

## **FUEL TANKS, LINES, FILTERS, and PUMPS**

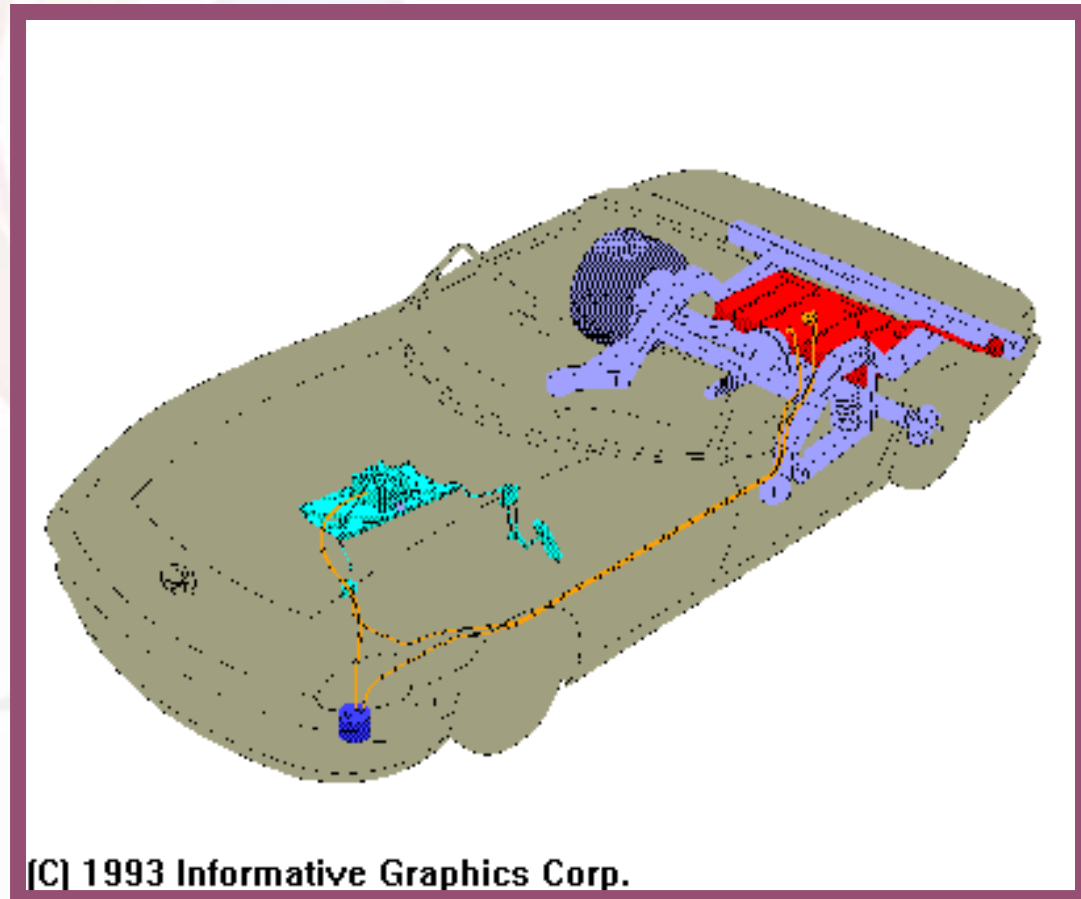
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The logo of Galgotias University is a stylized 'G' composed of several curved, overlapping bands in shades of yellow, orange, and blue, set against a light pink circular background.

# **FUEL TANKS, LINES, FILTERS, and PUMPS**

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# FUEL TANKS, LINES, FILTERS, and PUMPS



# OBJECTIVES

- Describe fuel tank design & mounting.
- Describe a fuel tank filler and filler cap.
- Describe three types of fuel lines.
- Explain four types of fuel line fittings.
- Describe in-line fuel filter design.
- Explain fuel filter mounting carb & EFI.
- Explain fuel filter located in carb inlet nut.

