भारत सरकार Government Of India
रेल मंत्रालय Ministry Of Railway
(रेलवे बोर्ड) (Railway Board)

No. 92/CEDO/SR/4/0/Pt.I

New Delhi, dated ~~09~~ 12.7.2010

The General Managers,
All Indian Railways.

The General Manager,
Metro Railway, Kolkata.

The Director General,
RDSO, Lucknow.

The Managing Director,
Konkan Railway Corporation Limited,
Navi Mumbai.

Sub : Correction Slip to Para 6.1.(a) of Revised Policy Circular No. 6 on the subject of 'sanction of speed of nominated trains on specific routes'.

Ref : Railway Board's letter no. 92/CEDO/SR/4/O/Pt.I, dated 23.11.06.

Board (ME, MT, ML, MM & CRB) have approved the revision to Para No. 6.1.(a) of Railway Board's Policy Circular No. 6, earlier circulated vide Railway Board's letter under reference.

In supersession to the above, the revised Para, as mentioned below to be substituted in lieu of existing Para No. 6.1.(a) of the Policy Circular No.6 :

"Para 6.1.(a) for speed upto 110 kmph on BG :

(i) For permitting speeds above 105 kmph, the track on the route should be maintained to standards specified in RDSO Report no. C&M-I, Vol.I. RDSO speed certificate & CRS Sanction should exist for that type of rolling stock.

(ii) Zonal Railways may increase the length of trains upto 24 coaches plus one Inspection Carriage, without CRS sanction, provided various departments of the Zonal Railway certify (as required to be done for obtaining CRS sanction) to PCE/CE(Co-ord) that the necessary conditions for running such trains have been fulfilled and that the stopping stations have been provided with necessary facilities like the required length and width of platform, removal of infringements, lighting and watering arrangements etc. on the platform.

(iii) The sanction to the proposals for increasing the sectional speed to 110 kmph & increasing the length of trains upto 24 coaches plus one Inspection Carriage, as detailed in (i) & (ii) above shall be granted by PCE/CE (Co-ord)."

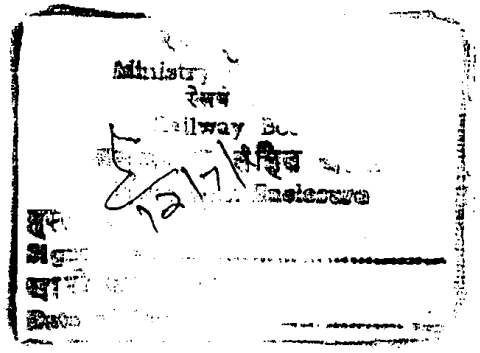
This is for your information & necessary action.

05/07/16

(आलोक कुमार)
कार्यकारी निदेशक/सी.ई./जी.
रेलवे बोर्ड

Copy to :

- Sr.PPS to CRB, ME, MT, ML, MM, FC and Secretary for kind information of CRB, ME, MT, ML, MM, FC, MS & Secretary.
- CCRS/Lucknow for kind information.
- Director/IRICEN/Pune for kind information.



GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No. 92/CEDO/SR/4/0/Pt.I

New Delhi, dated 23.11.2006.

The General Managers,
All Indian Railways.

The General Manager
Metro Railway,
Kolkata.

The Director General,
RDSO, Lucknow.

The Managing Director,
Konkan Railway Corporation Limited,
Navi Mumbai.

Subject:- Revision of Policy Circular No. 6 - Para 6 and Appendix I & 2.

Board (ME,MT,ML&MM) have approved the revision of Para No. 6 & Appendix I & 2 of Policy Circular No. 6, earlier circulated vide Railway Board letter No. 92/CEDO/SR/4/O/Pt.dated 23.12.1999 as Engineering Standing Order No. 13

In supersession of the existing para, the revised Para No. 6 and Appendix I & 2 of Policy Circular No. 6 to be substituted in the existing Engineering Standing Order No. 13 is enclosed.

This is for your information and necessary action.

DA: As above(4 pages)

23/11/2006

(T. GUPTA)
Executive Director Civil Engg(G)

Copy to:-

Sr. PPS to CRB, ME, MT, ML, MM, FC, MS, Secretary for kind information of CRB, ME, MT, ML, MM, FC, MS & Secretary.

CCRS/ Lucknow for kind information.

Director/IRICEN/Pune for kind information.

REVISED PARA NO. 6 OF POLICY CIRCULAR NO. 6 & APPENDIX I & 2

6. SANCTION OF SPEED OF NOMINATED TRAINS ON SPECIFIC ROUTES

Before permitting regular operation of trains at speed above 105 Km/h on the BG and above 75 Km/h on MG, the following procedure shall normally be followed, unless otherwise decided with the concurrence of the Chief Commissioner of Railway Safety:-

6.1.(a) For speed upto 110 Km/h on BG

(i) For permitting speeds above 105 Km/h, the track on the route should be maintained to standards specified in RDSO Report No. C&M-1, Volume-I. RDSO speed certificate & CRS sanction should exist for that type of rolling stock.

(ii) Zonal Railways may increase the length of trains upto 24 coaches plus one Inspection Carriage, without CRS sanction, provided various departments of the Zonal Railway certify (as required to be done for obtaining CRS sanction) to PCE/CE(Co-ordination) that the necessary conditions for running such train have been fulfilled and that the stopping stations have been provided with necessary facilities like the required length and width of platforms, removal of infringements, lighting and watering arrangements etc. on the platform. The sanction to the proposal shall be granted by PCE/CE(Co-ordination).

