



भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226 011
EPBX (0522) 2451200
Fax (0522) 2458500

Government of India-Ministry of Railways
Research Designs & Standards Organisation
Lucknow - 226 011
DID (0522) 2450115
DID (0522) 2465310



NO. MC/CB/LF/Anaerobic

Dated 06.10.2017

मुख्य यांत्रिक अभियंता

1. मध्य रेलवे, छत्रपति शिवाजी टर्मिनस, मुम्बई- 400 001.
2. पूर्व रेलवे, फेयरली प्लेस, कोलकाता- 700 001.
3. उत्तर रेलवे, बड़ौदा हाउस, नई दिल्ली- 110 001.
4. दक्षिण रेलवे, पार्क टाउन, चेन्नई- 600 003.
5. दक्षिण मध्य रेलवे, रेलनिलायम, सिकन्दराबाद- 500 071.
6. दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता- 700 043.
7. पूर्वोत्तर रेलवे, गोरखपुर- 273 012.
8. पूर्वोत्तर सीमान्त रेलवे, मालीगौंव, गुवाहाटी- 781 011.
9. पश्चिम रेलवे, चर्चगेट, मुम्बई- 400 020.
10. पूर्व मध्य रेलवे, हाजीपुर- 844 101.
11. पूर्वोत्तरीय रेलवे, बीडीए रेंटल कालोनी, रेलवे काम्प्लेक्स, चन्द्रशेखरपुरा, भुवनेश्वर, उड़ीसा- 751 016.
12. उत्तर मध्य रेलवे, हास्टिंग रोड, इलाहाबाद- 211 001.
13. उत्तर पश्चिम रेलवे, जयपुर- 302 006.
14. दक्षिण पश्चिम रेलवे, हुबली- 580 023.
15. पश्चिम मध्य रेलवे, जबलपुर- 482 001.
16. दक्षिण पूर्व मध्य रेलवे, आरई आफिस काम्प्लेक्स, बिलासपुर- 495 004.

Sub: Revised CAI for retro-fitment of S-Trap in place of P-trap fitted in IR-DRDO bio digester to the RDSO drawing no. CG-14053.

Ref: (i) This office letter of even no. dated 05.07.2017.

RDSO vide this office letter at ref.1, issued instruction to railways for Improvements in the bio toilets. In above said letter Zonal railways were advised for implementation of S-Trap and 100 mm lavatory pan out let to prevent the ingress of larger objects in the toilet pan and to eliminate the problems related to hose connector, leakage from ball valve, and non-operational opening closing mechanism of ball valve.

In continuation to above, revised instructions for retro-fitment of S-Trap design in place of P-Trap fitted in IR-DRDO Bio toilets to the RDSO drawing no. CG-14053 along with sketch for conversion of 150 mm outlet lavatories to 100 mm pan outlet is being issued for necessary action at your end.

With above modifications all the coaches to be turned out from POH should have 100 mm outlet from lavatory pan and also fitted with S-trap.

(Indrajit Singh)
Exe. Director (Std)/Carriage

Enclosure : Revised retro-fitment instructions and Drawing no. CG-17045

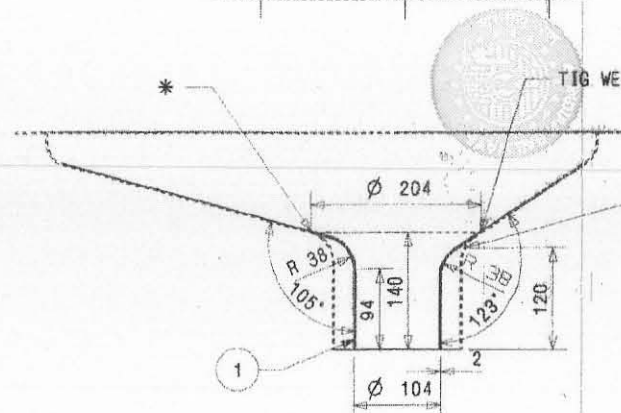
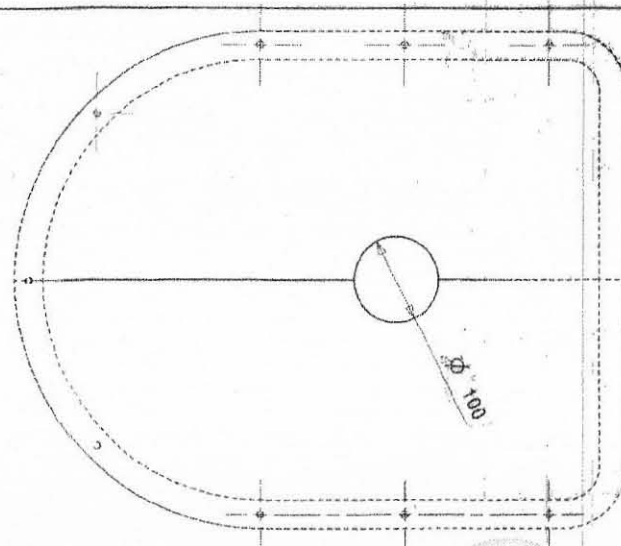
प्रतिलिपि :-

