



भारत सरकार - रेल मंत्रालय  
अनुसंधान अभिकल्प और मानक संगठन  
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Government of India-Ministry of Railways  
Research Designs & Standards Organisation  
Lucknow - 226 011  
DID (0522) 2450115  
DND (0522) 2465310



No. TM/HM/11

Date: 16.03.2018

महा प्रबन्धक (इंजीनियरिंग),

1. मध्य रेलवे, छत्रपति शिवाजी टर्मिनस, मुम्बई- 400 001
2. पूर्व रेलवे, फेयरली प्लेस, कोलकाता- 700 001
3. उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली- 1100 01
4. पूर्वोत्तर रेलवे, गोरखपुर- 237 012
5. पूर्वोत्तर फ्रन्टियर रेलवे, मालीगौव गुवाहाटी- 781 011
6. दक्षिण रेलवे, एनेक्सी, पार्क टाऊन, चेन्नई- 600 003
7. दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद- 500 071
8. दक्षिण पूर्व रेलवे, गार्डनरीच, कोलकाता- 700 043
9. पश्चिम रेलवे, चर्चगेट, मुम्बई- 400020
10. उत्तर मध्य रेलवे, इलाहाबाद- 211 001
11. उत्तर पश्चिम रेलवे, जयपुर- 302 006
12. पूर्व मध्य रेलवे, हाजीपुर- 844 101
13. पूर्व तटीय रेलवे, बी.डी.ए. रेन्टल कालोनी, चन्द्रशेखरपुर, भुवनेश्वर- 751 023
14. दक्षिण पश्चिम रेलवे, हुबली- 580 023
15. पश्चिम मध्य रेलवे, जबलपुर- 482 001
16. दक्षिण पूर्व मध्य रेलवे, आर. ई. आफिस काम्प्लेक्स, बिलासपुर-495 004

Sub: Final maximum permissible speed certificate for Ballast Regulating Machine Model RPB-01, Transportation Code CBRM/RPB-01MX manufactured by M/s Metex, JSC Moscow.

Ref: i) This office speed certificate letter No. TM/HM/11/24/BRM dt. 29.09.2015.  
ii) CCRS letter No. Q.17016/01/2017-18-TW dated 05.05.2017.

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- 1.0 Ballast Regulating Machine Model RPB-01 manufactured by M/s JSC, Metex to their, Drg. No. 132.00.00.000D is a self propelled machine and used for the profiling and distributing of ballast. Transportation Code 'CBRM/RPB-01MX' of the machine has been allotted vide Railway Board letter No. 87/M(C)/ 202/10 Vol.III pt. dated 22.06.2016.
- 1.1 The Track machine to M/s Metex, JSC Moscow, Drg. No. 132.00.00.000D is of two bogies having wheel diameter 957mm and maximum axle load of 20.32t. The suspension detail of machine is given in Drg. No. 132.04.06.000SB. The design speed of the machine is 75 kmph when running on its own power and 90 kmph when running in train formation.