6.1(b) For speed above 110 Km/h and upto 120 Km/h on BG

(i) Zonal Railways shall conduct route proving runs at proposed speed of operation for running trains upto 24 coaches plus one Inspection Carriage using portable accelerometers mounted on rolling stock(locomotives and representative vehicles which are proposed to be cleared for speeds above 110 km/h and upto 120 Km/h) for recording vertical and transverse accelerations through out the route. If the results obtained satisfy the stipulated criteria, as given in Appendix-I, Railway shall approach the Commissioner of Railway Safety for permitting operation of the first such train on that route.

(ii) For subsequent additional trains or augmentation of load of an existing train subject to maximum train load and speed as per para (i) above and with similar type of rolling stock, route proving run is not required. In such cases, CRS sanction is also not required to be obtained provided, Zonal Railway certify to CRS that they would strictly follow all the conditions and stipulations laid down by him in the case of first nominated train as sanctioned in para (i) above.

6.1(c) For speed above 120 Km/h on BG and above 75 Km/h on MG

(i) Having established the speed potential of stock up to the maximum proposed speed by carrying out detailed oscillation trials on selected test stretches earlier, it would be necessary to conduct confirmatory oscillograph car runs with instrumented locomotives and/or representative vehicles which are proposed to be cleared for speeds higher than 120 km/h on BG and 75 km/h on MG, on the entire route at the proposed maximum speed. For these tests, necessary sanction shall be obtained in accordance with the procedure mentioned in para 3. These tests are required even in case of stock for which detailed oscillation trials have been dispensed with, with the concurrence of the Chief Commissioner for Railway Safety.

(ii) However, confirmatory oscillograph car run for introducing additional trains and/or for increasing the length of existing trains are not necessary on the sections where such type of rolling stock is already plying at same or higher speed on other nominated trains.Zonal Railways, while approaching the CRS for introduction of such trains, shall furnish detailed information on all the relevant safety aspects concerning various disciplines involved.

(iii) The speed certificate for a train when issued by RDSO shall specify maximum number of coaches (subject to maximum of 18 coaches), and types of rolling stock that are permitted in the train. Once the first speed certificate has been issued by RDSO and CRS sanction obtained by concerned Zonal Railways for running of train upto 18 coaches, they can increase/decrease number of coaches within the sanction without obtaining further sanction from CRS, keeping the types of rolling stock same as those specified in the RDSO's speed certificate. For increasing the length of existing trains upto 18 coaches, Zonal Railways shall approach RDSO for issuing speed certificate upto 18 coaches in case the same has not been issued earlier and advise CRS accordingly. For running new trains on the section, sanction shall have to be obtained by Zonal Railways from CRS for operation of each such train. For running of trains with more than 18 coaches, fresh RDSO speed certificate and CRS sanction shall be obtained. Confirmatory oscillograph car runs for introducing such trains are not necessary on the sections where such type of rolling stock is already plying at the same or higher speed on other nominated trains.

6.2. The adequacy of the brake power available on the locomotives in conjunction with the coaching stock to be used in the proposed train, vis-à-vis the signalling system available on the route, will have to be established by the Zonal Railway (for speeds above 110 km/h and up to 120 km/h on BG and up to 75 km/h on MG) and by RDSO(for speeds above 120 km/h on BG and above 75 km/h on MG).

6.3. The joint safety certificate required to be submitted to Commissioner of Railway Safety should be signed by the Principal Chief Engineer/Chief Engineer(Co-ordination), Chief Mechanical Engineer, Chief Operating Manager and Chief Signal & Telecommunication Engineer, and Chief Electrical Engineer also in electrified territories and in respect of electrical rolling stock .

GUIDELINES FOR ROUTE PROVING RUNS UP TO 120 KM/H ON BG BY ZONAL RAILWAYS

1. INTRODUCTION

Zonal Railways shall conduct route proving runs for speeds above 110 km/h and upto 120 km/h on BG , with the help of portable accelerometers(such as OMS-2000), in accordance with the provisions of para 6. Following guidelines are to be observed while conducting these runs:-

2. REQUIREMENT

2.1. **Track:** The track on the route should be maintained to standards specified in RDSO Report No. C & M – 1, Volume –1. Acceleration in two directions lateral & Vertical shall be recorded by portable accelerometers every 6 weeks. Average peaks above 0.3 g should be as per para 3.1 below and action taken to attend to track accordingly in case of any deficiencies.

2.2. **Rolling Stock:** The proposed Diesel/Electric loco, coach to be run should be cleared for operation at proposed or higher speed.

2.3. Portable accelerometer shall be placed as near as possible to the leading pivot in case of locomotive. Another accelerometer shall be placed as near as possible to the pivot of the trailing bogie of the rearmost coach.

In case of diesel locomotive, the short-hood should be kept in leading position.

2.4 The wheels of the loco and coaches used should have only normal wear.

2.5 Portable accelerometer should have arrangements for recording the acceleration in two directions i.e. vertical and lateral, in working order.

2.6. Instructions regarding operation and calibration of the equipments are available in the report titled, "Specification and manual for Calibration of OMS-2000" issued by RDSO under covering letter No. RT/UGTRC/OMS/General dated 31.5.1994.

2.7. Test train shall run at the maximum speed for which it is proposed to clear the route.

3. CRITERIA FOR CLEARING THE ROUTE

Vertical and lateral accelerometer records obtained by portable accelerometer shall be closely analysed. Acceleration peaks observed in the cab of loco at the proposed speed should be counted.

3.1. Following criteria shall be used for clearing the route for operation at the proposed speed. The average number of peaks of vertical and lateral accelerations exceeding 0.30g should be limited to 0.25 peaks/km. However, the number of peaks in any kilometer should not exceed 1 and where this value is exceeded, the track will need attention.
At locations where the peaks of lateral and vertical accelerations exceed 0.35g, the track will have to be attended to urgently.

