



How A Diesel-Electric Locomotive Operates  
Fig. 1-2

1. The engine is started by making the direct coupled main generator act as a starting motor. Current from the storage battery rotates the main generator to start the engine.
2. With the engine running, the auxiliary generator charges the battery and supplies low voltage electricity to the lighting and control circuits.
3. The main generator changes the engine mechanical power into high voltage electrical power to move the locomotive. The electrical power is sent to two electric motors located in each truck. These electric motors are called traction motors. Each traction motor is geared to a separate driving axle.
4. The driver's control station includes the control levers, brake levers and switches necessary for operating the locomotive.
5. The electrical cabinet contains various switches, fuses, contactors and relays necessary to control the operation of the locomotive.
6. The engine governor controls the engine speed as directed by the throttle lever.
7. The load regulator sees to it that the engine sends no more or no less power to the main generator than should be produced for each separate throttle position.
8. The air compressor is connected to the main generator and pumps air only when necessary.
9. Two water pumps mounted on the engine circulate water through the engine cooling system. The water temperature is automatically controlled.
10. Lubricating oil is circulated through the engine, oil cooler, filter and strainer by two oil pumps mounted on the engine.
11. Fuel oil, drawn from the fuel tank by an electric motor driven pump passes through three filters before reaching the engine.
12. If an electric braking system, known as dynamic braking is included, a grid hatch is mounted in the roof. Dynamic brakes permit slowing the train by changing the traction motors into generators. The current generated is transformed into heat by the grids.