

Rail Coach Factory, Kapurthala

CAI No.: ED/CAI/031 Dated: 20.03.2024

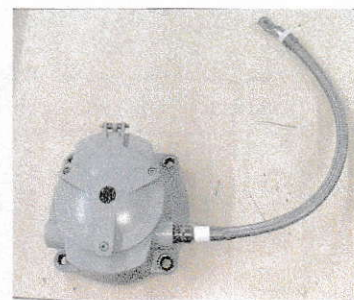
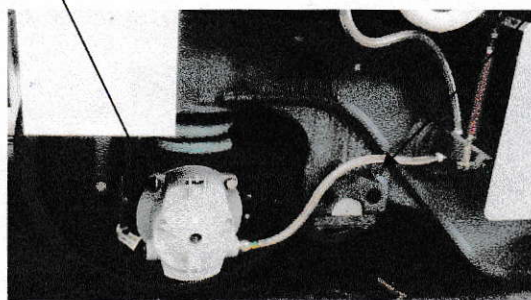
This Coach Alteration Instruction Sheet has been issued for modifications to be carried out in Wheel Set Earthing Equipment (WSEE) to spec. EDTS101 in LHB EOG Coaches on the basis of feedback received from Users Railways. It covers modifications in front cover and brush holder assembly mounting arrangement by provision of SS inserts. The detailed step by step procedure is as under:

Step-1: Removal of Wheel Set Earthing Equipment (WSEE) from Coach Bogie :

- i. Disconnecting the earthing cable to drawing No. LW71245 Alt.-`d` from Bogie to WSEE by removing hardware.
- ii. Unfastening of mounting bolts M16X45mm of earthing device housing from bogie axle in order to dismantle the WSEE from bogie axle.

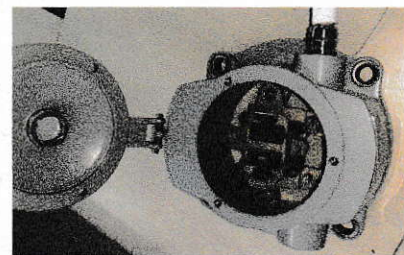
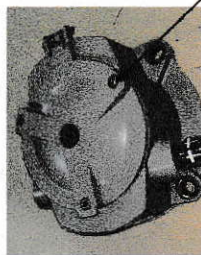
Mounting bolts

Earthing cable



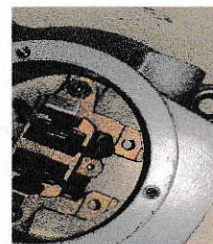
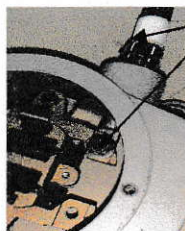
- iii. Opening the cover of earthing device housing by removing the Hex. Hd. Cap screw of Size M8X20mm .

Cover Fasteners



- iv. Removal of the earthing cable connections from carbon brush holder assembly to drawing no. LW71237 by removing hardware of size M10x20mm.

EARTHING CABLE

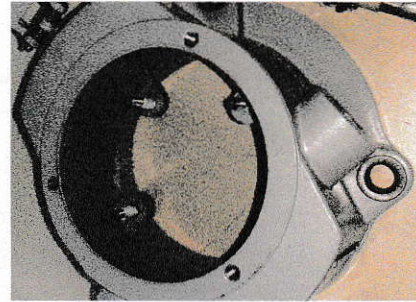
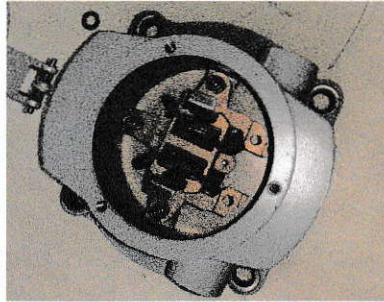


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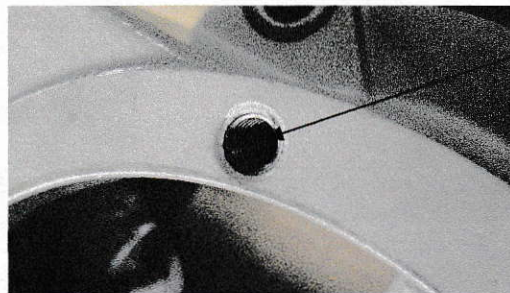
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- v. Removal of complete Carbon brush holder assembly to drawing no. LW71237 by removing the Hex. Hd. Nylock Nut of size M8.



