Diesel Loco Shed, South Central Railway, Vijayawada

I. BRIEF HISTORY:

Photo of Shed:



View of Diesel Loco Shed, S.C.Railway, Vijayawada

Locos of Shed in colour Scheme:



WDP1



WDM2A



Diesel Loco Shed, Vijayawada was established in the year 1979 at the cost of about Rs.170 lakhs to maintain 20 WDS_4 locomotives and increased to 35 in the year 1989. Progressively these locomotives were withdrawn as WDM_2 de-rated locomotives were used for shunting purposes. Meanwhile 02 locos in the year 2000 and 15 in the year 2004 have been transferred to Western Railway. Again 02 locos of Diesel Loco Shed, Moula-ali were transferred to this shed in the year 2004 leaving the effective holding of WDS_4 locomotives at BZA to 20. In the year 2006, 13 locomotives have been condemned and auctioned and 02 locomotives were transferred to Shakurbasthi Shed, Northern Railway. *Presently 05 WDS_4 locomotives are under* premature condemnation. Railway Board had sanctioned vide letter No. M.66/DSL/COND.underaged/ 120/Dec.06 dt.24.02.10.

With the reduction of WDS_4 locomotives and increase in Electric traction in BZA Division, DEMU services started in Vijayawada from the year 1996 with 5 consists placed under Diesel Loco Shed, Vijayawada to ease severe traffic constraints both in passenger/express services and also in suburban traffic. P*resently the total holding of DEMUs is 31 DPCs, 13 DTCs and 54 TCs and is working in BZA, GNT, GTL and SC divisions.*

In the year 2002 apart from DEMUs and WDS_4 locomotives, 15 WDP_1 locomotives were transferred from Diesel Loco Shed, Kazipet to this shed which are working in Mail/Express/Passenger services in BZA, GNT and GTL divisions. During the month of October 2008, 02 more WDP1 locomotives were transferred from Diesel Loco Shed, Tuglakhabad, Northern Railway and put in BZA loco links from 01.11.08 & 09.11.08.

In March 2007, 2 RAIL BUSES were received from NED division to run between COA-KLPH section of BZA division.

In addition to these locos, 12 WDM2 over aged locomotives were transferred from DLS/KZJ, DLS/GTL for utilizing in Coaching shunting, Yard Shunting, and BT etc. over BZA & GNT division with effect from 01.12.2009 and also 04 WDM2 over aged locomotives were transferred from DLS/GTL with effect from 01.02.10.

1. Year of commencement**:**

   07.01.1983

2. Road No./Type of the first loco homed in shed**:**

   19524/WDS4B

3. Details of any heritage Locos in Shed on pedestal or otherwise**;**

   NIL

4. ISO Certification Year

   9001
   14001 } **NIL**
   18001

5. Type-wise holding

a)	**WDP1**	**17**
b)	**WDM2 (over-aged)**	**12**
c)	**DPCs**	**31**
d)	**Rail Buses**	**2**
e)	**SPART**	**1**
f)	**140T BD Crane**	**1**
g)	**DEMU coaches (DPC, DTC & TC)**	**98**

6. Maximum Holding (Year/Number of Locos**)**

Type of Stock	**Year**	**received**			**Cumulative Holding**		
WDP1	**2002**	**15**			**17**		
	2008 (From DLS/TKD)	**02**					
WDM2 (over-aged)	**2009 (from DLS/KZJ)**	**07**			**12**		
	2010 (from DLS/GTL)	**05**					
		DPCs	**DTC**	**TC**	**DPC**	**DTC**	**TC**
DEMUs	**1996**	**5**	**5**	**5**	**5**	**5**	**5**
	1998	**11**	**5**	**15**	**16**	**10**	**20**
	1999	**1**	**0**	**0**	**17**	**0**	**20**
	2001	**4**	**1**	**7**	**21**	**11**	**27**
	2002	**3 (HHP)**	**0**	**9**	**24**	**0**	**36**
	2003 (Tfd. From S.Rly)	**5**	**2**	**9**	**29**	**13**	**45**
	2004	**2 (Aerodynamic)**	**0**	**6**	**31**	**-**	**51**
	2006	**0**	**0**	**1**	**-**	**-**	**52**
	2008	**0**	**0**	**2**	**-**	**-**	**54**

	Total	**31**	**13**	**54**	**98**
Rail Bus	**2007**	**02**			**02**
SPART	**2001**	**01**			**01**
140T BD crane	**1990**	**01**			**01**

