

Advantages of Hydraulic Brakes:-

1. Simple in construction.
2. Equal braking effort to four wheels.
3. Low wear rate.
4. High mechanical advantage.
5. These brakes can provide differential braking action between the front and rear brakes by using the wheel cylinders of different sizes for the front and rear wheels.

Disadvantages:-

1. The braking system fails if there is any leakage in the brake lines.
2. The brake shoes are liable to get ruined if the brake fluid leaks out.

AIR BRAKE:

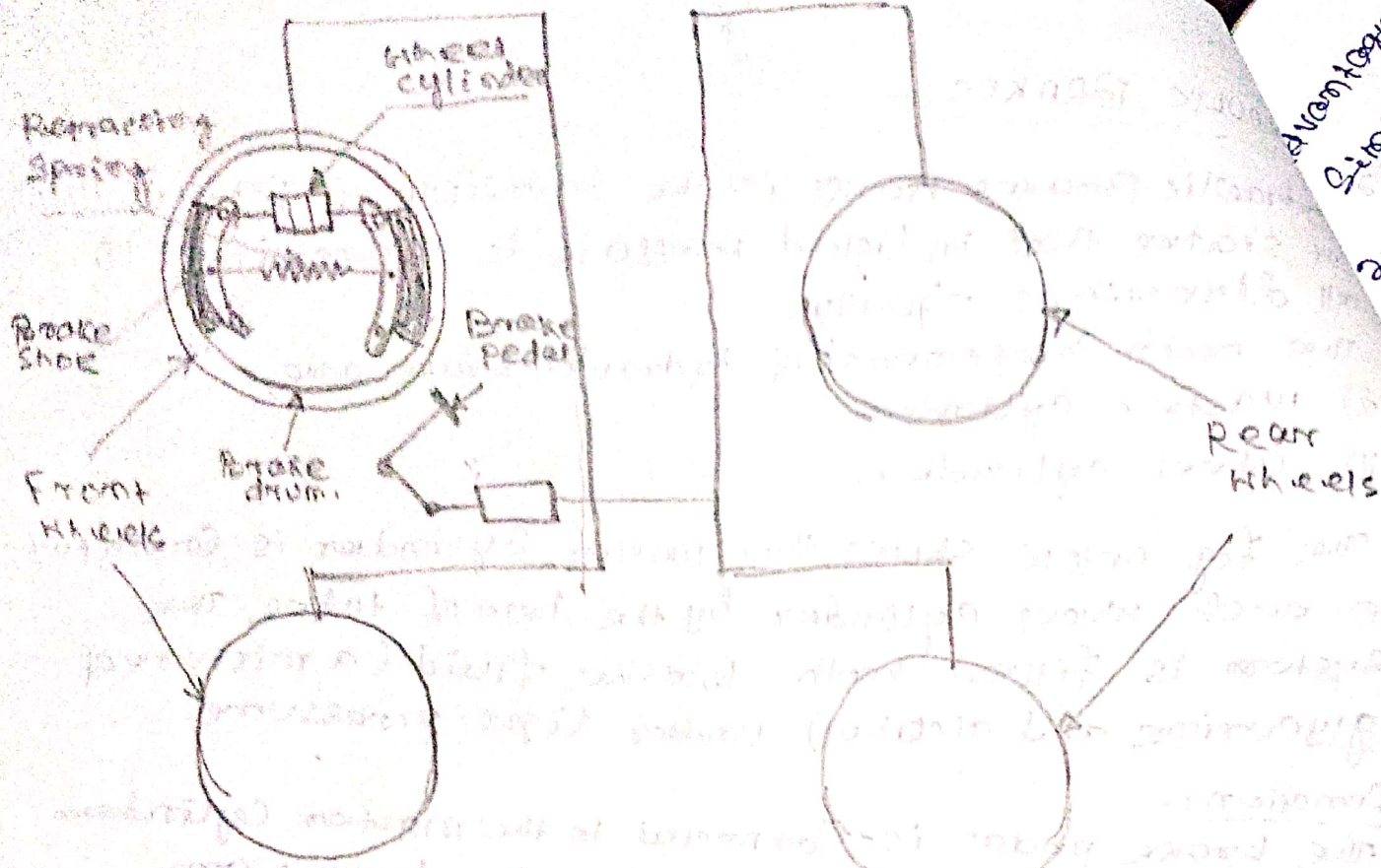
parts of Air brake:-

1. Air Compressor.
2. Brake valve
3. Brake chambers.
4. Unloader valve.
5. pressure gauge
6. safety valve.

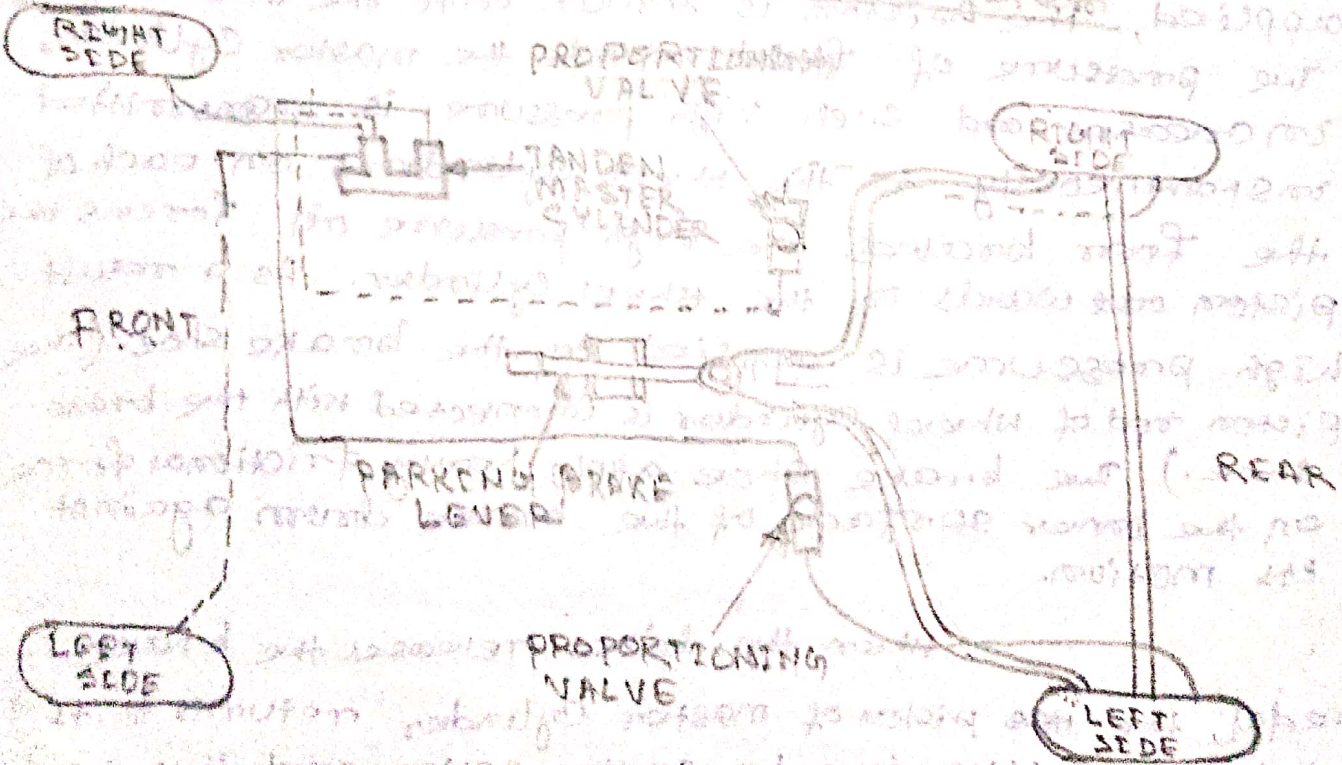
Additional equipment:-

1. Stop light switch.
2. Low pressure indicators.
3. Air supply valve to supply air for tyre inflation.
4. Quick release valve to release air quickly from the brake chamber.

Advantages of Simple 2. E.g.