Step-2: Modifications required in WSEE Housing as per ref. drawing no. SKED 945

- i. Removal of the helicoil spring from the existing 03 nos. mounting holes provided in WSEE housing for fixing of front cover with special tool.



Helicoil spring

- ii. Modifying the existing 3nos. mounting holes to M12 threaded hole suitable for SS bush to drawing no. SKED 945 in housing for WSEE to Drawing no. LW71233. The PCD of 160mm at 120deg. shall be maintained to ensure proper fixing of cover during assembly.
- iii. Fixing of the threaded SS bush (AISI 304) in threaded holes with use of Loctite Red 271 Thread locker of 3M make and SS bush shall be tested for any movement during screwing and unscrewing of M8 Stud after the specified period of 30min (min).

Step-3: Modifications required for fixing of Carbon brush Holder Assembly as per ref. drawing no. SKED 945.

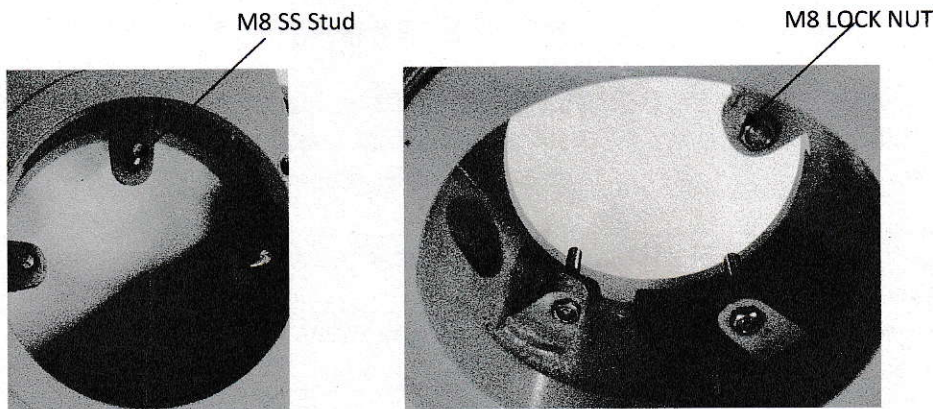
- i. The Stainless steel Stud of size M8x40mm (3nos.) provided for fixing of Carbon brush holder assembly shall be removed.
- ii. Removal of the helicoil spring from the existing 03 nos. mounting holes provided in WSEE housing for fixing of Brush Holder assembly with special tool.
- iii. Modifying the existing 3nos. mounting holes to M12 threaded hole suitable for SS bush (AISI 304) to drawing no. SKED 945 in collars for mounting of brush assembly to drawing No. inside WSEE housing to drawing no. LW71233.

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- iv. Fixing of the threaded SS bush (AISI 304) in threaded holes with use of Loctite Red 271 Thread locker of 3M make and SS bush shall be tested for any movement during screwing & unscrewing of M8 Stud after the specified period of 30min (min).
- v. Provide the Stainless steel Stud (AISI 304) of size M8x55mm (02nos.) & M8x50mm (01no.) at the existing locations with use of Loctite Red 271 Thread locker of 3M make.
- vi. Provide the M8 SS locknut (AISI 304) at the bottom side of the studs with use of Loctite Red 271 Thread locker of 3M make as per drawing SKED 945.



- vii. Fixing of the Carbon Brush holder assembly to drawing no. LW71237 properly at the existing location.

Step-4: Reassembling of Wheel Set Earthing Equipment (ref. drawing no. SKED 945)

- i. Fixing of the carbon brush holder assembly to drawing no. LW71237 properly at the existing location with M8 SS Studs, lock Nut etc.
- ii. Connecting the earthing cable to drawing no. LW71245 in Carbon Brush assembly properly with M10x20 Bolt, torque 30N/m.
- iii. Fixing of front cover assembly with Allen Bolt of size M8, torque 25N/m.
- iv. Fixing of the complete WSEE assembly on the bogie axle with M16x45 Bolt, torque 170N/m.
- v. Connecting the earthing cable to drawing no. LW71245 with Bogie frame properly.

