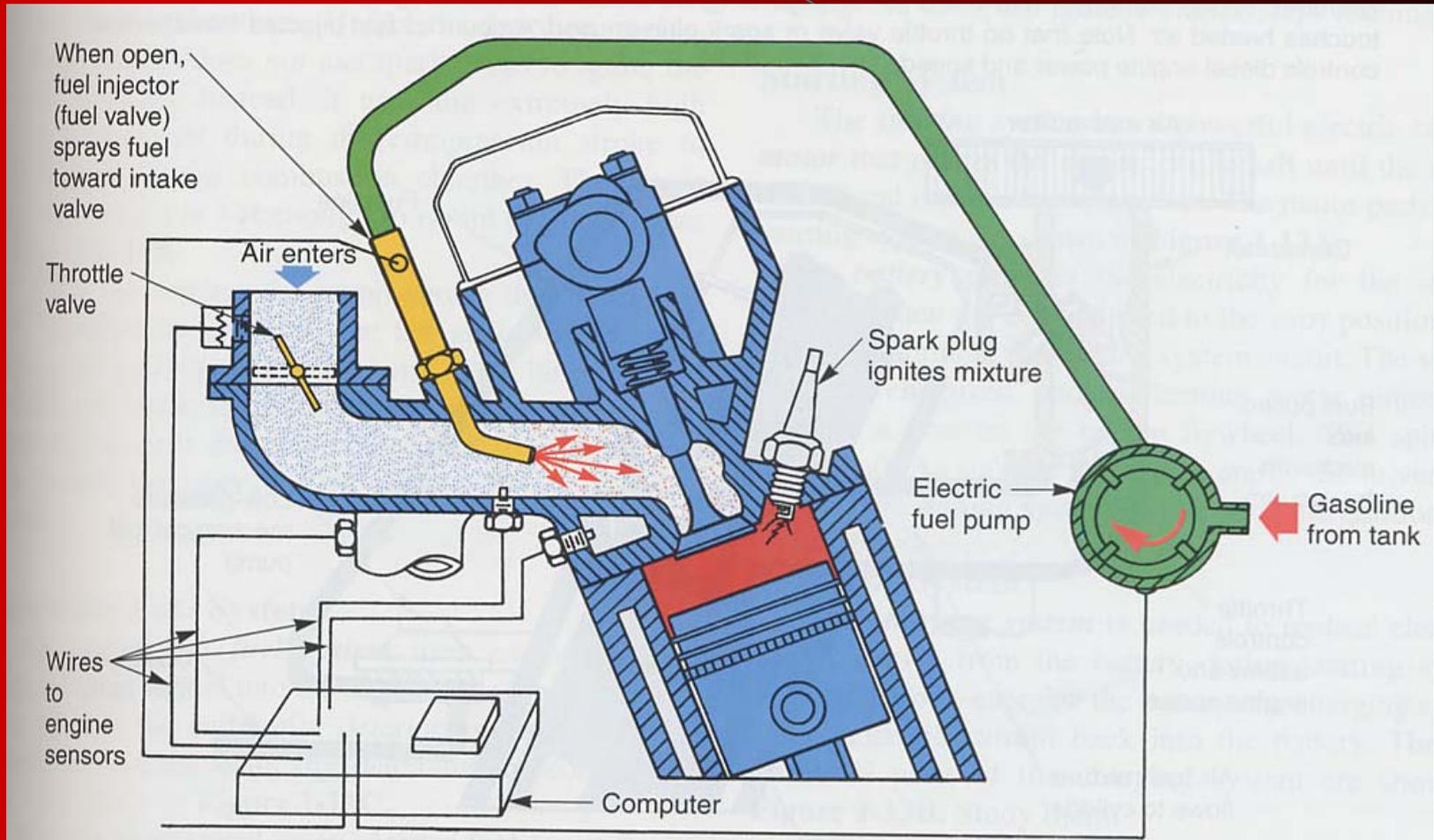
Charging and Starting Systems



Engine Ignition System



Gasoline Injection System



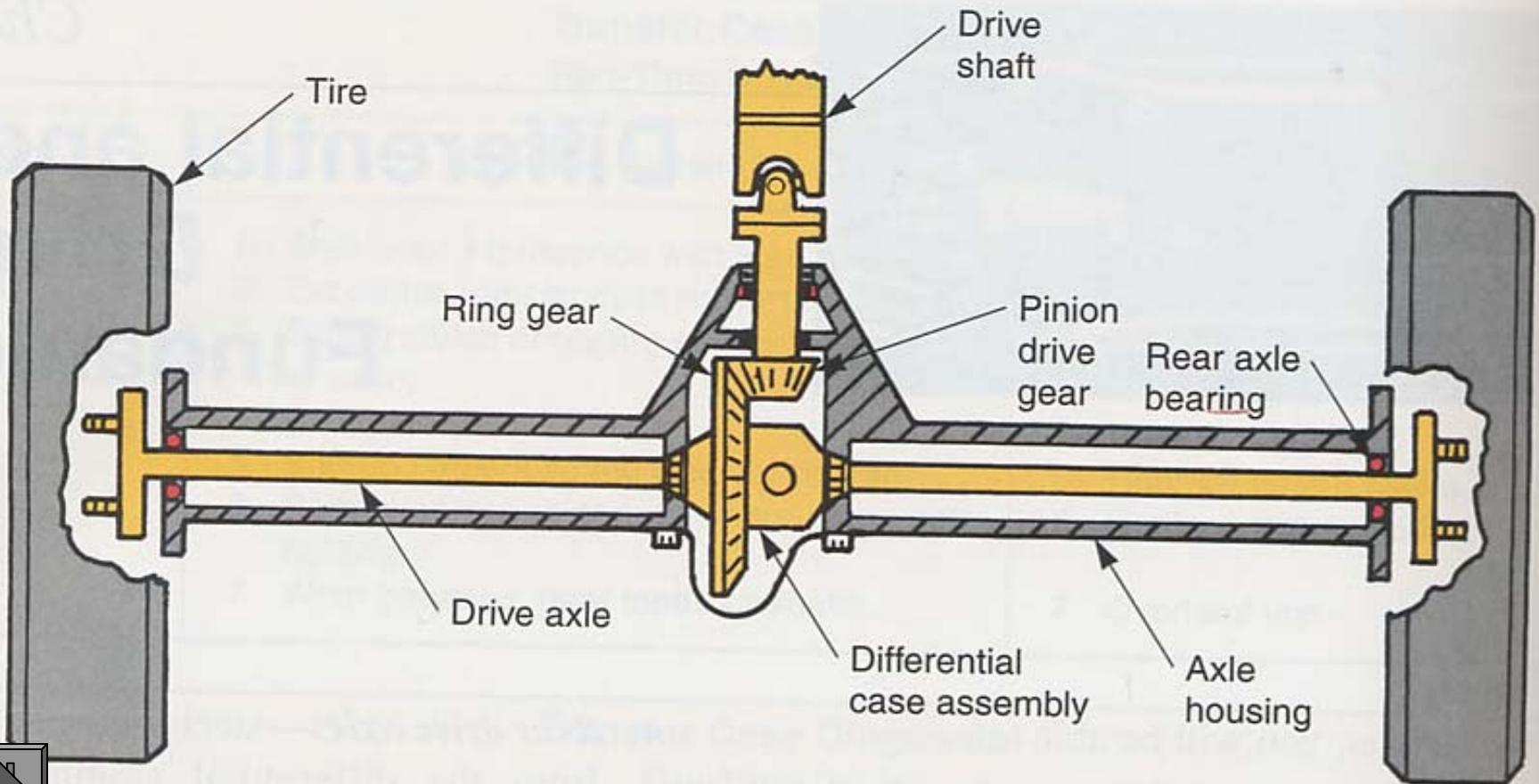
Chapter 1

The Automobile

8. A **MANUAL TRANSMISSION** allows the driver to change gear ratios and engine torque going to drive wheels
9. The **DRIVE SHAFT** transfers power from the transmission to the rear axle assembly

