

Government of India
Ministry of Railways
Research, Designs & Standards Organization

Alambagh, Lucknow-5.

No. SD/YDM4(b).11.

Dated: 19th Aug. '67.

The General Manager (Mech.),
Southern Railway,
Madras-3.

Sub: Maximum permissible speed of
YDM4 'A' Class Diesel Locomotive.

Ref: RDSO's letter No. SD.YDM4 (b).11
dated 16.7.'64.

In continuation of this office letter No. SD.YAM1.11 dated 9.2.66, oscillation trials since completed on the YDM4 class of locomotives upto speeds of 96 kmph on the section between Kishanganj-Aluabari Road on the Northeast Frontier Railway indicated that this class of locomotives has stable riding characteristics upto maximum speed of 96 kmph. Accordingly, vide this office letters Nos. SD.YDM4.7 dated 16.8.'66 and ET/DEL/YDM4 dated 24.8.'66, the YDM4 locomotive was certified for maximum permissible speed of 85 kmph on the track with minimum standard of 60 lbs. rail on wooden or metal sleepers to N+3 density and depth of stone ballast in cushion not less than 8" (which may consist of 3" clean and the rest in caked-up-condition).

2. The YDM4 A class Diesel locomotive is similar to the YDM4 class locomotive with regard to the axle load, bogie arrangements and its suspension. It is, therefore, certified that YDM4 A class locomotive may be permitted to haul passenger trains at a maximum permissible speed of 85 kmph on track with minimum standard of 60 lbs. rail, sleeper density not less than N+3 for wooden or metal sleepers and depth of stone ballast in cushion below sleepers, not less than 8" (which may consist of 3" clean and the rest in caked up condition), vide Railway Board's letter No. 64/WDO/SR/43 dated 14.10.64 and RDSO's letter No. ET/DEL dated 17.4.'65.

2.1 For tracks of lower standard than that mentioned at para 2 above, the Chief Engineer is the authority to decide the permissible speeds, taking into consideration such factors as the condition of formation, age and type of sleepers, strength & wear of rails, standard of maintenance, drainage conditions, adequate period for consolidation after re-surfacing etc. In this connection reference may be made to Railway Board's circular letter No. 65/WDO/SR/26 dated 19/20-10-66 and DG/RDSO's letter No. ET/DEL dated 24.6.1965.

2.2 The speeds permitted on curves are subject to the provision in the Indian Railways Way & Works Manual and other permanent or temporary local restrictions which might be in force on any particular section.

2.3 The speed limit of 85 kmph certified above is in excess of the prevailing maximum speed for passenger trains and should be availed of by Railways only after due consideration of related aspects, such as maximum permissible speed of coaching stock, braking distances, siting of signals etc.

3. The above speeds are also applicable for Single or Double headed locomotives for running on bridges as indicated below:

(i) Spans to MG ML standard.

(a) Super-structure - Single and double headed YDM4 A locomotives can be permitted to run upto the maximum speed of 85 kmph.

(b) Sub-structure - Single and double headed YDM4 A can be permitted to run upto the maximum speed of 85 kmph.

(ii) Spans to MG BL Standard.

(a) Super-structure - Single and double headed YDM4 A locomotive can be permitted to run upto the max. speed of 85 kmph over spans of 3m and above. There would be a speed restriction of 55 kmph for spans less than 3m.

(b) Sub-structure - It may be possible to permit single YDM4 A locomotive after checking for stresses the sub-structure for spans of 9.15, 12.2, 18.3 and 76.2m. It may be possible to permit double heading of YDM4 A locomotive also after checking for stresses in the sub-structure for spans of 30.5, 45.7, 61.0 and 76.2m. The checking for the stresses in the sub-structures will have to be carried out by the railways taking into consideration the section of abutment or pier and the type of masonry used.

3.1 Investigations may, however, be undertaken as required by the Railway Board's letter No.66/WI/Bridges-1/11 of 25.3.67, before permitting operation of multiple coupled locomotives.