# OBJECTIVES

- Explain the operation of a mechanical fuel pump during the intake stroke.
- Explain the operation of a mechanical fuel pump during fuel discharge.
- Explain how the fuel pressure is limited in a mechanical fuel pump.
- Describe the operation of an electric fuel pump.

# INTRODUCTION

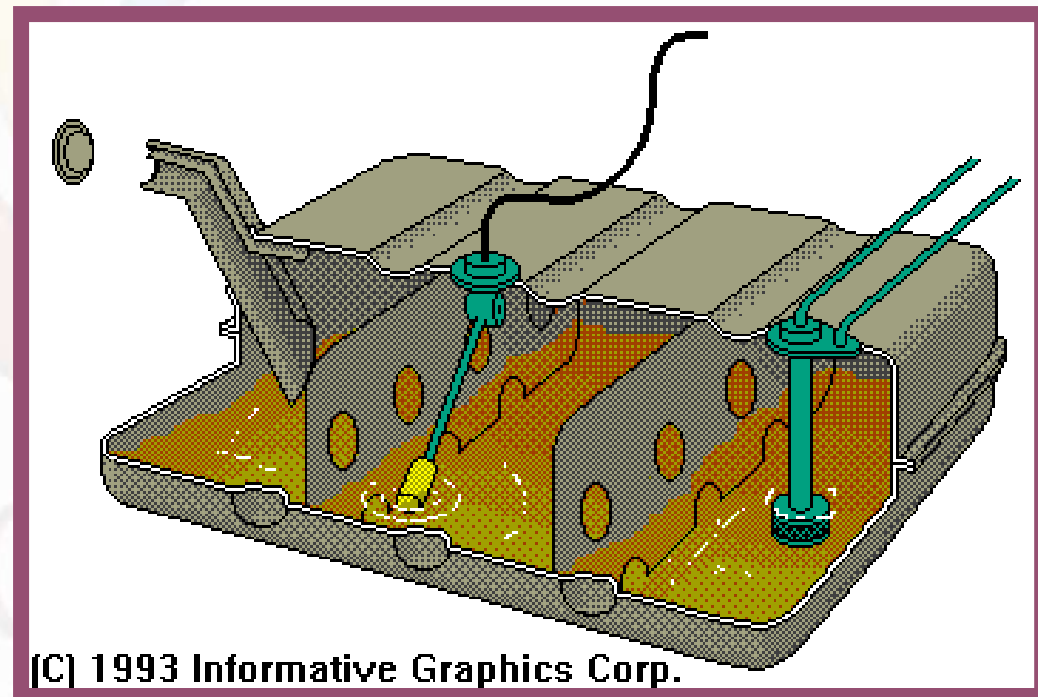
- Leaking fuel tanks create a very hazardous situation.
- Filtering must be done without restricting flow.
- Fuel system must provide adequate *volume* and *pressure*.

The logo of Galgotias University is a circular emblem with a stylized 'G' in the center. The 'G' is composed of several overlapping, curved segments in shades of yellow, orange, and blue. The background of the emblem is a light, warm tone.

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# FUEL TANKS

- Plastic or steel?
- Retained with two straps.
- Contains sending unit and pump.



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# FUEL LINES and FITTINGS

- Three types of fuel lines:

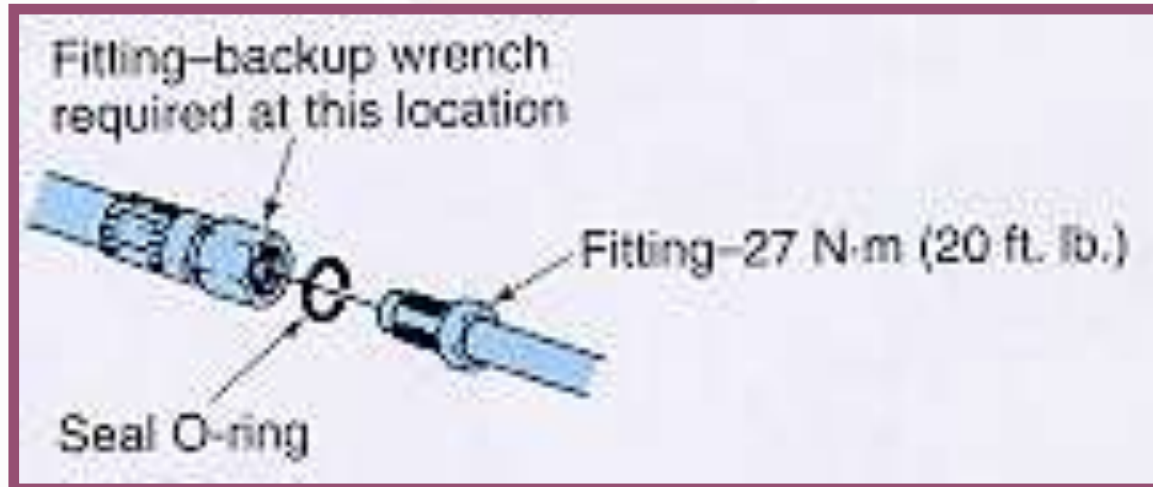
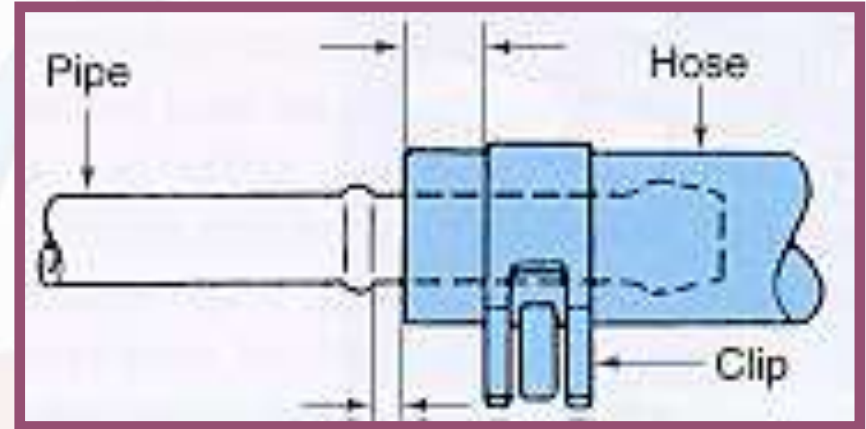
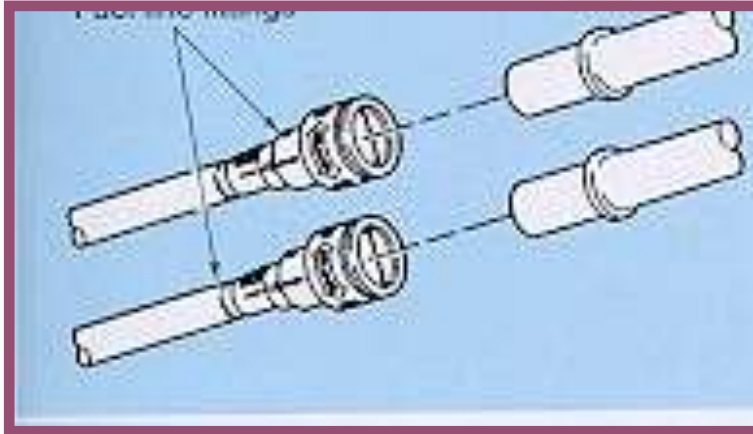
- Steel
- Nylon
- Reinforced Rubber

- Four types of fuel fittings:

- Pipe thread
- Inverted Flare
- Hose clamp
- Captured O'ring or gasket



# FITTINGS



# FUEL FILTERS

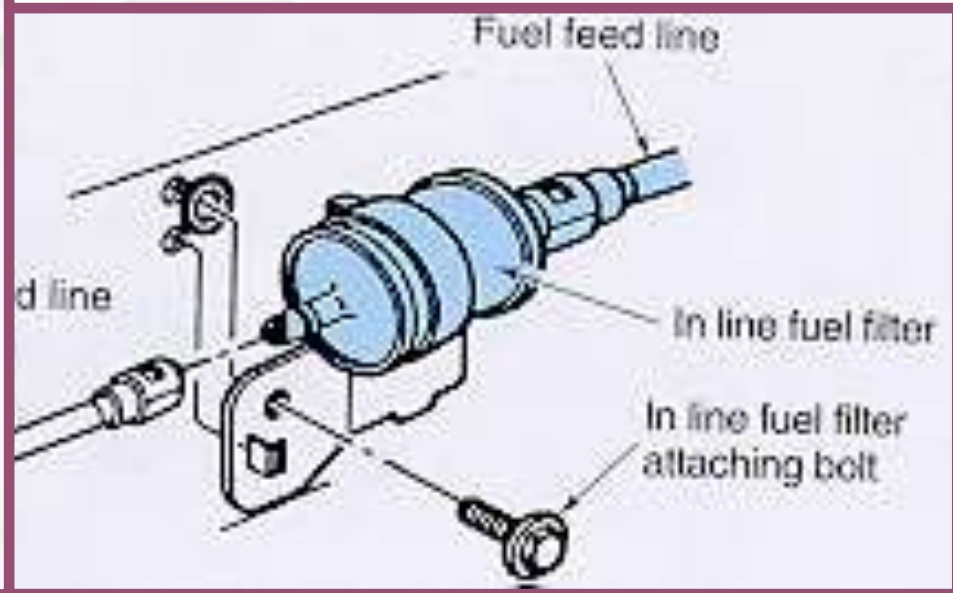
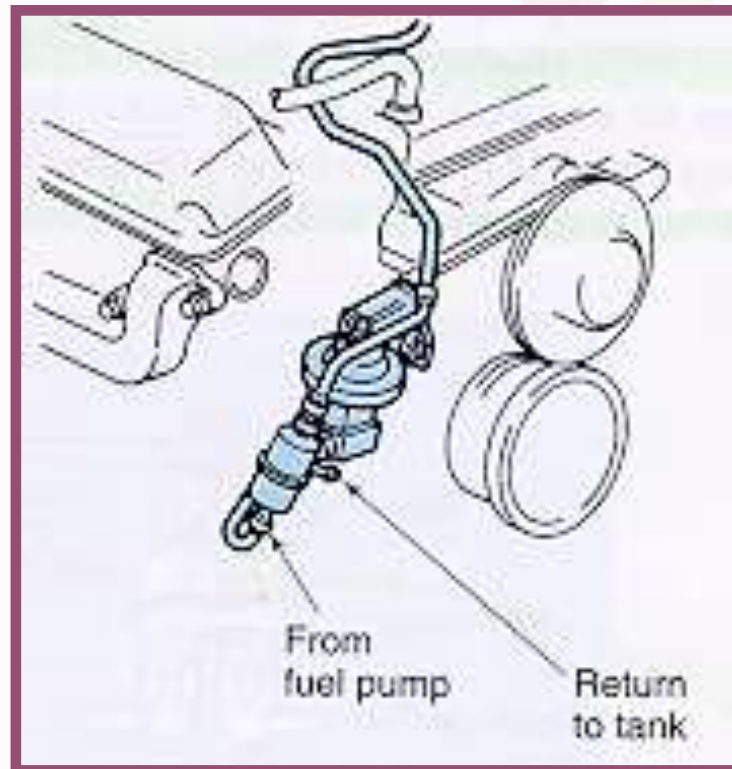
- Replace every 15,000 to 30,000 miles
- Metal or plastic housing
- Filter media
  - Pleated Paper
  - Plastic screen
  - Sintered Brass

The logo of Galgotias University is a circular emblem with a stylized 'G' in the center. The 'G' is composed of three curved segments in yellow, blue, and red. The background of the emblem is a gradient of light colors.