1. कार्यकारी निदेशक यांत्रिक (डेव), रेलवे बोर्ड, रेलभवन, नई दिल्ली- 110 001.
2. कार्यकारी निदेशक यांत्रिक (कोचिंग), रेलवे बोर्ड, रेलभवन, नई दिल्ली- 110 001.
3. मुख्य अभिकल्प अभियन्ता, रेल कोच फैक्ट्री, हुसैनपुर, कपूरथला- 144 602.
4. मुख्य अभिकल्प अभियन्ता, इन्टीगरल कोच फैक्ट्री, चेन्नई- 600 038.
5. मुख्य अभिकल्प अभियन्ता, मार्डन कोच फैक्ट्री, लालगंज रायबरेली उ०प्र०

Retro-fitment procedure of S-trap to RDSO drawing no. CG-16008 in the toilets already fitted with IR-DRDO bio toilets to the design CG-14053

RDSO has issued drawing no. CG-14053 with P-trap, ball valve and ball valve opening closing mechanism. For adoption of S-Trap in lieu of P-trap, following procedure shall be adopted:

1. Remove opening / closing mechanism fitted with ball valve from both ends.
2. Dismount clamps and hose connector between lavatory pan and P-trap. Dismount all bolts used for mounting of bio digester on under frame and lower the bio digester tank with the help of lister or fork lifter.
3. Dismount the hose clamp, hose connector, P-trap and ball valve from bio digester tank including hardware used for mounting i.e. Item no. 15, 16, 17, 18, 19, 20, 21 of the Drawing no. CG-14054.
4. For retro-fitment of S-Trap design in existing design of IR-DRDO bio toilets to the drawing no. CG-14053 following shall be arranged as listed below.
 - I. For 100 mm lavatory pan outlet coaches all items of drawing CG-16008 except item no. 11,12.
 - II. For 150 mm lavatory pan outlet coaches, modify the 150 mm lavatory pan outlet to the 100 mm as per arrangement shown in the drawing no. CG-17045 and arrange all items listed under point 4(I) above.
5. Check the outlet of existing lavatory pan for any damage / any other surface defects. Prepare the surface of neck of lavatory pan for fitment of rubber seal.
6. Insert rubber seal item no. 2 (for 100mm outlet lavatory pan) or item no. 12 (for 150 mm outlet lavatory pan) on outlet of existing lavatory pan.
7. Align the S-Trap item no. 1 (for 100mm outlet lavatory pan) or 11 (for 150 mm outlet lavatory pan) and insert S-Trap on rubber seal provide on Lavatory Pan.
8. Mount / fit the bio digester tank with the help of specified fastener and safety wire rope to the procedure already defined and issued.
9. Check the location, position of the supporting bracket item no. 3 for resting of S-Trap on top plate of bio digester tank and mark the location of studs item no. 10 to be welded on top plate of the tank.
10. Weld all studs of size M10 (item no.10 of the drawing no. CG-16008) and fit the item no.3 (support bracket) and item no. 5 (U bracket) of the drawing no. CG-16008.
11. Connect the item no. 4 (PVC suction hose) of the CG-16008, along with hose clamp to Strap and fix it to the bio digester tank as shown in the drawing.



