

**Government of India**  
**Ministry of Railways**  
**Research, Designs & Standards Organisation**  
**Manak Nagar, Lucknow - 226 011**

No. EL/2.2.1

DT.12-06-1997

**SPECIAL MAINTENANCE INSTRUCTIONS NO. RDSO/ELRS/SMI/192**  
**PERIODIC MAINTENANCE/CHECKS FOR PANTOGRAPH AM12**  
**TYPE AND OF SIMILAR DESIGN**

**1. Object**

- 1.1** Railways have reported unusual wear of contact wire. This unusual contact wire wear also attributes to heavy sparking leading to the formation of copper globbules and transfer of metal on the steel wearing strips. Erratic behaviour of pantograph may be one of the reasons for transfer/fusion of copper resulting into the abrasion of the contact wire as well as the steel strips.
- 1.2** To minimise the above problem, this SMI lists out certain periodic maintenance/checks to be carried out on the pantographs in addition to the existing maintenance practices being followed by the Sheds.

**2. INSTRUCTIONS**

- 2.1** Balance the pantopan with a weight of 7.0 kg at extension of 0.5,1.0,1.5 and 2.0 meter during every IC.
- 2.2** Check and correct the horizontality of the pantopan at an extension of 1.5 meter by using spirit level in every IC.
- 2.3** Use main and end wearing strips procured only as per RDSO's Guidelines for material Specification and General requirements circulated vide letter No.EL/2.2.25 dated 12-06-1997.
- 2.4** Measure the thickness of main wearing strips (steel) and replace at the condemning limit of 3.5 mm.
- 2.5** If the thickness is adequate, check and correct the eveness of the wearing strips in monthly inspcetion. Eveness of the new steel strips should also be examined and corrected before fitment on the pan.
- 2.6** While fitting the steel strips, ensure that fixing studs do not project above the current collecting surface.
- 2.7** Check the hardness of each strip and in no case, it should be more than the values given below:-  
- Main Wearing Strip : 245 Brinell(Max)  
- End wearing Strip : 60-75 (Max.) Rockwell Hardness Scale 'B'
- 2.8** Check for any sharp edges on the wearing strips and file to obtain smooth surface and rounded edges.

**2.9** Use the right quality of grease conforming to the requirements indicated in RDSO's SMI No. 188. The old grease should be removed and new grease be packed in the grease pan during every inspection. However, chemical analysis should be carried out occasionally through CMT of the workshops in the Railways.

**2.10** Performance of pantograph/OHE may also be ascertained through current collection tests.

**3. APPLICATION**

All Electric Locomotives and EMUs fitted with pantographs type AM12 and of similar design.

**4. AGENCY FOR IMPLEMENTATION**

All Electric loco sheds, EMU car Sheds and POH workshops.

No.EL/ 2.2 1

Dtd.23.07.1997

CORRECTION SLIP FOR

Special maintenance Instructions No. RDS/ELRS/192 Periodic Maintenance/ checks for Pantograph AM-12 type and of Similar design.

“Clause No. 2.2. in the above SMI should be read as under:-

**Check and correct the horizontally of the pantopan at an extension of 1.5 meter by using spirit level in every IC.**

-SD-

(NASIM UDDIN)

for DIRECTOR GENERAL (ELECT.)