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# FILTER LOCATION

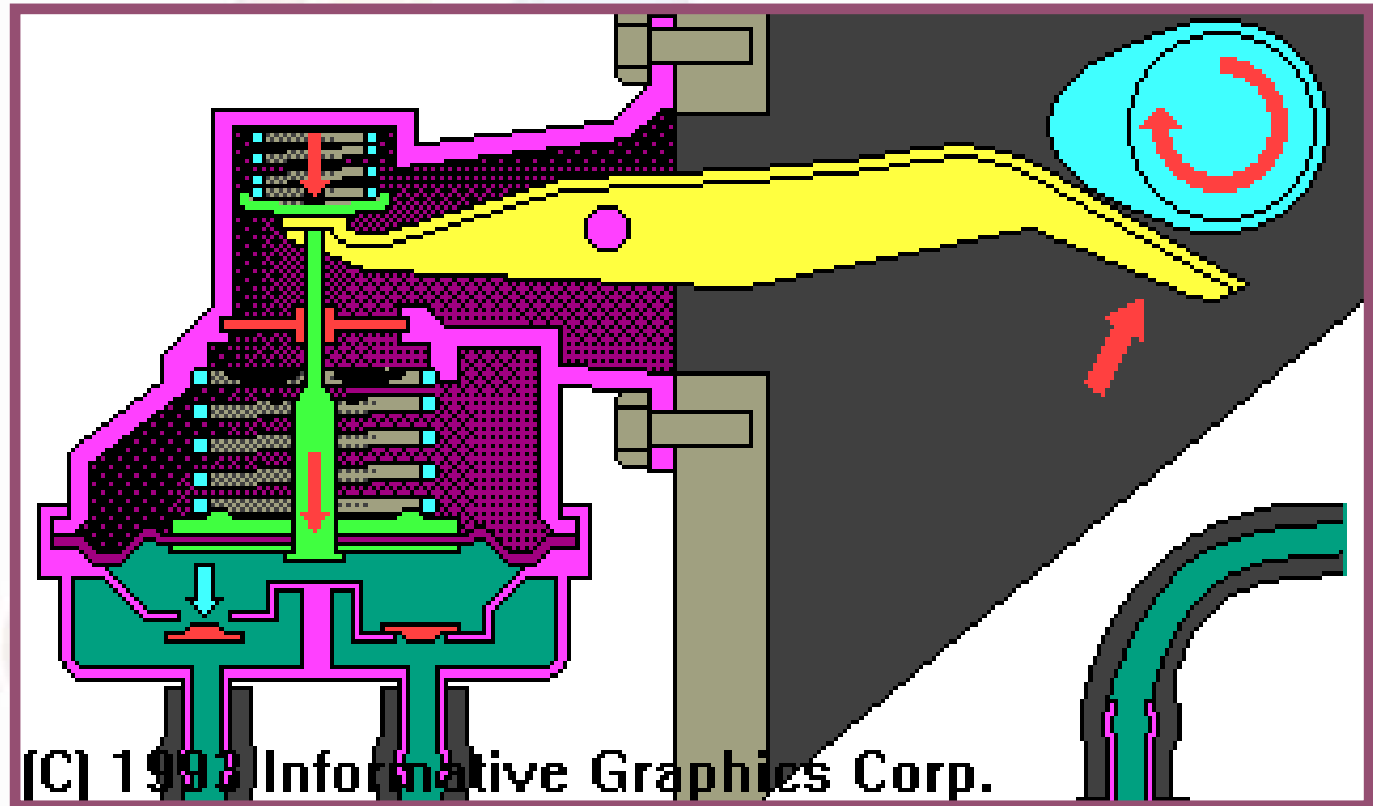
- Mechanical in engine compartment.
- Electric under vehicle.