- 1.2 Ballast Regulating Machine Model RPB-01 manufactured by M/s Metex, JSC was permitted to run provisionally at maximum speed of 50 kmph when running on its own power as well as when running in train formation as a dead vehicle as per RDSO's Provisional Speed Certificate No. TM/HM/11/24/BRM dated 29.09.2015.
- 1.3 As per provision of policy circular no.6 governing procedure for issue of speed certificate, CCRS was requested vide letter No. TM/HM/11/7 dated 29.03.2017 to accord approval for dispensation with detailed oscillation trials for issue of final maximum permissible speed certificate. The dispensation has been granted vide CCRS letter No. Q.17016/01/2017-18-TW dated 05.05.2017.
- 2.0 Based on the above, it is certified that operation of the Ballast Regulating Machine Model RPB-01 Transportation Code CBRM/RPB-01MX supplied by M/s Metex, JSC Moscow to their Drg. No. 132.00.00.000D may be permitted to run at a maximum speed of 50 km/h when running on its own power as well as when running in train formation as a dead vehicle with goods train/passenger train subject to the following conditions.
- 2.1 TRACK:**
- 2.1.1 The track shall be to a minimum standard of 52kg rails on sleepers laid to M+7 density and depth of ballast cushion below sleepers of 250mm, which shall consist of at least 100mm clean and the rest in caked up condition, on compacted and stable formation.
- 2.1.2 For track maintained to lower standard than that mentioned above, Chief Engineer concerned shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, Railway Board's letter No. 65/WDO/SR/26, dt.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 shall suitably restrict the maximum permissible speed depending on the local conditions.
- 2.1.3 The maximum permissible speed on curves to be decided on the basis of the existing provision of the Indian Railways Permanent Way Manual-reprinted in 2004.
- 2.1.4 The welds shall be protected by joggled fish plates as per provisions of para 6.4 and para 8.14 of USFD Manual and para 6.3 of AT welding manual and other policy instructions of Railway Board. The maintenance of Rails & Rail Joints shall be ensured as per para 250 & 251 of IRPWM. In addition, wherever condition warrants on account of corrosion on rail/weld collar, wear on rail, cupping of welds etc., necessary precautions shall be taken for fish plating/ joggled fish plating.
- 2.1.5 Zonal Railway shall ensure further detailed examination of track as deemed fit based on age cum condition basis, overdue renewal and condition of formation etc., as per provisions of Chapter-III of IRPWM-2004 regarding permanent way renewals.
- 2.2 BRIDGES:**
- 2.2.1 The clearance refers to Bridges with "Standard Spans" standard design of girders, slabs, pipe culverts, piers and abutments etc. issued by RDSO for BGML, RBG, MBG-1987 and 25t : 2008 standard loadings. However, the bearings of span 76.2m (clear) designed for BGML standard loading as per RDSO's drawing No. BA-11154 shall be strengthened by providing two additional anchor bolts.



2.2.2 Superstructures and bearings of "Special Spans" (designed and constructed by Zonal Railways based on site requirements) including all arches and sub-structure of all bridges (all Standard Spans & Special Spans) are to be examined under the directions of the Chief Bridge Engineer concerned and certified safe with respect to current Indian Railway Standard Codes with up to-date correction slips.

2.2.3 The above clause have been arrived considering bridges are in physically sound condition. In case the bridges are not in satisfactory physical condition, necessary speed restriction shall be imposed by concern Chief Bridge Engineer of Zonal Railway.

2.2.4 The clearance is subject to the following parameters of Ballast Regulating Machine manufactured by M/s Metex, JSC Moscow -

i)	Maximum axle load	: 20.32t
ii)	Maximum tractive effort	: 8.7t
iii)	Maximum braking force at rail level	: 2.870t/axle
iv)	Maximum C.G height from rail level	: less than 1830mm

2.2.5 In train formation specific restrictions are applicable as mentioned in relevant speed certificates of hauling locomotives/attached wagons issued by RDSO.

### **2.3 SIGNALLING:**

2.3.1 Provisions of GR, SR, SEM and all extant instructions issued from time to time shall be complied with.

2.3.2 The speed of vehicle while running through the station shall be decided by the Zonal Railways depending upon type of Track relay used, type of route release circuit adopted, length of FVT track circuit provided ahead of last stop signal and standard of interlocking existing at the station.

2.3.3 The condonation regarding infringements in schedule of dimensions, if any, shall be obtained in accordance with local conditions, before movement.

2.3.4 The condemning (worn out) wheel dia. shall not be below 700mm for proper operation of axle counter.

### **2.4 ROLLING STOCK:**

2.4.1 Before starting operation of the machine, Engineering Department of the Railway shall arrange to certify the safety and proper maintenance of the rolling stock and ensure the track worthiness.

2.4.2 Brakes of the Ballast Regulating Machine Model RPB- 01 shall be in perfect working condition during the operation.

### **2.5 TRACTION INSTALLATION:**

2.5.1 In 25 kv AC traction area, the CEE of the Railway shall have to ensure that the minimum height of Contact Wire and electrical clearances as stipulated in provision of Chapter-V and V-A, Electrical Traction 'Schedule of Dimensions of 1676mm Gauge



(BG) revised 2004' with latest Addendum & Corrigendum Slips is not violated and strictly followed to ensure its safe running.

2.5.2 In addition to above, the Chief Electrical Engineer of the concerned Railway may impose any temporary speed restriction on the basis of personal knowledge, experience of the sectional OHE and the field conditions prevailing on the particular section.

2.5.3 Any parts which are meant for operation/movement during operation/ maintenance provided on the vehicle shall be in closed and locked down condition during movement and while standing under 25 KV AC OHE such that no parts of the vehicle extend beyond the MMD envelop & also to ensure minimum electrical clearance as per SOD.