Hydraulic Brake System

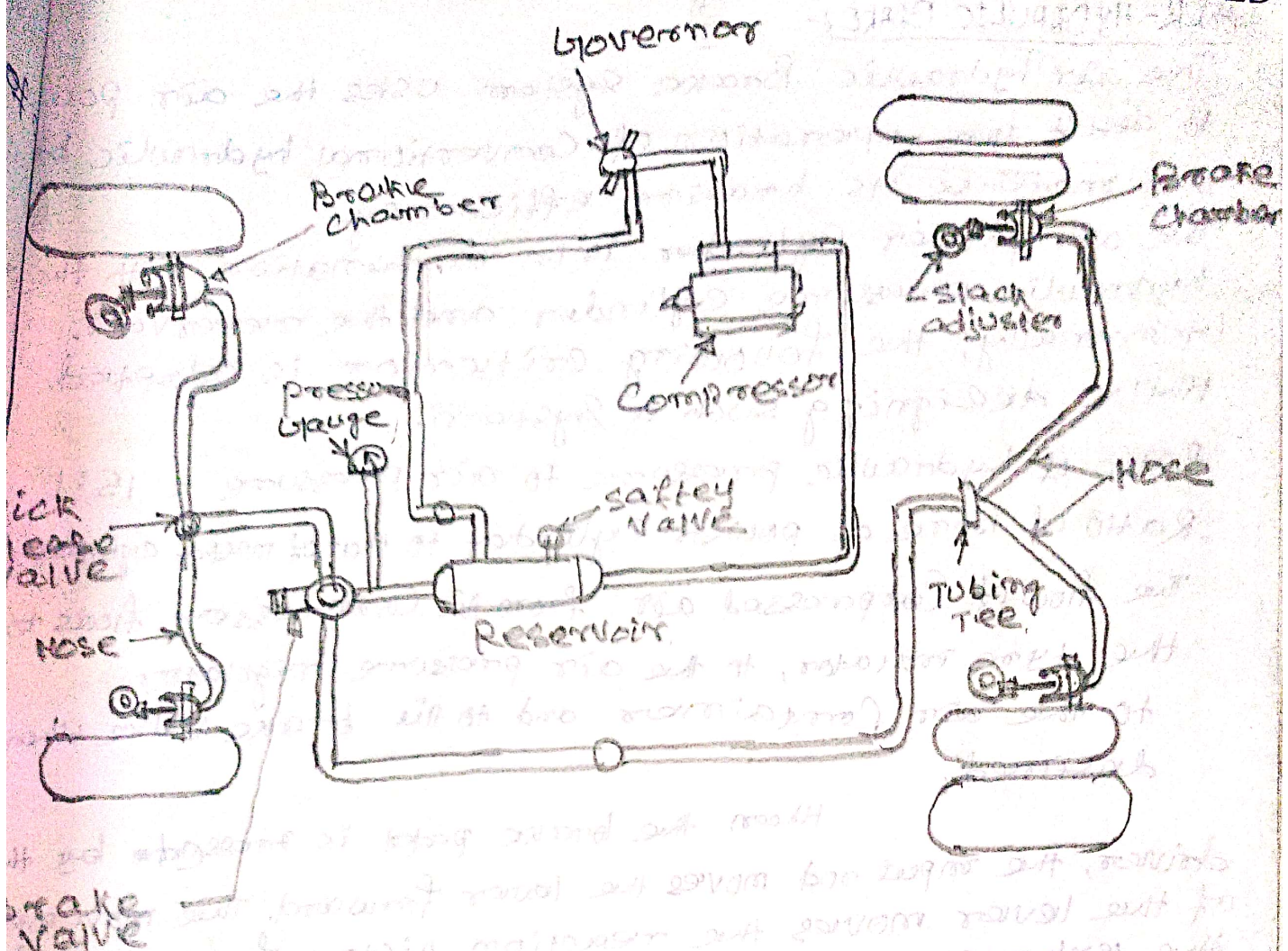


LAYOUT OF BRAKING SYSTEM FOR MARUTI (SUZUKI) 800 CAR

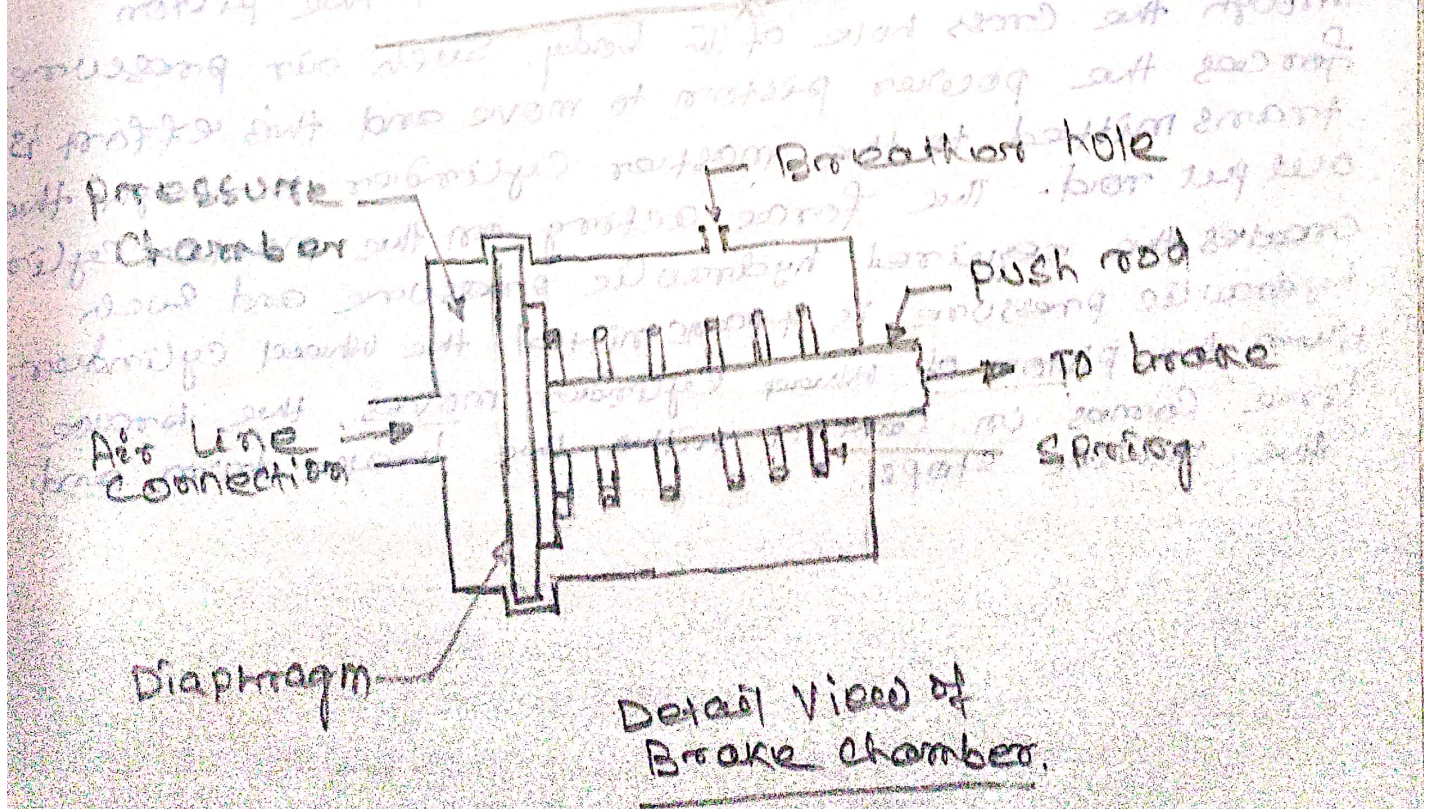
## Function:

The compressed air from the compressor is to the reservoir. Brake valve is connected to the brake chamber reservoir. The tubing brake valve extends to the front and rear chambers. When the driver presses the brake the brake valve opens and compressed air being admitted into all the brake chambers. The compressed <sup>air</sup> operates the diaphragm of brake chambers. The diaphragm is connected push rod which operates the camshaft of brake shoe. The compressed air deflects the diaphragm due to which the "rod" is pushed forward and the camshaft. When camshaft operates, the shoe comes in contact with the brake drum the vehicle comes down to stop.

When the <sup>force of</sup> brake pedal is released the supply of compressed air stops to all brake chambers. The pressurised air present on side the brake chamber directly escaped into atmosphere ~~in~~ <sup>instead of</sup> through quick release valve and relay valve ~~in~~ <sup>instead of</sup> returning to the reservoir.



Layout of air brake system for BUS or TRUCK



Detail View of Brake chamber.