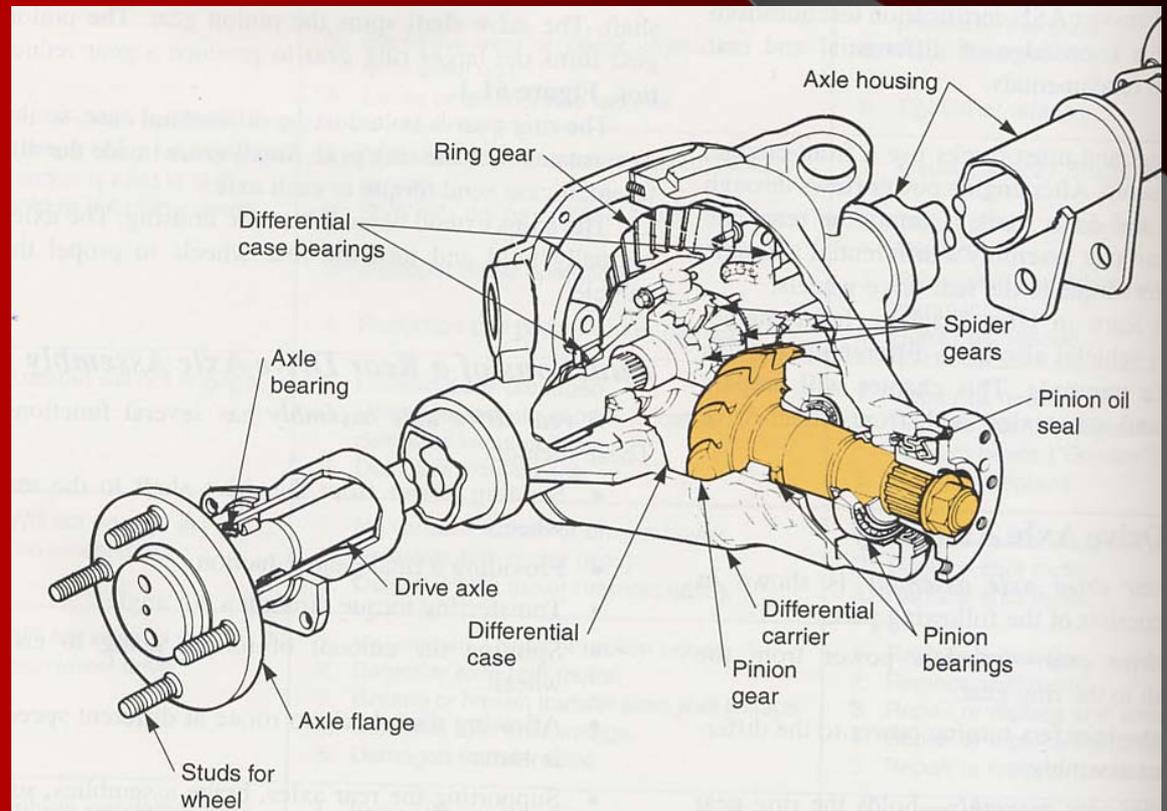


Rear Differential & Axle System



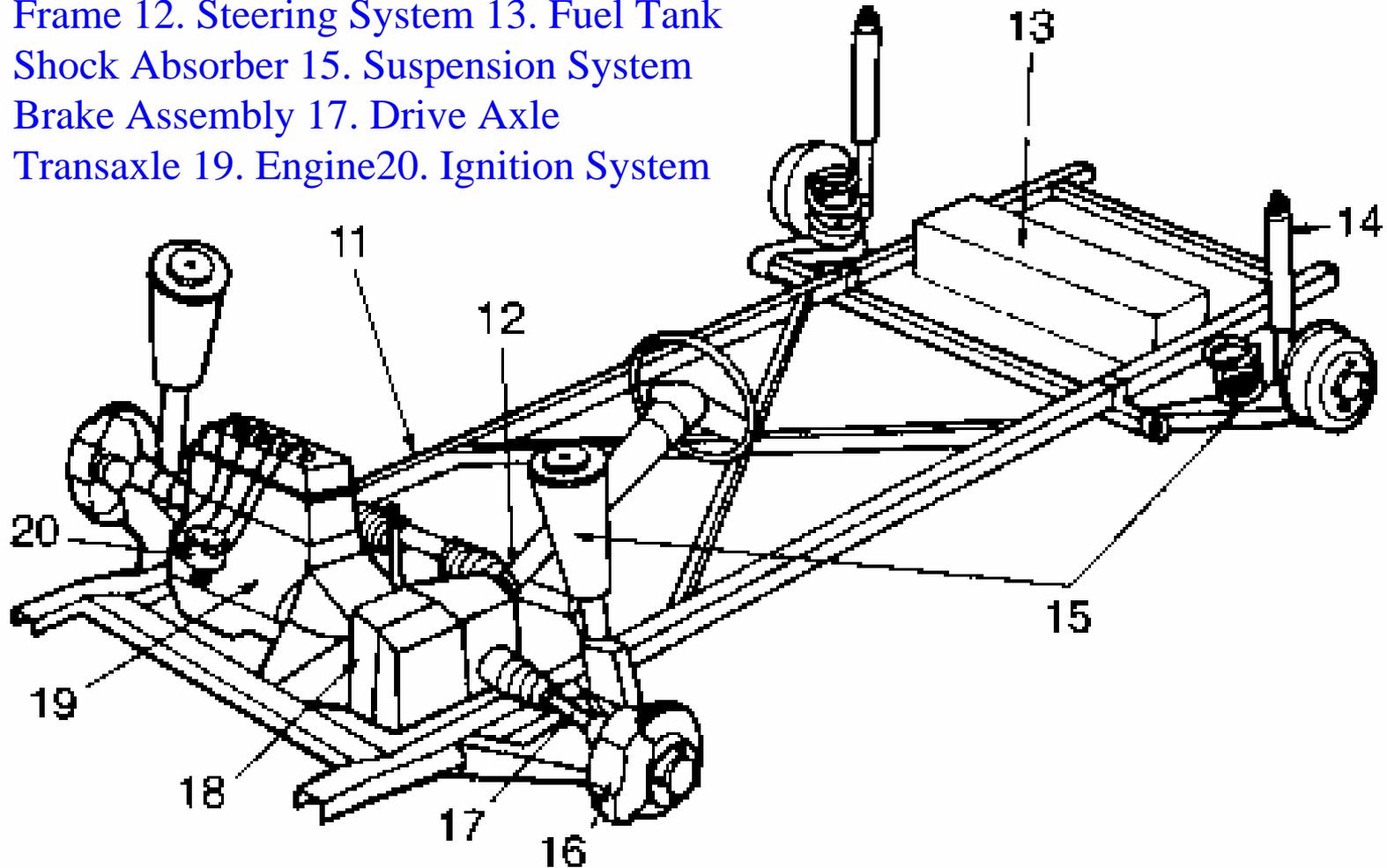
Chapter 1

10. The REAR AXLE ASSEMBLY contains a differential and two axles



The Automobile

- 11. Frame
- 12. Steering System
- 13. Fuel Tank
- 14. Shock Absorber
- 15. Suspension System
- 16. Brake Assembly
- 17. Drive Axle
- 18. Transaxle
- 19. Engine
- 20. Ignition System



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