## 2.6 GENERAL:

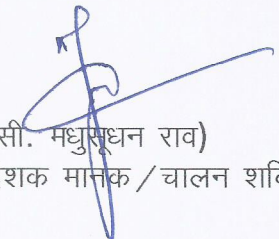
2.6.1 Maximum speed on point and crossings shall be as per item (6) of para 1227 of Indian Railways permanent way Manual reprinted in 2004.

2.6.2 Design of the Ballast Regulating Machine infringes clauses 9 and 12 of Chapter IV (A) of Indian Railways Schedule of Dimensions (BG) Revised, 2004. Railway Board has condoned the infringements vide letter No. 2010/CEDO/SR/22, dt. 20.08.2010.

2.6.3 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 also be observed. In this connection, the speed on curve shall be in accordance with para 2.1.3 of the speed certificate.

2.6.4 When the Ballast Regulating Machine Model RPB- 01 is being moved either on its own power or hauled in a train formation as a dead vehicle, it shall be ensured that all the protruding parts are withdrawn and suitably locked up.

- संलग्नक:
- i) Annexure-A
  - ii) M/s Metex, JSC Moscow Drg. No. 132.00.00.000D
  - iii) M/s Metex, JSC Moscow Drg. No. 132.04.06.000SB
  - iv) Railway Board letter No. 87/M(C)/ 202/10 Vol.III pt. dated 22.06.2016
  - v) Railway Board letter No. 2010/CEDO/SR/22, dt. 20.08.2010
  - vi) CCRS letter No. Q.17016/01/2017-18-TW dated 05.05.2017
  - vii) Railway Board's letter No.65/WDO/SR/26, dt.19/20.10.1966
  - viii) Para 6.4 and Para 8.14 of USFD Manual
  - ix) Para 6.3 of AT welding manual
  - x) Para 250, 251& Ch III of IRPWM-2004
  - xi) Maintenance Schedule for Ballast Regulating Machine (Metex) (soft copy in CD)

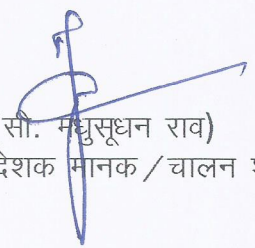
  
(सी. मधुसूदन राव)  
कार्यकारी निदेशक मानक/चालन शक्ति



प्रतिलिपि:

1. सचिव (मेकैनिकल/इंजीनियरिंग (जी) ), रेलवे बोर्ड, रेल भवन, नई दिल्ली-110 001
2. मुख्य रेल संरक्षा आयुक्त, अशोक मार्ग, लखनऊ-226001
3. महा प्रबन्धक (मेकैनिकल/परिचालन/संकेत एवं दूर संचार)
  - i) मध्य रेलवे, छत्रपति शिवाजी टर्मिनस, मुम्बई- 400 001
  - ii) पूर्व रेलवे, फेयरलीप्लेस, कोलकाता- 700 001
  - iii) उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली- 1100 01
  - iv) पूर्वोत्तर रेलवे, गोरखपुर- 237 012
  - v) पूर्वोत्तर फ्रन्टियर रेलवे, मालीगौव गुवाहाटी- 781 011
  - vi) दक्षिण रेलवे, एनेक्सी, पार्कटाऊन, चेन्नई- 600 003
  - vii) दक्षिण मध्य रेलवे, रेलनिलायम, सिकन्दराबाद- 500 071
  - viii) दक्षिण पूर्व रेलवे, गार्डनरीच, कोलकाता- 700 043
  - ix) पश्चिम रेलवे, चर्चगेट, मुम्बई- 400020
  - x) उत्तर मध्य रेलवे, इलाहाबाद- 211 001
  - xi) उत्तर पश्चिम रेलवे, जयपुर- 302 006
  - xii) पूर्व मध्य रेलवे, हाजीपुर- 844 101
  - xiii) पूर्व तटीय रेलवे, बी.डी.ए. रेन्टल कालोनी, चन्द्रशेखरपुर, भुवनेश्वर- 751 023
  - xiv) दक्षिण पश्चिम रेलवे, हुबली- 580 023
  - xv) पश्चिम मध्य रेलवे, जबलपुर- 482 001
  - xvi) दक्षिण पूर्व मध्य रेलवे, आर. ई. आफिस काम्प्लेक्स, बिलासपुर-495 004