## LIGHTING CIRCUIT: (From D.S. Kumar)

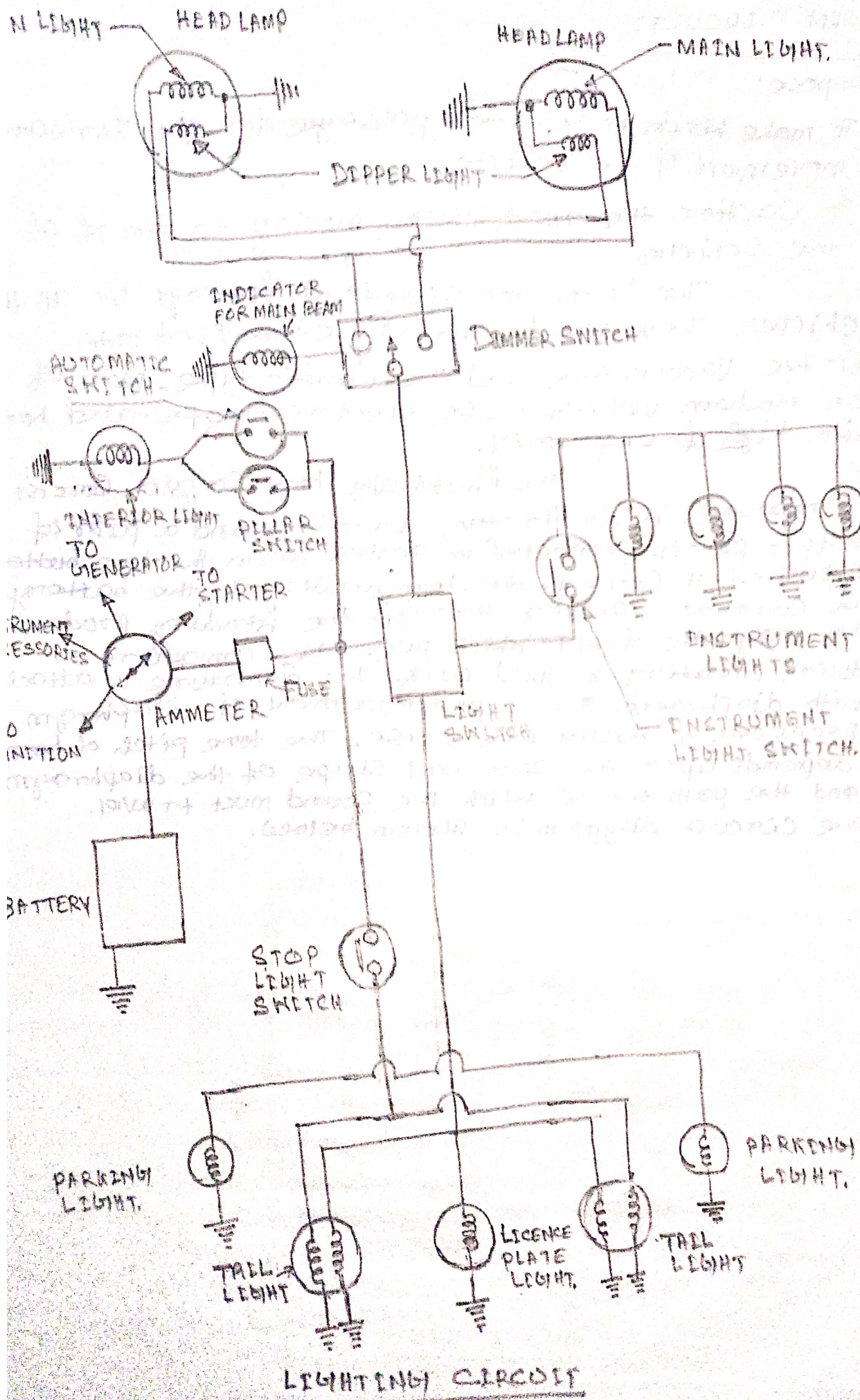
The fig. shows a simplified wiring circuit of a passenger car lighting system.

Features of lighting circuit:-

- i) The Current is taken from the battery at 12-15 volts, it passes through the ammeter and a fuse or circuit breaker before it reaches any switch.
- ii) Suitable switches and fuses are provided in the circuit to protect the system from overload.
- iii) The lamps and switches are connected in parallel with the battery. The various lines connected in parallel are to
  - starting motor through a solenoid switch.
  - ignition with ammeter between the battery and this line.
  - generator or dynamo with a cut out placed between the dynamo and the battery.
  - light switch which controls the head lamps, the side and tail lamps.
  - line with separate switch especially mean for auxiliaries like the horn, flash indicators etc.
- iv) The light switch is provided on the instrument panel and it controls many lights namely
  - instrument lights through instrument light switch.
  - licence plate light, tail lights
  - Head lamp lights through a dimmer switch.

The dimmer switch in the head lamp circuit determines whether the current goes to the upper (main light) or lower (dipper light) beam filaments.

- v) The stop light switch fitted in the stop light branch closes when the brakes are applied. Different colour codings are used for wires of the electrical wiring system. This helps in easy location and rectification of the fault while under taking the repairs of wiring circuit.



LIGHTING CIRCUIT