# MECHANICAL FUEL PUMPS

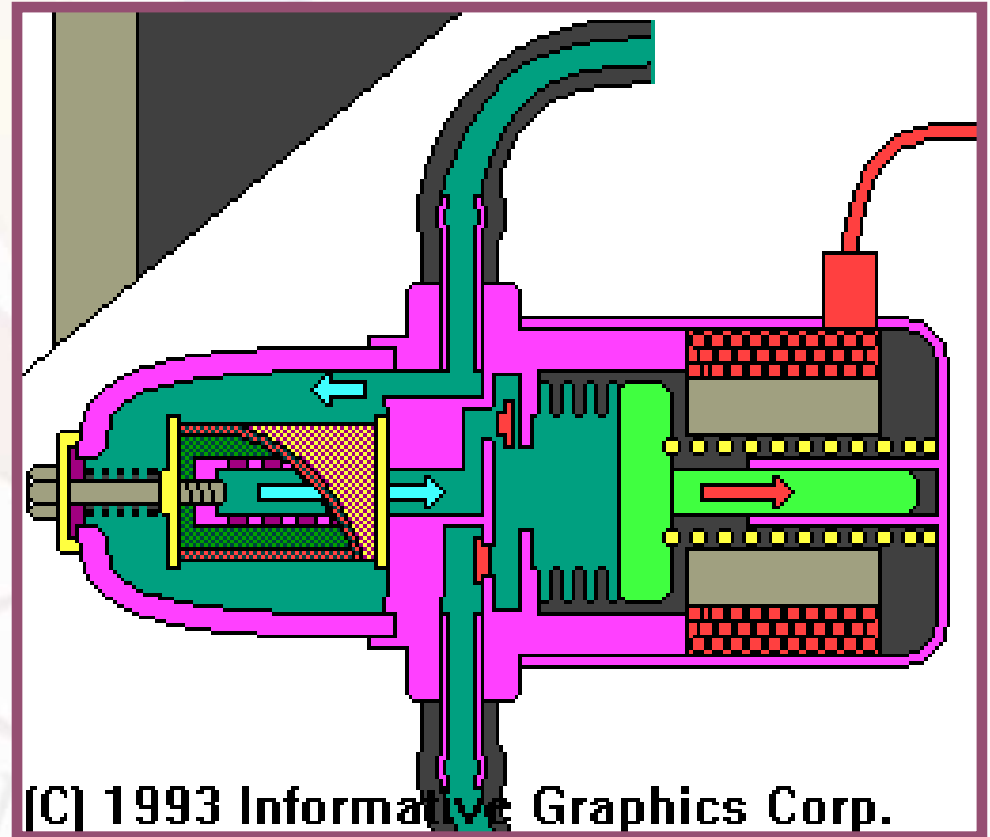
- Operates off eccentric on camshaft.
- Return spring keeps fuel pump arm in contact with camshaft.
- Two check valves
  - Inlet
  - Outlet
- Diaphragm spring determines fuel pressure.

