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सत्यमेव जयते

भारत सरकार - रेल मंत्रालय
 अनुसंधान अभिकल्प और मानक संगठन
 लखनऊ - 226011
 Government of India-Ministry of Railways
 Research Designs & Standards Organisation
 Lucknow - 226011



No. SD.POL 12.10

Dated 29-01-2002

The General Manager (Engg.),

1. Northern Railway, Baroda House, New Delhi-110 001.
2. Central Railway, CST, Mumbai-400 001.
3. South Central Railway, Rail Nilayam, Secunderabad-500 071.
4. Southern Railway, Park Town, Chennai-600 003.

Sub: Speed certificate for operation of Rajdhani Express and other similar trains with WDP2 class of locomotive between New Delhi-Bangalore.

WDP2 class of locomotives, 3100 hp, having flexi-coil MK-5 bogies have been manufactured at Diesel Locomotive Works, Varanasi. General arrangement of the locomotive is as per DLW drawing No. SK-2160 and General arrangement of the bogie is as per RDSO drawing No. VL.FM5 - a.01. The maximum axle load of the locomotive is 19.5t. Speed certificate for operation of WDP2 locomotives on Rajdhani standard track upto a maximum speed of 140 km/h has been issued vide this office letter no. SD.WDP2.11 dt. 26-7-2000.

1.1 To ascertain the suitability of WDP2 locomotive to haul Rajdhani and other similar trains on New Delhi - Bangalore route, Confirmatory Oscillograph Car Runs with WDP2 locomotive were conducted on both UP and Down lines of New Delhi-Bangalore sections of Northern/Central/ South Central and Southern Railways at speeds upto 130 km/h. The results as contained in RDSO's Report no. MT-305 (July'2001) are satisfactory.

2. Based on the above, it is certified that Rajdhani Express and other similar trains consisting EOG AC ICF coaches on all coil bogies to ICF drawing WTAC3-0-0-301 with air braked equipment including slack adjusters when hauled by single/double headed WDP2 locomotives fitted with dual/pure air braked equipment may be permitted to run between New Delhi - Bangalore upto the maximum speeds as indicated below:

1) New Delhi - Tughlakabad	105 km/h
2) Tughlakabad - Lalitpur	130 km/h
3) Lalitpur - Bhopal	120 km/h
4) Bhopal - Itarsi	110 km/h
5) Itarsi - Ballaharshah	120 km/h
6) Ballaharshah - Secunderabad	120 km/h
7) Secunderabad - Vikarabad	Up - 105 km/h
" " " "	Dn - 110 km/h
8) Vikarabad - Wadi	105 km/h
9) Wadi - Gooty	110 km/h
10) Gooty - Dharmavaram	105 km/h
11) Dharmavaram - Bangalore	130 km/h

The operation shall be subject to the following conditions:

2.1 Track

- 2.1.1 The track shall be to a minimum standard of 52 kg rails on sleepers to M+7 density and depth of ballast cushion below sleepers of 250 mm, which may consist of at least 100 mm clean and the rest in caked up condition, on compacted and stable formation. The track will be maintained to main line standard for speed upto 105 km/h and to the standards as recommended in RDSO's Report No. C&M-I (Vol-I) for speed more than 105 km/h. In this connection the instructions for maintenance of track on high speed routes, circulated to the Railways under RDSO's D.O. letter no. CRA/509 dated 7-7-1971 and approved by the Railway Board under their letters No. 71/W6/HS/8 dated 27-8-1971 and 71/W6/HS/1 dated 21-10-1971 should also be followed.
- 2.1.2 For track of lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed. In this connection, Railway Board's letter No. 65/WDO/SR/26 dated 19/20.10.1966 may be seen. When the Chief Engineer considers that the road bed is not compacted or there is improper drainage, he may suitably restrict the maximum permissible speed depending upon the local conditions.
- 2.1.3 The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual - 1986. Higher speeds may, however, be permitted subject to the maximum cant deficiency of 100mm and the rate of change of cant and cant deficiency not exceeding 55mm per second.
- 2.1.4 Before starting operation, necessary attention shall be given by the concerned railways to kilometers falling under their jurisdiction as indicated in the tables, Annexure-1(a) and 1(b) of the Report no. MT-305 (July' 2001). A copy of the report is enclosed.
- 2.2 Bridges
- 2.2.1 The clearance in regard to bridges refers to standard design of girders, slabs, pipe culverts, pier and abutments etc. issued by RDSO for BGML, RBG & MBG-1987 standard loadings.
- 2.2.2 All other designs of superstructures and sub-structures are to be examined under the directions of the Chief Engineer concerned and certified safe by him in terms of current IRS Bridge Rules, Steel Bridge Code, Bridge Sub-Structure and Foundation Code etc. read with upto date correction slips.
- 2.2.3 For double headed operation of WDP2 locomotives, track on bridges and approaches of BGML spans of 31.9m and 47.3m (both effective) shall be strengthened or modi-

fied in such a way so as to allow for dispersion of tractive force as per clause 2.8.3.2 of Bridge Rules, in case where dispersion can not be allowed as per clause 2.8.3.2 such as due to provision of SEJ in bridges etc. the bridge substructure and superstructure including bearings shall be checked for tractive force without dispersion and certified safe by the Chief Engineer concerned.