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a). Bill of Material required for modifications:

Sno.	Item description	Ref. Spec./Drg.	QPA	Remarks
1.	Stainless Steel Bush, L=18mm, Thread size M12x1.75(outside)/M8X1.25 (inside) (Mat. AISI 304) to match with M8 Allen screw)	SKED 945	03	For fastening of cover with housing
2.	Stainless Steel Bush, L=15mm, Thread size M12x1.75(outside)/M8X1.25 (inside) (Mat. AISI 304) to match with M8 Allen screw)	SKED 945	02	For mtg. brush holder assembly.
3.	Stainless Steel Bush, L=10mm, Thread size M12x1.75(outside)/M8X1.25 (inside) (Mat. AISI 304) to match with M8 Allen screw)	SKED 945	01	For mtg. brush holder assembly.
4.	Stainless Steel Stud M8x55mm (Mat. AISI 304)	SKED 945	02	For mtg. brush holder assembly.
5.	Stainless Steel Stud M8x50mm (Mat. AISI 304)	SKED 945	01	For mtg. brush holder assembly.
6.	Stainless Steel Lock nut, M8	SKED 945	03	For mtg. brush holder assembly.
7.	Loctite Solution, 3M make (6ml/50ml)	Red 271 Thread locker	01	-

b). Special Tools Required:

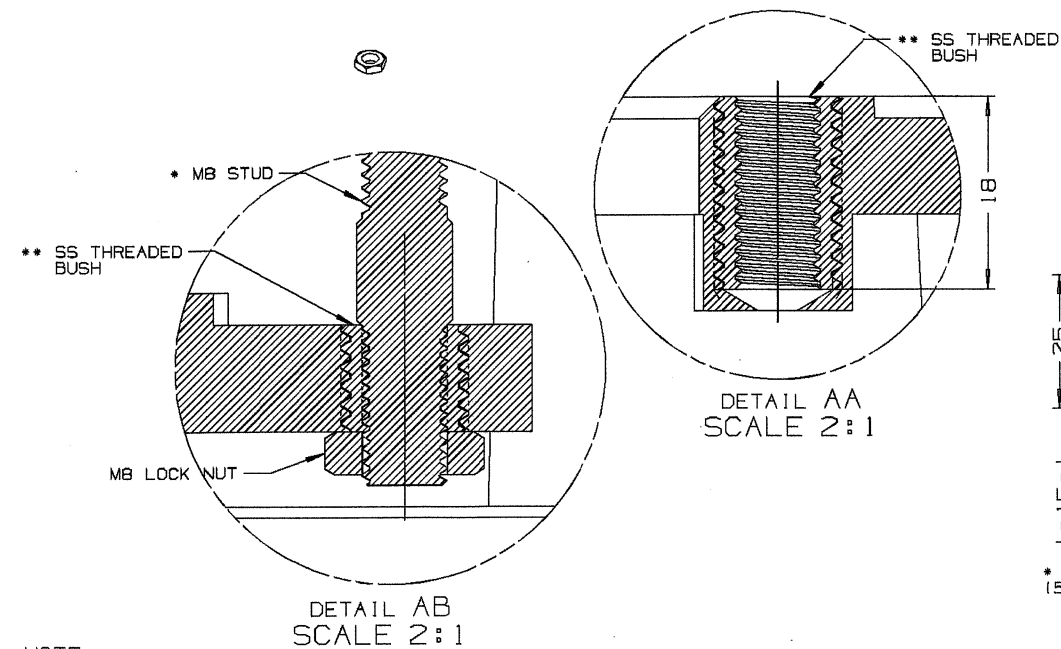
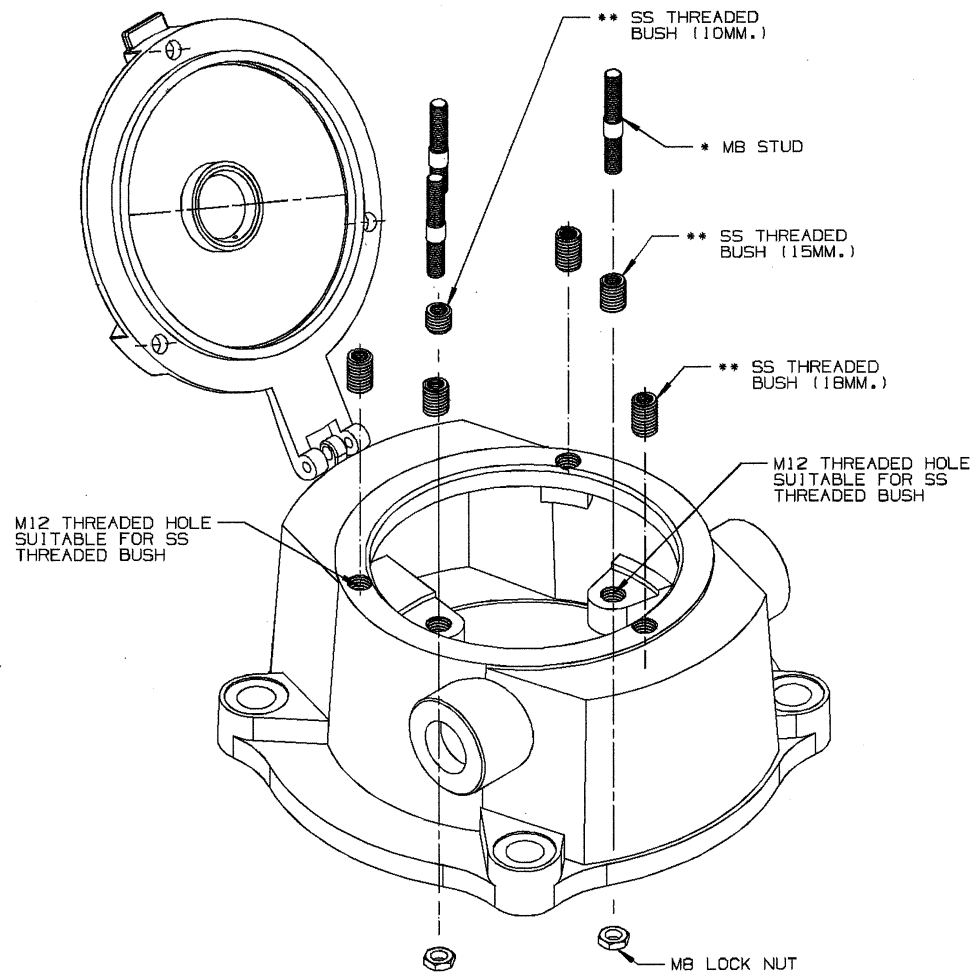
1. Torque Wrench with Allen key M8 adapter and M8 Hex. HD. adapter
2. Helicoil Extraction Tool Size M8.