7. Present Loco link

a) WDP_1 LOCOMOTIVES:

Sl. No	No. of Locos	Link No	Sections covered
1	**08 WDP_1 locomotives**	**1**	**BZA-MTM-NS-RJY-NDKD-RAL-DKD-MCLA-GNT.**
2	**05 WDP_1 locomotives**	**2**	**BZA-MTM-BVRM-CCT**

b) WDM2 (over-aged) locos w.e.f:01.12.09/01.02.10:
Utilised in BZA & GNT division for shunting and BT purpose

c) DEMU:

Sl. No	Link No	as per Link Chart			Actual			Sections covered
		No. of Units	No. of Rakes	No. of Power Cars	No. of Units	No. of Rakes	No. of Power Cars	
1	3	3	4	12	3	4	12	BZA-BVRM-NS; NS-NDD–RJY ; BZA-GNT-TEL-RAL;
2	3	2	2	4	2	2	4	
3	5	1	1	1	2	1	2	BZA-GDV-BZA-MTM-BZA
4	4	2	2	4	2	2	4	TPTY- KPD-V.Cont.
5	6	2	2	4	2	2	4	BZA-KMNR-JGTL-PDPL–SRUR
Total		**10**	11	**25**	**11**	11	**26**	

d) WRB_1 (RAIL BUS) (Commissioned on 18.05.07)

Sl. No	No. of Locos	Link No	Sections covered
1	**01 Rail Bus**	**RC 1 & 2**	**COA-KLPH**

8. Homing Capacity:

Originally planned for homing 35 WDS4 locomotives, subsequently one 198 meters pit line was constructed to place 9 coach rake formation of DEMU in the year 2000.

9. Augmentation Plans:

1) One more 198 meters pit line is under construction for DEMU rake schedules under PWP No. 298(LAW) 08-09.
2) Extension of Heavy repair Bay by 18 meters proposed under GM/LSWP during 2010-11.

10. **Other History (Not more than 4 lines)**
Diesel loco shed, Vijayawada was established in the year 1979 to maintain 20 WDS4 locomotives. In the year 2002 DEMUs and WDP1 Locos were added to the fleet. In the year 2007 2 Rail buses were also added. This shed also undertakes the maintenance work of 140 T crane and SPART.

II. VITAL STATISTICS

1. Sanctioned Strength	**: 398**
2. On Roll Strength	**: 365**
3. No. of Officers	**: 03 (01 ADME post is vacant from 13-06-2009)**
4. No. of Supervisors	**: 26**
5. Total Area	**: 25050 Sq. meters**
6. Covered Area	**: 4341 sq. meters**
7. %age of Staff housed in Railway Quarters	**: 33.15%**
8. Power Consumption	**: 700 Units/day**
9. Water Consumption	**: 10KL/day**

10. Educational Profile of Staff :

Up to 8th	>8th	10th Pass	10-12th	ITI	Graduate
5	20	130	55	128	28

11. Age Profile of Staff

<30 yrs	30-40	41-50	51-55	56-60
14	75	119	107	50

12. MPR as circulated by E & R Dte.

IR Avg. MPR – 6.82 vide letter No.P.MPP/39/Benchmarking/Vol.II dt.08.12.09.

Additional Requirement of Staff as per Bench Marking:

Manpower requirement as per the revised Yardsticks issued by Railway Board for DEMU and IR average Bench Marking for the remaining assets of 17 WDP1 locomotives, 12 WDM2 over-aged locomotives, 2 Railbuses, 1 SPART & One 140Te BD crane is 513 as against the existing sanction of 398.

III. Performance Parameters

1. SFC :

WDP1	DEMU	WDM2 (over-aged)	
		Goods	Chg.
4.53	3.14	1.66	1.66

2. **LOC** :

WDP1	DEMU	WDM2 (over-aged)
0.57	0.59	1.03

3. Shed consumption of fuel : **6540 liters/month**

4. Kms. Earned by Shed Locos/month:

WDP1	DEMU
178838	135939

IV. Any Important Innovations: --

a) Development of special Gadget for measuring FTTM blower gear back-lash:

The shed has made special gadget for measuring the FTTM blower gear back lash. This is fixed on the FTTM blower impeller along with dial gauge and made to and fro direction and record the back-lash. If the black-lash exceeds 0.4mm, FTTM blower gear is removed for examination and changing if required. This gives correct information regarding back-lash of the FTTM blower with Main Alternator bull gear.