2.2.4 The clearance is subject to following parameters of WDP2 locomotives:

i) Maximum Axle load	19.50t
ii) Maximum Tractive effort	29.1t
iii) Maximum Braking force	15.7t

2.3 Signalling

2.3.1 It is necessary to provide the means/arrangements to put back the home signal and last stop signal to its 'ON' position immediately after the passage of the train.

2.3.2 Provision of GR, SR, SEM and all extant instructions issued from time to time shall be complied.

2.3.3 Where down gradients exist on approaches to signals, suitable speed restriction may be imposed to ensure that drivers do not overshoot signals at danger.

2.3.4 For speed 120 km/h and above

2.3.4.1. MACLS shall be provided with two distant signals. First distant signal shall be located at a distance of 1 km in rear of the home signal and the second distant signal at a distance of 2 km in rear of the home signal.

2.3.4.1.1 The above shall also be applicable to IBS and the interlocked gates located in the block sections.

2.3.4.2 All manned level crossing gates shall be provided with telephone communication with the nearest station.

2.3.4.3 The run through lines shall be track circuited within block section limit boards, where such track circuiting has not been provided, the station master shall come out and verify the clearance of track physically for the high speed train.

2.3.4.4 Provision of telephone communication between Driver & Guard shall be ensured.

- 2.3.4.5 Following works may be executed progressively on programmed basis wherever the existing installations do not have these facilities:
- a) Electrical operation of points and signals and electrical detection of points.
 - b) Track circuit of entire yard.
 - c) Provision of telephone communication between Driver-Nearest Station and/or control office.
 - d) Block working by track circuit or equivalent block proving by axle counter.

2.4 General

- 2.4.1 All the permanent and temporary speed restrictions in force and those that may be imposed from time to time due to track, bridges, curves, signalling and interlocking etc. shall be observed.
- 2.4.2 Attention is also invited to the note on 'Preparation of electrical equipment of diesel and electric locomotives for high speed operation' circulated with this office letter No. EL/3.3.15/WAM2/GR.CON dated 24-12-70 and the locomotive should be attended accordingly as applicable to this class of locomotive.
- 2.4.3 The all coil ICF coaches shall be fitted with twin pipe graduated release air-brake system and shall be without lateral shock absorbers. These coaches shall be maintained in accordance with the instructions contained in RDSO's technical pamphlet No. C-7807 (Rev. I) and special maintenance instructions for Rajdhani/high speed coaches issued from time to time. The air brake system of these coaches shall be maintained as per RDSO's technical pamphlet No. C-8805. The instructions contained in Technical pamphlet No. C-9408 shall be complied with to the extent applicable.
- Enhanced capacity draw and screw coupling should be used in these coaches as per RDSO drawing SK-79061/SK-99003 or 79067/SK-99001 respectively.
- 2.4.4 The transition coupler of locomotives in case of double headed operation shall be of strengthened design to RDSO drg.no.SK.DL-2494 (Alt.14) and SK.DL-2495 (Alt.9).
- 2.4.5 The design of ICF AC 3 tier coach infringes clauses 31 and 32 (B) of Chapter IV (A) of BG Schedule of Dimensions (1973). Board have condoned these infringements vide letter No. 93/CEDO/ SR/12 dated 25.10.93.
- 2.4.6 The design of ICF coach infringes the BG schedule of dimensions, 1929 (Re-print 1973), but is within EDO-590; which is condoned vide Board's letter no. 65/WDO/SD/2 dated 20-3-1965.

2.4.7 The design of WDP2 locomotive infringes clause 12 and 13 of chapter -IV(C) of BG Schedule of Dimensions 1929 (Reprint-1973). Railway Board have condoned these infringements vide their letter No. 98/CEDO/SR/13 dated 12-10-98.

Encl:

1.RDSO drg no.VL.FM5-a.01 (P. Bhattacharya) 11/1/2002
2.RDSO drg no.SK-2160 Exe.Director Standards (Motive Power)
3.RDSO Rep.no.MT-305, July-2001

Copy to:

The Secretary (Mech./Engg.(G)),
Railway Board, Rail Bhawan, New Delhi - 110 001.

The General Manager (Mech./Optg.),

1. Northern Railway, Baroda House, New Delhi-110 001.
2. Central Railway, CST, Mumbai-400 001.
3. South Central Railway, Rail Nilayam, Secunderabad-500 071.
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