INTEGRAL COACH FACTORY
CHENNAI - 600 038.
Telefax:.044-26261872 / Railway : 46804
Email: dycdeicf@gmail.com

Office of the CDE/Mech.

No.MD/DSS/Brakes/103B Dt:14/05/2021

CRSE/SR
CRSE/CR

Sub: Failure in FIBA and Standardization of Piping and Clamping /Layout of Piping for FIBA, Air suspension control equipment.

Ref: 1. RDSO Lt.No:SV.AS.FIBA Dt.01.03.2021,5.03.2021
2. CDE/RCF/KXHS Lt.no.MD44121 & MD 21516 Dt.17.02.2021
3. ICF Lt no MD/DSS/Brakes/103B Dt 31.03.2021
4. RDSO Lt.No:SV.AS.FIBA dt 13.05.2021

1. Vide above ref 1, RDSO has advised to issue instructions regarding failures in FIBA and standardization of piping in FIBA and ASCE to Zonal Railways which might be specific to coaches turned out by ICF as ICF has been adopting double ferrule fittings for all LHB coaches.
2. ICF has studied the CAI issued by RCF and in line made changes in the relevant drawings and scope of supplies pertaining to piping arrangements of Air spring and FIBA for ICF turned out LHB coaches fitted with double ferrule fittings.
3. Vide ref 3, CAI detailing the modifications in existing arrangement has been prepared by ICF and the same was referred to RDSO for further directions.
4. Vide ref 4, RDSO has advised ICF that necessary CAI having instructions to arrest subject failures be issued to Zonal railways on priority.
5. ICF CAI no B-2021/02 dated 22.03.2021 (05 pages) containing instructions for modifications in piping arrangements of Air spring and FIBA for ICF turned out LHB coaches fitted with double ferrule fittings is issued to all Zonal railways for implementation.

Encl: 1. CAI No.B-2021/02, dated 22.03.2021
2. Relevant drawings.

SANJAY ANGOTHU

Digitally signed by SANJAY ANGOTHU
DN: c=IN, o=INTEGRAL COACH FACTORY, ou=MECHANICAL, pseudonym=ba3cc7004c3610f124c062fa0bc00dae50eadb1927dee131f49e81b3f368dc3b, postalCode=600038, st=Tamil Nadu, serialNumber=a8ca7cdcddfb7f268a74b114bb52d88cd9985ecc429325179b7801be39feacaf, cn=SANJAY ANGOTHU
Date: 2021.05.14 17:02:00 +05'30'

(SANJAY ANGOTHU)
Dy. CME/D-II
For General Manager (Mech)

INTEGRAL COACH FACTORY,CHENNAI – 600 038.
Telefax No. (044) 26261872 Rly.:46809
E-mail: smebdicf@gmail.com

O/o. General Manager/Mech. Design

No. ICF/QMS/MDM/File/F015 Date:22.03.2021

Coach Alteration Instruction

Sl. No.	Details	Remarks
1.	CAI No.	B-2021/02
2.	Group	0-4, 3-2, 3-5, 1-1
3.	Description	Implementation of modified Pneumatic Piping arrangement for air spring, air suspension control equipments (ASCE) and FIBA on LHB Coaches to avoid failures of same including flexible hoses.
4.	Drawing No.	i) 667-3-2-009, alt.'a' ii) 667-0-4-001, alt.'a' iii) 783-3-5-001 alt 'a' iv) 851-3-5-001 alt 'a' v) 851 11 003 Alt 'd vi) 739 11 004 Alt 'h' vii) 814 11 003 Alt 'd' viii)AAA35139,alt. 'nil' ix)581-1-1-003, alt.'q' x)814-1-1-004,alt.'b'
5.	Modification	Listed in Table -1 & 2
6.	Reason for Modification	Zonal Railways has reported failures in Air spring, Air suspension control Equipment and FIBA piping arrangement. Therefore to avoid failures of above, piping arrangement of these areas has been modified.
7.	Coaches concerned	LHB coaches except LSLRD, Power Car, LGS & Double Decker turned-out by ICF upto May, 2021.
8.	Implementation stage	In Next POH or during out of course lifting of the coach for maintenance.
9.	Category of CAI	A B✓ Tick A or B as applicable