NOTE:-

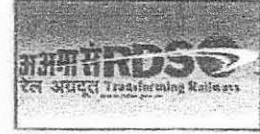
- * 1. SURFACE PREPARATION TO BE DONE BEFORE TIG WELDING.
2. ENSURE PROFILE OF ITEM NO. 1 IS MATCHING TO EXISTING LAVATORY PAN BEFORE TIG WELDING.
3. TIG WELDING SHOULD BE CONTINUOUS AND SMOOTH FOR DELIVERING LEAK PROOF JOINT.
3. GRINDING OR OTHER FINISHING OPERATION TO BE DONE AFTER FULL WELDING FOR SMOOTH AND ELEGANT WELDED SURFACE.

1	FUNNEL Ø 100	1		IS: 6911-92	PO.402 18N19	
ITEM	DESCRIPTION & DIMENSIONS	NO. OF	REF. DRG.	VT. OF	NTL. & SPEC.	REMARKS
	SUPERSEDED BY:-					INDIAN RAILWAYS
ASSEMBLY DRGS.	SUPERSEDES:-					ICF/RCF TYPE COACHES
REFERENCE :-	SCALE	P				
	1:5	C				
		D				
	J.S.	SS/08/17				
CDR NO. :-	B.G.	R.D.S.O. (CG)				SKETCH FOR LAVATORY PAN OUTLET MODIFICATION FROM 150 TO 100 MM
ALT.	ITEM	AUTH.	DESCRIPTION	CKD.	DATE	CG-17045



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मुख्य यांत्रिक अभियंता

1. मध्य रेलवे, छत्रपति शिवाजी टर्मिनस, मुंबई- 400 001.
2. पूर्व रेलवे, फेयरली प्लेस, कोलकाता- 700 001.
3. उत्तर रेलवे, बड़ौदा हाउस, नई दिल्ली- 110 001.
4. दक्षिण रेलवे, पार्क टाउन, चेन्नई- 600 003.
5. दक्षिण मध्य रेलवे, रेलनिलायम, सिकन्दराबाद- 500 071.
6. दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता- 700 043.
7. पूर्वोत्तर रेलवे, गोरखपुर- 273 012.
8. पूर्वोत्तर सीमान्त रेलवे, मालीगाँव, गुवाहाटी- 781 011.
9. पश्चिम रेलवे, चर्चगेट, मुंबई- 400 020.
10. पूर्व मध्य रेलवे, हाजीपुर- 844 101.
11. पूर्वोत्तर रेलवे, बीडीए रेंटल कालोनी, रेलवे काम्प्लेक्स चन्द्रशेखरपुरा, भुवनेश्वर, उड़ीसा- 751 016.
12. उत्तर मध्य रेलवे, हास्टिंग रोड, इलाहाबाद- 211 001
13. उत्तर पश्चिम रेलवे, जयपुर- 302 006.
14. दक्षिण पश्चिम रेलवे, हुबली- 580 023.
15. पश्चिम मध्य रेलवे, जबलपुर- 482 001.
16. दक्षिण पूर्व मध्य रेलवे, आरई आफिस काम्प्लेक्स, बिलासपुर- 495 004.

Sub: Issue of CAI for retro-fitment of S-trap design for IR-DRDO bio-toilets in LHB type EOG passenger coaches.

Ref: 1. Points noted during meeting with MRS on 27.09.2017 by EDSC.

2. Point no. 1 of the MOM of 22nd JWG meeting held at ICF Chennai.

Railway Board vide their letter at ref.1, has advised to adopt 100% S-trap in all coaches. Accordingly CAI for retro-fitment of S-trap in place of P-trap in existing in service LHB type coaches is being issued.

Railways are advised to implement retro-fitment of S-trap design in existing LHB type passenger coaches fitted with IR-DRDO bio toilets.

