

TEACHING LEARNING MATERIAL



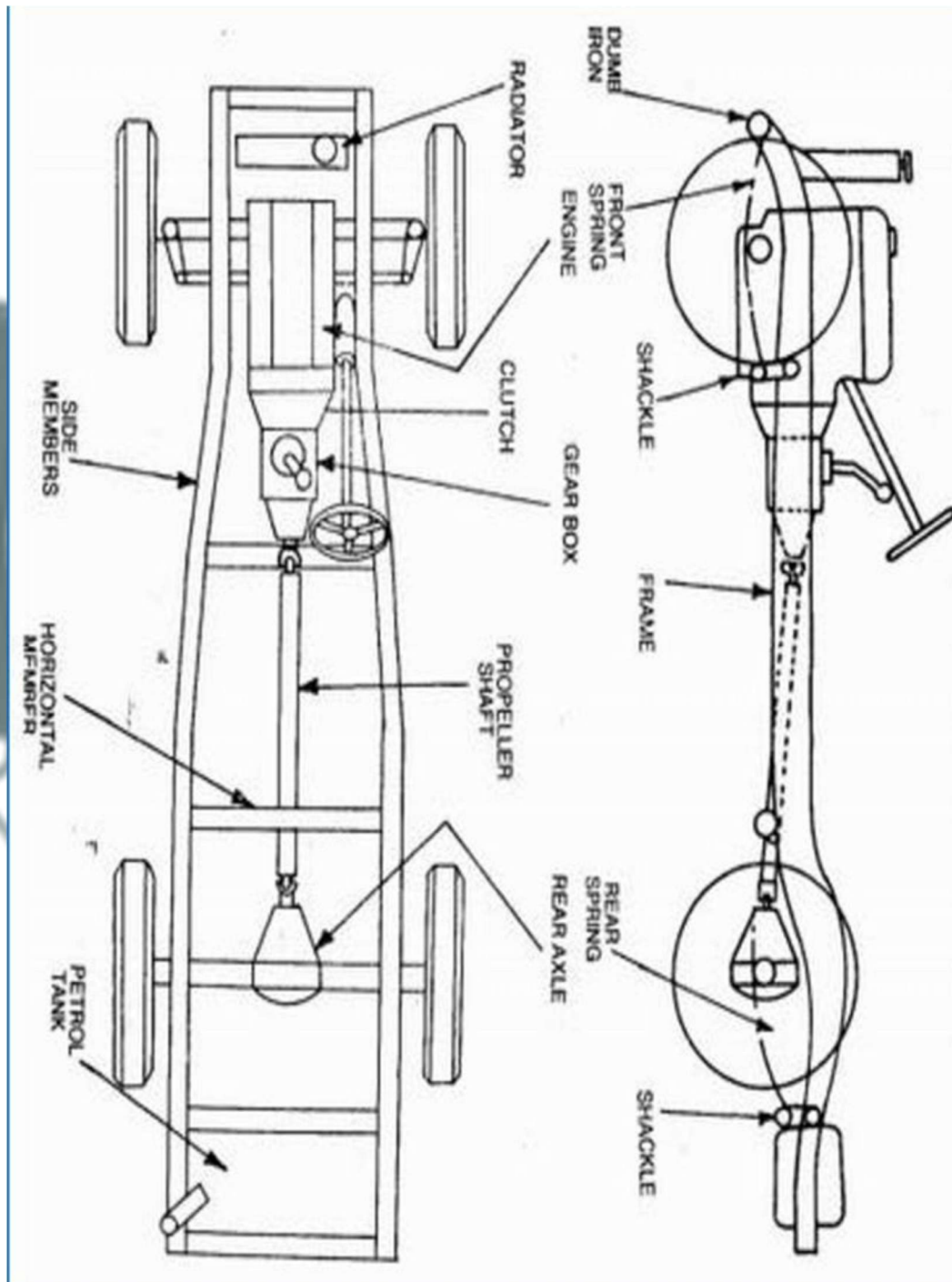
BRANCH: MECHANICAL ENGINEERING

SEMESTER: 6th SEM

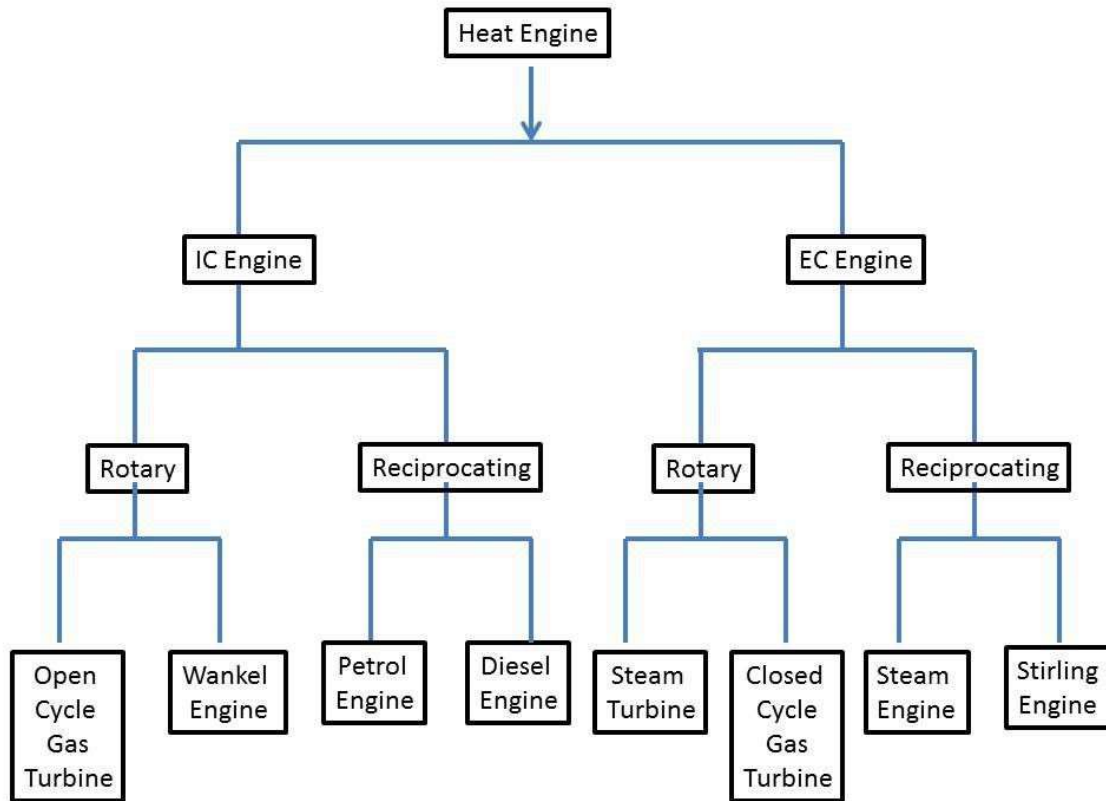
SUBJECT: AUTOMOBILE ENGINEERING

PREPARED BY: PROF. SUNIL KUMAR SAHU &
PROF. SAMARENDRA CHOUDHURY

LAYOUT OF AUTOMOBILE CHASSIS



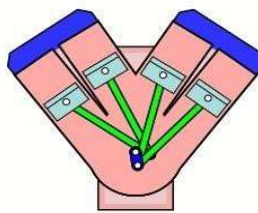
CLASSIFICATION OF ENGINES:



TYPES OF POSITION OF CYLINDER:



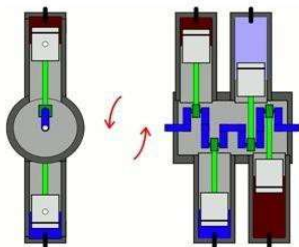
Inline Vertical Engine



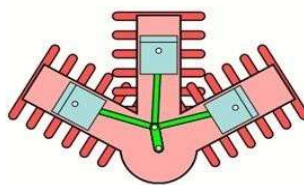
V-Type Engine



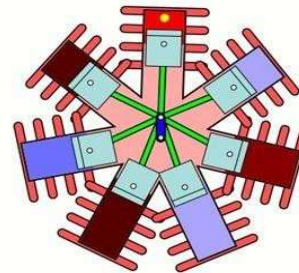
Horizontal Engine



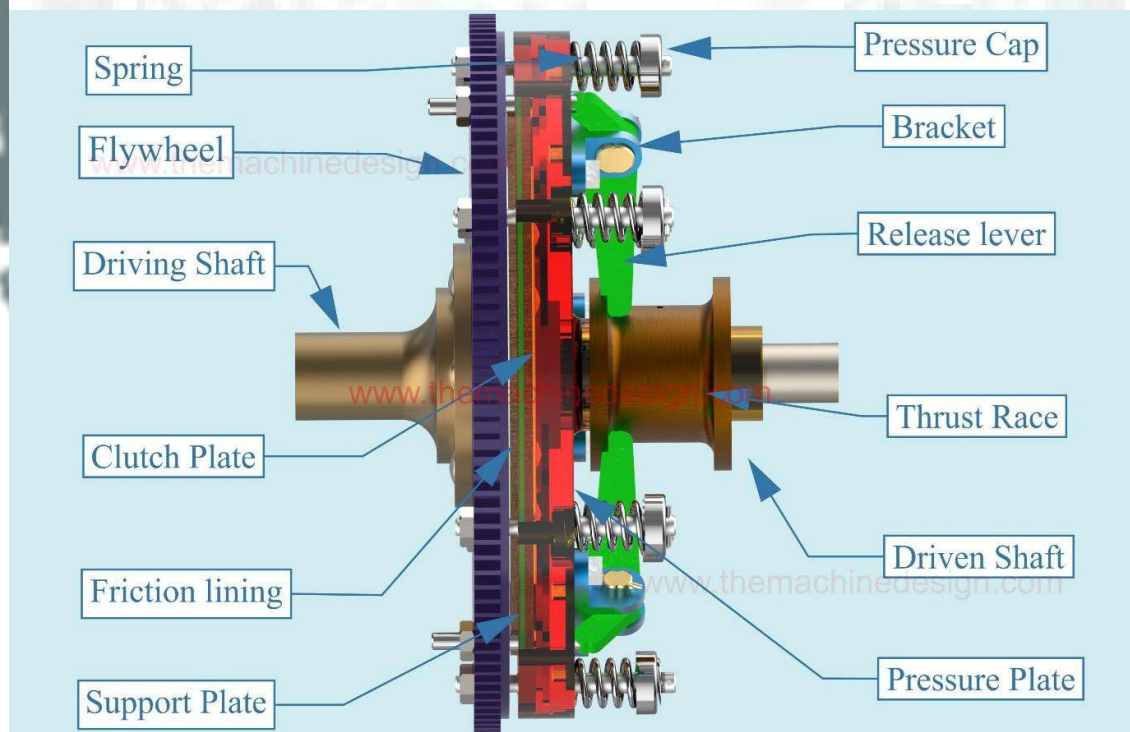
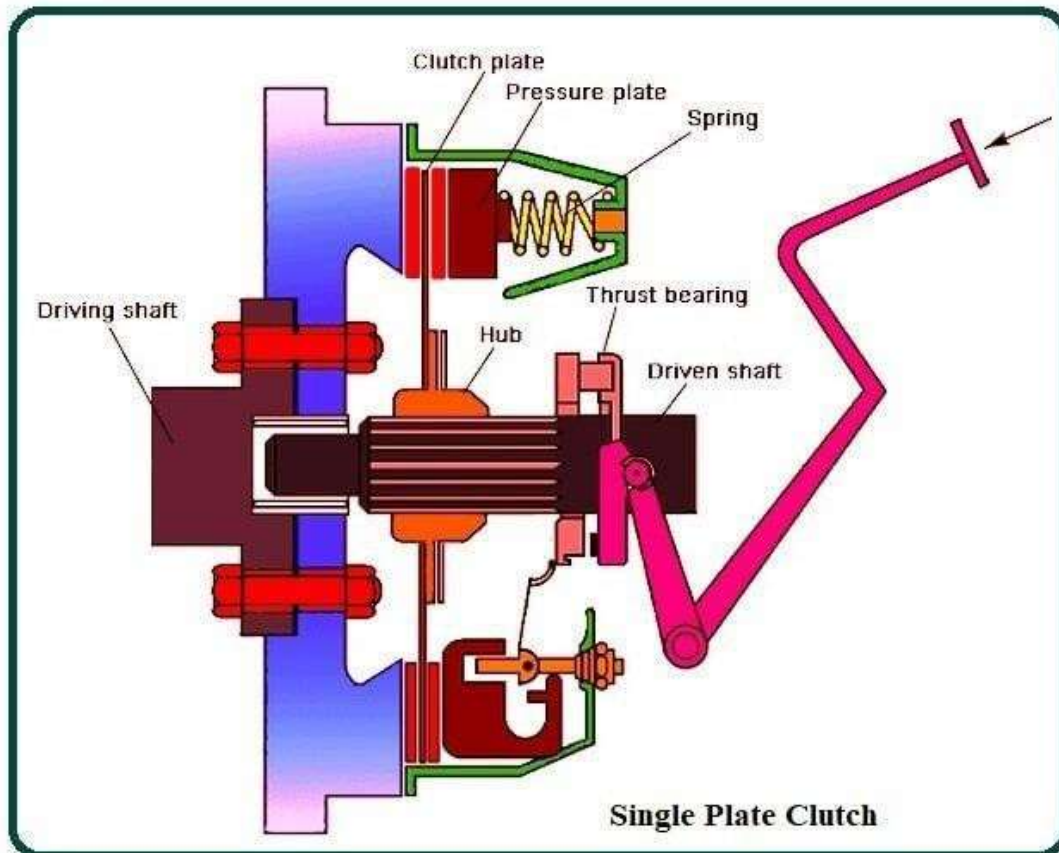
Opposed Cylinder Engine