- संलग्नक:
- i) Annexure-A
  - ii) M/s Metex, JSC Moscow Drg. No. 132.00.00.000D
  - iii) M/s Metex, JSC Moscow Drg. No. 132.04.06.000SB
  - iv) Railway Board letter No. 87/M(C)/ 202/10 Vol.III pt. dated 22.06.2016
  - v) Railway Board letter No. 2010/CEDO/SR/22, dt. 20.08.2010
  - vi) CCRS letter No. Q.17016/01/2017-18-TW dated 05.05.2017
  - vii) Railway Board's letter No.65/WDO/SR/26, dt.19/20.10.1966
  - viii) Para 6.4 and Para 8.14 of USFD Manual
  - ix) Para 6.3 of AT welding manual
  - x) Para 250, 251& Ch III of IRPWM-2004
  - xi) Maintenance Schedule for Ballast Regulating Machine (Metex) (soft copy in CD)

  
(सी. मधुसूदन राव)  
कार्यकारी निदेशक मानक/चालन शक्ति

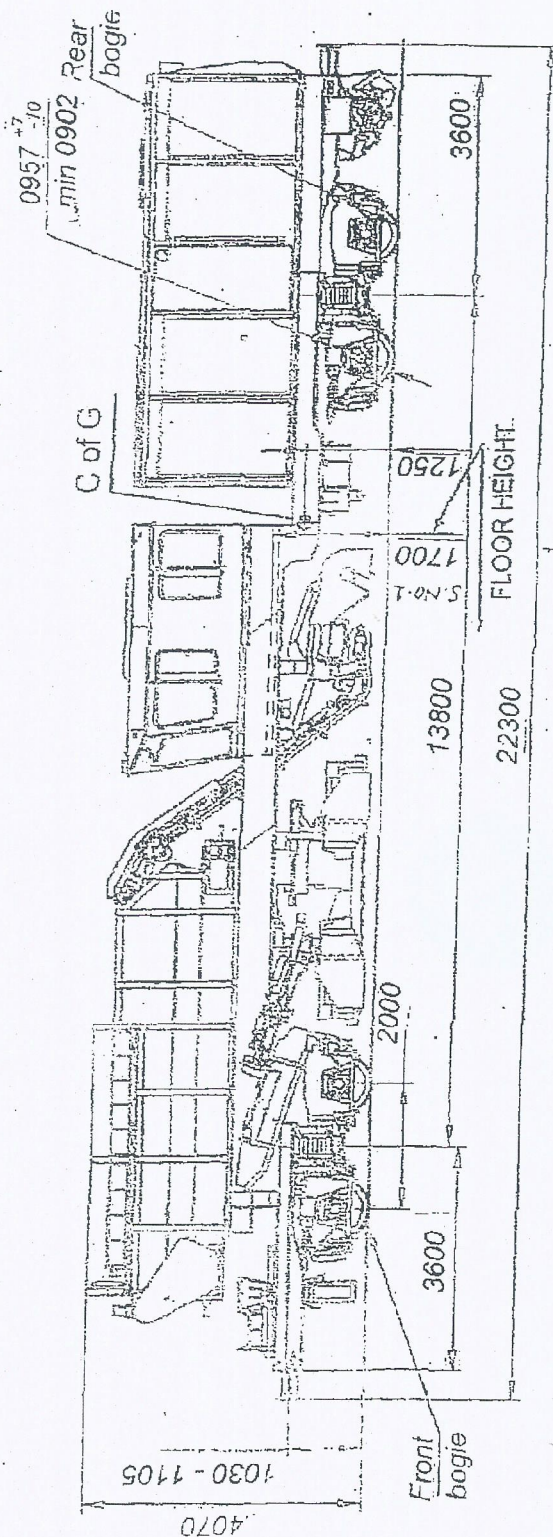
**Salient features of Ballast Regulating Machine Model RPB-01, manufactured  
by M/s Metex, JSC Moscow.**

S.No.	Description	Details
1.	Principal dimensions of rolling stock	a) M/s Metex, JSC Moscow Drg. No. 132.00.00.000D b) Length over buffers : 22300mm c) Wheel base : 2000mm d) Max. axle load : 20.32t e) Wheel dia. : 957mm f) Max. Height : 4070mm g) Max. design speed- Own power : 75kmph In train formation : 90kmph h) Weight : 74.64t approx.
2.	Brake system	Air brake system
3.	Coupler and Buffer	IR Standard Coupler : W/BD-445 Buffer : WA/BD-211
4.	Suspension arrangement	M/s Metex, JSC Moscow Drg. No.132.04.06.000SB
5.	Safety items	As per Mentioned in Maintenance Schedule for Ballast Regulating Machine (Metex)

