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Ministry of Railways
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Organization,
LUCKNOW - 226011



EL/3.1.35/23

Date: 02-05-2018

Chef Electrical Engineer

Central Railway, Mumbai CST-400 001.
Northern Railway, Baroda House, New Delhi-110 001.
North Central Railway, Block A2, Allahabad- 211 033
North Eastern Railway, Gorakhpur-273 001
Northeast Frontier Railway, Maligaon, Guwahati-781 011
North Western Railway, Jaipur.
Eastern Railway, Fairlie Place, Kolkata -700 001.
East Central Railway, Hazipur-844101.
East Coast Railway, Chandrashekharapur, Bhubaneshwar-751016.
Southern Railway, Park Town, Chennai-600 003.
South Central Railway, Secunderabad-500 371.
South Eastern Railway, Garden Reach, Kolkata -700 043.
South Western Railway, 4th Floor, Laxmi Balakrishna Square
Complex, Railway Station Road, Hubli- 580 020 (Karnataka).
South East Central Railway, Bilaspur-495004
Western Railway, Churchgate, Mumbai-400 020.
West Central Railway, Jabalpur-482001.

Technical Circular No: RDSO/2018/EL/TC/0146, Rev "0" Dt. 02-05-2018

Sub: Jig for checking position of the Boss of gear case of Hitachi Traction motor in Electric Locomotive.

Ref: 38th MSG meeting held at Secunderabad/South Central Railway on 28th & 29th July'2017- SN 6 of Recommendations of MSG.

1. Introduction

After Rehabilitation/overhauling of gear case of Hitachi Traction motor in the Sheds/Workshops, many times it is found that Gear box Boss and bolt of Traction motor do not match with each other. This results in difficulty in fitment and undue stress on the gear case/Traction motor lug. Sometimes it has been noticed that minor misalignment of boss holes remain after repair because it was not been located properly during repair or disturbed during repair. This happens because there is no standard means to check the position of boss after repair of gear case. This may lead to development of further cracks/breakage of gear case and traction motor lugs.

2. Corrective action

To avoid recurrence of such problems, SER has developed a jig for checking the position of boss on Hitachi gear case. It has been reported by SER that this jig is being used to check position of boss after repair of the gear case. In the 38th MSG meeting it was recommended that RDSO should study the design and issue necessary guidelines for benefit of all the other Loco sheds/workshops. This will help in reduced stresses and better reliability.

In view of above, RDSO with the help of ELS/SRC has developed the design of the jig for checking the position of boss of gear case of Hitachi Traction motor in Electric Locomotive as given in the drawing no. SKEL-5028 at **Annexure-I**. It is advised that standard fixture may be prepared as per dimensions given in RDSO drawing no. SKEL-5028 as shown below.

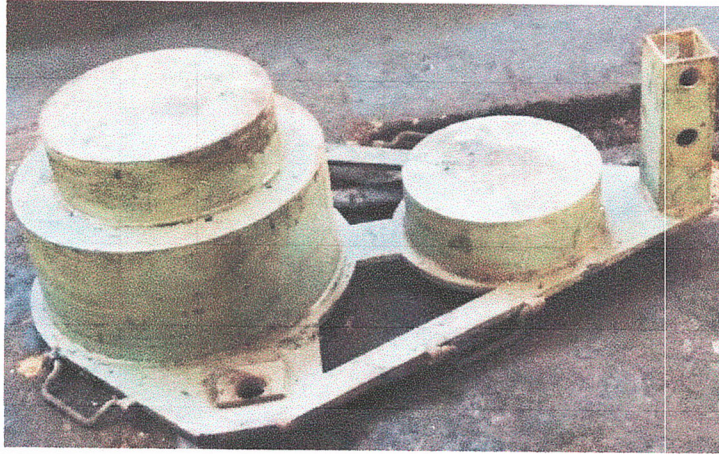


Fig 1-Pictorial view of Gear case fixture

3. Procedure for checking correctness of boss position

Position of boss should be checked every time before fitment of gear case on Hitachi Traction motor with the help of jig as mentioned below:-

- (i) Ensure that the gear case and jig are clean and free from foreign materials.
- (ii) Place the gear case on level in horizontally, smooth & clean surface so that the boss facing upwards as shown below.

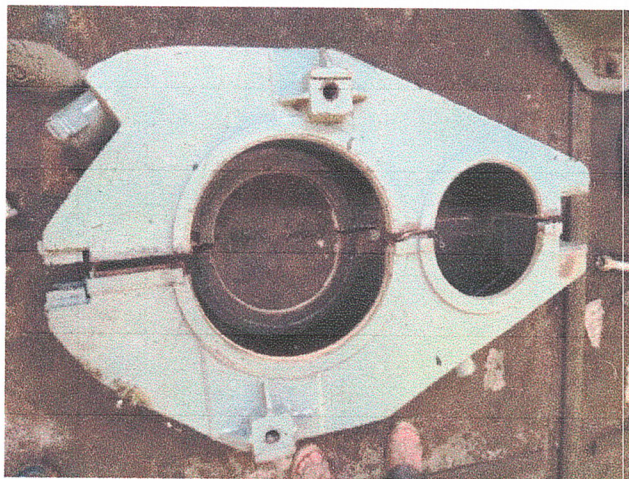


Fig 2-Gear case on level surface

- (iii) Ensure that edges of two parts of gear case are matching properly.
- (iv) Place the jig on the gear case as shown below. Proper care should be taken to prevent to any damage to the gear case/jig while positioning.

