



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

सं. 2011/CEDO/SD/IRSOD/Elect./02

New Delhi, Dated 08.11.2012

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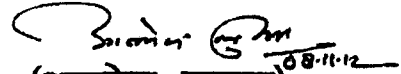
(As per List mentioned below)

विषय : Addendum & Corrigendum Slip (ACS) No. 10 to the Indian Railways Schedule of Dimensions (BG) 2004.

The Ministry of Railways (Railway Board) have decided that the following Para/Item of Schedule of Dimensions 1676mm Gauge (B.G.) 2004 be amended as shown in the enclosed Addendum & Corrigendum Slip (ACS) No. 10 :

- Amendment I Para 10 of Chapter-I : General, Schedule-I (Page 6 & 7/IRSOD)
Amendment II Para 11(i) & 11(iv) of Chapter-I : General, Schedule-I (Page 7 & 8/IRSOD)
Amendment III Note To Para 13 of Chapter-I : General, Schedule-I (Page 8/IRSOD)
Amendment IV Notes To Para 10 & 11 of Chapter-II : Station Yards, Schedule-I at page (Page 14/IRSOD)
Amendment V Para 2 & 4 of Chapter-V-A : Electric Traction, Schedule-I (Page 27 & 28/IRSOD)
Amendment VI Para 2 & 4 of Appendix 'A' of Chapter-V-A : Electric Traction, Schedule-I (Page 38/IRSOD)
Amendment VII New Para 12 has been added in Schedule-II (Page 32/IRSOD)

Enclosure : ACS No. 10


(आलोक कुमार) 08.11.12

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Addendum & Corrigendum Slip (ACS) No. 10
To
Indian Railways Schedule Of Dimensions (B.G.) 2004

I. Amendment To Para-10 Of Chapter-I : General

{At Page - 6 & 7 Of IRSOD 2004 And Subsequently Revised Vide ACS No. 7}

In Schedule-I of IRSOD, Revised 2004

Para 10 shall be read as under :

10. Height of Road Over Bridges and Foot Over Bridges :

- (a) Minimum height above rail level for a distance of 915mm on either side of the centre of track for overhead structures : 4875 mm
- (b) Where D.C. electric traction is in use or is likely to be used, this dimension shall be : 5410 mm
- (c) Where 25 kV A.C. traction is likely to be used, the minimum height above rail level for a distance of 1600mm on either side of the centre of track shall be as under :
 - (i) Light Overhead Structures, such as Foot Over Bridges : 6250 mm
 - (ii) Heavy Overhead Structures, such as Road Over Bridges : 5870 mm

Note :

- (a) See Appendix for extra clearance required on curves.
- (b) For existing overhead structures, wherever feasible, the height of contact wire shall be as high as possible, under the overhead structures, to allow the passage of Over Dimensional Consignment / Rolling Stock of 4.8m height.
- (c) In case of restricted height of existing over head structure, a special study shall be made, as indicated in Appendix-A to Chapter V-A, which will be accepted by the concerned Electrical Inspector of the Railways, before 25 kV A.C. traction is introduced. However, height of FOB & ROB shall not be less than 5270mm & 5070mm respectively. OHE arrangements shall be as per RDSO Drawings.
- (d) In areas where 25 kV A.C. traction is used or likely to be used, if any turnout or crossover is located under a heavy overhead structure or within 40 m from its nearest face irrespective of the position of level crossing gate, the minimum height of such overhead structure shall be 6250mm*. Also, in case the turnout is beyond 40 m; but the level crossing gate is within 520 m from the nearest face of the bridge, the height of such overhead structure shall be 6250mm*.
- (e) The height mentioned against items 10(a), 10(b) & 10(c) above shall be measured from the higher or super elevated rail.
- (f) On lines proposed to be electrified on 25 kV A.C. system and also in other sections, necessary provision shall be made in overhead structure and overhead equipment, if necessary by using longer traction overhead equipment masts to permit an allowance of 275mm for raising of track in connection with the introduction of modern track structure in future and for catering to increased ballast cushion, larger sleeper thickness and deeper rail sections.