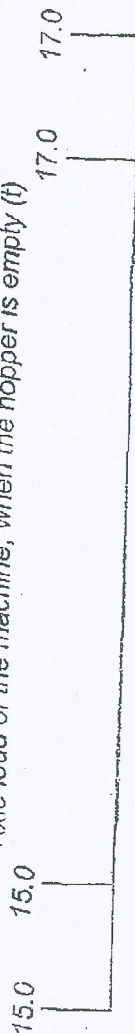


132.00.00.00.00D

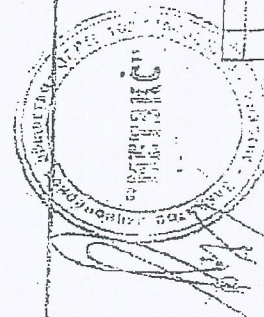
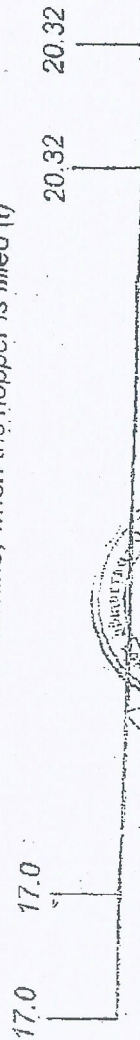
Maximum Parameters when the machine travels in transportation mode (mm)



Axle load of the machine, when the hopper is empty (t)



Axle load of the machine, when the hopper is filled (t)



For and behalf of JSC "Kaltagaputmarsh"

V. Lunin, General Director, JSC "Metex"

ՀԱՅԿԲԱՆԿ  
ՀԱՅԱՍՏԱՆԻ ՀԱՆՐԱՊԵՏՈՒԹՅԱՆ  
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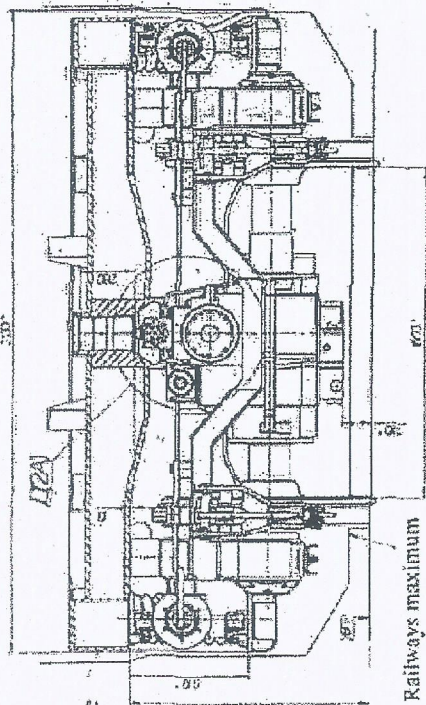
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Figure 1