A handwritten signature in blue ink, located at the bottom right of the page.

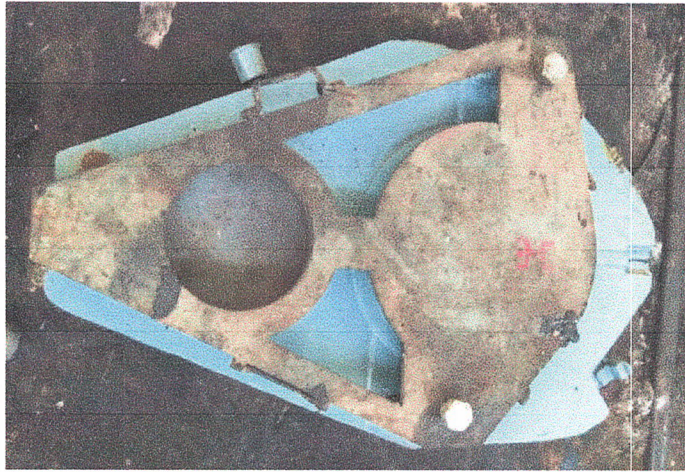


Fig 3-Fixture placed on Gear case

- (v) Fully tighten the four gear case fixing bolts with nuts at four locations as shown in picture below.

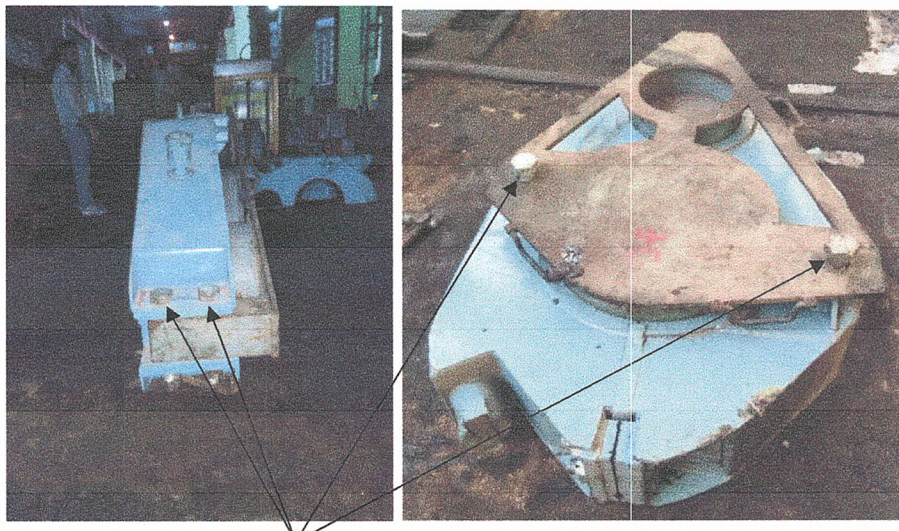


Fig 4-These bolts to be tightened to check for correct location


- (vi) There should not be any abnormal stiffness on the bolts at the time of inserting the bolts or tightening the nuts. If such stiffness is noticed, the gear case should be checked thoroughly to detect any misalignment.
- (vii) Loosen the nuts, remove the bolts and remove the jig from gear case taking utmost care to avoid any damage to gear case/jig.

(Pratibha Gupta)
For Director General/Electrical

Copy to: Secretary/Elect, Railway board (for information please)



1. ALL DIMENSIONS ARE IN mm.
2. ONE SAMPLE SHOULD BE GOT APPROVED BEFORE SUPPLY.
3. MATERIAL - MS IS - 2062 / 1992 OR LATEST GRADE 'C' HATCHED PORTIONS TO BE REMOVED BY CUTTING
4. THE BASE PLATE OF 12 mm THICK SHOULD BE HELD PROPERLY TO AVOID DISTORTION DURING WELDING.

Ref. No.	PART NO.	DESCRIPTION	DETAIL DRG. No.	No./LOCO	MATL.	SPEC.
REF. :- SR. DEE/RS/ED/MECH/40			SCALE - N.T.S.		APPD. BY.	 (For Dg)

JIG FOR HITACHI GEAR CASE

RD50. ELECT. DTE.	SKEL - 5028	SUPERSEDED BY
		SUPERSEDES

STATUS	ALT.	REF. NO.	DESCRIPTION	APPD. BY	DATE
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DT.	09/14/18
D	Green
C	G. 40 2.5.18
T	-