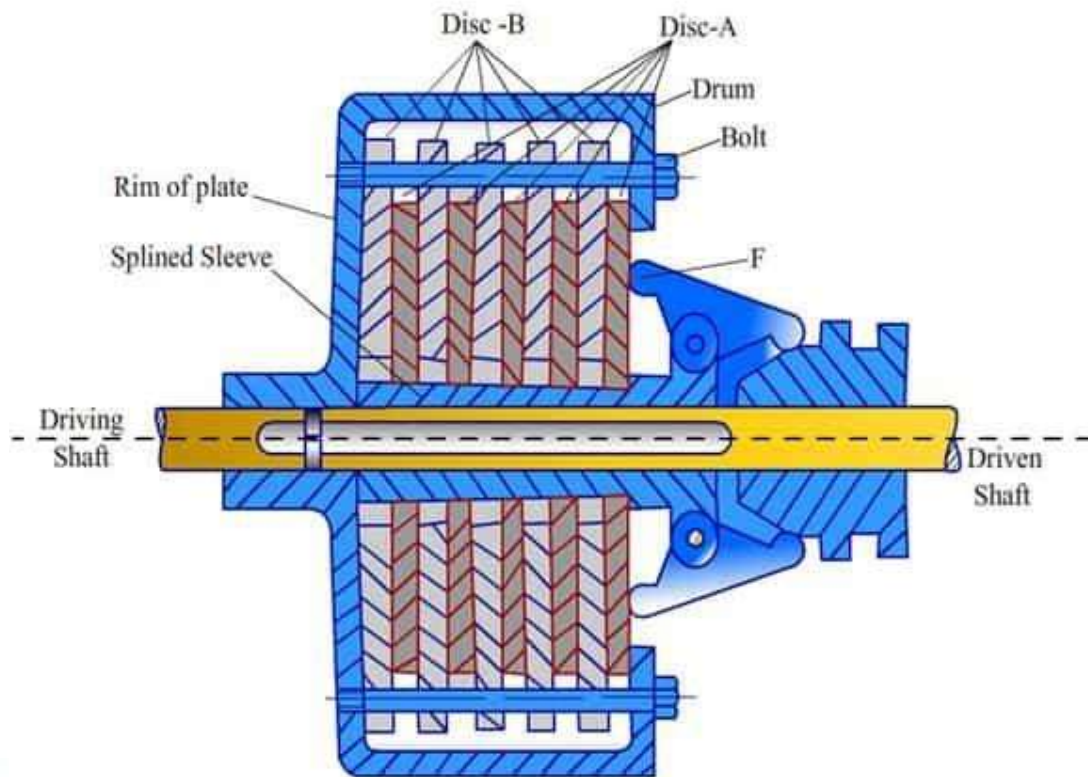
W-Type Engine



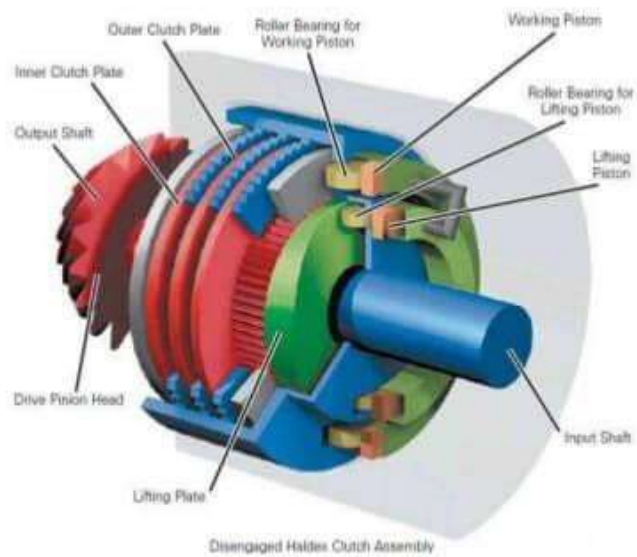
Radial Engine



SINGLE PLATE CLUTCH

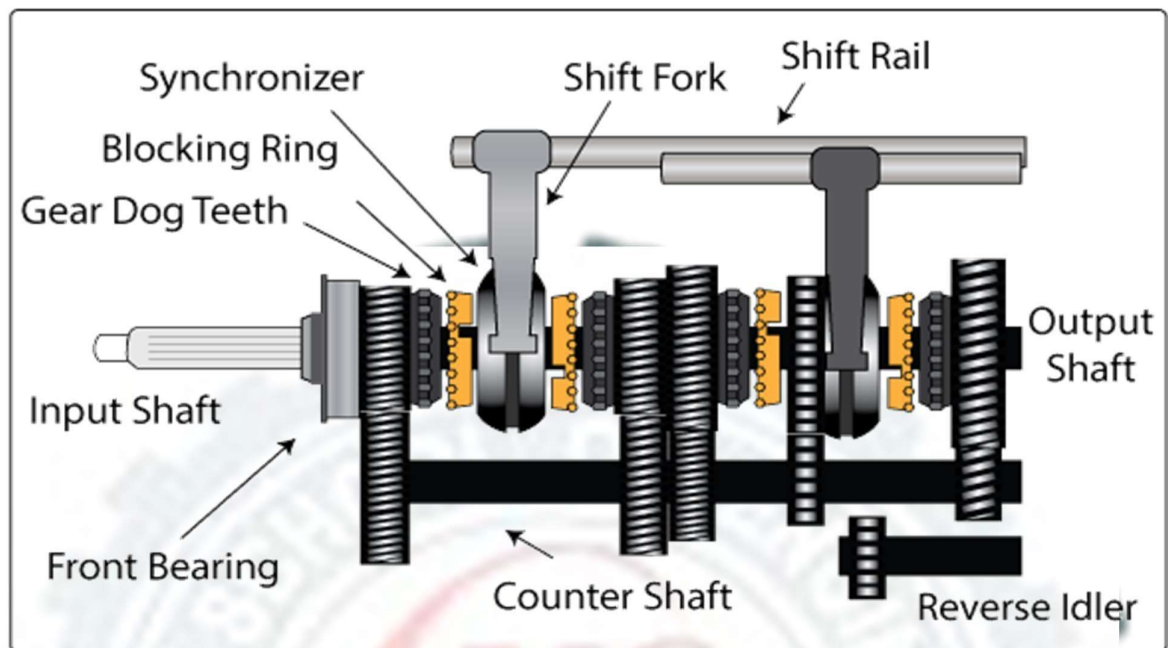


Multiplate clutch

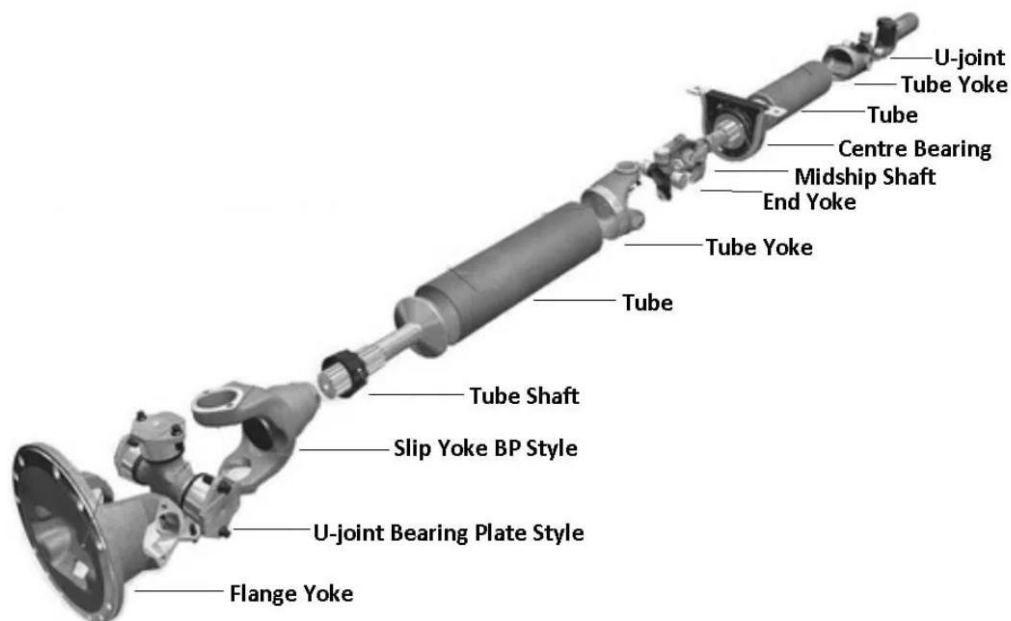
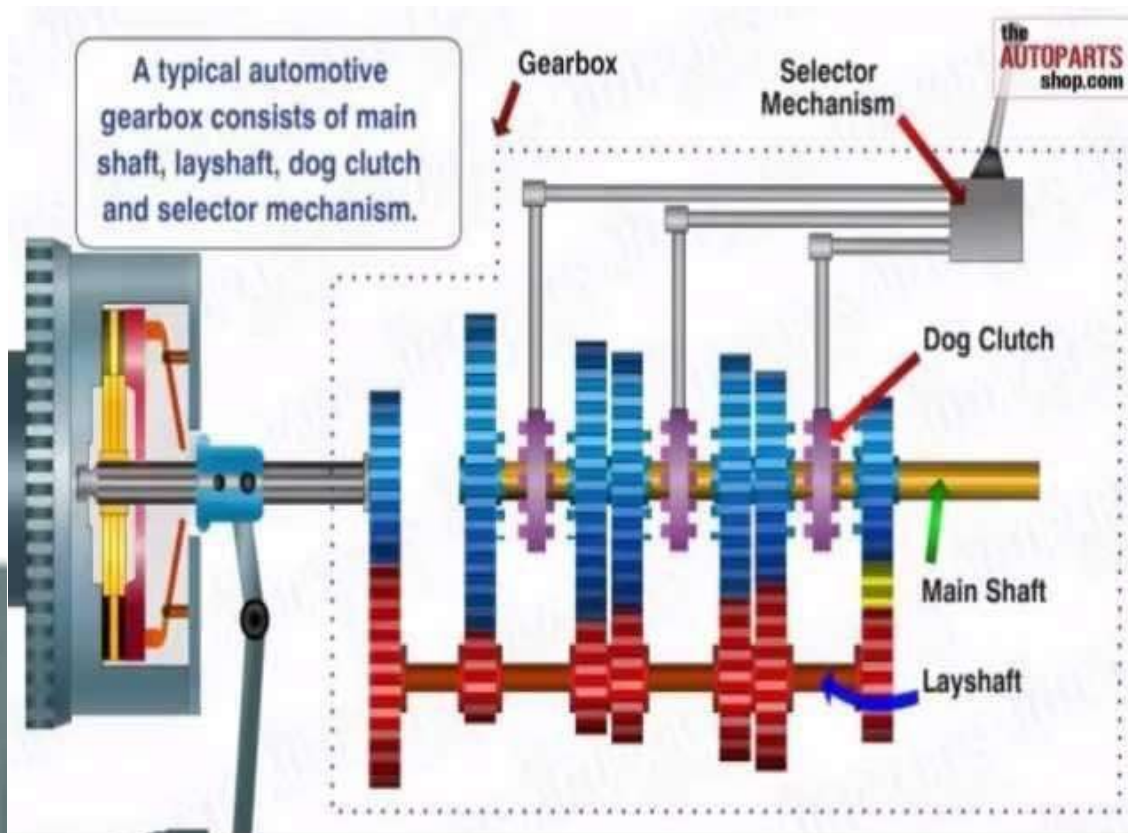


MULTI PLATE CLUTCH

4. SPEED GEAR BOX:

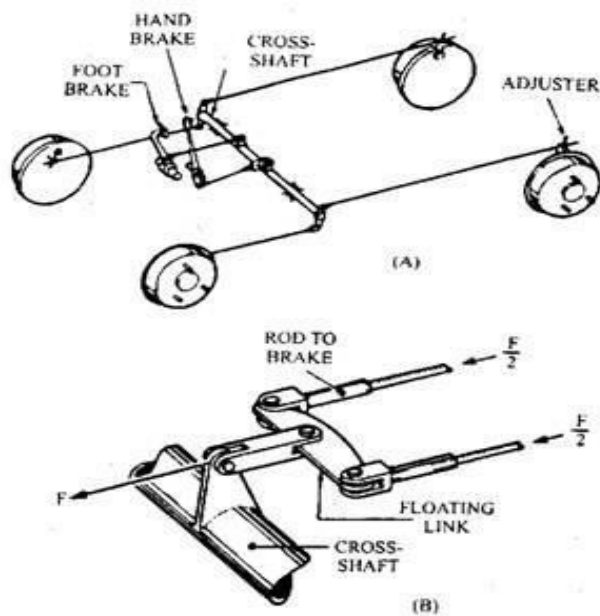
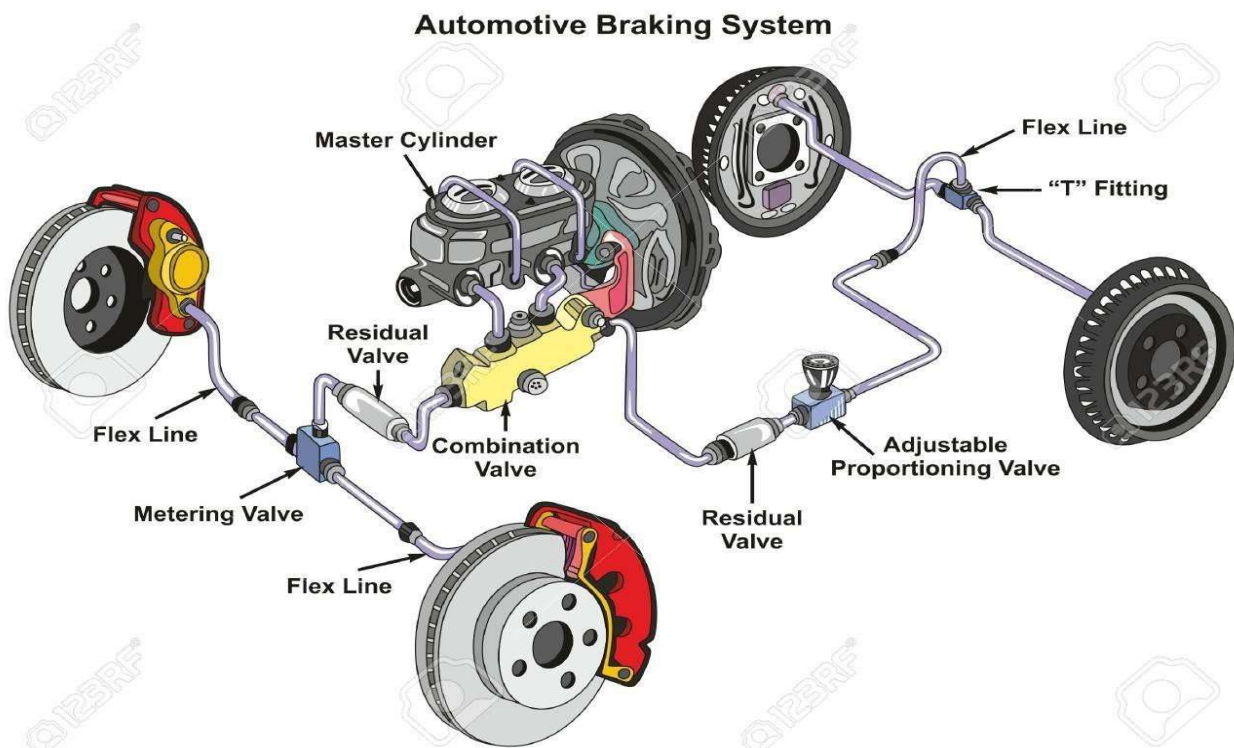


