

## NEW PROJECTS

### • MANUFACTURE OF MULTI GEN SET LOCO:

DMW has manufactured second 2400 HP Environmental friendly, fuel efficient Multi Gen Set Locomotive having nominal axle load of 18.8 ton. It is the only loco conforming to US EPA TIER-II environmental norms on Indian Railways. It is equipped with IRAB Panel and AC Motor driven Air Compressor. Multi Gen Set Loco saved 18%-20% of fuel during utilization in passenger service on WCR vis-à-vis similar WDM2 locos. Two Multi Gen set Locos have been manufactured by DMW till March'14. These locos will be very useful for yard shunting and passenger trains. Highlights of this loco are:



- ❖ Potential to reduce fuel consumption by 25-30%.
- ❖ Only loco conforming to US EPA TIER II Environmental Norms on Indian Railways.
- ❖ Drastic reduction in particulate matter and polluting gases.
- ❖ Crew friendly loco cab is provided with air conditioning and heating arrangements, which would reduce crew fatigue. Noise levels reduced from 90 db to 65 db.

### • FITMENT OF ELECTRONIC FUEL INJECTION SYSTEM IN ALCO LOCOS:

DMW added another feather in its cap by the first ever fitment of EFI system in Loco No. 16502. The loco was flagged off by Member Mechanical on 13'Aug, 2011.

This loco has provided 4% improvement in fuel consumption under test conditions. Alambagh Shed, where this loco is based, reported fuel saving in the range of 3-4% during initial trial period of six months.

Electronic Fuel Injection technology has following advantages over present system:

- Variable Injection Timing resulting in improved SFC
- Elimination of large number of mechanical components thus, reduction in maintenance and increase in reliability.
- Lesser maintenance.
- Improvement in reliability.
- Better emission standards



- **OVERHAULING OF 3 PHASE AC MOTORS OF EMD LOCOS:**

With a view to provide technical support to Zonal Railways in the light of increasing EMD loco population, DMW has taken the initiative to develop facilities for overhauling of 3 phase AC motors. First AC Motor was overhauled in August, 2011. 151 AC motors have been overhauled till March 2014, replacing mechanical components on condition basis.

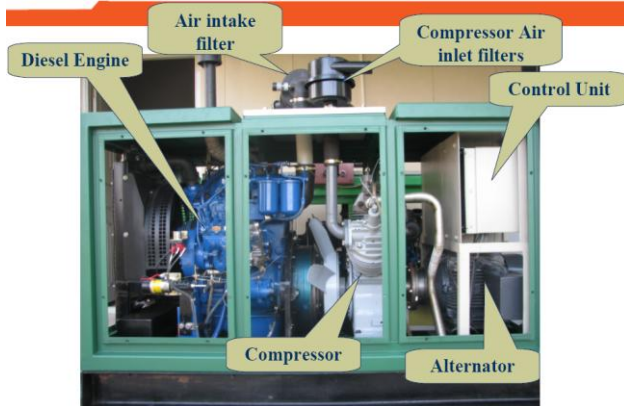


- **FITMENT OF AUXILIARY POWER UNIT (APU)**

DMW, Patiala has fitted Auxiliary power units in 53 Locos (34 WDM3D and 19 WDM3A locos) till March 2014. These APUs are expected to have saved 3,60,000 litres of HSD oil during idling of locos till Mar'14. This has resulted in saving of Rs.2.34 Cr during 2013-14.

An APU fitted loco is expected to result in following advantages:-

1. Smaller engine having low SFC produces required limited HP.
2. Baby compressor maintains BP pressure and the train can be started as and when required.
3. APUs charge low batteries while the main engine is shut down.
4. Reduction in fuel oil and lube oil consumption.
5. Reduction in emission.
6. Extended engine life.



Some visuals of APU from different angles

- **Fitment of Computer Controlled Brake System**

CCB can be interfaced with microprocessor control system for blended brake feature/ distributed power control feature. Till 31<sup>st</sup> March 2014, 47 CCBs have been fitted on locos.



Benefits:

1. Blended brake facility available between dynamic brake & pneumatic brakes.
2. Better reliability as pneumatic valves replaced with solid state electronic components.
3. Electronic brake valve controller provides precise control of control pressure.
4. Compatible with Micro controlled Brake System
5. It has built in self diagnostic feature.

- To manufacture 30 EMD Locos from 2017-18 onwards.



- To manufacture 3600/4000 HP Multi Genset Locomotives.



- To develop new manufacturing facilities of 3 Phase A C Traction Motors for EMD Locomotives.
- Manufacture of LNG (Liquefied Natural Gas) locos.
- Fitment of Common Rail Direct Injection (CRDI) fuel system on ALCO Loco.
- Manufacture of New Generation Powerpacks to achieve low emission standards and high fuel efficiency.
- Fitment of miller timing Camshaft and Turbo-superchargers to achieve further saving of SFC by 2% and reduction in emissions ( NOx) level by 20%.