A. Modifications shall be implemented immediately by user Rlys.
B. Modifications shall be implemented by user Rlys as and when convenient

10. Drawing No.: It is requested to ensure coach alteration as per given below new drawings:

Table -1

Sl. No.	Description	Old Drg. No. & Alt	New Drg. No. & Alt
1	Pneumatic piping arrangement with Double ferrule fittings for Air spring in secondary suspension	667-3-2-009, alt.Nil	667-3-2-009, alt.'a'
2	Bolster for air spring bogies.	LW04001, alt'b' anx '6'	66704001 alt.'a'
3	Air Suspension & FIBA device arrangement on underframe for AC/NAC LHB type EOG coach	783-3-5-001 alt 'Nil', 851-3-5-001 alt 'Nil'	783-3-5-001 alt 'a', 851-3-5-001 alt 'a'
4	Location of holes and welding parts complete on U/F for AC/NAC sleeper EOG (LHB type)	851 11 003 Alt 'c' 739 11 004 Alt 'g' 814 11 003 Alt 'c'	851 11 003 Alt 'd 739 11 004 Alt 'h' 814 11 003 Alt 'd'
5	Protection cover for levelling valve	LW36173 Alt 'b'	AAA35139 alt. 'nil'.

11. Brief of Modification / changes to be done:

Table -2

Sl. no	Description	Brief of modifications / changes
1	Pneumatic piping arrangement with FIBA for Bogie fitted with Air spring secondary suspension. to drg. No. No.667-3-2-009 alt.'a'.	• Street Elbow (item no. 29) added on levelling valve along with existing Hex Nipple (Item-10). • Flexible hose (Item-20) provided on left side of old drawing No. 667-3-2-009 alt.'Nil' has been eliminated. • Piping on brake beam including right hand side flexible hose (Item-20) of drawing No. 667-3-2-009 alt.'Nil' shifted from brake beam to bogie bolster. • On left side of Duplex check valve pipe line, new pipe, Hex Nipple and Female elbow connector (Items-19, 26 & 27) added with Female branch Tee connector (Item-18). • On Right side, new pipe (Item-28) added with Female branch tee connector (Item-18) provided on Duplex check valve pipe line. • Pipe clamp (item no.25 of drg. No.667-3-2-009

		alt.'a') modified from 'P' type to 'C' type.
2	Bolster for air spring bogie to Drg. No.66704001	• For clamping of modified piping arrangement, a bracket (Item no.32 to Drg. No.AAA04179 nil) to be additionally welded with bogie bolster at location as shown in the drawing.
3	Air Suspension & FIBA device arrangement on underframe for AC/NAC LHB type EOG coach	**Drg. No.783-3-5-001 alt 'a'** • SS pipe connecting Air spring pipe line from 150 litre air reservoir (item no.151 & 185) modified. • SS pipes between leveling valve hoses & above air spring pipe line (item no. 145 & 146 on NPP end) modified and their location should be as per drawing. • SS pipes between leveling valve hoses & above air spring pipe line (item no. 194 & 195 on PP end) modified and their location should be as per drawing. **Drg.No. 851-3-5-001 alt 'a'** SS pipe connecting Air spring pipe line from 150 litre air reservoir (item no.151 & 185) modified. • SS pipes between leveling valve hoses & above air spring pipe line (item no. 145 & 146 on PP end) modified and their location should be as per drawing. • SS pipes between leveling valve hoses & above air spring pipe line (item no. 194 & 195 on NPP end) modified and their location should be as per drawing.
4	Location of holes and welding parts complete on U/F for AC/NAC sleeper EOG (LHB type)	**Drg. No.851 11 003 Alt 'd** • Brackets (2 nos) to item no.59 of old drg. No.851 11 003 alt'c' to be cut and bracket to item no.61 to be welded as shown in drawing. • Location of Brackets (2 nos) to item no. 59 to be shifted as shown in drawing. • Bracket to item no.62 to be welded as shown in the drawing. **Drg. No.739 11 004 Alt 'h'** • Brackets (2 nos) to item no.76 of old drg. No.739 11 004 alt'g' to be cut and bracket to item no.78 & 79 to be welded as shown in drawing. • Location of Brackets (2 nos) to item no. 76 to be shifted as shown in drawing. • Bracket to item no.54 to be welded as shown in the drawing. **Drg. No.814 11 003 Alt 'd'** • Brackets (2 nos) to item no.66 of old drg. No.814 11 003 alt'c' to be cut and bracket to item no.69 & 70 to be welded as shown in drawing.