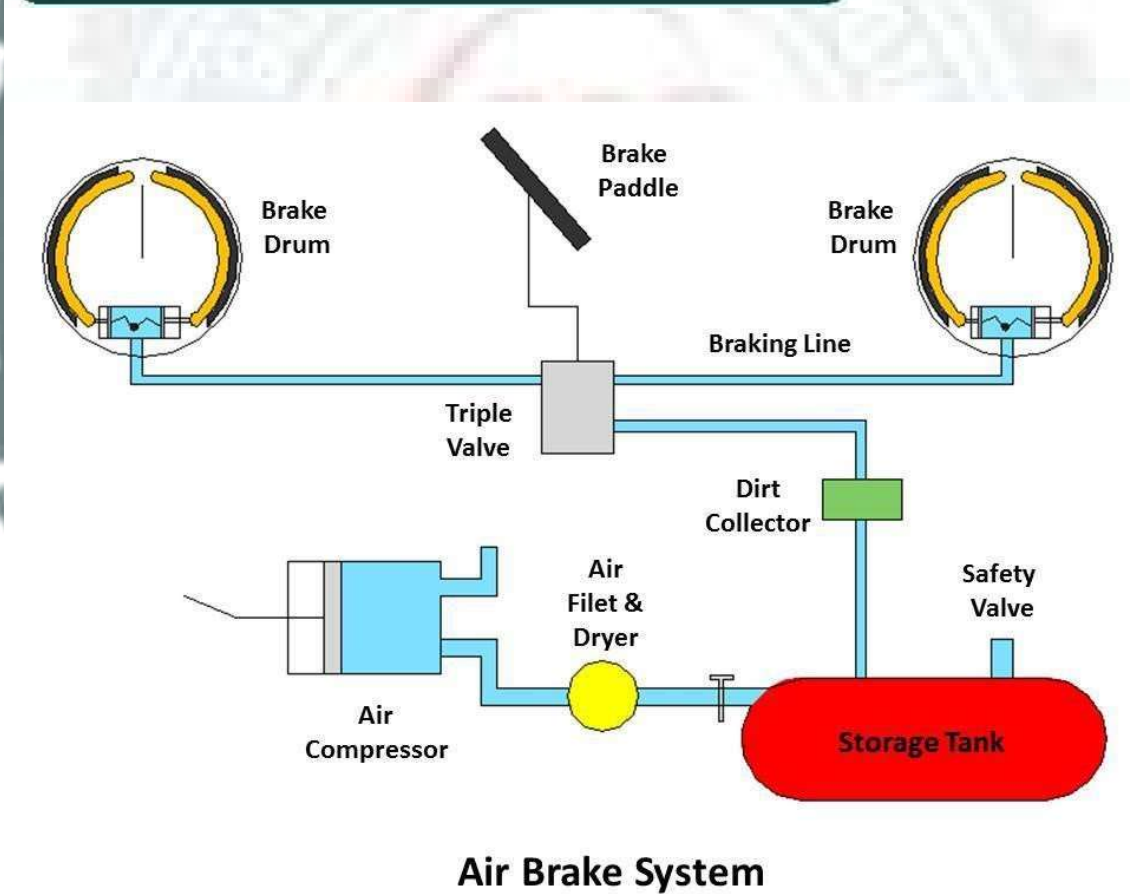
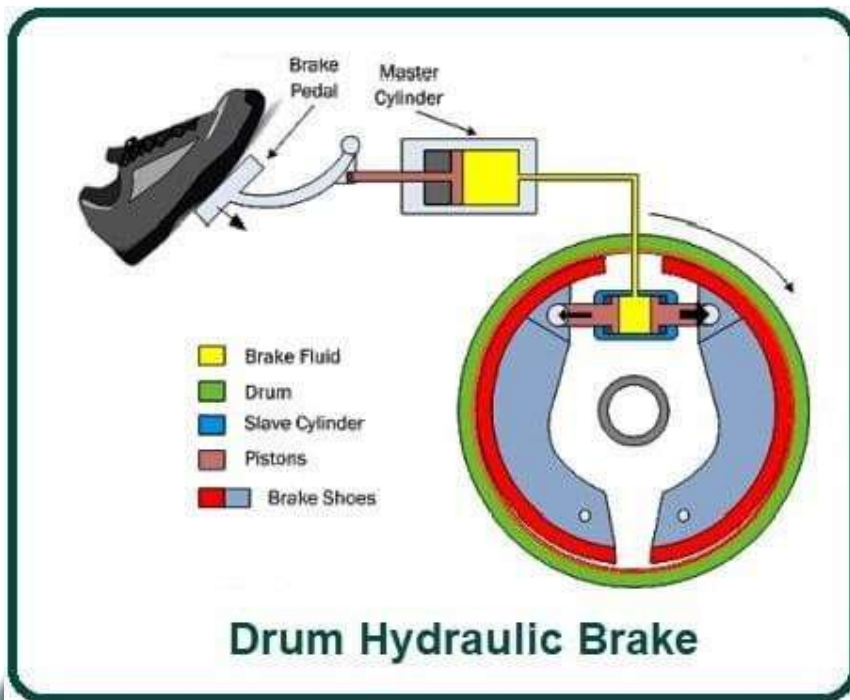
AUTOMATIC GEAR CHANGING MECHANISMS