# FUEL PUMP OPERATION



# ELECTRIC FUEL PUMPS

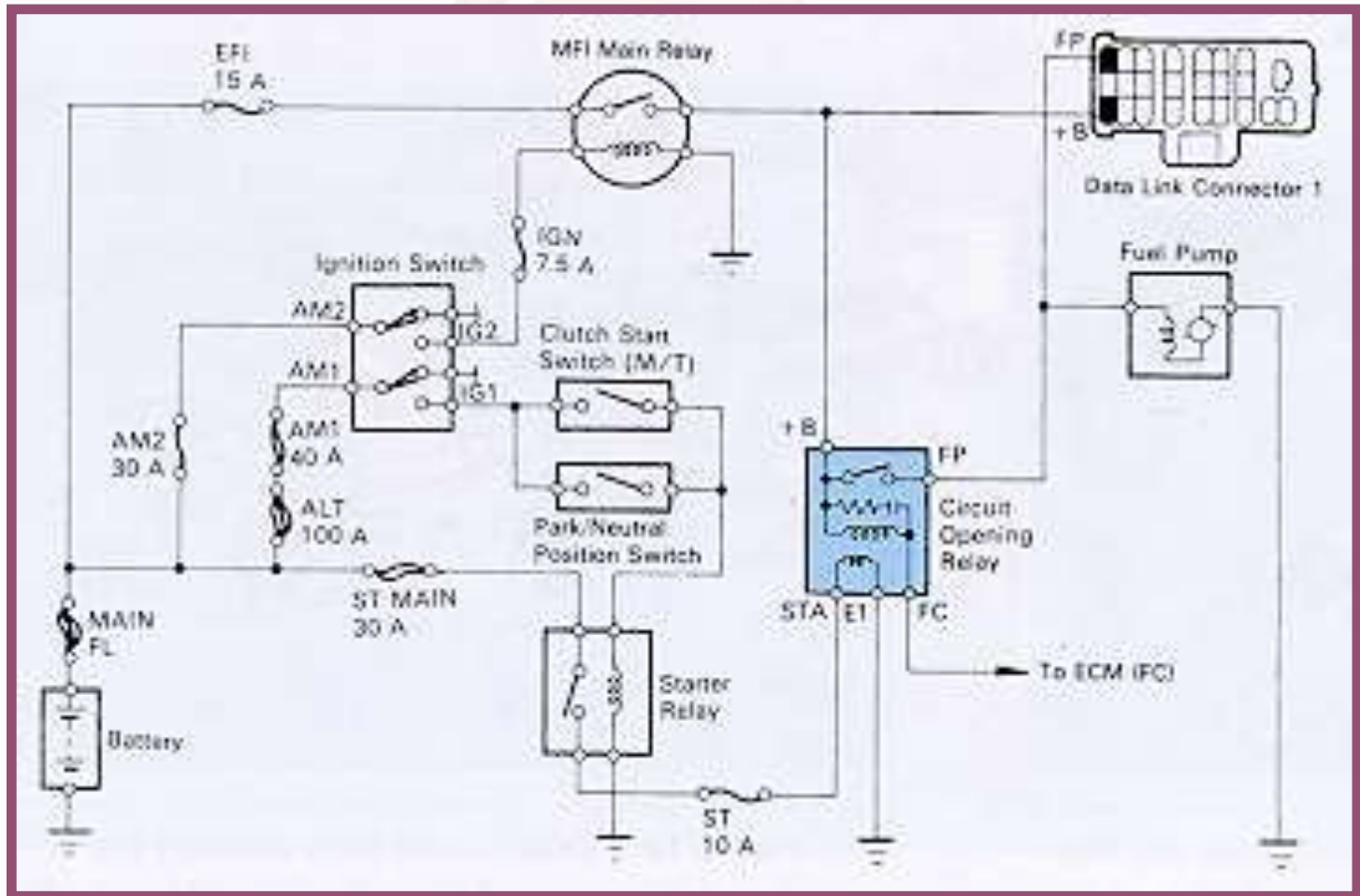
- Two types
  - Low pressure 10 to 15 PSI
  - High Pressure 30 to 45 PSI
  - Some up 60 PSI



# CIRCUITS

- Must have a way to keep fuel from draining from the vehicle in a rollover.
  - Oil pressure switch
  - Inertia switch
  - Computer
- All use a relay

# DIAGRAM







# References

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4. William.H.Crouse (2006), Automotive Mechanics, 10th Edition, McGraw-Hill, ISBN: 978-0-07-063435-0.
5. Joseph Heitner (1999), Automotive Mechanics: Principles and Practices, 2nd edition, Affiliated East West Pvt. Ltd, ISBN: 978-8-176-71015-2.
6. Bosch Automotive Hand Book (2007), 8th Edition, SAE Publications, ISBN: 978- 0-7680-4851-3.
7. K. Newton and W. Steeds (2001), The motor vehicle, 13th Edition, Butterworth-Heinemann Publishing Ltd, ISBN: 978-0-080-53701-6

A large, faded logo of Galgotias University is centered in the background. It features a circular emblem with a stylized 'G' shape inside, composed of overlapping curved bands in shades of yellow, orange, and blue.

**Thank you**

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