3.2 On Sections where Bridges and substructures are below BG ML/BL standards, the Chief Engineer will decide each case on its merits.

3.3 The certification with reference to "Bridges" only refers to standard designs of girders, slabs, pipe culverts etc. issued by RDSO, but not to the strength and stability of piers and abutments or of foundations which is to be checked by the Chief Engineer after obtaining data regarding longitudinal forces (tractive and braking) from the Chief Mechanical Engineer of the Railway. In this connection, Railway Board's D.O. letter No.66/WDO/SR/34 dated 8.11.66 from Director Civil Engineering to Chief Engineers all Indian Railways, may be referred to.

4. Attention is specially invited to the fact that the YDM4 A locomotive is fitted with compressed air brakes and not with Vacuum brakes, but the locomotive is provided with a vacuum exhaustor and ancilliary equipment for controlling trains equipped with vacuum brakes. This aspect is brought to the notice for due consideration by Railways whenever the need arises to attach the YDM4 A locomotive at the rear end of trains.

5. Attention is also drawn to the note on "Preparation of Electrical Equipment of Diesel and Electric Locomotives for high speed operation" circulated vide this office letter No.E/ET/Genl. dated 10.11.1965.

Encl: Nil.


(T.C. Pant)
for Director General(Diese:

Copy forwarded to the General Manager (Mech.):-

1. Central Railway, Bombay V.T.
2. Northern Railway, New Delhi.
3. North Eastern Railway, Gorakhpur.
4. Northeast Frontier Rly., Maligaon, Gauhati-11.
5. Western Railway, Bombay.
6. South Central Railway, Secunderabad.

Copy to:

1. Secretary (M), Railway Board, New Delhi.
2. Secretary (W), Railway Board, New Delhi.

Encl: Nil.


(T.C. Pant)
for Director General(Die:

nr:19/8.

Government of India,
Ministry of Railways,
Research, Designs & Standards Organisation.

Alambagh,
Lucknow-5.

No. SD.YDM4.7

Dated 16th August, 1966.

The General Manager,
Northeast Frontier Railway,
PANDU.

Sub: Maximum permissible speed of
YDM4 class Diesel Locomotives.

Ref: This office letter No. SD.YDM4.7
dated 7-7-1966.

In continuation of this office letter quoted above, oscillation trials have since been completed at speeds upto 96 Kmph on the section between Kishangan and Aluabari Road on the Northeast Frontier Railway. It is noted that the YDM4 locomotive has stable riding characteristics upto a maximum speed of 96 Kmph. It is therefore, certified that YDM4 locomotive may be permitted to haul passenger trains at a maximum speed of 85 Kmph on main line track laid with 60 lb. rails and N+3 sleepers subject to speed limits on curves as fixed in accordance with the stipulations laid down in the Way & Works Manual and local restrictions as may be in force. The speed limit of 85 Kmph certified above is in excess of prevailing maximum speed for passenger trains and should be availed of by Railways after due consideration of related aspects, such as, maximum permissible speed of coaching stock, braking distances, siting of signals etc.

2. Attention is specially invited to the fact that the YDM4 locomotive is fitted with compressed air brake and not with vacuum brake, but the locomotive is provided with the vacuum exhaustor and ancillary equipment for controlling trains equipped with vacuum brakes. This aspect is brought to notice for due consideration by Railways whenever the need arises to attach the YDM4 locomotive at the rear end of trains.

3. Attention is also drawn to the note on 'Preparation of Electrical Equipment of Diesel & Electric Locomotives for high speed operation' circulated vide this office letter No. 3/ST/Genl. dated 10-11-65.

4. A copy of the Oscillation Report of tests conducted on YDM4 locomotive has already been forwarded to you under this office letter No. MRA/40 dated 16-8-66.

Encl: Nil.


(R. Krishnamurti)
for DIRECTOR GENERAL.