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GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS  
(RAILWAY BOARD)

2017/37/CE-III/BR/BSC/85/Seminar

New Delhi, dt.09.10.2019

General Manager (Const.), N.F.Railway, Guwahati.  
Principal Chief Engineer, All Indian Railways  
CAO/Const., All Indian Railways.  
FA & CAO, All Indian Railways.

Director General, RDSO/Alambagh, Lucknow  
General Manager (Engg)- ICF/Chennai, RCF/Kapurthala, DLW/Varanasi,  
CLW/Chittranjan, W&AP/Yelahanka, Bangalore & DMW/Patiala  
Chief Commissioner of Railway Safety, Lucknow.

Chairman & Managing Director, Konkan Railway Corporation Ltd, Navi Mumbai.  
Chairman & Managing Director, IRCON, New Delhi.  
Chairman & Managing Director, RITES, New Delhi.  
Managing Director, DMRC, Metro Bhawan, Barakhamba Road, New Delhi  
Managing Director, CONCOR, New Delhi.  
Chairman & Managing Director, RVNL, New Delhi.  
Managing Director, DFCCIL, New Delhi.  
Managing Director, Pipavav rail corporation ltd, New Delhi.  
Managing Director, MRVC, Mumbai  
Vice Chairman, RLDA, New Delhi

Director, IRICEN, Pune.  
Director, IRIEEN, Nasik.  
Director, IRISSET, Secunderabad.  
Director, IRIMEE, Jamalpur.  
Director, IRITM, Manak Nagar, Lucknow.  
Director General, National Academy of Indian Railways, Vadodara.

Genl. Secy., AIRF, NFIR, IRPOF, FROA, AIRPFA, DAI (Railways) Rail Bhawan, New Delhi.

*Sub: Advance Correction Slip No.37 to Indian Railways Bridge Manual.*

Ministry of Railways (Railway Board) have decided that correction/addition/modification as indicated in the enclosed Advance Correction Slip No.37 dated 09.10.2019 to relevant paras of the IRBM be made.

Receipt of this letter may please be acknowledged.

DA: As above

SSE (Sr. Insp) may kindly inform on file

Prady 23/10/19

9.10.19

(A.K.Singhal)  
Executive Director Civil Engg.(B&S)  
Railway Board

कार्यो निदेशक (पु एवं स०)  
निदेशक-I  
निदेशक-II  
निदेशक-III  
निदेशक-IV

18/10

कार्यो निदेशक

2017/37/CE-III/BR/BSC/85/Seminar

New Delhi, dt. 09 .10.2019

Copy to: CRB, ME, ML, MS, MM, MT, FC, Secretary

AM/CE, AM(W), AM(Budget), AM(Elect.), AM(Fin.), AM(Sig.), AM(Plg.), AM(RS), AM(Mech.), AM(PU), AM(Tele.), AM(Traffic), Adv.(Vig.), Adv.(L&A), Adv ( Bridges), Adv(Safety)

EDCE(P), ED(Works), ED(PM), EDV(E), EDTK(M), EDTK(MC), EDCE(G), ED(L&A), ED(L&A-II), ED(L&A-III), EDCE(B&S), ED(WP), ED(PSU), EDF(X), EDFX-II & OSD/ME,

EDTK(P) for incorporating in BMS through CRIS.

DTK(MC), DTK(M), Dir(Works) I & II, Dir.(L&A), DVE-I & DVE-II, DCE(P), DTK(P), DSDE, DCE(B&S-II), Dir(MTP), DCE(G), Dir (PSU), Dir(PPP)

Computer Cell / Railway Board for uploading on webiste

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**GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS  
INDIAN RAILWAY BRIDGE MANUAL**

EDITION – 1998

ADVANCE CORRECTION SLIP NO. 37 Dated 09.10.2019

1. Existing Clause 1102.2(iv) to be replaced as under:-

“PSC Bridge / Composite Girder Bridges Inspection Register (Annexure 11/2a)

2. Insert “11/2a Performa for Inspection of PSC Bridge / Composite Girder Bridges 1102.2” in the list of Annexures at Page xiii.
3. Existing Clause 1107(15) (b) (i) and 1107 (15) (b) (ii) modified and renamed as 1107 (15) (b) as under:-

“ The camber of prestressed concrete girder should be checked by BRI within one year of installation and once in 5 years afterwards by any reliable method and recorded in Annexure 11/2a. One method which can be adopted for spans upto 30 meters is indicated in Annexure 11/14. Alternatively the camber can be recorded by using a leveling instrument or theodolite. The points where the camber is measured should be clearly marked on the underside of the girders so that the readings taken on different years are comparable. While recording camber, temperature should also be recorded and successive readings should be recorded at about the same temperature. Progressive loss of camber is an important indication of deterioration in the condition of bridge.”