b) Fitment of D24B feed valve in Aero Dynamic Rake for controlling Air Suspension Springs pressure:

Originally the Aero dynamic rake provided with air suspension system fed with direct MR pressure in to the feed pipe/ air suspension bellows which was set at 7.5- 8.5 Kg/cm^2. This will lead to permanent set of air suspension bellows and will not absorb vibrations/shock loads and transmit them to the TM suspension system. As per the recommendation of the OEM, the pressure required for Air Suspension Springs is 6.2 Kg/$cm^{2.}$ To overcome this, a Feed valve (D24B) is provided in the circuit to regulate the pressure to 6.2 Kg/cm^2. With this it is expected to minimize failure of suspension tubes and Traction motors due to vibrations/shock loads.

V) Modifications on Locos to improve Reliability:

a) **Modification of Traction Motor over load protection circuit in DEMUs:**
In the existing over load protection circuit of DEMU Power Cars, the over load relay consists of 2 N/O & 2 N/C inter locks are provided for a pair of motors. If any one of traction motor is over loaded, the over load relay trips and inter locks comes into operation to protect the traction motor. When the operator resets the system, some times the N/C inter lock will not get closed and hence Power contactor will not get supply and load meter will not respond. To overcome this problem, an additional G.P relay of 5A capacity was provided in parallel with the existing over load relay. If the existing N/C inter lock not gets closed/malfunction, this additional relay inter lock will make the supply to power contactors and cause the load meter respond.

b) **DIR (Driver Interlock Relay) circuit on DEMU DPCs:**
The DEMU DPCs have been provided with this safety feature which energizes load meter at 4.0 Kg/Cm^2 air pressure only. Even if the loco pilot fails to

observe brake power, the train cannot be moved unless the B.P. reaches 4.0 Kg/Cm^2. **This can avoid driver passing signal at danger.**

c) **Provision of Safety protection guard for under slung items of SPART:**
The SPART is provided with under slung engine and transmission system and all the cut out cocks & drain cocks of the various reservoirs are at the bottom most portion and there is chance of hitting of ballast and other foreign material to them on run and causing detention enroute. To avoid this, Diesel Loco Shed, BZA has provided protection for all the vulnerable places. With this it is expected that the detentions on account of ballast hit can be minimized.

d) **Provision of Drain Chute arrangement to arrest spillage of Electrolyte on Under gear safety items:**
The Electrolyte spilled out from the batteries falls on the bogie truck components leading to corrosion / damages. To prevent this falling on the under truck, the loco Battery Box has been fitted with horizontal chute duly welded. The accumulated Electrolyte is let out on the ground directly through vertical drain attached to the chute at the other end.

e) **Relocation of Engine Control panel in DEMU DPCs:**
In DEMU DPCs the Engine control panel is mounted to the roof beside Traction Alternator which cause hindrance to the Traction Alternator while Loading/ Unloading and requires removal from the location including disconnection of wiring. To avoid this problem, the existing location of ECP is changed and relocated on to the End wall between driver's cab and engine room which saves atleast one day time and some amount of man power.

f) **Securing of spare RTTM blower belts in Radiator Room:**
There was a case of spare belts tied to ECC drum slackened on run and entangled with working RTTM blower belts. This has further caused damage to Radiators also. To avoid such recurrences the spare belts are now secured to ECC guard with the help of clamps.

g) **Modification of BP & FP hoses of DEMU Aerodynamic DPCs:**
Aerodynamic DPC 15040/15041 formation originally provided with BP & FP hoses connection through schaku coupling and with angle cut out cock without vent hole. Since the closing/opening is easy, there are cases of closing the cocks by public causing detention to the train. Also these are unique type, the material supplying sources are also limited. Also they are not being replaced with new during POH due to its unique design. To overcome the problem, these are modified with conventional BP & FP hose pipes with palm ends and angle cut out cocks with vent hole which gives the following advantages:

- Unauthorized closing of angle cut out cocks is clearly indicating leakage of air due to provision vent hole.
- Inter-changeability of BP & FP hoses and angle cut out cocks since all other coaches are provided with conventional hoses & cut out cocks.
- Changing of BP & FP hoses are easy in case of emergency since hoses are coupled with palm ends.
- Leakage of air from BP & FP hoses through schaku coupling requires removal of schaku coupling to change rubber washers. This can be overcome by conventional BP & FP hoses.

*** * ***