c. Enclosures:

Sno.	Ref. Specification/Drawing no	Description
1	EDTS 101 REV. C, AM. 1& 2 Cor.1 to Cor.8	Spec. for WSEE.
7	SKED 945	WSEE Modifications.

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NOTE:-

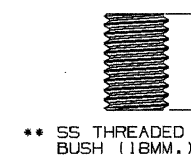
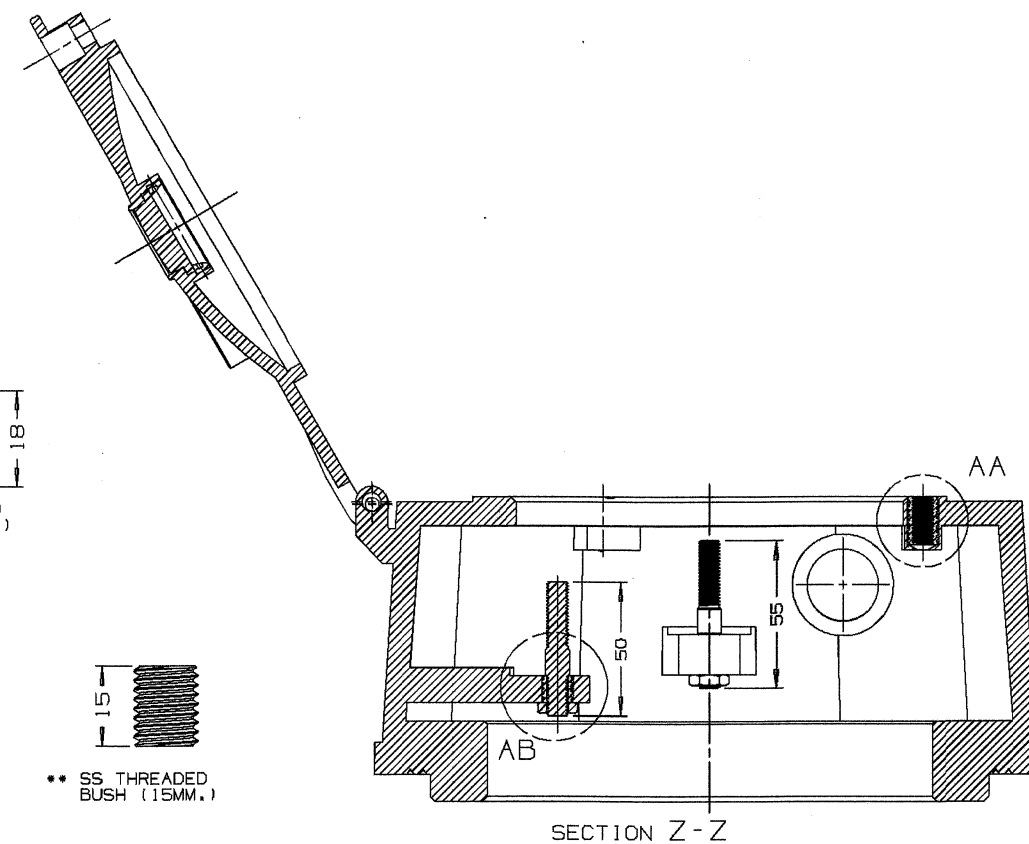
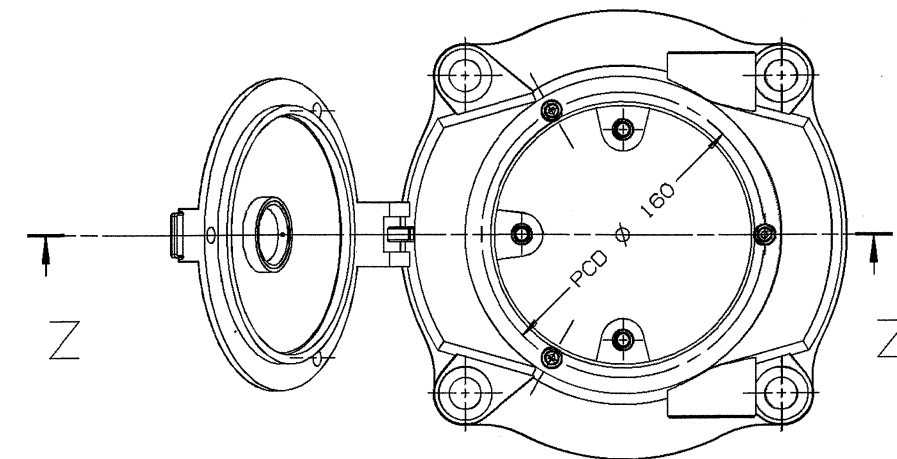
1. ALL DIMENSIONS IN MM.
2. THREADED BUSH SHALL BE OF SS MATERIAL TO AISI 304. THE BUSH SHALL HAVE M12X1.75 (RH) THREAD ON OUTSIDE AND MBX1.25 (RH) THREAD ON INSIDE.
 - a) THREADED BUSH OF LENGTH 18MM. (3-NOS.) SHALL BE USED FOR FASTENING THE COVER.
 - b) THREADED BUSH OF LENGTH 15MM. (2-NOS.) & 10MM. (1-NO.) SHALL BE USED FOR FASTENING.
3. MB STUD SHALL BE OF AISI 304 MATERIAL. MB STUD SHALL BE PROPERLY SCREWED WITH LOCK NUT FROM BOTTOM SIDE.
4. THIS DRAWING SHALL BE REFERRED ALONGWITH CAI NO. ED/CAI/031, DATED:20.03.2024.

DETAIL DRGS STARTING WITH "LI" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE

ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.

R UNTOLERANCED DIMENSIONS REFER MDG0008 DATE OF FIRST ISSUE 16/03/2024

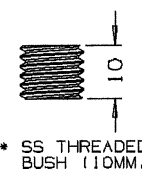
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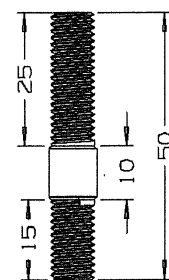
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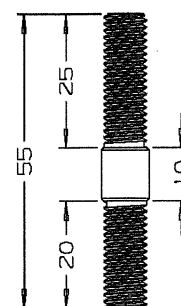
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** SS THREADED BUSH (10MM.)



* MB STUD (55MM.)