(Sanjeev Garg)
Director (SS)/Carriage

Enclosure : RCF drawing no. MI005710
Annexure -I Retro-fitment instructions

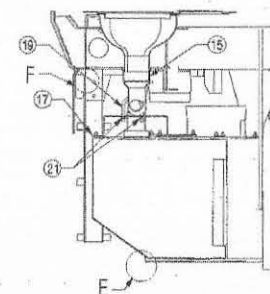
प्रतिलिपि :-

1. कार्यकारी निदेशक यांत्रिक (डेव), रेलवे बोर्ड, रेलभवन, नई दिल्ली- 110 001.
2. कार्यकारी निदेशक यांत्रिक (कोचिंग), रेलवे बोर्ड, रेलभवन, नई दिल्ली- 110 001.
3. मुख्य अभिकल्प अभियन्ता रेल कोच फैक्ट्री, हुसैनपुर, कपूरथला- 144 602.
4. मुख्य अभिकल्प अभियन्ता इन्टीगरल कोच फैक्ट्री, चेन्नई- 600 038

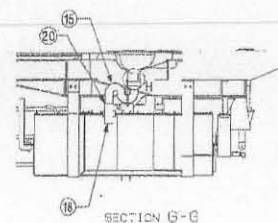
Retro-fitment procedure of S-trap for the toilets already fitted with IR-DRDO bio toilets in LHB type coaches.

Design of S-trap has already been adopted by RCF for fitment of bio toilets in LHB type coaches by removing P-trap, ball valve and ball valve opening closing mechanism in the RCF drawing no. MI005710 alt 'f'. For retro-fitment of S-Trap in lieu of P-trap in existing LHB coaches, following procedure shall be adopted:

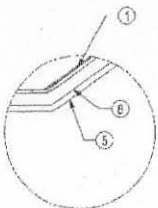
1. In case of inspection window of ball valve is available in bio digester tank, retro-fitment can be done without lowering the tank.
2. Remove opening / closing mechanism item no. 13 of the RCF drawing no. MI005710 fitted with ball valve from both ends and Dismount hose clamps, hose connector between lavatory pan and P-trap item no. 9,10,14 .
3. In case of inspection window of ball valve is not available in bio digester tank, Dismount all bolts used for mounting of bio digester on under frame and lower the bio digester tank with the help of lister or fork lifter.
4. Dismount the P-trap, ball valve and rubber seal (item no. 3,4,12 of MI005531) from bio digester tank including hardware used for mounting.
5. For retro-fitment of S-Trap design in existing design of IR-DRDO bio toilets to the drawing no. MI005710 alt 'f' or latest alteration, material for item no. 15 to 21 shall be arranged.
6. Check the outlet of existing lavatory pan for any damage / any other surface defects. Prepare the surface of neck of lavatory pan for fitment of rubber seal.
7. Insert rubber seal item no.16 (for 100mm outlet lavatory pan) on outlet of existing lavatory pan.
8. Align the S-Trap item no. 15 (for 100mm outlet lavatory pan) and insert S-Trap on rubber seal provide on Lavatory Pan.
9. Mount / fit the bio digester tank with the help of specified fastener and safety wire rope to the procedure already defined and issued.
10. Check the location, position of the supporting bracket item no. 17 for resting of S-Trap on top plate of bio digester tank and mark the location of studs to be welded on top plate of the tank.
11. Weld all stainless steel studs of size M10 and fit the item no.17 (support bracket) and item no. 19 (U bracket) of the drawing no. MI005710.
12. Connect the item no. 18 (PVC suction hose) of the MI005710, with hose clamp (item no. 20) to Strap and fix it to the bio digester tank as shown in the drawing.



SECTION A-A



SECTION 6-6



DETAIL B
SCALE 1:5

DETAIL F
SCALE 1:2

DETAIL H
SCALE 1:5

DETAIL E
SCALE 1:2

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JOINTLY DEVELOPED BY IR & DRDO

ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.
FOR UNTOLERANCED DIMENSIONS REFER MDG0008

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

DATE OF FIRST ISSUE

22/03/2012

CGM BY

15	16	17	18	19
ALC NO	ALC DATE	ZONE	ALTERATIONS	AUTHORITY
d	16/12/2015	ALL	DRAWING UPDATED AND DIMENSION 307 DY.CME/D-2 WAS 283.	
e	12/01/2016	H-12	DRAWING NO. ADDED FOR ITEM-13.	DY.CME/D-2
f	17/01/2017	ALL	ITEM NO. 9,10,13 & 14 DELETED AND 11PM NO. 12 TO 21 ADDED.	DY.CME/D-1

NOTE:
FITMENT OF ITEM NO. 18 SHALL BE DONE AS PER PROCEDURE
DEFINED IN CLAUSE NO. 7 OF IS: 15265-2003.