4. ISSUE OF SPEED CERTIFICATE

The procedure specified above will be in lieu of conducting confirmatory oscillograph car runs by RDSO. After this is done by Railways, rest of the procedure, as already being done by Railways should be followed to obtain CRS's sanction.

SPECIAL TRIALS AND CONDITIONS OF OPERATION

1. HEAVY HAUL AND RUNNING OF GOODS AND PASSENGER TRAINS WITH SPECIAL CONFIGURATION ON SPECIFIED ROUTES

For ascertaining suitability of such operation of goods and passenger trains, which is not very common, studies and trials may be necessary. On a reference from a Zonal Railway, RDSO shall examine and issue suitable guidelines for operation, based on the experience and results of trials undertaken elsewhere in the past. However, when adequate data is not available and trial is considered necessary, speed certificate shall be issued for carrying out trials. CRS's sanction for such trials is not necessary. After trials, a copy of the report and necessary guidance for operation shall be sent to the Railway.

2. EMERGENCY BRAKING DISTANCE(EBD) TRIALS FOR NEW TYPE OF ROLLING STOCK

Such trials may be necessary for heavy haul, goods and passenger trains with new type of locomotives and other rolling stock. In every case of introduction of new rolling stock, a field trial shall always be carried out to arrive at the emergency braking distance. In case of existing stock, a computer simulation should normally be adequate for arriving at emergency braking distances. However, when the train speeds involved are above120 km/h, for passenger and above 80 km/h for goods trains, the results of computer simulation shall invariably be validated by actual field trials. In case, actual trials are necessary, speed certificate shall be issued and CRS's sanction for conducting EBD trials would be necessary. Such trials would not be required for each composition of rolling stock in train. Once adequate trials data is available, the same can be made use of for future references.

3. COUPLER FORCE TRIALS

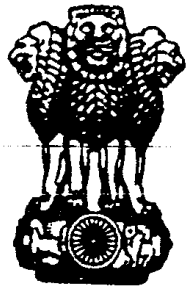
For heavy haul and long passenger trains, such trials may be necessary when there is a change in the mode of operation from the established pattern. CRS's sanction shall be taken for trials.

4. RATING, PERFORMANCE AND ADHESION TRIALS

These trials are done for new locomotives and other motive power to establish its characteristics. Speeds at which these trials are required to be conducted are separately established by detailed oscillation trials. CRS's sanction is not required for these trials.

5. SIGNAL INTERFERENCE TRIALS

These trials may be necessary while introducing new Electric Rolling Stock which are likely to affect the signalling. Before permitting such Electric Rolling Stock in operation, if necessary on account of introduction of new propulsion technology or on account of substantial increase in the power rating of the rolling stock, harmonic levels shall be thoroughly examined and established by conducting trials up to maximum permissible rating of Electric Rolling Stock. CRS sanction is not required for such trails.



GOVERNMENT OF INDIA (BHARAT SARKAR)
MINISTRY OF RAILWAYS (RAIL MANTRALAYA)
(RAILWAY BOARD)

PROCEDURE FOR CERTIFICATION OF MAXIMUM PERMISSIBLE SPEED FOR ROLLING STOCK

December, 1999

Executive Director
Civil Engg.(G).

Pages 1-20

GOVERNMENT OF INDIA(BHARAT SARKAR)
MINISTRY OF RAILWAYS(RAIL MANTRALAYA)
(RAILWAY BOARD)

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No.92/CEDO/SR/4/0 Pt. New Delhi, the 23-12-1999.

Addressed to :

As per list 'A' attached.

Master Correction Slip No. 17/13/1

Corrigendum/Addendum.

(ENGINEERING STANDING ORDER NO 13)

Sub: Compendium of instructions on Rules for Opening of Railway, permissible speeds, ODC movements, Schedule of Dimensions.

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The Ministry of Railways(Railway Board) have decided that the Annexure-I i.e. Procedure for Certification of Maximum Permissible Speed for Rolling Stock (Policy Circular No.6), as issued vide Railway Board's letter No.73/WDO/SR/9/0 dated 8.7.1980, should be withdrawn with immediate effect. Instead, a revised Policy Circular No.6 is enclosed herewith. This revised Policy Circular No.6 should henceforth be adopted for all future certification of maximum permissible speeds for rolling stock.

(V.K. Agnihotri)
Member Engineering
Railway Board.

Encl: Policy Circular
No.6(20 pages).

POLICY CIRCULAR No. 6

PROCEDURE FOR CERTIFICATION OF MAXIMUM PERMISSIBLE SPEED FOR ROLLING STOCK

1. AUTHORITY FOR SANCTIONING SPEED OF ROLLING STOCK

The Railway Board is the safety controlling authority for the Indian Railways and it is the final authority for regulating and sanctioning speeds of all rolling stocks under the Indian Railways Act. The responsibility for determining and certifying the maximum permissible speed for rolling stock has, however, been delegated by the Railway Board and clarifications on this subject issued from time to time. This directive is applicable to all rolling stock other than pre-IRS stock and supersedes all previous instructions on the subject.

2. SANCTIONING SPEED OF NEW DESIGNS OF ROLLING STOCK

2.1. DETERMINATION OF PROVISIONAL SPEED BY R.D.S.O

2.1.1. The provisional maximum permissible speed for new design of rolling stock will be determined on the basis of design features and data, and where appropriate also on a comparison of the performance of similar designs of stock already in service.