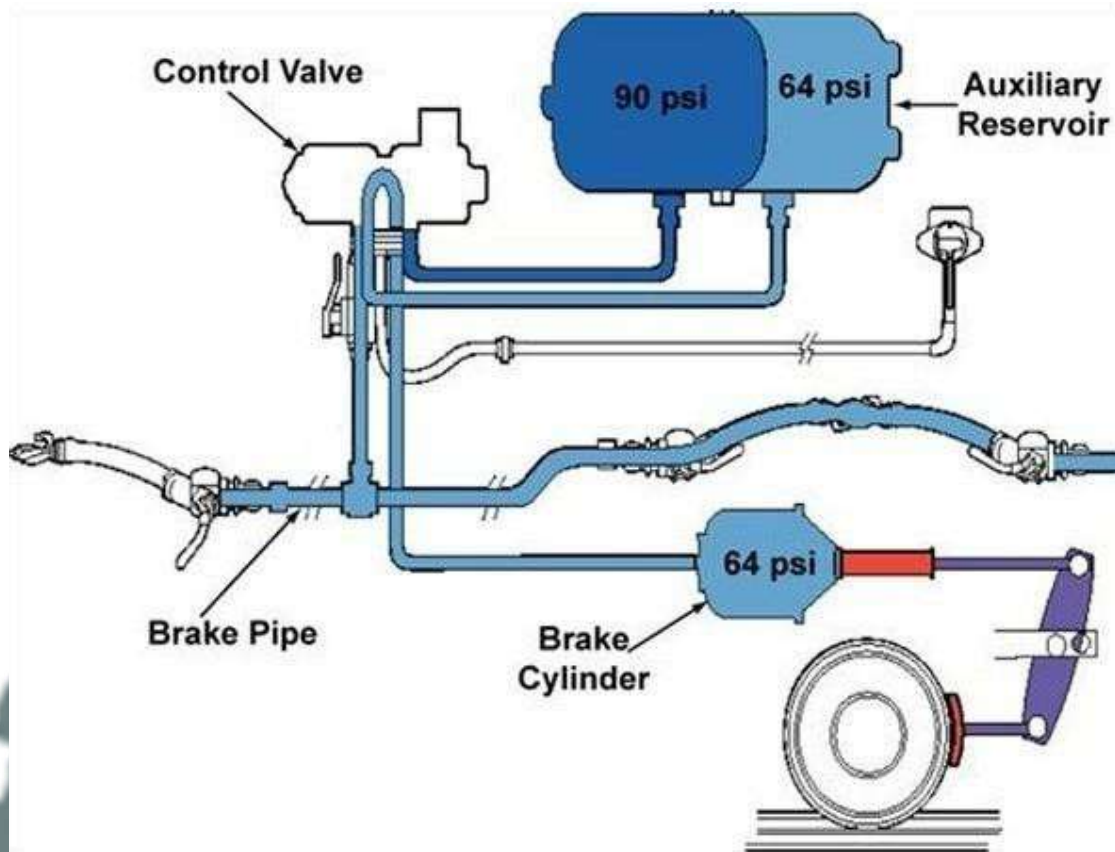


Parts of Propeller Shaft

5. AUTOMOTIVE BRAKING SYSTEM:





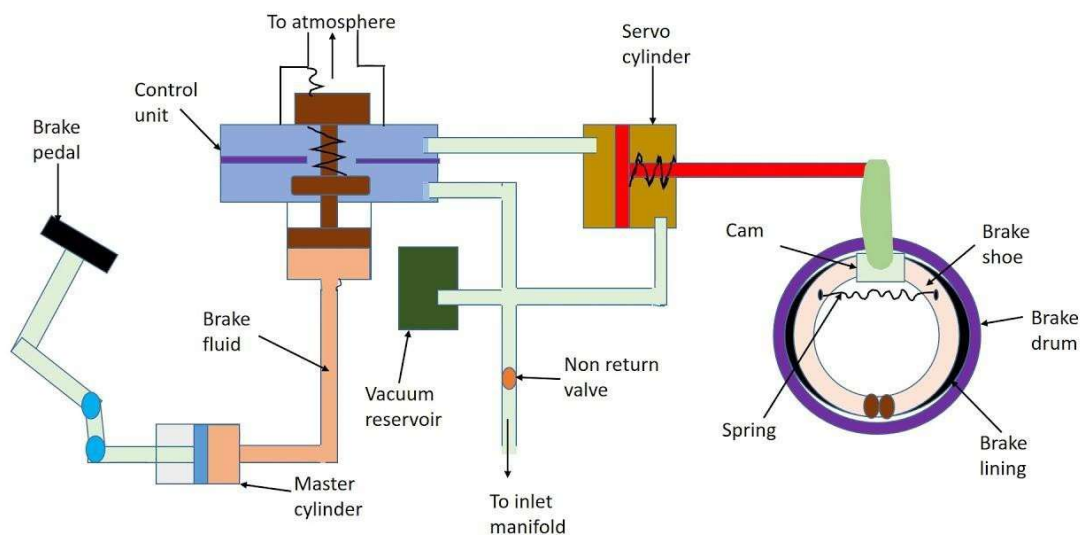


PNEUMATIC BRAKING SYSTEM

AK All
Education

Vacuum Braking system

AK All
Education



HORN CIRCUIT

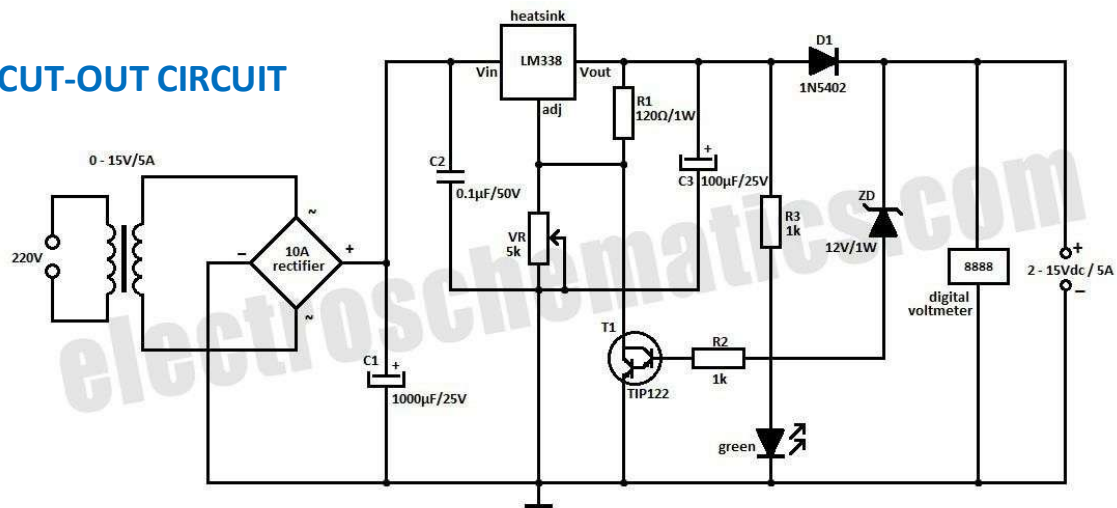
The diagram illustrates a horn circuit. A battery (labeled BATTERY) is connected to a fuse (FIUS <5Amp) and then to the coil of a relay (labeled RELAY). The relay coil is connected between terminals 30 and 87. The original horn wire is connected to terminal 86. The relay is controlled by the battery and the original horn wire. The relay's output is connected to two horns (labeled HORN) which are grounded (Ground (body)).

LIGHTING CIRCUIT

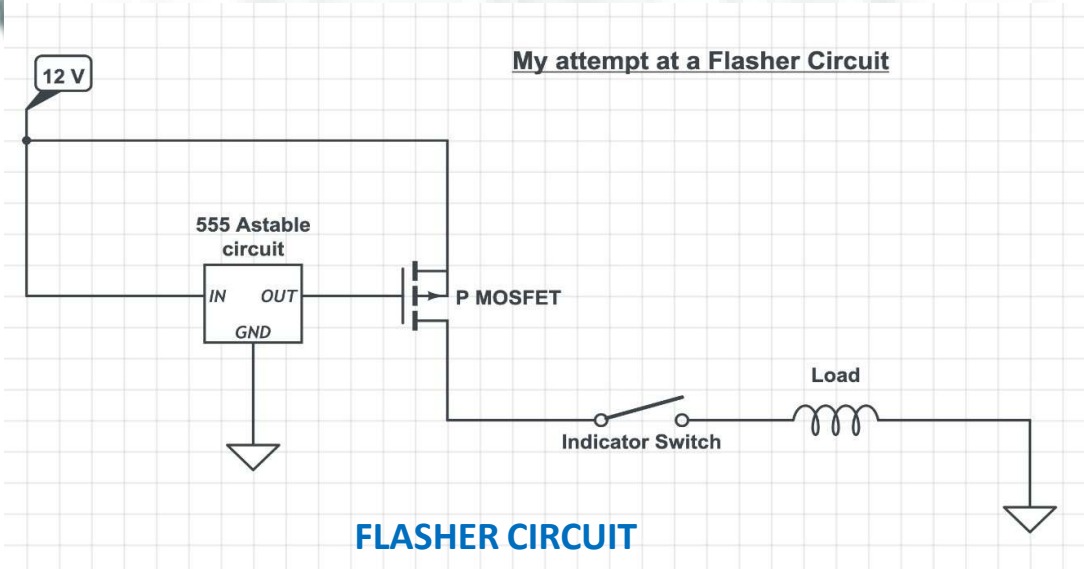
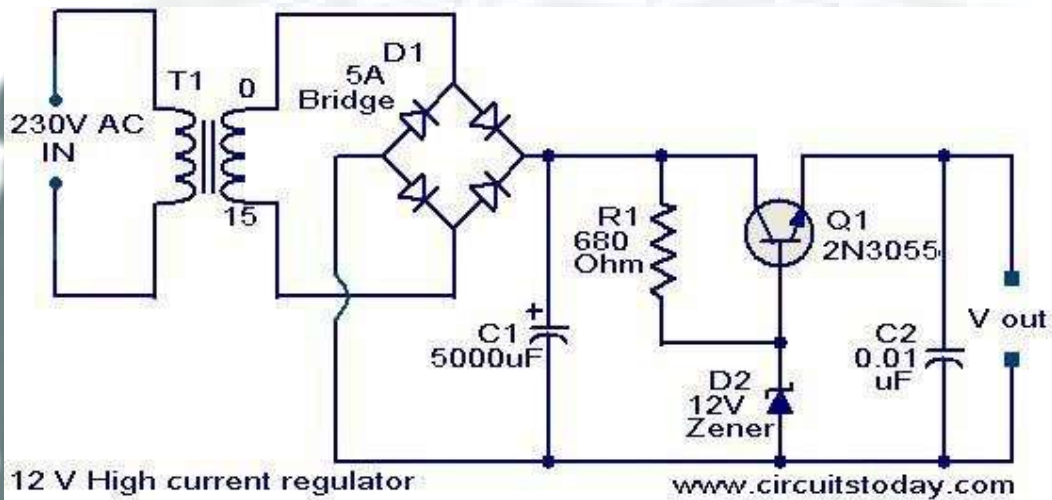
The diagram illustrates a complex vehicle lighting system. Key components include:

- Power Source:** A battery connected to a starter solenoid and a fuse link.
- Control Switches:** Ignition switch, Head Lamp Switch, Front Fog Switch, Side Lamp Switch, Head Lamp Flash Switch, Auxiliary Driving Lamp Switch, and Rear Fog Guard Switch.
- Relays:** Two relays are used to control the head lamp main beam and dip functions.
- Lighting Components:** Front Fog Left/Right, Side Left/Right, Rear Left/Right, Number Plate, Auxiliary Left/Right, Head Lamp Main/Dip, Main Beam Warning, Head Lamp Main/Dip, Rear Fog Left/Right, and Rear Fog Warning.

