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**SPECIAL MAINTENANCE INSTRUCTIONS (SMI) FOR
25 kV SOLID CORE INSULATORS BEFORE INSTALLATION**

1. **OBJECTIVE** : To specify testing procedure of 25kV solid core porcelain insulators at site / depot before installation and furnish the test values for different types of insulators supplied against different specifications.
2. **BACKGROUND** : To weed out the insulators which develop defect during transit/handling, it was advised vide SMI No.TI/MI/0011 'Rev 0' to test each insulator for routine tensile load test at site/depot before installation. The routine load to be applied was also advised. Vide SMI No.TI/MI/0024 Rev.`0`, a gadget for routine test was circulated.
 - 2.1 Addendum & Corrigendum Slip No. 1 to RDSO's Specification No.ETI/OHE/15(9/91) was issued in May 1999 and Slip Nos 2 & 3 were issued in Feb/March 2000. In A & C Slip No. 1, the minimum specified failing load in tension as well as minimum specified failing bending moment have been increased for stay arm and bracket insulators. In A & C Slip No.2 additional routine tests and in A & C Slip No.3, regular inspection by RDSO were specified. Supply of the insulators as per A & C Slip No. 1 to 3 has started and so the revision of SMI is imperative.
- 3.0 **TEST JIG AND DEAD LOADS TO BE APPLIED :**
 - 3.1 For conducting the routine tensile load test either Universal Testing Machine of adequate capacity may be used or the simple arrangement shown in the enclosed sketch No.ETI/OHE/SK/611 (in 2 sheets) may be used.
 - 3.2 Considering weight of double rail as 120 kg/m the dead load `Y` kg to be provided for conducting routine tensile load test for one minute according to the type of insulator and specification to which the insulator is supplied, shall be as follows :

SPECIFICATION No. ETI/OHE/15(9/91)

Type of Insulator	Routine load @ 60% of specified value	Dead Load `Y` to be provided.
Stay arm and Bracket insulators	3240 Kgf	108 kg.
9-tonne insulator	5940 Kgf	523 Kg.

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SPECIFICATION No. ETI/OHE/15(9/91) with A & C Slip No. 1,2, 3

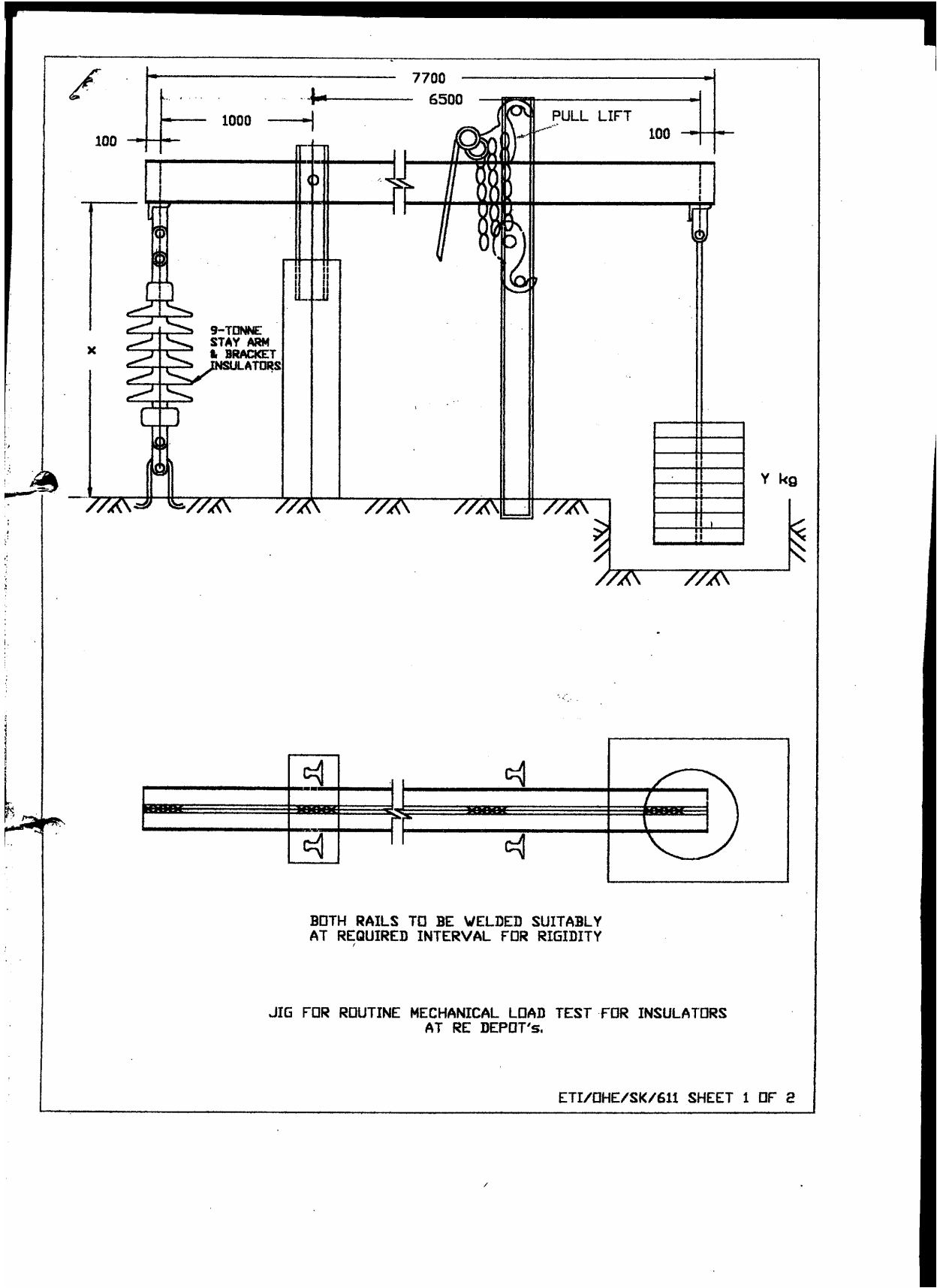
Type of Insulator	Routine load @ 70% of specified value	Dead Load `Y` to be provided.
Stay arm and Bracket insulators	4900 Kgf	363 kg.
9-tonne insulator	6930 Kgf	675 Kg.