2.1.2. The provisional speed will normally be lower than the designed or projected service speed of the stock and shall not be more than the following:-

- 80 km/h for BG passenger stock,
- 65 km/h for BG goods stock;
- 60 km/h for MG passenger stock;
- 45 km/h for MG goods stock;
- 35 km/h for NG stock.

2.1.3 However, in respect of such stock whose suspension characteristics are similar to and whose axle loads and track loading densities are not exceeding those of the stock already proved in service, the following maximum limits may be followed, with the concurrence of the Chief Commissioner of Railway Safety.

- 105 km/h for BG passenger stock;
- 75 km/h for BG goods stock;
- 75 km/h for MG passenger stock;
- 50 km/h for MG goods stock;
- 40 km/h for NG stock.

2.1.4 The provisional speed shall be determined and certified by the Executive Director Standards (Motive Power) in consultation with the Executive Director Standards (Track), Executive Director (Bridges & Structures) and other concerned directorates.

2.1.5 The validity of provisional speed certificate will be five years, except when it is superseded by final maximum permissible speed certificate issued as per para 2.2.

2.2. DETERMINATION OF FINAL MAXIMUM PERMISSIBLE SPEED BY RDSO FOR NEW DESIGNS

2.2.1 The final maximum permissible speed of all new designs of rolling stock will be determined and certified by the Executive Director Standards (Motive Power) in consultation with the Executive Director Standards (Civil) (Track) and Executive Director (Bridges & Structures) and other concerned directorates.

2.2.2. The final maximum permissible speed of new designs of rolling stock will be determined after due consideration of the services to be performed, on a comparison with similar stock already in service and on the basis of detailed oscillation trials for assessing the riding quality and/or stability. However, for such stock whose suspension and other relevant characteristics such as axle loads, track loading density, etc., are not basically different from those of the existing ones, the detailed oscillation trials may be dispensed with, with the concurrence of the Chief Commissioner of Railway Safety. In case of difference of opinion, the matter will be referred to the Railway Board for final orders.

2.2.3. The detailed oscillation trials will be conducted by the Executive Director research (Testing) in consultation with Executive Director Standards (Motive Power), Executive Director standards (Track) (Civil) and Executive Director (Bridges & Structures) and the Head of the Mechanical Design Directorate concerned who will evaluate the data. The final evaluation of detailed oscillation trials data will be made by the Executive Director Standards (Motive Power), in consultation with Executive Director Standards (Civil) (Track) and Executive Director (Bridges & Structures), who will order re-trials if necessary and suggest modifications. In the evaluation of the detailed oscillation trials data for riding stability he will be guided generally by the extant recommendations of the Standing Criteria Committee.

2.2.4. The Commissioner of Railway Safety shall be kept advised of the programme for detailed oscillation trials, so that he may witness the tests if he so desires.

2.2.5. If, for operation at the final maximum permissible speed, any improved standard of maintenance to rolling stock, track, bridges, signalling, OHE, etc. is called for, the same shall be mentioned in the speed certificate issued by the Executive Director Standards (Motive Power).

2.2.6 Stipulations in the speed certificate shall be about standard design/structure of track and bridges. If the conditions obtaining on a section are different, the maximum speed which can be permitted over such stretches shall be proposed by the Railway in consultation with RDSO if so considered necessary. The Railways will furnish to the Commissioner of Railway Safety details of calculations for the purpose if and when such details are called for by the Commission.

2.2.7 CRS sanction for trials shall be valid for one year, after which it will have to be got re-validated by the Railway.

2.3. MULTIPLE OPERATION OF MOTIVE POWER UNITS

The speed certificates, both provisional and final, issued by Executive Director Standards (Motive Power) for new designs of motive power units shall invariably indicate whether such units may be used in multiple operation and, if so, the maximum number of units that may be coupled together as well as the special conditions, if any, to be satisfied in regard to track and bridges before permitting such operation.

2.4. APPLICATION FOR SANCTION BY ZONAL RAILWAYS

2.4.1. The provisional/final maximum permissible speed certified by the Research Designs & Standards Organisation is merely a recommendation in regard to the maximum speed at which rolling stock can be permitted to be run on specified track structure under average/stipulated maintenance conditions and bridges built to certain specified standards of construction and satisfactory maintenance and is intended to assist the Railway Administration in deciding on the speed at which the rolling stock may be permitted to run on their system for the maintenance conditions actually obtaining. The Railway shall, on the basis of the provisional/final maximum permissible speed certificate issued by the Research Designs & Standards Organisation apply for sanction to the Railway Board through the Commissioner of Railway Safety, for the running of the stock in terms of the "Rules for opening of Railway or Section of a Railway for Public Carriage of Passengers."

A copy of the detailed oscillation trials report shall be sent to Commissioner of Railway Safety alongwith the application. Proforma for the track, bridge and joint safety certificate are indicated in Annexures A, B, and C respectively. The joint safety certificate to be issued for all rolling stock by the Chief Engineer, Chief Mechanical Engineer, Chief Operations Manager, and Chief Signal & Telecommunication Engineer (Chief Electrical Engineer also in electrified territories) is a positive act of certification in regard to the actual state of maintenance of track, bridges, rolling stock and OHE being adequate for the speed indicated, and is a statutory obligation. In the case of electrical rolling stock and also for other stock in electrified territories, the safety certificate referred to above shall also be signed by the Chief Electrical Engineer. If the speed of the electrical rolling stock to be run/introduced is more than the existing maximum speed of any electrical rolling stock on the section, a certificate as at Annexure-D shall also be furnished by the Chief Electrical Engineer. The officers signing the certificate are required to decide, on the basis of their personal knowledge and experience of the maintenance conditions of the track and bridges, locomotives or other rolling stock, with due regard to relevant information available and the maintenance requirements of the new type of rolling stock, as to whether the operation of the particular type of locomotive or rolling stock on the relevant section of the Railway is safe and practicable with the facilities available on the Railway system.

