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भारत सरकार – रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ – 226011
Government of India - Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW - 226011

No. EL/3.2.15/Main

Dated: 08.09.2017

Chief Electrical Engineer,

- Central Railway, Mumbai CST- 400 001.
- Eastern Railway, Fairlie Place, Kolkata- 700 001.
- East Cost Railway, Chandrashekharpur, Bhubaneswar- 751 016.
- Northern Railway, Baroda House, New Delhi-110 001.
- North Central Railway, Hasting Road, Allahabad-211 001.
- North Eastern Railway, Gorakhpur-273012.
- Southern Railway, Park Town, Chennai-600 003.
- South Central Railway, Rail Nilayam, Secunderabad –500 017.
- South Eastern Railway, Garden Reach, Kolkata -700 043.
- Western Railway, Churchgate, Mumbai-400 020.
- West Central Railway, Jabalpur-482001.
- South East Central Railway, Bilaspur-495004.
- East Central Railway, Hazipur-844101 (Bihar).
- Chittaranjan Locomotive Works, Chittaranjan-713 331.

MODIFICATION SHEET No. RDSO/2017/EL/MS/0462 Rev.'0' Dated 08.09.2017

1.0 TITLE :

Provision of Disc type coupling in Main Compressor of 1000 LPM capacity in place of Resilient Coupling.

2.0 OBJECT:

Disc type coupling can be provided in Main Compressors in place of existing resilient coupling as it requires less maintenance. This modification was proposed by West Central Railway for 38th Maintenance Study Group meeting as agenda item no.03, the proposal was deliberated & accepted. Consequently, the modification sheet is being issued.

3.0 Existing Arrangement:




Resilient type coupling is in use in most of the 1000 lpm main compressors. In view of several disadvantages of resilient coupling over disc coupling such as requiring more time in alignment, regular greasing, breakage coupling spring, grease leakage and abnormal noise on run.

4.0 Modified Arrangement:

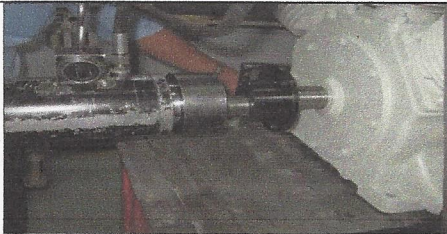
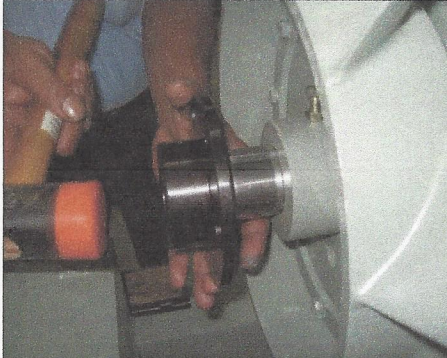
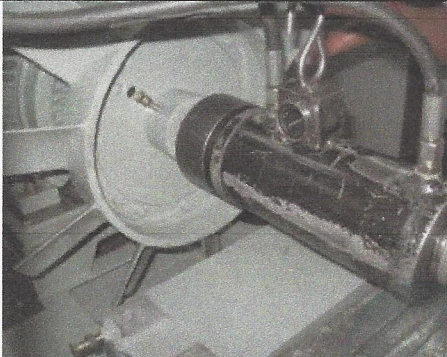
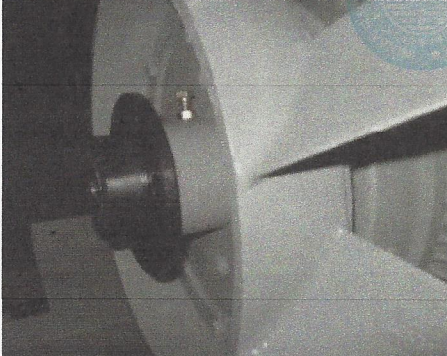
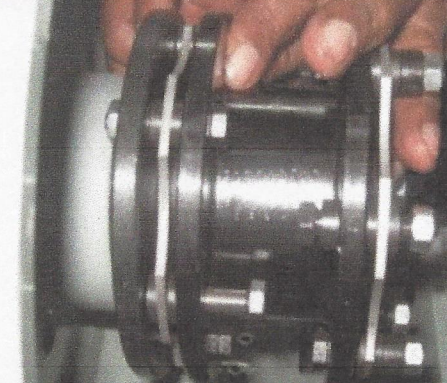
The existing Resilient coupling is to be replaced by disc type coupling in 1000 lpm compressors provided in conventional Electric Locomotives.