* (under restricted situations, the minimum height shall be 5270mm for 4.80m high contact wire)

II. Amendment To Para-11 Of Chapter-I : General**{At Page - 7 & 8 Of IRSOD 2004 And Subsequently Revised Vide ACS No. 7}****In Schedule-I of IRSOD, Revised 2004**

Para 11 shall be read as under :

11. Clearance For Power Line Crossings Including Telephone Line Crossings Of Railway Tracks -**Para-11(i) Clearances for Power Line Crossings in Non-Electrified & Electrified Territory :**

SL	Over Head Crossing Voltage	Minimum Clearances From Rail Level		Minimum Clearance Between Highest Traction Conductor And Lowest Transmission Line Crossing Conductor
		Existing Power Line Crossing For Non - Electrified Territory	New Power Line Crossing Or Crossing Planned For Alteration	
(1)	(2)	(3)	(4)	(5)
1.	Upto and including 11 kV	Normally By Underground Cable		
2.	Above 11 kV & upto 33 kV	10860 mm	14660 mm	2440 mm
3.	Above 33 kV & upto 66 kV	11160 mm	14960 mm	2440 mm
4.	Above 66 kV & upto 132 kV	11760 mm	15560 mm	3050 mm
5.	Above 132 kV & upto 220 kV	12660 mm	16460 mm	4580 mm
6.	Above 220 kV & upto 400 kV	14460 mm	18260 mm	5490 mm
7.	Above 400 kV & upto 500 kV	15360 mm	19160 mm	7940 mm
8.	Above 500 kV & upto 800 kV	18060 mm	21860 mm	7940 mm

Note :

- (i) All height/clearances are in mm and under maximum sag conditions.
- (ii) If the crossing is provided with a guarding, a minimum clearance of 2000mm shall be maintained between bottom of the guard wire and highest traction conductor.
- (iii) Power line crossing in yards & stations area shall be avoided.
- (iv) For new electrification works, existing crossings can continue, if dimensions are as per Column (5) above.

Para-11(ii) Minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions.

SL	Voltage	Minimum Clearance
(1)	(2)	(3)
a.	Upto and including 650 volts	2500 mm
b.	Above 650 volts and upto & including 33 kV	3700 mm
c.	Above 33 kV and upto & including 66 kV	4000 mm
d.	Above 66 kV and upto & including 132 kV	4600 mm
e.	Above 132 kV and upto & including 165 kV	4900 mm
f.	Above 165 kV and upto & including 220 kV	5500 mm
g.	Above 220 kV and upto & including 400 kV	7300 mm
h.	Above 400 kV and upto & including 500 kV	8200 mm
i.	Above 500 kV and upto & including 800 kV	10900 mm

[There is no change in this Para w.r.t. the existing provisions of IRSOD 2004]

Para-11(iii) Minimum height above rail level for telegraph, telephone and other such low tension wires crossing a railway 6100mm

[There is no change in this Para w.r.t. the existing provisions of IRSOD 2004]

Para-11(iv) Minimum Horizontal Distance Of Structures

The minimum horizontal distance measured at right angles from the centre of nearest track to any part of a structure (all structures shall be rigid and well founded), carrying electrical conductors crossing a railway shall be :

- (i) For new structure : (H + 6) metre
- (ii) For existing structure : (H) metre

{where, 'H' is the height of post/structure from nearest ground level}

Note : Any post/structure which is so constructed or guyed as to remain in a vertical position, or failing this to continue to provide the clearances specified above, with one or all of the conductors broken or, with its conductors attached, when subjected to maximum wind pressures, shall be considered to be a "rigid well founded post/structure".

III. Amendment To Para-13 Of Chapter-I : General

{At Page - 8 Of IRSOD 2004}

In Schedule-I of IRSOD, Revised 2004

Tunnels, Through Girder Bridges and Semi-Through Girder Bridges :
{(See Diagram No. 1A; 1-A (Modified))}

- 13. (i) Minimum distance at centre to centre of track -
 - (a) For existing lines 4495mm
 - (b) For new works and alterations to existing works 4725mm

- (ii) Minimum horizontal distance from centre of track to any structure shall be as follows :

<u>Height Above Rail Level</u>	<u>Horizontal Distance From Centre Of Track</u>
(a) From 0.0 mm to 305 mm	1905 mm
(b) From 305 mm to 1065 mm	1905 mm increasing to 2360 mm
(c) From 1065 mm to 3355 mm	2360 mm
(d) From 3355 mm to 4420 mm	2360 mm decreasing to 2135 mm
(e) From 4420 mm to 5870 mm	2135 mm decreasing to 915 mm

[There is no change in this Para w.r.t. the existing provisions of IRSOD 2004]

Note :

- (i) Where electric traction is not likely to be used, over-head bracing of bridges may be 5030mm above rail level for a distance of 1370mm on either side of the centre of track.
- (ii) In case of existing structures, a special clearance study shall be made which will be accepted by Electrical Inspector of the Railways, as indicated in Appendix-A to Chapter V-A before electric traction is introduced.
- (iii) See Appendix for extra clearances required on curves.
- (iv) Where D.C. traction is in use, Para 13(ii)(e) above shall be as under :
- | | |
|-------------------------|------------------------------|
| From 4420 mm to 5410 mm | 2135 mm decreasing to 915 mm |
|-------------------------|------------------------------|
- (v) Tunnels, through girder and semi through girder bridges outside station yards should be treated as heavy overhead structures such as ROB for electrification works and the same dimensions as mentioned in note (c) at Para 10 above shall be applicable and OHE arrangement shall be as per RDSO Drawings.