2.4.2. In the above mentioned safety certificate, it shall clearly be indicated that the speed certified does not exceed the limits laid down by the Research Design & Standards Organisation. In addition, the maximum number of motive power units proposed to be coupled together for multiple operation shall be specifically mentioned with due regard to the strength of track structures and bridges, particularly from consideration of longitudinal loading forces on bridges.

2.5. RECOMMENDATION BY THE COMMISSIONER OF RAILWAY SAFETY

Under Section 6 of the Indian Railways Act'1989, the Commissioner of Railway Safety shall scrutinise all relevant documents received from the Zonal Railway Administration with particular reference to ensuring safety and, if he so desires, he shall inspect and try out the rolling stock. The Commissioner of Railway Safety shall then make a proper recommendation to the Railway Board through the Chief Commissioner of Railway Safety for according sanction to new types of rolling stock. A proforma for this purpose is shown in Annexure 'E'.

2.6 MOVEMENT OF NEWLY DESIGNED ROLLING STOCK

2.6.1 The maximum permissible speed for the limited purpose of moving newly designed rolling stock from the manufacturer's works/docks to destination or to the testing point or from the destination/testing point back to manufacturer's works shall be determined and certified by Executive Director (Motive Power) in consultation with Executive Director Standards (Civil) (Track) and Executive Director (Bridges & Structures) and other concerned directorates. The speed for this purpose shall not be higher than the provisional speed mentioned in para 2.1.2. The maximum permissible speed prescribed by the Research Designs & Standards Organisation will be subject to approval by the Chief Engineer and Chief Mechanical Engineer and Chief Electrical Engineer in case of electrical and other rolling stock on electrified sections of the Zonal Railways concerned, who will ensure that the track and bridges and OHE in the sections concerned are suitable for the new stock at the speed permitted. In such cases no formal approval of the Commissioner of Railway Safety is essential. However, in case it becomes necessary to move the vehicle attached to a passenger carrying train, the sanction of the Commissioner of Railway Safety shall be taken.

2.6.2 If, however, a new rolling stock infringes the schedule of maximum moving dimensions or axle loads are more than that permitted on the section, the condonation of the Railway Board for infringements and of Commissioner of Railway Safety for higher axle loads shall be obtained.

2.6.3 Single movement of any other rolling stock, not covered by Para 2.6.1, may be permitted by the Commissioner of Railway Safety under approved special instructions on obtaining safety certificates from the Railway.

3. SANCTIONING SPEED FOR TESTS ON NEW ROLLING STOCK

3.1 For carrying out tests on new rolling stock where speeds in excess of the provisional/final maximum permissible speed will be attained, the Executive Director Standards (Motive Power) will determine and certify in consultation with Executive Director Standards (Civil) (Track) and Executive Director (Bridges & Structures) the increments of test speeds from the provisional/final maximum permissible speed and also the maximum test speed, on the basis of the design features and data and other information furnished by the Head of the Mechanical Design Directorate concerned, alongwith the particulars of track and bridges. The Zonal Railway Administration shall obtain the permission of the

Commissioner of Railway Safety for conducting the tests on their system on a test section to be indicated by Executive Director Standards (Motive Power), after submitting a joint safety certificate duly signed by the Chief Engineer, Chief Mechanical Engineer, Chief Operating Manager and Chief Signal & Telecommunication Engineer (and also by the Chief Electrical Engineer in case of electrical and other rolling stock on electrified sections.) The test stretches in the test section shall be advised by Executive Director Standards (Track Machines & Monitoring).

3.2 Details of tests such as condition of test vehicle and criteria of test track including track tolerances, vehicle parameters to be measured and their limiting values, required test speed, etc. will be laid down by RDSO's Standing Criteria Committee.

4. REDUCING THE SPEED OF EXISTING ROLLING STOCK AND RESTORING THE SAME

4.1 In the event of adverse reports on riding characteristics of stock already certified or on its adverse effects on track or bridges, the Zonal Railway Administration shall immediately impose a speed restriction under advice to RDSO and Commissioner of Railway Safety. The Executive Director Standards (Motive Power) in consultation with Executive Director Standards (Civil) (Track), Executive Director (Bridges & Structures) and the concerned Executive Directors will further reduce the speed, if considered necessary for safe operation, pending further investigations. The lifting of the speed restriction and determining of the final maximum permissible speed will be made by the Executive Director Standards (Motive Power) on the basis of investigations which may include detailed oscillation trials on the stock as existing and as modified to improve its riding stability characteristics. Executive Director Standards (Motive Power) shall then certify the final maximum permissible speed in consultation with the Executive Director Standards (Track), Executive Director (Bridges & Structures) and the other concerned directorates.

4.2 Whenever the Commissioner of Railway Safety considers that the maximum permissible speed of a stock already certified requires restriction on any section or sections of the railway, he should immediately instruct the Railway Administration to impose the speed restriction and report the matter in detail to the Chief Commissioner of Railway Safety. The Railway shall promptly act on the Commissioner of Railway Safety's instructions, pending review.

4.3 The Zonal Railway Administration shall seek the approval of the Commissioner of Railway safety in accordance with the procedure mentioned in paras 2.4.1 and 2.4.2 for restoring the prescribed maximum permissible speed after giving effect to such modifications as may be specified. The imposition of speed restriction and its restoration shall in all cases be intimated to the Railway Board.