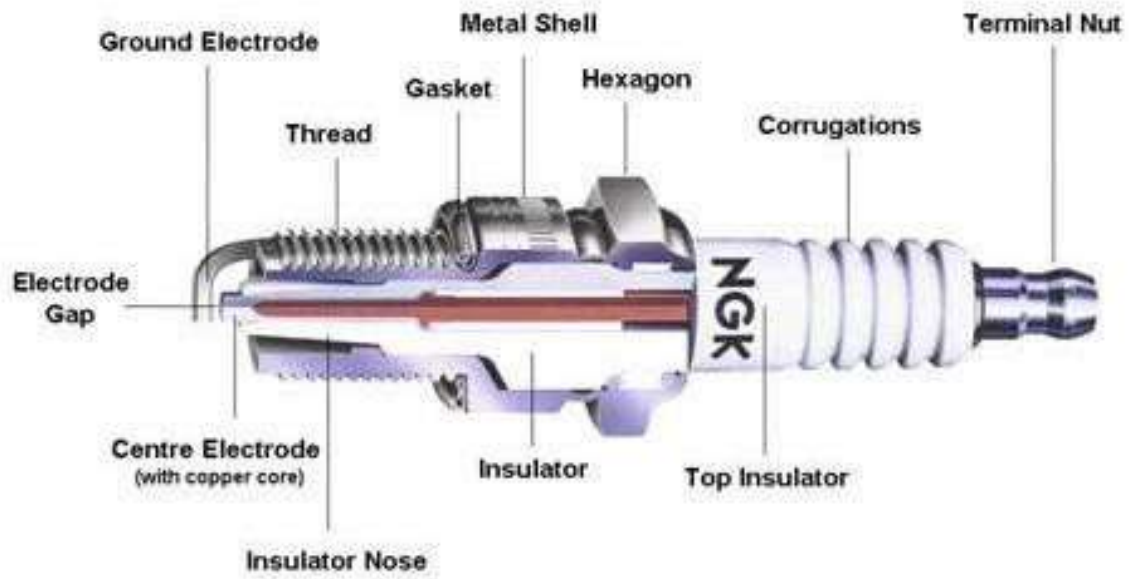
CUT-OUT CIRCUIT



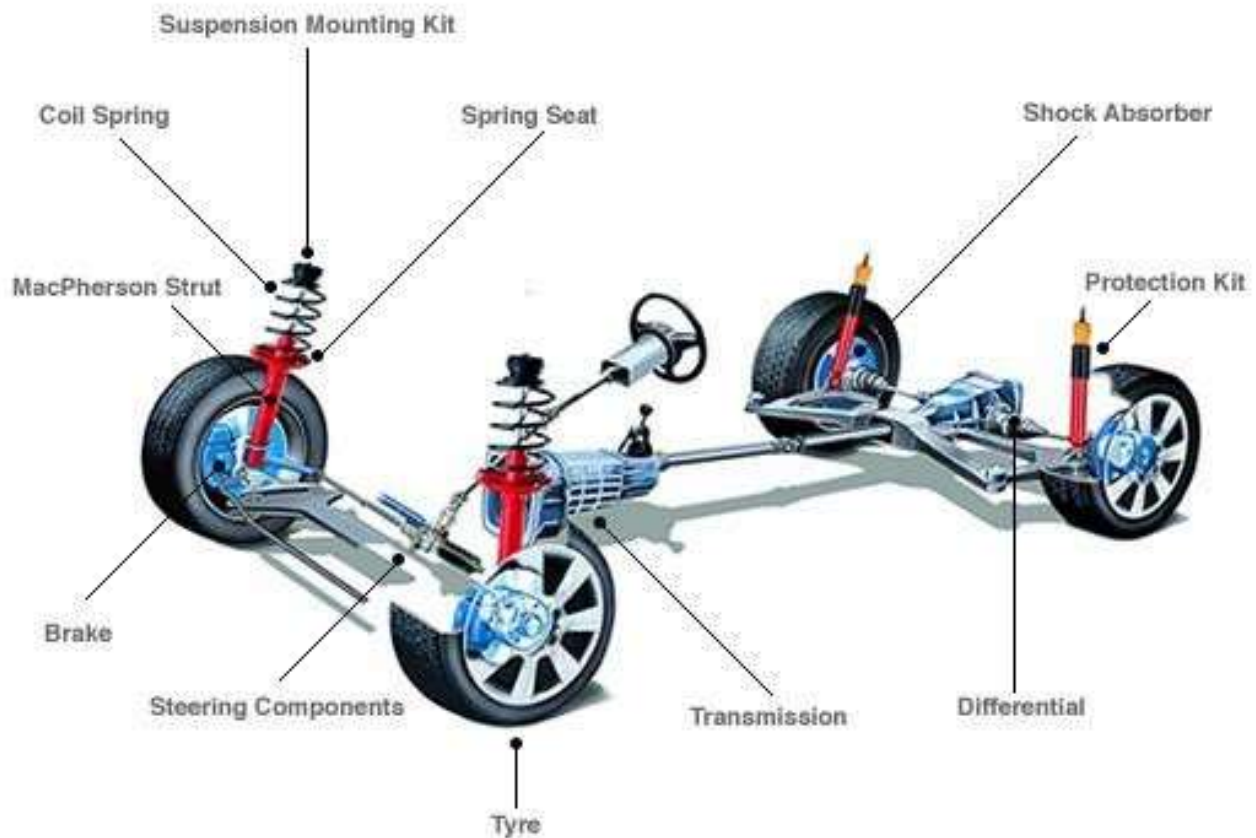
VOLTAGE CURRENT REGULATOR CIRCUIT



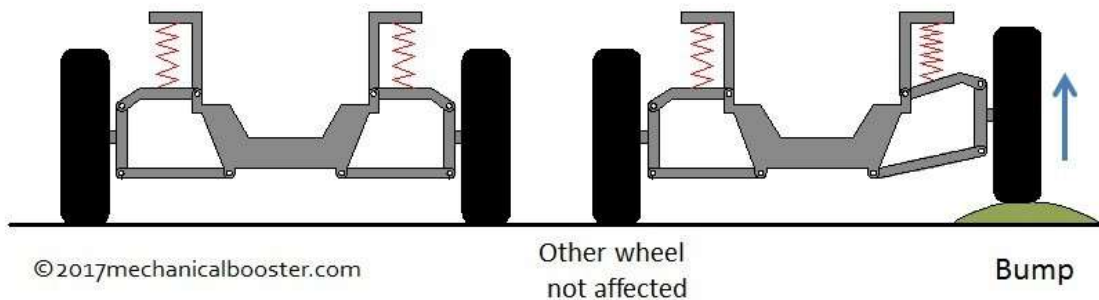
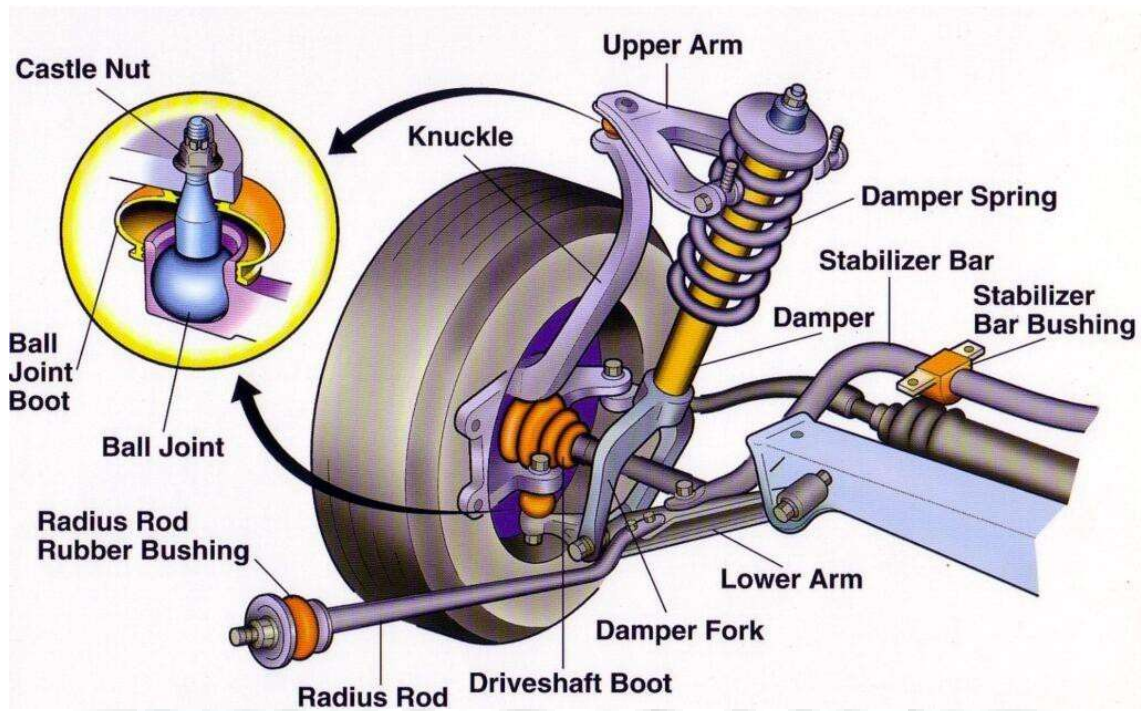
FLASHER CIRCUIT