5.0 Work to be carried out:

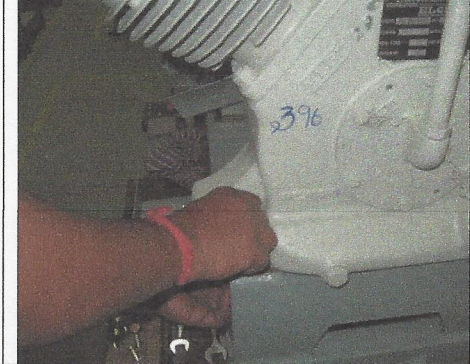
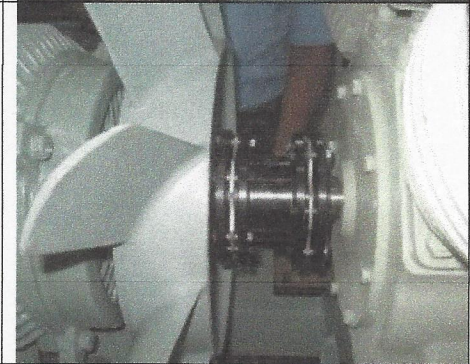
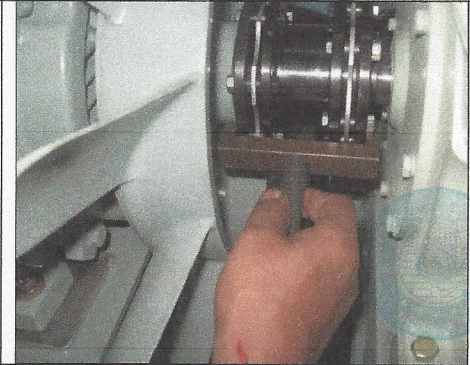
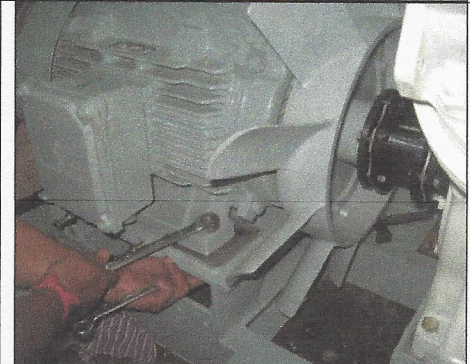

The sequence of modification for changing resilient coupling to disc coupling is as follows:

Coupling Alignment procedure is one of the make of 1000 lpm is explained below :		
Seq. No.	Sequence of Assembly details	Tools / Activities
1		Special Tools for alignment: <ol style="list-style-type: none">1. Calipers2. Sockets3. Torque wrench4. Open end wrenches5. Alignment equipment
2		Activities for Hub Installation & alignment <ol style="list-style-type: none">1.0 Dismantle the coupling assembly, mount the compressor side coupling hub (43 mm bore) on the crankshaft, care to be taken not to push the hub cross way.
3		<ol style="list-style-type: none">2.0 Hammer the hub slightly and evenly by plastic hammer and ensure that hub is entered uniformly straight on the shaft.

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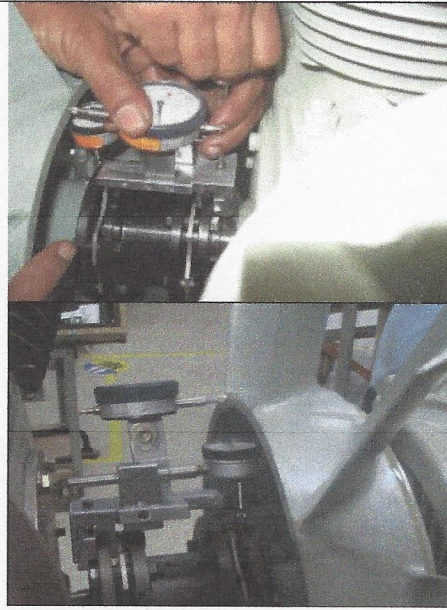
4		3.0 Further, use proper pusher to push the coupling hub completely. Ensure that coupling hub is pushed to the maximum end and lock the hub with shaft by Grub screw properly.
5		4.0 Mount the motor side coupling hub (48 mm bore) on the motor shaft, hammer the Hub slightly and evenly by plastic hammer and ensure that hub is entered uniformly straight on the shaft.
6		5.0 Further, use proper pusher and ensure that hub is pushed to the maximum.
7		6.0 Finally lock the hub with Grub screw properly.
8		7.0 Fix the coupling spacer with motor side coupling hub.



9		8.0 Put the top block(compressor) on base frame and ensure that the spacer is properly placed with the top block side hub and insert Hex bolt, over load washer and hex nut properly through the top block side hub and spacer.
10		9.0 Place the compressor properly along the centre axis of the base and tight it to the base (this is not to be disturbed further)
11		10.0 Move the motor towards compressor and maintain 101mm distance (flange to flange and ensure opposite sides are butting properly i.e. the flange faces with tool face) by using Axial Measuring Tool.
12		11.0 Tight the motor base bolts by using Torque wrench up to 50N-m.
13		12.0 Tight the coupling bolts evenly up to 33N-m torque by using torque wrench.

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13.0 Mount the dial gauge holder on compressor side and fix the dial gauge pin. so that it touches the motor side hub to read radial deflection. Fix the other dial gauge so that its pin touches the fan flange face to read axial deflection. Adjust both the dial on ZERO position at TOP (12'O' clock position). Rotate the fan and read the misalignment. Put shims as required to meet the alignment accuracy. Allowable Radial Misalignment is 0.40 mm and Axial Misalignment is 1.2 mm. Finally after the alignment, check all the base bolts and Coupling bolts tightness for specified torque.

6.0 Application To Class Of Locomotives:

Compressor of 1000 lpm capacity.

7.0 Material Required:

- Disc coupling assembly of suitable design to be procured from approved suppliers.

8.0 Material Rendered As Surplus:

- Resilient Coupling assembly.



9.0 References:

- The recommendation of 38th MSG Item no. 03 has been accepted by Railway Board vide letter no. 2017/Elect (TRS)/138/5 dated 31.08.2017.

10.0 Modification Drawing:

- NIL

11.0 Agency For Implementation:

Electric Loco Sheds, POH & MTR Workshops.

12.0 Distribution:

As per standard Mailing List

Uk 8/19/2017
(Aseem Kumar)
for Director General/Elect.

Copy to: As per Standard Mailing List No.EL/M/0019

/
(Aseem Kumar)
for Director General/Elect.