4.4 The Commissioner of Railway Safety shall scrutinise all relevant documents received from the Zonal Railway Administration, and if he desires, he shall inspect and try out the rolling stock before conveying his approval for restoration of the prescribed maximum permissible speed with necessary modifications as may have been specified.

5. INCREASING THE SPEED OF EXISTING ROLLING STOCK BY MAKING IMPROVEMENTS

5.1 Where trial fittings are introduced on existing stock or on stock obtained on a repeat order, with the prime objective of improving the riding characteristics, both at existing speeds and/or higher speeds, the maximum permissible provisional speed of the stock concerned shall be decided by the Executive Director Standards (Motive Power) in consultation with Executive Director Standards (Track), Executive Director (Bridges & Structures) and other directorates concerned. The Executive Director Standards (Motive Power) will determine and certify in consultation with Executive Director Standards (Track), and Executive Director (Bridges & Structures) and the Head of the Electrical and other concerned directorates in respect of electrical rolling stock, the final maximum permissible speed on the basis of investigations which may include detailed oscillation trials. For these trials, necessary sanction shall be obtained by the railways from the Commissioner of Railway Safety in accordance with the procedure mentioned in para 3.

5.2 The procedure to be followed for obtaining the sanction of the Railway Board by the Zonal Railways through the Commissioner of Railway Safety shall be in accordance with paras 2.4.1, 2.4.2 and 2.5.

6 .INCREASE SANCTION OF SPEED OF NOMINATED TRAINS ON SPECIFIC ROUTES

Before permitting regular operation of trains at speed above 105 Km/h on the BG and above 75 Km/h on the M.G., the following procedure shall normally be followed, unless otherwise decided with the concurrence of the Chief Commissioner of Railway Safety:-

6.1(a) FOR SPEED ABOVE 105 KM/H AND UPTO 110 KM/H ON BG

For permitting speeds above 105 Km/h and upto 110 Km/h on B.G. with a particular type of rolling stock, the Zonal Railway shall conduct route proving runs using portable accelerometers mounted on the rolling stock (locomotives and vehicles which are proposed to be cleared for speeds from 105 to 110 Km/h) for recording vertical and transverse accelerations throughout the route. If the results obtained satisfy the stipulated criteria as given in Appendix-1, Railway shall approach the Commissioner of Railway Safety for permitting operations upto 110 Km/h on B.G.

However, route proving run by the use of portable accelerometers, as stated above, for speeds above 105 km/h and upto 110 km/h on B.G. is not necessary on the sections where such type of rolling stock is already plying with the same speed on other nominated trains.

Train-wise sanction for operation upto 110 Km/h is not required to be obtained from CRS if the Railways certify to CRS that they would strictly follow all the conditions and stipulations laid down by him in the case of first nominated train at 110 Km/h on that route including the load of the train.

(b) FOR SPEED ABOVE 110 KM/H ON B.G. AND ABOVE 75 KM/H ON M.G.

Having established the speed potential of stock upto the maximum proposed speed by carrying out detailed oscillation trials on selected test stretches earlier, it would be necessary to conduct confirmatory oscillograph car runs with instrumented locomotive and/or vehicles which are proposed to be cleared for speeds higher than 110 Km/h on B.G. and 75 Km/h on M.G., on the entire route at the maximum proposed speed. For these tests, necessary sanction shall be obtained in accordance with the procedure mentioned in para 3. These tests are required even in case of stock for whom detailed oscillation trials have been dispensed with, with the concurrence of the Chief Commissioner for Railway Safety.

6.2 However, route proving runs/confirmatory oscillograph car runs before permitting a speed above 105 Km/h on B.G. are not necessary on the sections where such type of rolling stock is already plying at the same or higher speed on other nominated trains of the same composition. Zonal Railways while approaching the CRS for introduction of such trains shall furnish detailed information on all the relevant safety aspects concerning various disciplines involved.

6.3 The adequacy of the brake power available on the locomotive in conjunction with the coaching stock to be used in the proposed train, vis-a-vis the signalling system available on the route, will have to be established by the Zonal Railway (for speeds above 105 Km/h and upto 110 km/h on B.G. and upto 75km/h on M.G.) and by RDSO (for speeds above 110 km/h on BG and above 75 km/h on M.G.)

6.4 The joint safety certificate required to be submitted to Commissioner of Railway Safety for this purpose should be signed by the Chief Engineer, Chief Mechanical Engineer, Chief Operating Manager and Chief Signal & Telecommunication Engineer, and Chief Electrical Engineer also in electrified territories and in respect of electrical rolling stock.

7 IMPOSITION OF TEMPORARY AND PERMANENT SPEED RESTRICTIONS BY THE ZONAL RAILWAY ADMINISTRATION

The above instructions do not apply to temporary and permanent speed restrictions which the Zonal Railway Administration may consider necessary to impose on either rolling stock, or on certain stretches of track, or on bridges, on account of sub-standard conditions or for any other reason.

8 SANCTION FOR THE USE OF ROLLING STOCK ALREADY RUNNING ON ANY SECTION(S) OF A RAILWAY

In the case of rolling stock already running on any section(s) of a Railway, the sanction can be accorded by the Commissioner of Railway Safety on the submission of safety certificates as per Annexure A, B and C. A proforma for sanction is given in Annexure F.

9 SPECIAL TRIALS AND CONDITIONS OF OPERATION

Sometimes trains have to be run under special conditions which are not encountered in normal operation. Many a time trials may be required to establish the feasibility of such operation. Such operation and trials would be governed by the stipulations given in Appendix 2.

10. MAXIMUM SPEED FOR TRIALS

The maximum speed for different type of trials shall be as under:

Detailed oscillation trials : 10% excess of the final maximum permissible speed, except on curves where it will be governed by the provisions of Permanent Way Manual.