SPARK PLUG

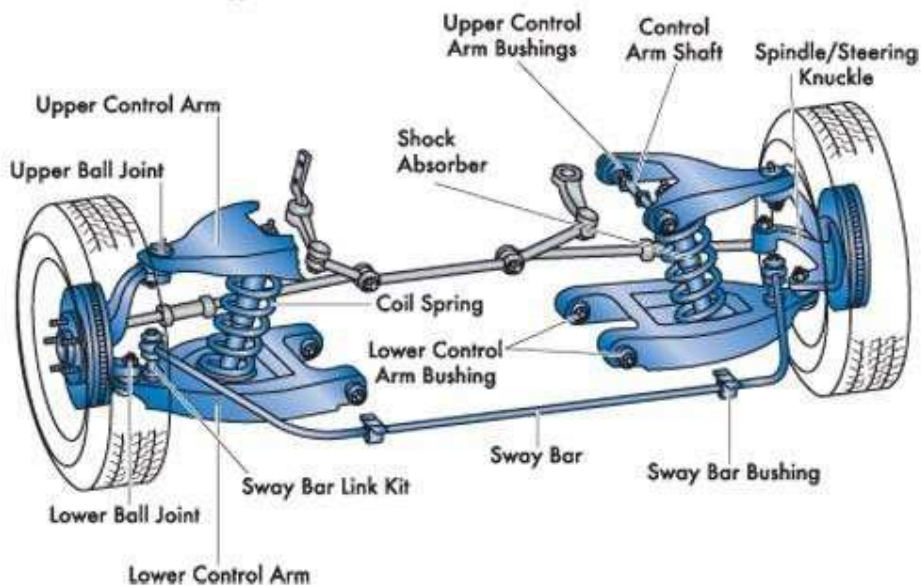


SUSPENSION SYSTEMS

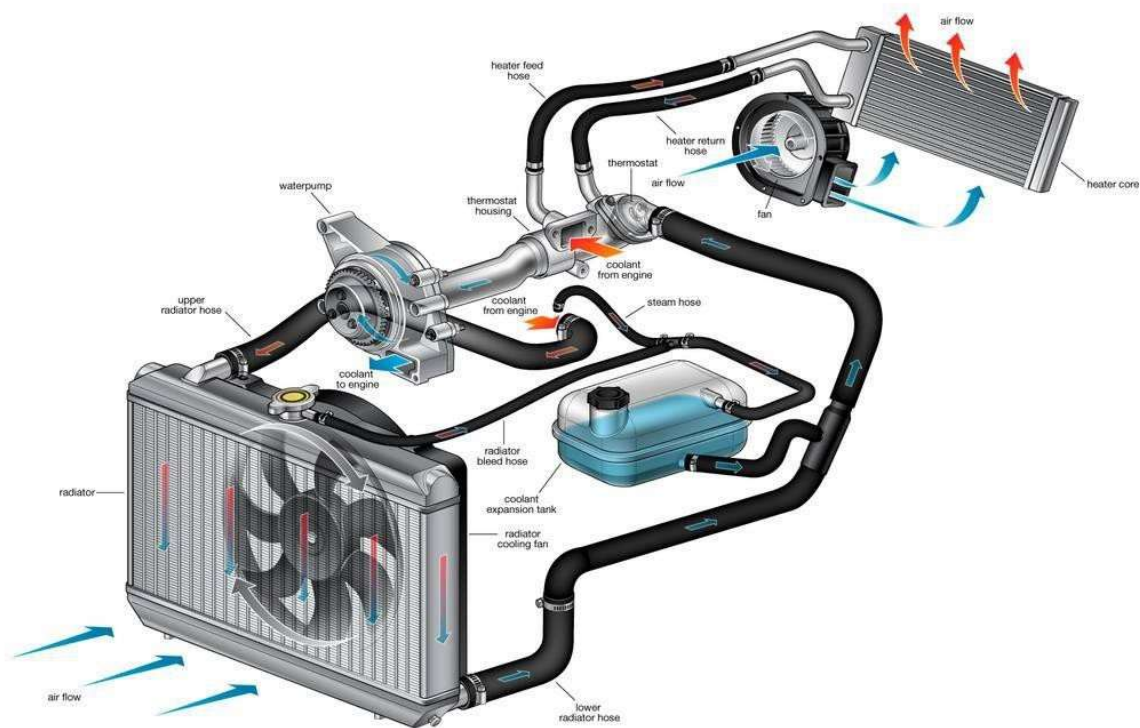
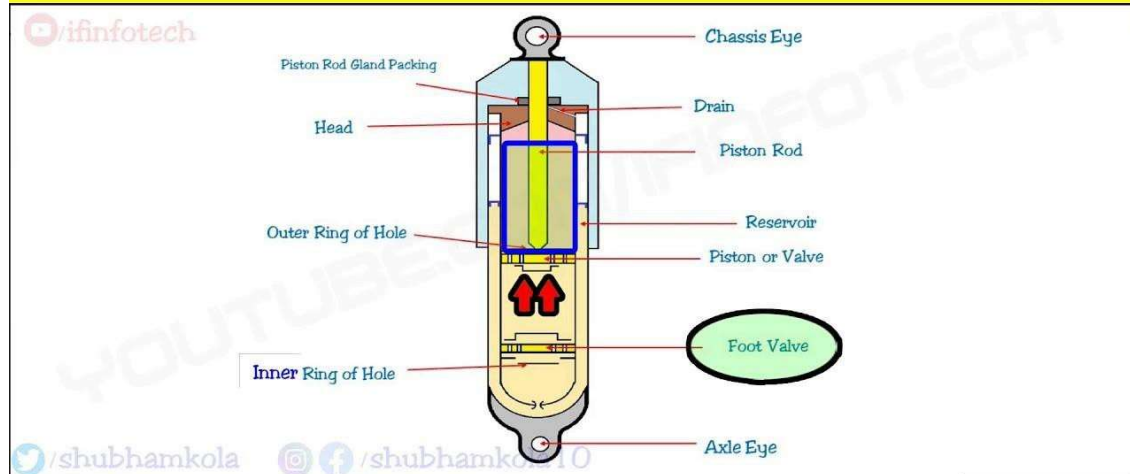


Independent Suspension

Rear Wheel Drive (Typical)

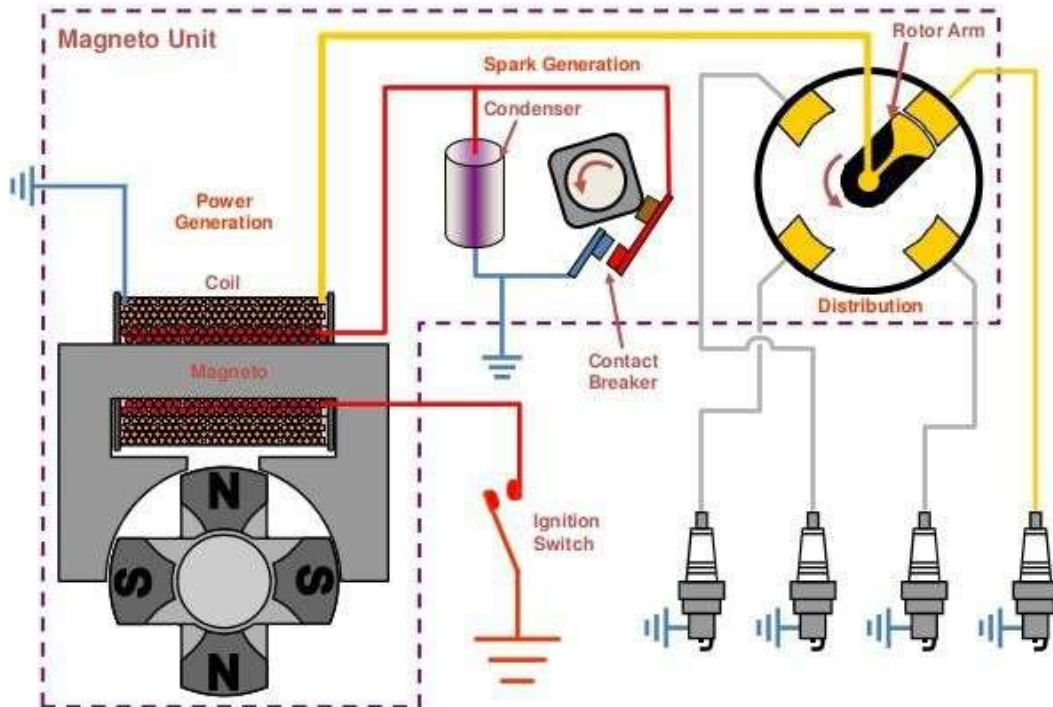
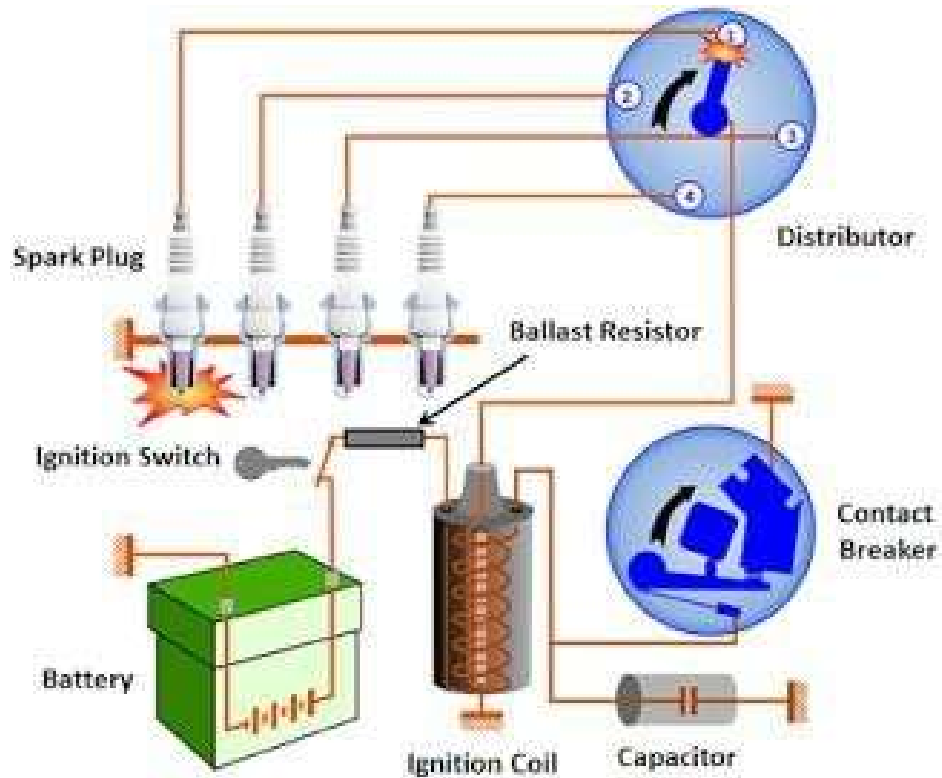


