III : Diesel power plant :

(A) Working principle of diesel power plant :

Thermal energy which is converted into mechanical energy and this mechanical energy is converted into electrical energy to produce the power using generator or alternator

(B) Components of diesel power plant :

1. Diesel Engine.
2. Engine starting system.
3. Fuel supply system.
4. Air filter system.
5. Exhaust system.
6. Engine cooling system.
7. Engine lubrication system.

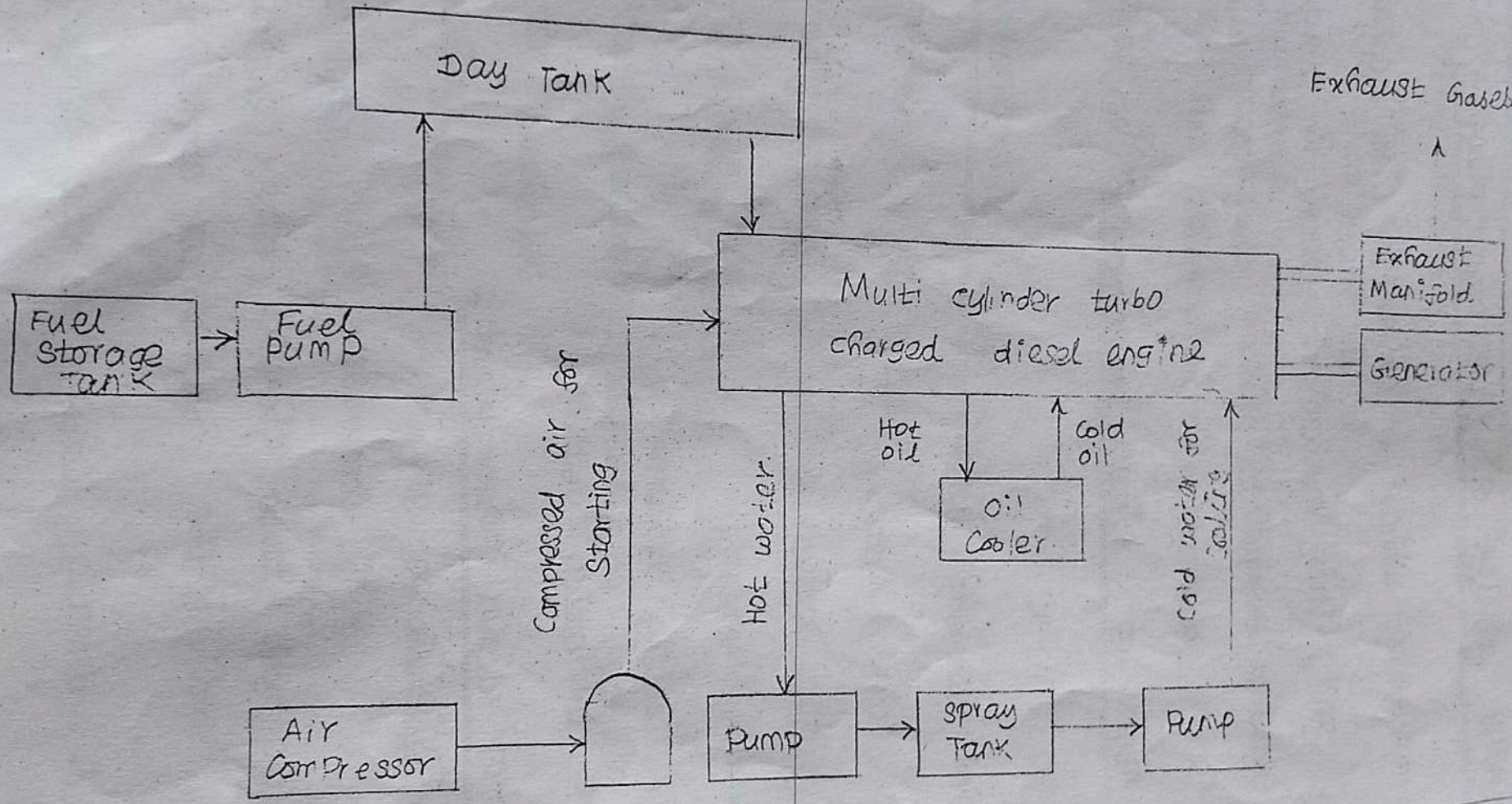
(C) layout of diesel power plant :

1. Diesel Engine :

(i) , Compressed air admitted into the multicylinder turbo charged diesel engine.

(ii) At the end of the compression stroke, fuel is injected.

(iii) Engine is directly coupled to the generator.



Layout of diesel Power plant

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2. Engine Starting System :

Function of this system is to start the engine from cold by supplying compressed air.

3. Fuel System :

(i) It includes fuel storage tank, fuel pump and spray tank.

(ii) Fuel is supplied to the engines according to the load on the plant.

4. Air filter System :

Function of the air filter system is to remove the dust from the air, which is taken by the engine.

5. Exhaust System :

In the exhaust system, silencer (muffler) is provided to reduce the noise.

6. Engine Cooling System :

(i) To keep the temperature at a reasonable level, water is circulated inside the engine of water jackets, which are passages around the cylinder, piston, combustion chamber.

(ii) Hot water leaving the jacket is sent to spray tank.

7. Engine lubricating system :

Engine lubricating system is to reduce the frictio of moving parts and reduce the wear and tear of the engine parts.

(D) Advantages of diesel power plant :

1. Initial cost is less.
2. No problem of ash disposal.
3. It can be located near the load center.
4. High overall efficiency.
5. ~~Operation of the plant is easy.~~ It requires less amount of H_2O for cooling

(E) Dis Advantages of diesel power plant :

1. Diesel fuel is more expensive.
2. Lubrication and maintenance cost is high.
3. Noise is a serious problem.
4. Life of the plant is less.
5. Under continuous overload conditions is not suitable.