Route proving Runs : Same as the maximum permissible speed for the train.

Emergency Braking Distance, Rating and performance, Coupler force and Signal Interference trials : same as the maximum permissible speed for the train.

The speeds mentioned above will have a tolerance of +5 km/h and –2 km/h.

11. NEW ROLLING STOCK

A new rolling stock in the context of this Circular would mean a stock having different principal dimensions, a different bogie design, new designs of braking system, and/or suspension details like axle load, track loading density, unsprung mass being different. Minor change of equipment design and change of internal/equipment layout on the rolling stock would not constitute a new rolling stock unless such changes are likely to significantly affect weight distribution, centre of gravity and riding behaviour of the rolling stock. Decision in this regard shall be taken by the Head of the concerned Mechanical directorate in consultation with Executive Director Standards (Track), Executive Director (Bridges & Structures) and Executive Director Standards (Motive Power). In taking such a decision, the Head of the concerned Mechanical Directorate will be guided by the criteria laid down for this purpose by RDSO's Standing Criteria Committee. In case of any difference of opinion, the matter shall be referred to Chief Commissioner of Railway Safety / Railway Board for final orders.

The Railways and the Production Units shall not make major changes in the equipment design and layout on the existing design of rolling stock, already cleared for operation. Such changes, if any, should be made with prior approval of RDSO.

12. APPLICATION TO THE COMMISSIONER OF RAILWAY SAFETY

Application to the Commissioner of Railway Safety for sanction/recommendation shall be sent, as far as possible, at least one month in advance by the Railway Administration.

Encl: Appendices 1 to 2 and annexures A to F

GUIDELINES FOR ROUTE PROVING RUNS UPTO 110 KM/H ON BG BY ZONAL RAILWAYS

1. INTRODUCTION

Zonal Railways shall conduct route proving runs for speeds beyond 105 Km/h. upto 110 Km/h on BG, with the help of portable accelerometers (such as OMS-2000), in accordance with the provisions of para 6. Following guidelines are to be observed while conducting the runs:-

2. REQUIREMENT

2.1 Track: The track on the route should be maintained to standards specified in RDSO Report No.C & M - I, Volume-I. Acceleration in two directions lateral & Vertical shall be recorded by portable accelerometers every 6 weeks. Average peaks above 0.3 g should be as per para 3.1 below and action ~~taken to attend to track accordingly~~ in case of any deficiencies.

2.2 Rolling Stock: The proposed Diesel/Electric loco, coach to be run should be cleared for operation at proposed or higher speed.

2.3 Portable accelerometer shall be placed as near as possible to the leading pivot in case of locomotive. Another accelerometer shall be placed as near as possible to the pivot of the trailing bogie of the rearmost coach.

In case of diesel locomotive, the short-hood should be kept in leading position.

2.4 The wheels of the loco and coaches used should have only normal wear.

2.5 Portable accelerometer should have arrangements for recording the acceleration in two directions i.e. vertical and lateral, in working order.

2.6 Instructions regarding operation and calibration of the equipments are available in the report titled, "Specification and manual for Calibration of OMS-2000" issued by RDSO under covering letter No.RT/UGTRC/OMS/General dated: 31.5.1994.

2.7 Test train shall run at the maximum speed for which it is proposed to clear the route.

3. CRITERIA FOR CLEARING THE ROUTE

Vertical and lateral accelerometer records obtained by portable accelerometer shall be closely analysed. Acceleration peaks observed in the cab of loco at the proposed speed should be counted.

3.1 Following criteria shall be used for clearing the route for operation at the proposed speed.

The average number of peaks of vertical and lateral accelerations exceeding 0.30g should be limited to 0.25 peaks/Km. However, the number of peaks in any kilometer should not exceed 1 and where this value is exceeded, the track will need attention.

At locations where the peaks of lateral and vertical accelerations exceed 0.35g, the track will have to be attended to urgently.

4.0 ISSUE OF SPEED CERTIFICATE

The procedure specified above will be in lieu of conducting confirmatory oscillograph car runs by RDSO. After this is done by Railways, rest of the procedure, as already being done by Railways should be followed to obtain CRS`s sanction.

SPECIAL TRIALS AND CONDITIONS OF OPERATION

1. HEAVY HAUL AND RUNNING OF GOODS AND PASSENGER TRAINS WITH SPECIAL CONFIGURATION ON SPECIFIED ROUTES

For ascertaining suitability of such operation of goods and passenger trains which is not very common, studies and trials may be necessary. On a reference from a Zonal Railway, RDSO shall examine and issue suitable guidelines for operation, based on the experience and results of trials undertaken elsewhere in the past. However when adequate data is not available and trial is considered necessary, speed certificate shall be issued for carrying out trials and Zonal Railway shall arrange for CRS's sanction for such trials. After trials, a copy of the report and necessary guidance for operation shall be sent to the Railway.

2. EMERGENCY BRAKING DISTANCE TRIALS

Such trials may be necessary for heavy haul, goods and passenger trains with new type of locomotives, increase in goods train and passenger train speeds. In every case of introduction of new rolling stock, a field trial shall always be carried out to arrive at the emergency braking distance. In case of existing stock, a computer simulation should normally be adequate for arriving at emergency braking distances. However, when the train speeds involved are 110 kmph. or above for passenger and 75 kmph. for goods trains, the results of computer simulation shall invariably be validated by actual field trials. In case actual trials are necessary, speed certificate shall be issued and CRS's sanction for conducting trials would be necessary. Such trials would not be required for each composition of rolling stock in train. Once adequate trials data is available, the same can be made use of for future references.