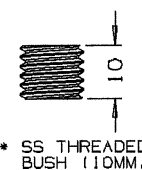
* MB STUD (25MM.)



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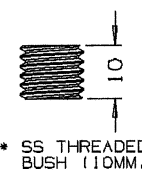
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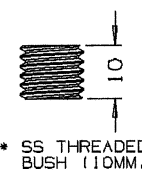
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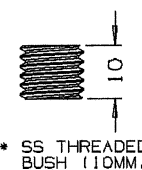
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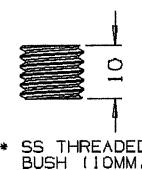
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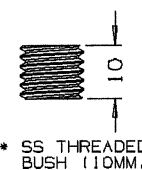
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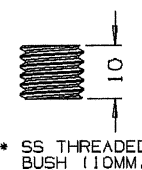
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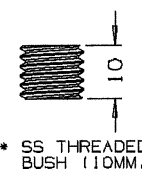
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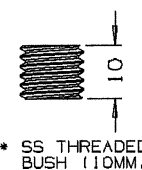
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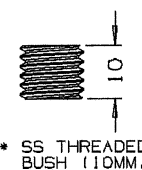
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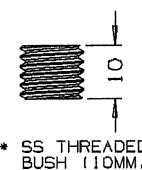
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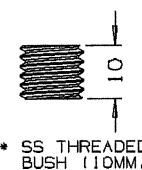
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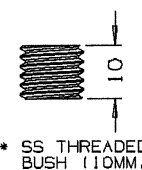
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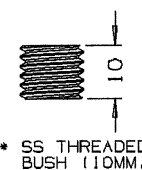
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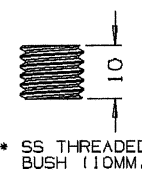
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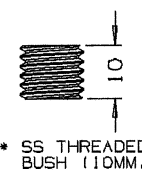
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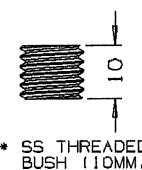
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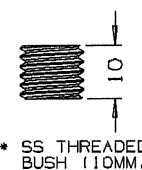
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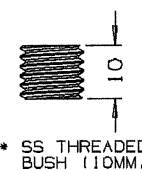
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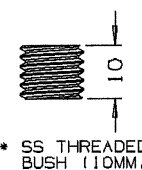
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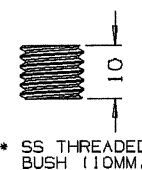
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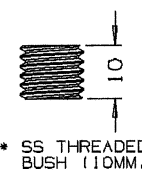
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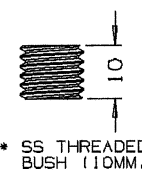
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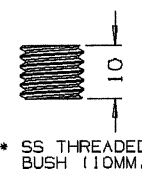
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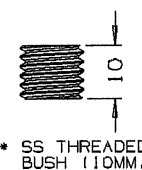
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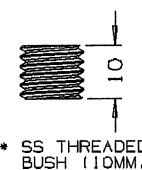
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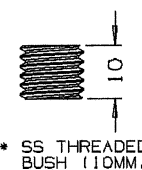
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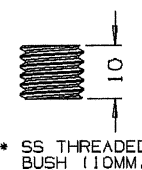
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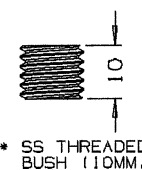
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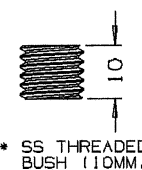
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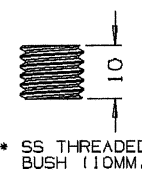
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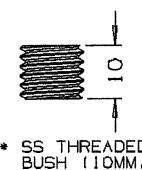
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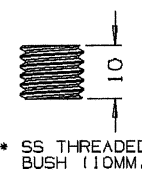
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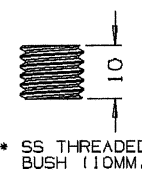
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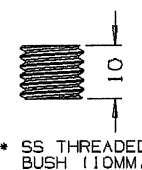
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** SS THREADED BUSH (18MM.)



** SS THREADED BUSH (15MM.)



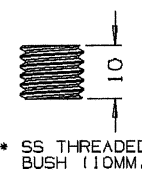
** SS THREADED BUSH (10MM.)