QTY	DESCRIPTION	UNIT	QTY	DESCRIPTION	UNIT	QTY	DESCRIPTION	UNIT
21	STAINLESS STEEL HEX NUT M10 A2-70 TO 154337 PT-(7)	NIL	1	LWSS09	NIL	151-1304 PT-3-82	NIL	
20	SS HOSE CLAMP B	1	NIL		151-4762-04	A151-304	NIL	
19	UBRACKET	1	05-16014	NIL			NIL	
18	PVC SUCTION HOSE BORE 6"	1	NIL	151-15258-2003	SEE NOTE			
17	BRACKET FOR S-STRAP	1	05-16011	NIL			NIL	
16	FLUESS SEAL FOR S-STRAP 100MM	1	05-16210	NIL			NIL	
15	S-STRAP 100MM	1	05-8009	NIL			NIL	
14	CLAMP 3/8-160	1	NIL	151-4762-04	NIL			
				A151-304				
13	OPENING MECHANISM CATCH WIRE	1	W00555	NIL			NIL	
	TYPE FOR ENL VALVE		W005712	NIL			ITEM NO. 2	
	SUCTION STRIP							
12	STAINLESS STEEL HEX NUT M12 A2-70 TO 154337 PT-(4)	1	LWSS99	151-1304 PT-3-82	ITEM - 4			
10	FLUESS CONNECTOR	1	EN-1970	NIL	NIL			
9	CLAMP 3/8-110-101	1	NIL	151-4762-04	NIL			
				A151-304				
8	FLUESS 10X100X50	2	NIL	PT	NIL			
7	STAINLESS STEEL HEX HEAD SCREW M10X60 A2-70 TO 154337 PT-(14-40)	1	LWSS02	151-1304 PT-2-92 PT-11NINER	ITEM - 25 CONTINUED TO SHEET 06			
5	5"RING WASHER B12	16	LW005	151-5063-1946 A151-304	NIL			
5	SAFETY STRIP	1	W005712		ITEM NO. 1			
4	PLAIN WASHER A18	12	NIL	151-021460 148-2	A151-304			
3	5.5 INLOC BUT M16 A2-70 TO 154337 PT-(1-40)	1		151-020-2005 150-7040	NIL			
2	STAINLESS STEEL HEX HEAD SCREW M10X60 A2-70 TO 154337 PT-(14-40)	1	LWSS02	151-1304 PT-2-92 PT	ITEM - 28 CONTINUED TO SHEET 06			
1	OFFICE BIO-DIGESTER SYSTEM	1	W00253		NIL			

ENTERED
INTO
DATA BASE
18 JAN 201

MAG. LENGTH		TYPE		W/OCS		SPARSITY		DETAIL		DRG.		NWL.		SPNG.		HARDWD	
NIL	H	CONJ	AV.	& ITS FITTERS		SCAPING	W/OCS710	ALT									
FILE		MI005710 OF .scr (133)															
<p style="text-align: center;">MOUNTING OF IR-DRDO BIO-DIGESTER SYSTEM ON L-B COACHES</p> <p style="text-align: center;">RAJ. COACH FACTORY, KAPURTHALA</p> <p style="text-align: center;">रज कोच फैक्टरी कपूरथला</p>																	
<div style="float: right; width: 10%;">SCALE</div> <div style="float: left; width: 90%;"> </div>																	
<div style="float: right; width: 10%;">SHEET NO.</div> <div style="float: left; width: 90%;">NIL</div>																	
<div style="float: right; width: 10%;">PL NO.</div> <div style="float: left; width: 90%;">NIL</div>																	
<div style="float: right; width: 10%;">DRG. NO.</div> <div style="float: left; width: 90%;">MI005710</div>																	
<div style="float: right; width: 10%;">BY</div> <div style="float: left; width: 90%;">[Signature]</div>																	
<div style="float: right; width: 10%;">DATE</div> <div style="float: left; width: 90%;">[Blank]</div>																	