		• Location of Brackets (2 nos) to item no. 66 to be shifted as shown in drawing. • Bracket to item no.68 to be welded as shown in the drawing. **Drg. No. 581 11 003 Alt 'q' ,** **Drg. No. 814 11 004 Alt "b"** • Dia 7 holes to be shifted near main cross assly. (body bolster).
5	Plate (Protection cover for leveling valve)	• Provide new protection cover as per drg. No.AAA35139 alt. 'nil'. • Proper covering of installation lever should be ensured by sliding of protection cover through groove / slot provided in protection cover.

Special instructions:-

a) Proper welding of brackets be ensured as per new drawings.
b) Clamping of all pipes be ensured as per new drawings.
c) Smooth loop of flexible hoses without necking be ensured.
d) It should be ensured that flexible hoses should not touch with car body, bogie frame and nearby steel pipes.
e) Plumbing pipes on PP end side (near main cross assly./ body bolster) be lifted up to maximum upward possible position.

Encls: As above

A. Sanjay 22/3/24

(SANJAY ANGOTHU)
Dy.CME/D-II
for GM/Mech. Design

Copy to: Annexure enclosed.

ANNEXURE

The General Manager/ Mechanical,

Mechanical Branch, HQ Office:

1. Central Railway, Mumbai CST-400 001
2. Western Rly., Churchgate, Mumbai-400 020
3. Eastern Rly., Fairlie Place, Kolkata-700 001
4. South Eastern Rly., Garden Reach, Kolkata-700 043
5. Northern Rly., Baroda House, New Delhi-110 001
6. North Eastern Rly., Gorakhpur-273 001
7. North East Frontier Rly., Maligaon, Guwahati-781 011
8. Southern Railway, Park Town, Chennai-600 003
9. South Central Railway, Rail Nilayam, Secunderabad-500 371
10. West Central Railway, Jabalpur-482 001
11. East Central Railway, Hajipur-844 101
12. North Central Railway, Allahabad-211 001
13. North West Railway, Jaipur-302 001
14. East Coast Railway, Bhubaneswar-751 016
15. South East Central Railway, Bilaspur-495 004
16. South Western Railway, Hubli-580 023

Copy to:

I. EDME (Coaching), Railway Board, New Delhi-110 001
II. EDME (W), Railway Board, New Delhi-110 001
III. Director General/ Carriage, RDSO, Manak Nagar, Lucknow-226 011
IV. The General Manager (Mech.), Rail Coach Factory, Kapurthala-144 602