** SS THREADED BUSH (18MM.)



** SS THREADED BUSH (15MM.)



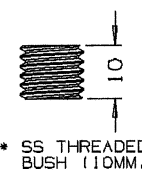
** SS THREADED BUSH (10MM.)



** SS THREADED BUSH (18MM.)



** SS THREADED BUSH (15MM.)



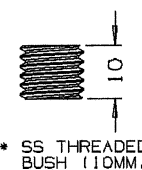
** SS THREADED BUSH (10MM.)



** SS THREADED BUSH (18MM.)



** SS THREADED BUSH (15MM.)



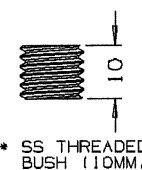
** SS THREADED BUSH (10MM.)



** SS THREADED BUSH (18MM.)



** SS THREADED BUSH (15MM.)



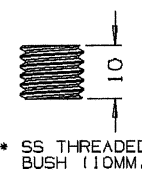
** SS THREADED BUSH (10MM.)



** SS THREADED BUSH (18MM.)



** SS THREADED BUSH (15MM.)



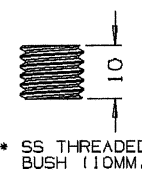
** SS THREADED BUSH (10MM.)



** SS THREADED BUSH (18MM.)



** SS THREADED BUSH (15MM.)



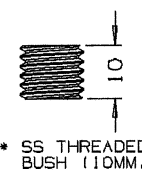
** SS THREADED BUSH (10MM.)



** SS THREADED BUSH (18MM.)



** SS THREADED BUSH (15MM.)



** SS THREADED BUSH (10MM.)



Rail Coach Factory, Kapurthala

Ammendment-1 to CAI No.: ED/CAI/031 Dated: 20.03.2024

This Amendment -1 to Coach Alteration Instruction no. **ED/CAI/031 dated 20.03.2024** is being issued for updation of various clauses at Step-2 & Step 3 with addition of procedure to carry out the modifications already advised in Wheel Set Earthing Equipment (WSEE) to spec. EDTS101 in LHB EOG Coaches. This updation is being done in reference to MOM with W/Rly. The revision in respective clauses at Step-2 & Step- 3 is as under:

Step-2: Modifications required in WSEE Housing as per Ref. drawing no. SKED 945

- i. Removal of the helicoil spring from the existing 03 nos. mounting holes provided in WSEE housing for fixing of front cover with special tool.
- ii. Modifying the existing 3nos. mounting holes to M12 threaded hole suitable for SS bush to drawing no. SKED 945 in housing for WSEE to Drawing no. LW71233. The PCD of 160mm at 120deg. shall be maintained to ensure proper fixing of cover during assembly.
- iii. Fixing of the threaded SS bush (AISI 304) in threaded holes with use of Loctite Red 271 Thread locker of 3M make and SS bush shall be tested for any movement during screwing and unscrewing of M8 Stud after the specified period of 30min (min).

For above referred modifications regarding provision of SS bushes as per ref. drawing SKED 945 , the procedure mentioned as per Annexure-A shall be followed.

Step-3: Modifications required for fixing of Carbon brush Holder Assembly:

a). Option-1

- i. The Stainless steel Stud of size M8x40mm (3nos.) provided for fixing of Carbon brush holder assembly shall be removed.
- ii. Removal of the helicoil spring from the existing 03 nos. mounting holes provided in WSEE housing for fixing of Brush Holder assembly with special tool.
- iii. Modifying the existing 3nos. mounting holes to M12 threaded hole suitable for SS bush (AISI 304) to drawing no. SKED 945 in collars for mounting of brush assembly to drawing No. inside WSEE housing to drawing no. LW71233.

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- iv. Fixing of the threaded SS bush (AISI 304) in threaded holes with use of Loctite Red 271 Thread locker of 3M make and SS bush shall be tested for any movement during screwing & unscrewing of M8 Stud after the specified period of 30min (min).
- v. Provide the Stainless steel Stud (AISI 304) of size M8x55mm (02nos.) & M8x50mm (01no.) at the existing locations with use of Loctite Red 271 Thread locker of 3M make.
- vi. Provide the M8 SS locknut (AISI 304) at the bottom side of the studs with use of Loctite Red 271 Thread locker of 3M make as per drawing SKED 945.

