SPECIAL MAINTENANCE INSTURCTIONS (SMI) FOR OHE CONTACT WIRE AND ASSOCIATED FITTINGS.

1. OBJECTIVE:

To specify maintenance procedures for arresting contact wire/catenary wire parting cases. These instructions are supplementary and are to be read in conjunction with the procedures already laid down in the ACTM-Vol. II (Part I) Paras 20320 to 20330.

2. BACKGROUND

2.1 For proper upkeep & maintenance of OHE, the maintenance procedures laid down in ACTM are quite exhaustive. The sequence of checks right from foot patrolling to POH level ensure detection & rectification of defects in the initial stages itself. POH, once in 4 years, is aimed at restoration of OHE to the same condition as it was during commissioning. But, based on the reports of OHE parting cases due to various reasons affecting the reliability, issuance of these special maintenance instructions has become necessary to cover few items explicitly.

2.2 The analysis has indicated that significant number of cases of OHE parting are attributed to the opening of silver brazed joints and at PG clamp locations. Few cases of parting of contact wire/catenary wire have occurred at ending clamp fitting also. During analysis of cases of parting of contact wire, it has been observed that the opening of silver brazed joints is not age related and majority of cases have occurred in known polluted areas. Regarding replacement of PG clamps during POH, decision was taken in XXII MSG (TRD) meeting held at CORE/ALD on 7-8.2.2000.

2.3 Regarding the failures of silver brazed joints, it is experienced that-

- The silver brazed joints do not fail suddenly.

- Initially the tip of the joint opens and the jointing surface is exposed to atmosphere. The joint gradually looses its strength due to displacement of silver with its oxides. Fast corrosion of silver brazed joints take place in the environment having SO_2 gases with moisture and aerated aqueous NH_3/ammonium salts.

2.4 The maintenance instructions given in this SMI are supplementary to the one given in the ACTM.

3. PROCEDURE FOR ARRESTING FAILURES OF SILVER BRAZED JOINTS ON CONTACT WIRE:

Maintenance instructions:

1. Check by inspection car once in three months in identified polluted areas/sections in which repeated failures have taken place.

2. The jointed contact wire in the "identified polluted areas" shall be replaced with joint-less contact wire drawn out of continuous cast copper wire rods at the earliest opportunity on programmed basis.

4. PROCEDURE FOR CHECKS ON OHE PG CLAMPS (Part No. 1031-2):

All the 8 OHE PG clamps at the G jumper location shall be replaced during POH of OHE i.e. once in 4 $1/_2$ years.

Note: The released PG clamps may, however, be reused in service if they can be restored to good condition after cleaning etc. in the OHE depot/work shops.

5. PROCEDURE FOR CHECKS ON CONTACT WIRE ENDING CLAMP FITTING AS PER RDSO's DRG. NO. ETI/OHE/P/1110-2, Part No. 118.

Maintenance Instructions

a) Visual inspection-Once in four and half years (POH)

b) Replace the fitting once in nine years (alternate POH) and carry out the necessary adjustments.

Note: The released fitting may be reused if it can be restored to good condition.

6. PROCEDURE FOR CHECKS ON CATENARY WIRE ENDING CLAMP FITTING AS PER RDSO's DRG. NO. NO. ETI/OHE/P/1120, Part No. 1121

Maintenance Instructions

a) Visual inspection**:** Once in four and half years (POH).

b) Replace the fitting once in nine years (alternate POH) with a new fitting and carry out the necessary adjustments.

Note: The released fitting will not be re-used.

7. PROCEDURE FOR CHECKS ON CONTACT WIRE SPLICE AS PER RDSO'S DRAWING NO. ETI/OHE/P/1080 REV. A & ETI/OHE/P/1080-1 REV. B

Maintenance instructions

a) The fittings shall be carefully visually examined for cracks, other casting defects and abnormalities. If these are found the fitting shall be replaced immediately.

b) Check to see if any slipping of the ends of two contact wires has been taken place. When viewed through the top window, there should be no gap between the two ends. If gap is found on the splice shall be released & contact wire ends shall be butt together by loosening the SS studs & then tightening the studs.

c) Tightness of stainless steel studs shall be checked. If found loose they should be tightened. Over – tightening the stainless steel studs of contact wire splice fittings is harmful. Tightening should only be done to the extent possible with a torque wrench. No extra leverage by means of a pipe etc. should be used.

d) Contact wire splice should not ordinarily be reused. New brass ferrules for contact wire splice to ID No. 1080 should invariably be used to ensure that worn out serrations of the ferrules do not result in insufficient grip on the contact wire in case contact wire splice to ID No. 1080 is reused.

Note:-Replace the contact wire splice once in nine years (alternate POH) with the new splice. Released splice shall not be reused.

8. PROCEDURE FOR CHECKS ON RUNNER END CONTACT WIRE ENDING CLAMP ID. 6160 AND INSULATOR END CONTACT WIRE ENDING CLAMP ID. 6150 OF SECTION INSULATOR ASSEMBLY TO DRG. NO. ETI/OHE.P/6100 REV. B.

Maintenance Instructions

a) The fittings shall be carefully examined for cracks, other casting defects and abnormalities. If these are found the fitting shall be replaced immediately.

b) Check to see if any slipping of contact wire has taken place. If the slipping has taken place the contact wire shall be set right after releasing the load on section insulator assembly & loosening the stainless steel studs. The stainless steel studs shall then be tightened.

Note:-Replace the ending clamps once in nine years (alternate POH) with the new ending clamps. Released ending camps shall not be reused.

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