IV. Amendment To Para-10 & 11 Of Chapter-II : Station Yards

{At Page - 14 Of IRSOD 2004}

In Schedule-I of IRSOD, Revised 2004

10. Height of Over Head Structures -

Minimum height above rail level for a width of 1600mm on either side of centre of track, of a signal gantry or a foot over bridge in a passenger station : 6250 mm

Note :

- (i) Where D.C. traction is in use or is likely to be used, this minimum height shall be 5410mm.
- (ii) On secondary lines, where electric traction is not likely to be introduced, this minimum height shall be 4875mm. This also applies to overhead piping arrangements parallel to track wherever provided, which shall necessarily be changed over to the ground hydrants, when the section is electrified.
- (iii) However, for existing overhead structures, dimensions given in Note (c) of Para 10 of Chapter-I, Schedule-I : General shall be applicable.
- (iv) Tunnel, through girder bridge and semi-through girder bridge in station yards shall be treated as heavy overhead structures, such as ROB for electrification works and the same dimensions as mentioned in Note (c) of Para 10 of Schedule-I, Chapter - I : General shall be applicable.

11. Minimum horizontal distance from centre of track to any structure :

(A) For Existing Works :

(i)	From rail level to 305mm above rail level	1675mm
(ii)	From 305mm to 3355mm above rail level	2135mm
(iii)	From 3355mm to 4115mm above rail level	2135mm decreasing to 1980mm
(iv)	From 4115mm to 6250mm above rail level	1600mm
(v)	Below the rail level and upto formation level of the track on straight and curves up to radius of 875m	2575mm
(vi)	Below the rail level and upto the formation level of the track on curves with radius less than 875m	2725mm

Note :

- (a) See Appendix for extra clearances required on curves
- (b) On lines other than main lines or existing main lines where electric traction is not likely to be introduced, the horizontal distance of 1375mm from 4115mm to 6100mm above rail level may be allowed to continue.
- (c) The clearance mentioned above in item (v) and (vi) shall be applicable only in new yards. Various fixtures which are attached to track, e.g. lock bar, point machine, traction bonds, point and signal rodding etc. and are required to be fitted with the rail can be provided and the clearance, as mentioned in item 11(v) and 11(vi) above shall not be applicable to these items and also to OHE Masts/Uprights and New Signal Posts for electrification in the existing yards.
- (d) Item 11(v) & 11(vi) above shall not be applicable in case of bridges.

(B) For New Works or Alteration to Existing Works :

(i)	From rail level to 305mm above rail level	1905mm
(ii)	From 305mm to 1065mm above rail level	1905mm increasing to 2360mm
(iii)	From 1065mm to 3735mm above rail level	2360mm
(iv)	From 3735mm to 4420mm above rail level	2360mm decreasing to 2135mm
(v)	From 4420mm to 4610mm above rail level	2135mm decreasing to 1980mm
(vi)	From 4610mm to 6250mm above rail level	1600mm

Note : See Appendix for extra clearances required on curves.

V. Amendment To Para-2 & 4 Of Chapter-V.A : Electric Traction (25 kV AC 50 Cycles)

{At Page - 27 & 28 Of IRSOD 2004 And Subsequently Revised Vide ACS No. 7}

In Schedule-I of IRSOD, Revised 2004

[Only Para 2 & 4 are modified and remaining Para 1, 3 & 5 are unchanged]

Note : Wherever electric traction is in use, special precautions shall be taken in accordance with provisions made in Chapter XVII of 'General Rules' for all Open Lines of Railways.