4. New Annexure 11/2a is inserted as below:-

(ANNEXURE-11/2a)  
Para 1102.2

**PROFORMA FOR INSPECTION OF PSC BRIDGE / COMPOSITE GIRDERS**

Bridge No. ....chainage..... Block Section..... In  
Section..... UP/DN/SL/No. of Multiple Line..... Sub  
Division.....Division.....Name of Stream/River..... Completion  
Drawing Nos:.....

(All relevant Completion Drawing of Girder, Bearings & Expansion Joints are to be attached at the beginning of PSC Inspection Register and Inspection of Steel Work in Composite Girder Bridges to be continued as per Annexure 11/1 & 11/2





(A) GENERAL DETAILS

1.	Type of Bridge	
2.	Details of Spans a) Number of Spans b) Clear Spans c) Effective Spans	
3.	Overall Length of Girders	
4.	Skew Angle, if any	
5.	Gradient on bridge, if any	
6.	Curve on bridge , if any	
7.	Super elevation on bridge a) In rail b) In bed block	
8.	a) Details of Track b) Eccentricity of track w.r.t. girders i. End of Girder ii. Centre of Girder	
9.	Details of Bearings alongwith Drawings	
10.	Details of Bed Block	
11.	Details of Seismic Restraint Arrangement, if any	
12.	Details of Corrosion Protection Measures taken, if any i. Details of Reinforcement Steel Coating if any ii. Details of Structural Steel Coating if any iii. Details of Concrete Coating if any	
13.	Loading Standard of Design	
14.	Details of Drainage Arrangement of (Girder / Slab)	
15.	a. Catchment Area b. Design Discharge c. Any RAW/RAT up to 50 km on u/s d. Rail Level e. Top of Bed Block Level f. Danger Level g. Design HFL h. Vertical Clearance i. Free board j. Design Scour Level k. Top Of Foundation Level l. Bottom of Foundation Level	

Ref

16.	Details of jacking points of Girders			
17.	Girder Weight (per Span and total)			
18.	Original Camber in mm for each type of Span			
		Section	L/4	L/2
	Camber			
	Span Type-I			
	Span Type-II			
	Span Type-III			
19.	Details of a. Trolley refuges b. Safety refuges c. Foot Path d. Railing e. Sand Bins			
20.	Permanent / Temporary Speed restriction, if any and reasons of imposition			
21.	Additions and alterations to original design, if any			
22.	Year of Construction			
23.	Expansion Joints/Arrangements			
24.	Wearing Coat, type and thickness etc.			
25.	Additional details in case of ROB/RUB like Kerb, Crash Barrier etc.			
26.	History of Bridge Repairs etc.			

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(E) INSPECTION DETAILS

SPAN No.-----

1. General Inspection (i.e. Crack, Bulging, Spalling, Disintegration, Scaling, Rust Streak, Crushing, Dampness, Leaching, Exposure of Reinforcement etc.)

(Suitable Arrangement to facilitate proper inspection of all the parts of Girder shall be made/arranged)

(a) For PSC Girder:

Item	Date of Inspection						
Deck							
Sides/Webs							
Bottom							
Ends/Anchorage Zones							
Anchorage Zones of Cross Prestressing if any							
Inside/Openings if any							
Diaphragms/Cross Girders							
Lifting Arrangements							
Bearings							
Expansion Arrangement/Joints							
Seismic Restrainers							

(b) For Composite Girder:

Item	Date of Inspection						
Deck Slab	Sign of stagnation of water on Deck Slab, if any						
	Details of Crack, Concrete disintegration, crushing, spalling, exposure of reinforcement etc. with sketch, if any						
Condition of Steel Components	Details of Distortion in Steel members with sketch, if any						
	Details of Cracks in Steel members with sketch, if any						
	Details of Corrosion in Steel members with sketch, if any						
	Condition of Weld/Bolts/Rivets in Steel Part						
Junction of Steel part with Deck Slab	Any sign of separation of Deck Slab with Steel Girder						
	Details of Separation of Deck Slab from Steel Girder with Sketch, if any						

Neel

2. Deflection/Camber Readings (Applicable in case of PSC Girders)

Section	L/4	L/2	3L/4
Item			
Date			
Measured Camber in mm			
Temperature			

NOTE: Camber to be measured at the Centre of Girder (L/2) only. However, if the length of girder is more than 20 m, camber to be measured at 3 locations.