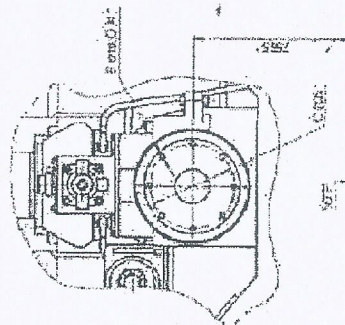
Frame of the machine



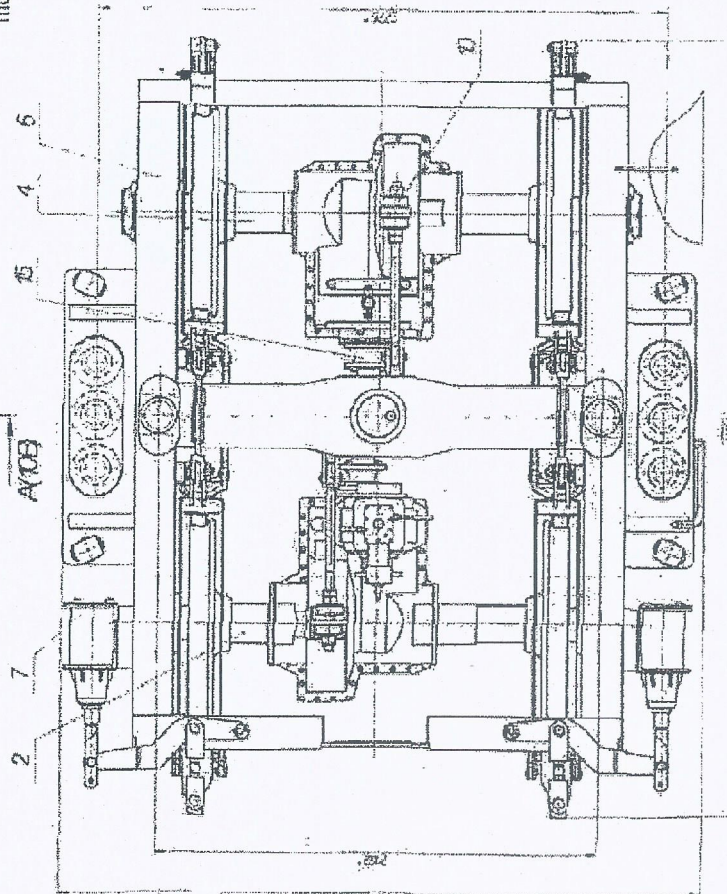
Indian Railways maximum moving dimensions

Designation	Fig.	F, kN	Mass kg
132.04.00.000	1	245	8400
-01	2	219	8300

A15X2B



F1000



132.04.00.000SB	
Driving Bogie	01 3141
Page 1	Page 2
Page 3	Page 4
Page 5	Page 6
Page 7	Page 8
Page 9	Page 10
Page 11	Page 12
Page 13	Page 14
Page 15	Page 16
Page 17	Page 18
Page 19	Page 20
Page 21	Page 22
Page 23	Page 24
Page 25	Page 26
Page 27	Page 28
Page 29	Page 30
Page 31	Page 32
Page 33	Page 34
Page 35	Page 36
Page 37	Page 38
Page 39	Page 40
Page 41	Page 42
Page 43	Page 44
Page 45	Page 46
Page 47	Page 48
Page 49	Page 50
Page 51	Page 52
Page 53	Page 54
Page 55	Page 56
Page 57	Page 58
Page 59	Page 60
Page 61	Page 62
Page 63	Page 64
Page 65	Page 66
Page 67	Page 68
Page 69	Page 70
Page 71	Page 72
Page 73	Page 74
Page 75	Page 76
Page 77	Page 78
Page 79	Page 80
Page 81	Page 82
Page 83	Page 84
Page 85	Page 86
Page 87	Page 88
Page 89	Page 90
Page 91	Page 92
Page 93	Page 94
Page 95	Page 96
Page 97	Page 98
Page 99	Page 100

5/10



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

No. 2010/CEDO/SR/22

New Delhi, Dated 20.08.2010

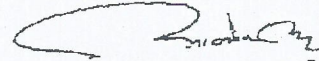
The Director General/Track,  
RDSO, Manak Nagar,  
Lucknow-226011.

**Sub: Condonation of infringement to IRSOD by Ballast  
Regulating Machine Model RPB 01, manufactured by  
M/s Metex, JSC Moscow.**

**Ref : Your office letter No. CT/MM/GENL, dated 31.05.2010**

With reference to your application referred above, sent through the  
CCRS, Lucknow, the sanction of Ministry of Railways, Railway Board is  
hereby communicated for **Condonation of infringement to IRSOD by  
Ballast Regulating Machine Model RPB 01, manufactured by M/s  
Metex, JSC Moscow.**


The design of this **Ballast Regulating Machine Model RPB 01**,  
infringes clause No. 9 & 12 of Chapter-IV(A) of IR B.G. Schedule of  
Dimensions, Revised, 2004 as per Annexure-I, drawings & other details  
accompanying with your above referred letter.

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

No. 2010/CEDO/SR/22

New Delhi, Dated 20.08.2010

Copy forwarded for information to the Chief Commissioner of Railway  
Safety, Compound of DRM/NER, Ashok Marg, Lucknow -226001 w.r.t.  
his endorsement no. ब्यू. 17012/07/2010-त.वि., dated 09.06.2010.

  
(आलोक कुमार)  
कृते सचिव, रेलवे बोर्ड

Copy to :

- (i) General Manager (Engg.), All Indian Railways.
- (ii) Commissioner of Railway Safety, All circles.