Electrical Clearances :

1. Vertical and lateral distance between 25 kV live parts and earthed parts of fixed structures or moving loads/rolling stocks shall be as large as possible. The minimum vertical and lateral electrical clearances to be maintained under worst condition of temperature, wind etc. between any live part of the overhead equipment or pantograph and parts of any fixed structures (earthed or otherwise) or moving loads / rolling stocks shall be as under :

- | | | | |
|------|----------------|---|--------|
| (i) | Long duration | : | 250 mm |
| (ii) | Short duration | : | 200 mm |

Note :

- (a) Long Duration means when the conductor is at rest and Short Duration means when the conductor is not at rest.
- (b) A minimum vertical distance of 270mm shall normally be provided between rolling stock and contact wire to allow for a 20mm temporary raising of the track during maintenance. Wherever the allowance required for track maintenance exceeds 20mm, the vertical distance between rolling stock and contact wire shall correspondingly be increased.
- (c) Where adoption of above clearance is either not feasible or involves abnormally high cost, Permanent Bench Mark shall be provided to indicate the level of track to be maintained.

[There is no change in this Para w.r.t. the existing provisions of IRSOD 2004]

2. Minimum height from rail level to the underside of contact wire :

- | | | | |
|-------|-------------------------------|---|------------|
| (i) | Under Bridges and in Tunnels | : | 4.80 metre |
| (ii) | In the Open | : | 5.50 metre |
| (iii) | At Level Crossings | : | 5.50 metre |
| (iv) | In Running and Carriage Sheds | : | 5.80 metre |

Note :

- (a) In cases where it is proposed to allow locomotives or rolling stocks not higher than 4.42m, the minimum height of contact wire, specified under Item 2(i) above may be reduced to 4.69 metre.
- (b) In cases, where it is proposed to allow only locomotive or rolling stocks not higher than 4.27m, the minimum height of contact wire, specified under Item 2(i) above may be reduced to 4.54 metre. A board showing this restriction and specifying "locomotives or stocks not permitted to ply on such section", shall be exhibited at the entrance to the same.
- (c) For movement of Over Dimensional Consignments, the height specified under Item 2(i) above shall be increased by the difference between the height of the consignment contemplated and 4.42m. In case, such an Over Dimensional Consignment is moved at speed not exceeding 15kmph and is also specially escorted by authorized Railway Staff, the derived height of Contact Wire may be reduced by 50mm.
- (d) On curves, all vertical distances specified in Item (2) above, shall be measured above the level of the inner rail, increased by half the super-elevation.
- (e) Suitable prescribed gradient on the height of contact wire shall be provided for connecting these wires installed at different heights.

3. Maximum variation in alignment of the live conductor wire on either side of the centre line of track under static condition :

- (i) On straight track : 200 mm
(ii) On curves : 300 mm

Note : These limits would not apply to special locations, e.g. insulated overlaps and out of run wires.

[There is no change in this Para w.r.t. the existing provisions of IRSOD 2004]

4. (i) Maximum width of Pantograph Collector : 1800 mm
(ii) When DC traction is converted to 25 kV AC traction, width of Pantograph Collector {subject to it being within the approved MMD} : 2030 mm

Note : A tolerance of plus 10mm on maximum width specified is permissible to accommodate variation in manufacture and mounting with respect to centre line of vehicle.

5. In the case of light structures such as foot-over bridges, it would be desirable to keep a standard height of contact wire of 5.50m. In case of heavy structures, such as flyover bridges or road over bridges, it is desirable to keep the height of contact wire as low as possible, consistent with the requirements of movement of Standard Class 'C' Over-Dimensional Consignments of height 4.80m.

[There is no change in this Para w.r.t. the existing provisions of IRSOD 2004]

VI. Amendment To APPENDIX 'A' TO CHAPTER V-A :

Clearances Required For 25 kV, Single Phase, AC-Electric Traction

{At Page - 38 Of IRSOD 2004 And Subsequently Revised Vide ACS No. 7}

[Only Para 2 & 4 are modified and remaining Para 1, 3 & 5 are unchanged]

1. It is desirable to provide the maximum possible clearances in the case of lines equipped for 25 kV AC 50 cycle single phase electric traction.

Minimum Clearances between live bare conductors / pantographs and structure -

- (a) Short Term Clearances - Vertical and lateral distance between live conductors and earth (normally existing only for a brief period) : 200mm
(b) Long Term Clearance - Vertical and lateral distance between live conductors and earth (which may remain for a considerable period) : 250mm

[There is no change in this Para w.r.t. the existing provisions of IRSOD 2004]

2. In order to ascertain whether the requisite clearance would be available under an existing structure, the permissible height of the contact wire shall be determined. For this purpose, the following particulars should be known :

- (a) Particulars of the structure including profile
(b) Allowance for slewing of track
(c) Allowance for low joints in tracks
(d) Radius of curvature of track under the structure