3. Condition of Expansion Joints & Expansion Gaps  
Pier No.-----

Date of Inspection					
Item					
i. Cracks if any					
ii. Bulging of Polymers if any					
iii. Whether Gap is free and Clear of Dust etc.					
iv. Any other item as prescribed by Manufacturer					

4. Condition of Bearing with Date of Cleaning and Defects, if any  
Pier/Abutment No.-----Bearing No.-----

Date of Inspection					
Item					
i. Condition of Stoppers					
ii. Flattening of Elastomers					
iii. Separation of Layers of Elastomer					
iv. Splitting of Layers of Elastomer					
v. Tearing of Layers of Elastomer					
vi. Bulging of Elastomer					
vii. Tilt in Elastomeric Bearing					
viii. Height of Elastomeric Bearing					
ix. Any Corner Lifting					
x. Condition of Holding Down Bolts					

*Deep*



xi. Condition of Seals in POT PTFE						
xii. Bulging out of Elastomer from POT PTFE						
xiii. Minimum gap between upper & lower part of POT PTFE to be not less than 5 mm						
xiv. Whether Entirely supported on Bed Block						
xv. Cracks in any component of POT-PTFE						
xvi. Bending of any Component of POT PTFE						
xvii. Longitudinal Displacement w.r.t mean position						
xviii. Transverse Displacement w.r.t mean position						
xix. Rotation in Longitudinal Direction						
xx. Rotation in Transvers Direction						

5. Condition of Bed Block and Defects If any  
 Pier/Abutment No. \_\_\_\_\_ Bearing No. \_\_\_\_\_

Date of Inspection						
Item						
i. Whether Surroundings of Bed Block is clean.						
ii. Cracks in Bed Block if any						
iii. Whether Bed Block is Shaken						

6. Condition of Surface Protection

Date of Inspection						
Item						
i. Year of painting of Steel						
ii. Type of paint of Steel						
iii. Defects like fading /discoloration/Scaling etc in Steel Painting if any						
iv. Year of Coating of Concrete						

*(Handwritten Signature)*



v. Type of Coating of Concrete							
vi. Defects like fading /discoloration/Scaling etc in Concrete Coating if any							

**7. Condition of Drainage Arrangements & Defects if any**

Date of Inspection							
Item							
Whether Drainage is Clear or Chocked							

**8. Condition of Seismic Restrainers if any**

Date of Inspection							
Item							
Any Cracks, Spalling etc in Seismic Restrainers							

**9. Condition of ladders, railings, inspection arrangements etc.**

Date of Inspection							
Item							
i. Signs of Corrosion							
ii. Condition of Repairs if any							
iii. Condition of Connections							

**10. Condition of Cracks & Tell tales if any**

Date of Inspection							
Item							
i. Location							
ii. Crack Pattern (Sketch to be attached)							
iii. Crack Width							
iv. Crack Length							
v. Crack Depth etc.							
vi. Whether Cracks require Grouting							
vii. Condition of previous repairs if any							

*Asp*

**11. Gap between Girders**

Date of Inspection						
Item						
i.Gap between Girders						
ii.Gap at End of Girders						

**12. Details of experimental and trial observations if any**

**13. Defects Noted & Actions Taken**

S.No.,	Date of Inspection	Brief Description of Defect	Details of action taken on previous years orders with date and details of repairs	Remarks on condition of defect

**14. Name and Signature of Inspecting Officials/BRI**

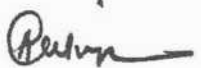
**15. Remarks of AEN (Bridges) with Name and Signature**

**16. Orders of XEN (Bridges) with Name and Signature**

**17. Orders of Dy. CE (Bridges) with Name and Signature**

**18. Orders of CBE with Name and Signature**

NEW DELHI  
Dated 09.10.2019

  
(A.K.Singhal)  
Executive Director Civil Engg.(B&S)  
Railway Board