

ALCO MODIFICATIONSON ELECTRICS

1. History of development:

- DLW had been manufacturing 2600hp DC/DC WDM2 class mixed service locomotives for mainline application till 1994.
- 3100hp AC/DC WDM2C in 1994.
- 2300hp, BO-BO AC/DC WDP1 in 1995
- 3100hp AC/DC WDG2 in 1995.
- 3100hp, twin cab, full-width, aerodynamically profiled, high speed, WDP2 in 1998.

2. Problems faced during development:

- Failure of Alternator fan
- Failure of rectifier
- Breakage of alternator gear train
- Leakage of oil in the gear train – modifications have been carried out on alternators.
- Breakage of AG shaft
- Failure of VRP (BHEL product was not satisfactory since beginning)
- Flashover on traction motors (WDM2C)
- Less back lash in 4907 Traction Motor – Corrective action has been taken by BHEL

3. Projects already implemented:

- 4907 Traction Motors with Roller Suspension Bearing – This project has been conceived for improved reliability and extended maintenance schedule (92 days). The first WDG2 locomotive with these traction motors was turned over in May'98. These motors are regularly being fitted in WDG2 and WDM2C locomotives.
- PCB based cards – Complete switchover from DMC to PCB based cards since Jan'00.
- Low Maintenance Battery – Requires topping after 92 days.
- E-Beam cable – Electron beam irradiation cables provide better insulation and mechanical strength. This cable is better resistant to oil and other contaminants.
- Pressurised Control Compartment – Implemented in some WDG2 and all WDP2. DCW will introduce it in WDM2C for 92 days targeted maintenance schedule.
- Rectifier with built in blower – 92 days schedule
- Twin Beam Halogen Headlight – All locomotives from OCT'01.
- Under slung Battery Box – implemented on WDP2 and 2300hp MG Export locomotives

4. **Projects under implementation:**

- 3100hp WDG2 with micro-processor based propulsion and excitation control
- WDP2 with light weight traction motor
- One WDG2 with light weight traction motors to gain experience regarding suitability on high adhesion locomotive
- WDM3C locomotive with micro-processor based control and light weight traction motors
- Microprocessor based Electronic Governor
- Air conditioned Driver's Cab
- AC motor for Fuel Pump and Crankcase Exhauster
- AC dust Exhauster Blower Motor for engine filtration system
- Paperless Speed Recorder
- Automatic Switching ON of Flasher Light
- LED type Classification Light
- Provision of Roof Mounted Dynamic Brake Grid for Dynamic Braking in WDP2