3.3 The dead load `Y` to be provided has been calculated taking into account the dead weight of the double rail only as 120 kg/m and it is for guidance only. While fabricating the jig, additional fixtures, holding clamps / brackets, rails other than 60kg rail etc. may be used by the Railways / Projects for better fabrication/operation of the jig. These additional fixtures and rails other than 60kg rail shall change the dead weight of the jig and vary the values of dead weight `Y` to be provided. It is, therefore, imperative that the jig should be calibrated suitably using a good dynamometer to determine the exact dead weight `Y` to be provided so as to apply the specified routine load on the insulators according to the type and specification to which they are supplied.

4.0 PROCEDURE

- i) Calibrate the testing jig using a good dynamometer to determine the dead load to be applied so that the specified routine tensile load is applied on the type of insulator tested as per the specification to which it is supplied.
- ii) Maintain the routine tensile load for one minute and then release.
- iii) Check the insulators which pass the above test for any defect developed during the routine test such as cement crack, core pull out, deformation in the metal fitting, hook etc.
- iv) Use the insulator which withstands the above routine tensile load without developing any defect indicated above.

ENCLOSURE: ETI/OHE/SK/611 (Sheet 1 of 2 and 2 of 2)



BOTH RAILS TO BE WELDED SUITABLY
AT REQUIRED INTERVAL FOR RIGIDITY

JIG FOR ROUTINE MECHANICAL LOAD TEST FOR INSULATORS
AT RE DEPOT'S.

ETI/OHE/SK/611 SHEET 1 OF 2

NOTES:-

1. THE DIMENSIONS ARE IN MILLIMETERS.
2. THE DISTANCE 'X' SHOULD BE PREDETERMINED FOR CONDUCTING ROUTINE TENSILE LOAD TEST SO THAT STAY ARM , BRACKET AND 9-TONNE INSULATORS CAN BE TESTED IN THE SAME TESTING JIG.
3. BEFORE CONDUCTING ROUTINE TENSILE LOAD TEST , THE TESTING JIG SHOULD BE CALIBRATED WITH A GOOD DYNAMOMETER FOR VERIFICATION OF LOAD APPLIED ON THE INSULATOR. IF REQUIRED THE DEAD LOAD SHALL BE INCREASED/DECREASED.
4. SUITABLE FIXTURES ARE TO BE DEVELOPED AND USED FOR TESTING DIFFERENT TYPES OF INSULATORS.
5. 60 Kg RAILS ARE TO BE USED IN FABRICATION OF JIG.

ETI/OHE/SK/611 (SHEET 2 OF 2)