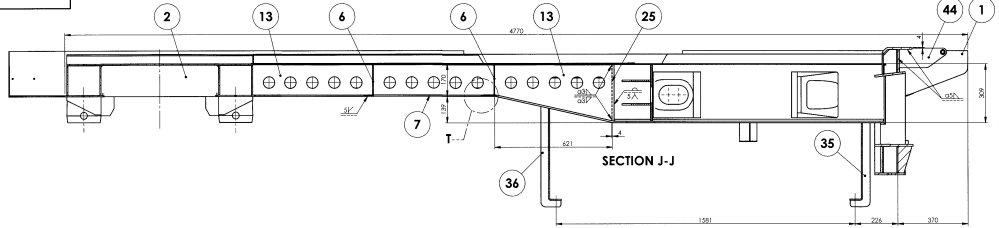
V. The Chief Workshop Manager, Carriage & Wagon Workshop,

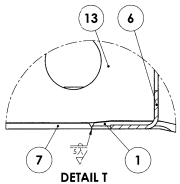
1. Matunga, Central Railway, Mumbai-400 019
2. Bhopal, West Central Railway, Nishatpura, M.P.-462 001
3. Lilluah, Eastern Railway, Howrah-711 204
4. Gorakhpur, North Eastern Railway-273 001
5. New Bongaigaon, North East Frontier Railway-783 381
6. Perambur, Southern Railway, Chennai-600 023
7. Golden Rock, Tiruchirapalli-620 004
8. Ashokapuram, South Western Railway, Mysore South-570 008
9. Tirupati, South Central Railway-517 506
10. Hubli, South Western Railway-580 020
11. Mancheswar, East Coast Railway, Bhubaneswar-751 017
12. Kharagpur, South Eastern Railway-721 301
13. Lower Parel, N.M.Joshi Marg, Western Railway, Mumbai-400 013
14. Jagadhari, Northern Railway-135 003
15. Alambagh, Northern Railway, Lucknow-226 005
16. Lallaguda, South Central Railway, Secunderabad-500 017
17. Western Railway, Ajmer, Rajasthan
18. North East Frontier Railway, Dibrugarh, Assam-786 00

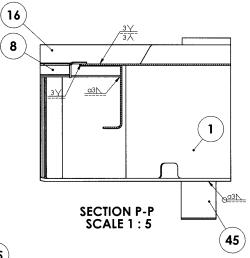
58111003

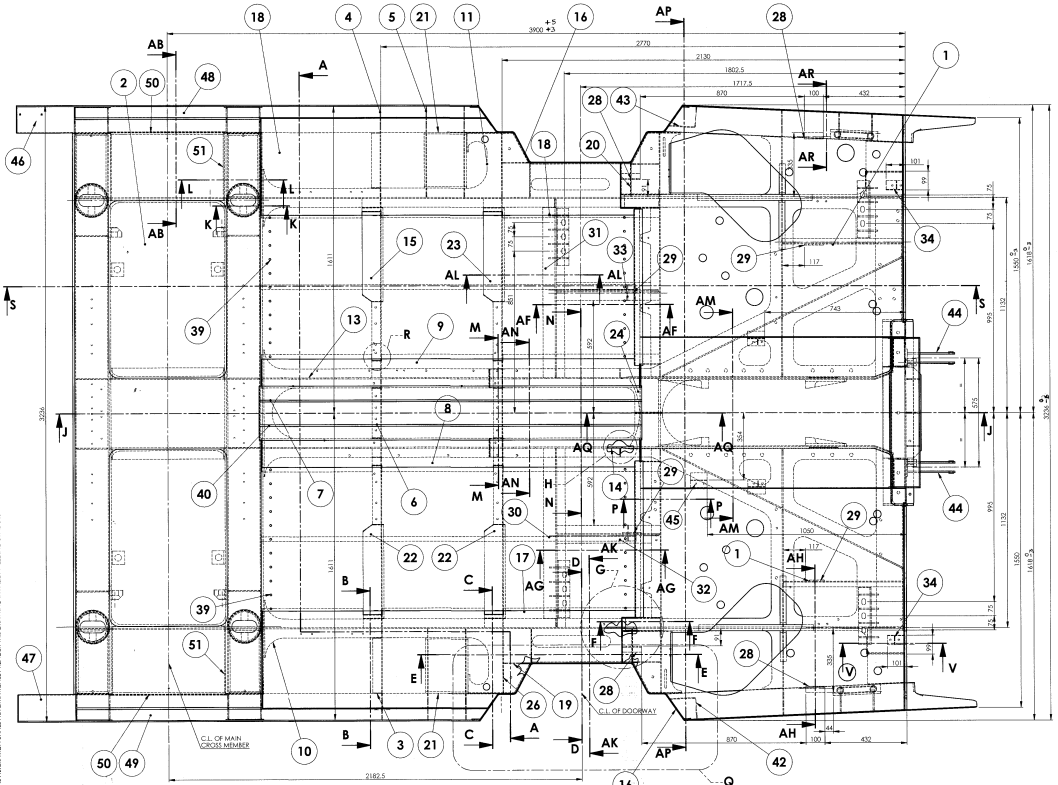
▽ ROUGH MACHINED	ⓒ ROUGH CLEANED
▽▽ FINISH MACHINED	ⓑ BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	ⓒ CHAMFERED