For above referred modifications regarding provision of SS bushes as per ref. drawing SKED 945, the procedure mentioned as per Annexure-A shall be followed.

b). Option-2

- a. Provide the Stainless steel Hex. Head Bolt (AISI 304) of size M8x50mm (03nos.) at the existing hole locations after removal of Stud of size M8x40mm (3nos.) already provided for fixing of Carbon brush holder assembly.
- b. After placing brush holder assembly, the fixing of SS M8 Nylock Nut with use of Loctite Red 271 Thread locker of 3M make shall be ensured.

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ANNEXURE-A

Procedures for Drilling and Tapping of Holes.

A) Procedure for Jig Mounting for Cover Fastening Drill :

- i. Remove Helicoil inserts already present in the holes before drilling Holes for Cover mtg. in the WSEE Housing.
- ii. Housing of the WSE shall be fastened on the mounting plate of drill machine (Pedestal type)-(Drill machine capacity – 25 mm manual drill method).
- iii. Fitment of the Jig for Cover fastening drill on the face of the Housing and match with the existing holes.
- iv. Use of drill (Tool size – 10.3mm) – depth of drill 21mm.
- v. Make slight chamfer on the top of the each drill to facilitate thread tapping.
- vi. Use of thread tapping tool size M12 x 1.75 (RH) on all 03 drills.
- vii. Removal of the burrs before applying Red thread locker 271 on the 03 threaded holes provided for fastening of the cover with the Housing.
- viii. Use of Red thread locker 271 on the outside thread of the SS inserts before fastening.
- ix. Use of bolt (size M8) to fasten the SS inserts with the 03 threaded holes of the Housing.
- x. **Ref. drawing SKED-987 for Jig arrangement for drilling of holes in the front cover.**

B). Procedure for Jig Mounting for the Brush Holder in the Housing

- i. Remove Helicoil inserts already present in the holes before drilling Holes for Brush Holder mounting in the Housing.
- i. Fasten the Housing with the mounting plate of the drill machine (Drill machine capacity – 25 mm manual drill method).
- ii. Fit the Jig for Brush Holder mounting fastening drill on the face of the Housing and match with the existing holes.

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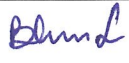

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- iii. Use of drill (Tool size – 10.3mm) – through threaded holes.
- iv. Make a slight chamfer on the top of each drill to facilitate thread tapping.
- v. Use of thread tapping tool size M12 x 1.75 (RH) on all 03 drills.
- vi. Removal of the burrs before applying red thread locker 271 on the 03 threaded holes for mounting of the Brush Holder in the Housing.
- vii. Use of red thread locker 271 on the outside thread of the SS inserts before fastening.
- viii. Use of bolt (Size M8) to fasten the SS inserts with the 03 threaded holes of the Housing.
- ix. **Ref. drawing SKED-988 for Jig arrangement for drilling of holes in the Collars for mounting of the Brush Holder in the Housing**

ENCLOSURES:

- 1. SKED-987
- 2. SKED-988


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COMPONENTS, SOLD OR TRANSFERRED WITHOUT PERMISSION FROM CHIEF DESIGN ENGINEER,
RAIL COACH FACTORY, KAPURTHALA.

2. MATERIAL OF JIG: EN-8.
1. ALL DIMENSIONS IN MM.

ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.

OR UNTOLERANCED DIMENSIONS REFER MDG0008	DATE OF FIRST ISSUE	19/02/2025
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NIL		NIL		NIL		NIL		NIL		F	
WELD LENGTH		ITEM		DESCRIPTION & DIMENSIONS		DETAILS		MATERIAL DRG		MATERIAL, SPEC. & REMARKS	
NIL		M		ELECTRICAL		OPASSLY		SUPERSEDES: NIL			
WEIGHT		KG		FILE D:\vikram\sked-988.prt							
S.AREA		H2		JIG FOR 3-NOS. HOLES FOR BRUSH HOLDER IN HOUSING COMPLETE FOR EARTHING BRUSH ASSEMBLY							
LENGTH / DIA		H / M		SCALE							
NIL		M									
W/DTH / TH+DK		M		RAIL COACH FACTORY, KAPURTHALA							
NIL		M		PL NO. NIL							
WGT		M		DRG.NO. SKED-988							
NIL		M		SEE/V/D		DY. REF. / P		ALT.		N.I.L. SIZE A2 SHEET 1 / 1	
9		10		11		12		13			

SECTION A-A

