SN 2191

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सत्यमेव जयते

भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226011
Government of India-Ministry of Railways
Research Designs & Standards Organisation
Lucknow - 226011

No:EL/3.2.15 Dated : 9.7.2001.

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MODIFICATION SHEET NO.ELRS/MS/0296-2000 (REV-001)

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1.0 **TITLE OF THE MODIFICATION** :

To increase the oil filling interval of compressor type TRC 1000 MN of M/s.Elgi make by increasing the sump capacity.

2.0 **APPLICATION TO CLASS OF ELECTRIC LOCOMOTIVES** :

All Electric Locos fitted with Elgi make compressor type TRC 1000 MN.

3.0 OBJECT OF MODIFICATION:

3.1 It has been noted from the rate of oil consumption that topping up period of the oil is of the order of 250 to 300 hours or 12 to 15 days on Elgi make compressors type TRC 1000 MN, considering 20 hours working per day.

3.2 Necessity was being felt to increase the topping up period from existing 12-15 days to 30-45 days so that topping up of oil may be done during monthly inspection schedule of the locomotive.

3.3 Detailed study has been carried out at RDSO in consultation with M/s.Elgi. It was decided to increase the sump capacity and reduce the specific oil consumption of the compressor.

3.4 A prototype compressor was manufactured by M/s.Elgi with modified crank case having increased sump capacity and reduced specific oil consumption.

3.5 The modified prototype compressor was subjected to performance test to assess the oil consumption rate. After the test, oil consumption was observed as 0.52 ml/hr. With new crank case casting, the oil sump capacity is increased as mentioned below :

Sl.No.	Description	Sump capacity (ml)	Quantity of oil in sump between max. and min. mark (ml)	Specific oil consumption ml/Hr.
1.	Compressor with old crank case	Max- 1050 Min.-770	280	0.83
2.	Compressor with modified new crank case	Max.1350 Min.600	750	0.52

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From the above table, it can be seen that in new modified crank case, oil quantity between maximum and minimum mark is almost 2.6 times than the old crank case.

3.6 After the performance test, it is worked out that sump oil is sufficient for about 45 days with compressor with modified crank case.

3.7 Even considering the wear and tear on compressor already in service and specific oil consumption of unmodified compressors, this sump capacity is adequate for about 30-45 days and oil can be topped up during IA schedule.

3.8 During redesigning the crank case, care has been taken to improve the dipstick arrangement. Threaded type dipstick design has been introduced in lieu of existing press type design. Minimum level is marked on modified dipsticks. In case excess oil is poured after removing the dipstick from crank case, the extra oil will overflow from the crank case through the dipstick hole after reaching the maximum level.

4.0. **Material required for modification** :

The following items will be required for carrying out the above modification :

S.No.	Item	Part No. indicated in M/s.Elgi's operation and maintenance manual for TRC 1000 MN compressors	Quantity
1	Modified crank case	070301040	1 No.
2.	Oil splasher	070400710	1 No.
3.	Dip stick assembly	070400690	1 No.

4.1 M/s.Elgi has submitted the budgetary offer for modification kit comprising above 3 items @ Rs.3756/kit + excise duty + Sales tax + freight charges extra (Copy enclosed)

4.2 Alternatively, M/s.Panesar Engineering Co., Kaithal have developed above kit for modification which has been tried at ELS, GZB. The modified parts in kit form can be procured from them also having following Drg. Nos :

Sl.No.	Item	Part No. of M/s.Panesar Engg.Co.	Quantity
1	Crank Case	Part No-P ACT. 001CC	1 No.
2.	Oil Splasher	Part No-P ACT.001OS	1 No.
3	Dipstick	Part No-P ACT.001DS	1 No.

5.0 ***DETAILS OF MODIFICATIONS :***

5.1 This modification has to be carried out on compressors type TRC 1000 MN having modified crank shaft assembly, i.e. 3 piece design and 43 mm dia. For old crankshaft assembly of 5 piece design and 35 mm diameter, crank shaft assembly along with

Crankcase, oil splasher and dip stick assembly will require to be changed. This work may be taken up during due replacement of crank shaft.

5.2 M/s.Elgi have already started supply of new compressors with modified crankcase. They have supplied 36 compressor motor sets with modified crank case to CLW. ('CP' Sr.No.34211 to 34219, 34221 to 34226, 34234, 34251 to 34270).

6.0 **WORK TO BE CARRIED OUT :**

6.1 Dismantle the compressor following the instructions laid down in M/s.Elgi's operation and maintenance manual.

6.2 Replace the old crank case with modified crank case.

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6.3 Replace the old oil splasher with new oil splasher.

6.4 Replace the old dipstick with modified dipstick.

6.5 Assemble the compressor with modified crank case and other existing parts, following the procedure laid down in operation and maintenance manual.

7.0 **RECOMMENDATION FOR OIL TOPPING UP PERIOD**:

7.1 During the IA inspection, on compressors with modified crankcase. However, oil level should be checked as per existing schedule of Railways and if required, oil should be filled up.

7.2 Topping up period may be monitored initially after the modification and maintenance staff at out pits be advised accordingly.

8.0 **MODIFICATION DRAWING NOS** : As in para 4.0 above.

9.0 **AGENCY FOR IMPLEMENTATION** : All Electric Loco Sheds and shops of Indian Railways.

10.0 **PERIODICITY** : During IOH & POH of locomotives or during major repairs to compressors.

11.0 **DISTRIBUTION** : As per list attached.

12.0 **ENCLOSURE** : M/s.Elgi Equipment/Coimbatore letter No.MKT:SS:RDSO:Kit dated 29.08.2000 (One page).

Rajiv Kumar

(R.K.Kulshrestha)
for Director General/Electrical.

Rev'd at SLNO 2202 (A)