3. COUPLER FORCE TRIALS

For heavy haul and long passenger trains, such trials may be necessary when there is a change in the mode of operation from the established pattern. CRS's sanction shall be taken for trials.

4. RATING, PERFORMANCE AND ADHESION TRIALS

These trials are done for new locomotives and other motive power to establish its characteristics. Speeds at which these trials are required to be conducted are separately established by detailed oscillation trials. CRS's sanction is not required for these trials.

5. SIGNAL INTERFERENCE TRIALS

These trials may be necessary while introducing new Electric Rolling Stock which are likely to affect the signalling. Before permitting such Electric Rolling Stock in operation, if necessary on account of introduction of new propulsion technology or on account of substantial increase in the power rating of the rolling stock, harmonic levels shall be thoroughly examined and established by conducting trials upto maximum permissible rating of Electric Rolling Stock. CRS sanction shall be taken for such trials.

Annexure 'A'

TRACK CERTIFICATE

I do hereby certify that the track on the section (station) ..... to..... (station) from ..... (km) to ..... (km), the * weakest portion of which consists of ..... kgs rails ..... metre long each with a maximum wear of ..... % on ..... sleepers of density ..... and minimum depth of ..... ballast cushion below sleepers out of which ..... minimum of clean ballast exists under sleepers, on consolidated and stable formation is to the required strength which can safely take ..... rolling stock (brief description) ** upto ..... tonnes axle load at a maximum speed of ..... km/h, subject to the local speed restrictions noted below:

Sl.No.	From /To	Km.....to Km.....	Nature of restriction	Brief reason for restriction

Deputy Chief Engineer/Track

COUNTERSIGNED BY

_____

Chief Engineer/Chief Track Engineer

Note: * The weakest portion on which no speed restriction has been imposed only needs to be given.

** The maximum no. of locomotives proposed to be coupled together for multiple operation shall be specifically mentioned.

Annexure 'B'

BRIDGE CERTIFICATE

Certified that the bridges on the section (station) ..... to ..... (station) from ..... km to ..... km, the minimum strength of superstructure being ..... % of RBG /MGML Standard as per Bridge Rules 1941 corrected upto and inclusive of ..... correction slip No. ..... dated ..... are safe to carry ..... (rolling stock) not exceeding ..... units (in the case of locomotives) coupled together, at a maximum speed
of ..... km/h subject to the following restrictions :-

Sl.No.	Br. No.	Location (Km.)	Spans and description	Nature of Restriction	Brief reason

2. Substructures of all the bridges are in satisfactory condition and safe to carry the above rolling stock at the speed proposed, conforming to the provisions of the IRS Substructure Code (.....) corrected upto Correction Slip No. ..... except those that are weak and distressed which will be kept under observation with adequate speed restrictions on the same as follows :-

Sl.No.	Br. No.	Location (Km.)	Spans and description	Nature of Restriction	Brief reason

Dy.Chief Engineer (Bridge Design)

COUNTEREDSIGNED

Chief Engineer/Chief Bridge Engineer.

JOINT SAFETY CERTIFICATE

Certified that it is safe to run _____ (particulars of locomotives and rolling stock proposed to run) not exceeding _____ units (in the case of locomotives) coupled together on the section (station) _____ to _____ (station) from _____ km to _____ km of the _____ Railway at a maximum speed of _____ (km/h) against at a maximum speed of _____ (km/h) certified by RDSO subject to the following speed restrictions and conditions :-

(a) Speed Restrictions

Sl.No.	From Km. To Km.	Nature of speed restriction	Brief reason for restriction

(b) Special Conditions

CME CE

CEE CSTE COM

Note: CEE should sign :

i) wherever electric traction and/or movements on electrified sections is/are involved.

ii) wherever electric rolling stock (Electric Locos, EMUs/MEMUs and Tower Wagons etc.) are involved.

Annexure 'D'

OHE CERTIFICATE

Certified that the Overhead Equipment on the section (station)-------- --------to ----------(station) from----------km to----------km is provided with swivelling type of cantilever assembly, having the tension of---------- kgf/---------kgf in contact wire/catenary wire regulated automatically / unregulagted with a presag of ------- mm for a span of 72m and proportionately less for smaller spans. Gap between registration arm and contact plane is ----------mm.

This OHE is safe to run---------- (rolling stock) with ---------- maximum number of ----------current collecting pantographs on head of the train, at a maximum speed of ---------- km/h subject to following restrictions * :

Sl.No.	Station		Kms.		Nature of Restriction	Brief Reason
	From	To	From	To		

CEDE

Note: 1. * Restrictions of permanent nature only to be given.

2. Number of current collecting pantographs on the head of the train to be restricted to ONE for high speed (more than 105 Km/h) trains.

Annexure 'E'

From :-

The Commissioner of Railway Safety,
_____,
_____,

To

The Secretary (Works),
Railway Board,
Rail Bhavan,
New Delhi.

THROUGH THE CHIEF COMMISSIONER OF RAILWAY SAFETY

Sub: _____

Ref: Application No. _____ dated _____ from _____ Railway with the enclosures.

With reference to the application from _____ Railway cited above, I recommend that _____ (description of rolling stock) to Sketch No. _____ with maximum axle load of _____ tonnes and load density of _____ tonnes per metre run not exceeding _____ units (in the case of locomotives only) coupled together on _____ sections of the said Railway may be sanctioned to run at a maximum speed of _____ km/h subject to the conditions laid down in the joint safety certificate no. ____ dated _____ and local restrictions imposed from time to time and further subject to the following stipulations :-

STIPULATIONS

Sl.No.	Stipulation	Reasons

COMMISSIONER OF RAILWAY SAFETY