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

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SPECIAL MAINTENANCE INSTRUCTIONS NO RDSO/ELRS/SMI/164 CODE OF PRACTICE FOR MAINTENANCE OF LOCO TRANSFORMERS

1. OBJECT

1.1 The study of the maintenance practice of various utilities reveals that transformers need to be opened for removal of sludge formed due to determination of oil in service. The formation of sludge, however, depends on the oil base stock, use of inhibitor, if any, working temperature and exposer of oil to air during service. further, the indigenous traction loco transformer, due to improper seasoning of the coil at the manufacturing stage, requires tightening of the pressure bolts during the first IOH after commissioning to overcome the problems caused by inadequate seasoning.

1.2 It has also been observed that frequent opening and cleaning of the active parts results in pealing off of the insulation on the conductors leading to failure in service.

1.3 In order to obtain the optimum- service life from the traction loco transformer it is proposed to open the transformer only in POH for cleaning that is after 6 to 8 years of service except for the opening in first IOH after commissioning for tightening of the pressure bolts.

2. INSTRUCTIONS

Work to be carried out on the transformer during the first IOH after commissioning and POH.

2.1 **A**s per Annexure 1.

3. PERIODICITY

As per 2.0 above.

4. INSTRUCTIONS DRAWING

NIL.

5.0 APPLICATION ON CLASS OF LOCOMOTIVE

All traction transformers of AC electric locomotives.

6. AGENCY OF IMPLEMENTATION

An AC Electric Loco Sheds and POH shops.

7. DISTRIBUTION

As per list enclosed.

(R.N.LAL)
for Director General (Elect.)

Encl: As above.

Annexure-1

i) Check at accord the oil changed risting as laid down in SMI No. 1 If the results of P. above check are not within accept. limit, (Ref: SMI 1) replace the oil with new filtered.

ii) Check the insulation resistance of different windings to earth with 2.5 KV meggar. If it value in less then dry out the transformer.

iii) Check the complete tank and conservator for any deformation and crack. Remove the deformation and repair the tank/ conservator for cracks if any as per SMI NO. 102.

iv) Remove all accessories fitt, on the transformer tank cover and open the cover plate left the core coil assembly and tighten the coil pressure bolt on all the-- legs of the transformer. Pressure bolts to be tightened untill bellville washersbecome flat and their rotated by 1/6 turn in opposite direction.

v) Lower and raise the active part 4 to 5 times in a dry oil bath so as to remove the sludge. from the ducts in the core/ windings. place the active part in a large vessel and hose down with clean dry oil. Clean the transformer tank thoroughly. Do not impinge hot oil jet on the transformer windings.

vi) Check all the six core support bolts for any crack at the welded joints and replace with the bolts if necessary.

vii) Check and tighten the temperature at top and bottom yoke bolts by torque wrench with 25 KG meter long.

viii) Check and align if necessary, the spacers and the wedges.

ix) Check the paper insulation on the winding leads for any damage and reinsulate, if necessary.

x) Check bushing insulators and studs for any damage and replace, if necessary.

xi) Check and if necessary, tighten the interconnection with bus bars.

xii) Apply 2 KV ac for I min. between yoke bolt and earth and measure the leakage carried which should be less thin in MA. If the leakage current is more that in and dty and the transformer.

xiii) Check insulation resistances with I KV meggar between

(a) end frame and core, (b) and frame and steel ting which should be more than 5 mega ohm and wit. 5 KV meggar between different windings and earth which should be more than 100 mega ohm. if the value is less dry out the transformer.

xiv) Check the condition of flower contact of the 25 KV bushing and replace if any.

xv) Check and record the resistance of different windings.

xvi) Retank the clean, dry active part and replace all gasket before tightening the tank cover.

xvii) Check, clean and refit all accessories removed from the transformer tank cover.