WORKING ON GIRDER BRIDGES IN ELECTRIFIED SECTIONS

Following are some precautionary measures, which should be observed and followed by bridge staff while working in electrified area having over head electric wire traction.

1. Any contact direct or indirect with the live conductor is dangerous and shall be strictly avoided.

2. Always keep safe working distance of 2 metre from any live parts of OHE.

3. No person shall work within a distance of two metres from the live part of the over head equipment without permit to work.

4. Metallic structures supporting FOB/ROB are connected to traction rail or 10 ohm earth through bonds. These bonds shall not be opened by working staff.

5. OHE masts on girder bridges are connected with the girder through structure bonds. These bonds shall not be opened by the working staff.

6. On long girder bridges, cross bonds are provided at a distance of every 100 metres between the traction rails of different tracks. These cross bonds shall not be opened by the working staff.

7. Girder bridges are also connected to traction rail or 10 ohm earth through bonds. These bonds shall not be opened by the working staff.

8. The risk of direct contact with live OHE is ever present while working in electrified section; such as while painting of steel working of through spans of bridge and platform covered sheds. such work shall not be done within a distance of 2 metres from the live OHE without availing permit to work.

9. It is important to note that dangerous voltage may be induced in metallic masses in the vicinity of traction conductors. To avoid possibility of shock due to such voltages, the metallic structures are bonded together and earthed. The system shall not be disturbed.

10. There shall not be any drain hole on FOB/ROB above the overhead traction wires.

11. Protection screens on FOB/ROB shall be provided of full metal sheet and shall be secured properly.

12. While working on FOB/ROB, it shall be ensured that no tools/ tackles fall on the overhead wires.

13. The clearance between FOB/ROB and catenary wise upper overhead wire) is normally about 40 to 60 cms. Any repair/painting work on the under surface of FOB/ROB shall not be carried out without availing permit to work.

14. While working on FOB/ROB, staff shall be warned not to drop water on the live over head equipment (OHE).

15. Tools/Material etc. should be carried by staff using ladder or pulley/ rope. Do not throw tools from ground/bridge deck to hand over to staff working on OHE.

16. Do not support ladder on the contact wire (OHE).

17. Ladder should not be in standing position between two live OHE lines.

18. Do not instruct any staff to work, if section under power block is not properly earthed.

19. For work adjacent to OHE the Engg. Inspector shall apply to the proper authority sufficiently in advance for sanction of traffic and power block. Details of power block should be known to all staff.

20. Staff obtaining the power block should clearly understood on which line power/ traffic block has been taken and should convey it properly to staff.

21. On completion of the work the ‘permit to work should be cancelled and T.P.C. advised, who will then arrange to remove the earthing & restore OHE charging.

22. No crane shall be worked except on the authorised permit to work. In every case of working a crane, arrangement should be made for the presence of authorised O.H.E. staff to ensure that all safety precautions are taken.

23. Steel tapes or metallic tapes with woven metal reinforcement should not be used in electrified tracks. Linen tapes are safer and, therefore, should be used even though they are not accurate.

24. The top foundation blocks in electrified structures should be kept clear of all materials.

IMPORTANT SCHEDULES OF DIMENSIONS RELATED TO BRIDGES AND OHE

Sr. No.	Description	BG (MM)	MG (MM)
1	Minimum height above rail level	4875 (16')	-
	■ For a distance of 915 mm (3') on either side of the centre of track for over head structure. (for BG)		
	■ At the centre of track for overhead structure. (for MG)	-	3810 (12'6")
	■ With D.C. electric traction, this dimension for BG and minimum height above R.L. for a distance of 1220 mm (4') on either side of centre of track for B.G./M.G.	5410 (17'9")	4190 (13'9")
	■ Where 25 Kv. AC traction is likely to be used min. height above R.L. for a distance of 1600 mm (5'3") on either side of centre of track for :		
	• Light over head structure such as FOB.	6248 (20'6")	6248 (20'6")
	• Heavy overhead structure such as ROB or fly over bridge.	5867 (19'3")	5410 (17'9")
2	Minimum distance from centre to centre of track on through & semi through girder bridges	4725 (15'6")	3960 (13')
3	Maximum distance apart of trolley refuges :		
	• On bridges with main span of less than 100 metres. (300')	100 mts.	100 mts.
	• On bridges with main span of 100 metres (300') or more.	one on each pier	one on each pier
	• On ballasted deck bridges.	50 mts.	50 mts.

Our Objective

To upgrade Maintenance Technologies and Methodologies and achieve improvement in productivity and performance of all Railway assets and manpower which inter-alia would cover Reliability, Availability, and Utilisation

If you have any suggestion & any specific comments, please write to us :

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GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

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PAMPHLET ON WORKING ON GIRDER BRIDGES ON ELECTRIFIED SECTION

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Centre for Advanced Maintenance TECHnology

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