- (e) Super-elevation of track under the structure
 - (f) Maximum permissible speed under the structure
 - (g) Maximum dimensions of over-dimensional consignments which are permissible and safety measures which would be taken for movement of over-dimensional consignments
 - (h) Location of the structure in relation to level crossings, water columns and turnouts in the vicinity
 - (i) Type of overhead equipment
3. After determining permissible height of the contact wire based on above particulars, the clearance required between the lowest portion of the bridge or structure and the top most position of the overhead wire shall be determined in each case after study of the following :
- (a) System of tensioning of the overhead equipment
 - (b) Atmospheric conditions
 - (c) Maximum permissible number of electric locomotives per train (double or triple headed)
 - (d) Location of the structure in relation to points and crossings, overlap, spans etc.
 - (e) Length of structure along tracks
 - (f) Type of structure, girder, masonry etc.
 - (g) The span of overhead equipment under the bridge
 - (h) Presence of traction feeder
 - (i) Likelihood of diesel locomotive halting under the structure

[There is no change in this Para w.r.t. the existing provisions of IRSOD 2004]

4. (a) The minimum height of contact wire for a stock height of 4.42m, to be able to run on all sections electrified with 25 kV A.C. traction system with live traction overhead equipment :

(i) Height of the locomotive	:	4.42 m
(ii) Minimum clearances to contact wire	:	0.25 m
(iii) Allowance for track maintenance	:	0.02 m
(iv) Minimum height of contact wire (Total)	:	4.69 m

Note : For OHE span length of 49.5m or below, the oscillations of contact wire get reduced to 0.05m and the minimum height of contact wire in Para 4(a)(iv) can be reduced to 4.69m.

- (b) After determining the minimum height of contact wire on the assumption that it would permit passage of standard locomotives and stock, the maximum height of over Dimensional Consignments (ODC) with the live over head equipment at speed over 15 kmph (when vertical oscillation of overhead equipment is pronounced) is derived as under :

Minimum Height of Contact Wire	:	4.69 m
Less -		
(i) Minimum electrical clearance	:	0.20 m
(ii) Track allowance	:	0.02 m
(iii) Allowance for vertical oscillation of contact wire under influence of moving pantographs	:	0.05 m
Total	:	0.27 m
Permissible maximum height of Over Dimensional Consignment	:	4.42 m

- (c) If an Over Dimensional Consignment is moved at slow speed not exceeding 15 kmph, there will be no downward displacement (due to oscillation) of contact wire. However, to cater for the likelihood of an Over Dimensional Consignment halting under a structure, a clearance of 0.25 m under rest condition is to be provided, vide Item 1 of Chapter V-A. In this case, the derived height of contact wire may be reduced by 50 mm.
5. In the case of light structures such as foot-over bridges, it would be desirable to keep a standard height of contact wire of 5.50m. In case of heavy structures, such as flyover bridges or road over bridges, it is desirable to keep the height of contact wire as low as possible, consistent with the requirements of movement of Standard Class 'C' Over-Dimensional Consignments of height 4.80m.

[There is no change in this Para w.r.t. the existing provisions of IRSOD 2004]

VII. Amendment To Schedule-II

{At Page - 32 Of IRSOD 2004}

New Para 12 has been added.

12. Minimum height from rail level to the underside of contact wire :
- | | | | |
|-------|-------------------------------|---|------------|
| (i) | Under Bridges and in Tunnels | : | 4.80 metre |
| (ii) | In the Open | : | 5.50 metre |
| (iii) | At Level Crossings | : | 5.50 metre |
| (iv) | In Running and Carriage Sheds | : | 5.80 metre |

Note :

- (a) In cases where it is proposed to allow locomotives or rolling stocks not higher than 4.42m, the minimum height of contact wire, specified under Item 2(i) above may be reduced to 4.69 metre.
- (b) In cases, where it is proposed to allow only locomotive or rolling stocks not higher than 4.27m, the minimum height of contact wire, specified under Item 2(i) above may be reduced to 4.54 metre. A board showing this restriction and specifying "locomotives or stocks not permitted to ply on such section", shall be exhibited at the entrance to the same.
- (c) For movement of Over Dimensional Consignments, the height specified under Item 2(i) above shall be increased by the difference between the height of the consignment contemplated and 4.42m. In case, such an Over Dimensional Consignment is moved at speed not exceeding 15kmph and is also specially escorted by authorized Railway Staff, the derived height of Contact Wire may be reduced by 50mm.
- (d) On curves, all vertical distances specified in Item (2) above, shall be measured above the level of the inner rail, increased by half the super-elevation.
- (e) Suitable prescribed gradient on the height of contact wire shall be provided for connecting these wires installed at different heights.