Telescopic Shock Absorber



COOLING SYSTEM

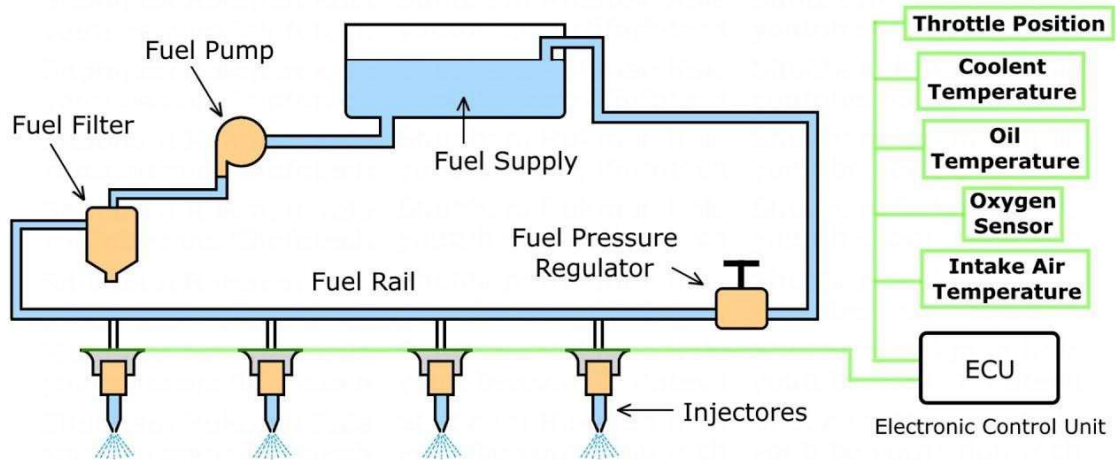
BATTERY IGNITION



IGNITION SYSTEM – Magneto System

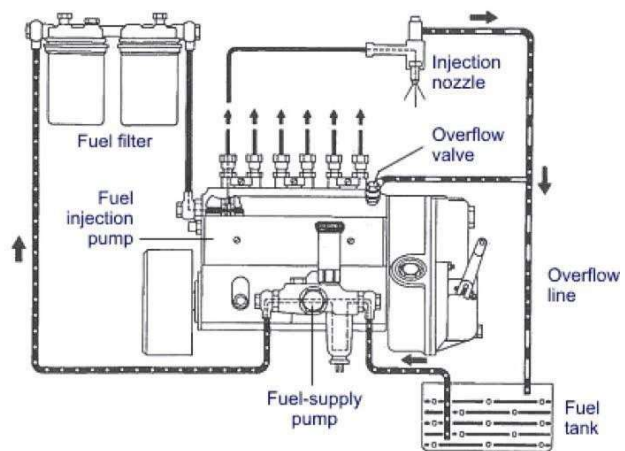
MAGNET IGNITION SYSTEM

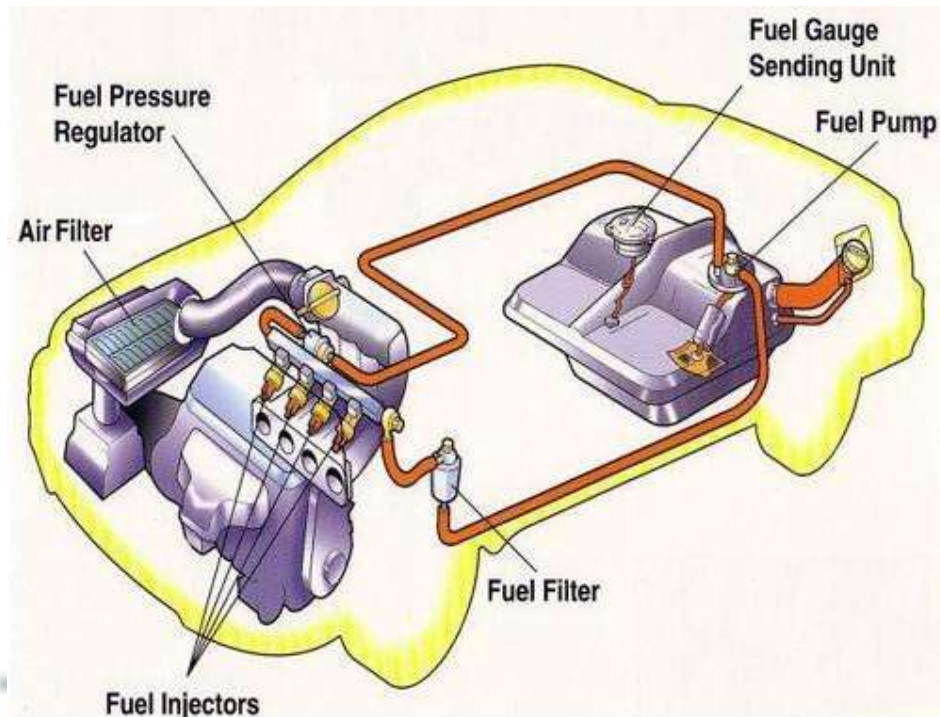
M.P.F.I. System



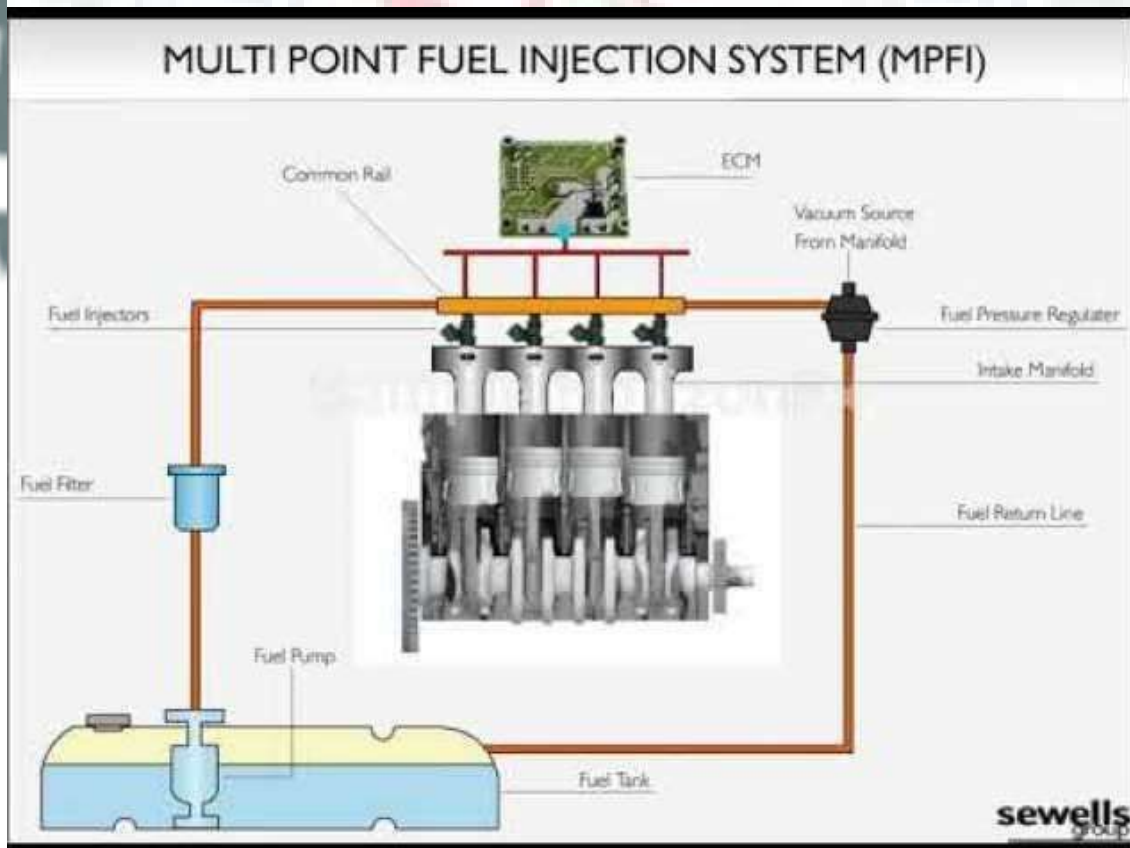
MULTIPOINT FUEL INJECTION SYSTEM

FUEL FEED PUMP





INJECTOR AND FUEL FILTER



INJECTION SYSTEM FOR MULTI CYLINDER ENGINE