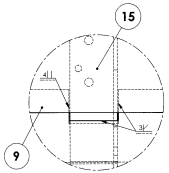
REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE

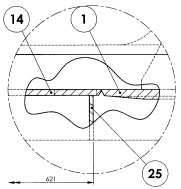


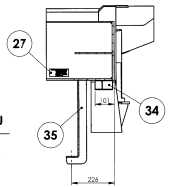


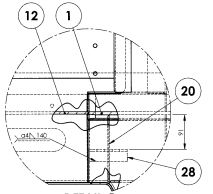


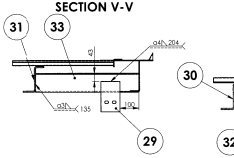


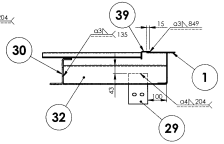












ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNDERBRACED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO 0751D-A-0-00.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING AN INVALID. WELDING SYMBOLS ARE AS PER IS815-1984. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

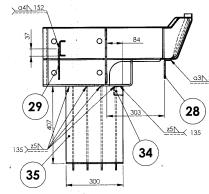
GROUP: 1-1 Under Frame	SURFACE AREA IN Sq.m.:	WT/ASSY IN Kgs:
FRONT PART FOR GS (EOG)LHB COACH		SCALE: 1:10
		DSE/D:
		CHD:
		ALT: a
		ALTD: M.SIVAKUMAR
		DRN: T.J.Kumaravelu
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038	SHEET 1 OF 5	LGS/EOG
		58111003
		A1

25-03-2021	19-04-2013	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AMENDME

REF.DRG.NO.IE11166-ALT-a

58111003

▽	ROUGH MACHINED	(R)	ROUGH CLEANED
▽▽	FINISH MACHINED	(B)	BURRS REMOVED
▽▽▽	FINE FINISH MACHINED	(C)	CHAMFERED



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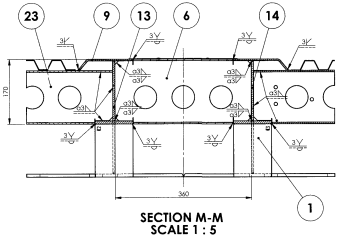

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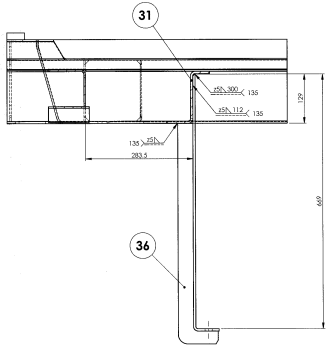

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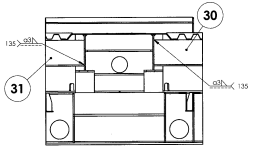

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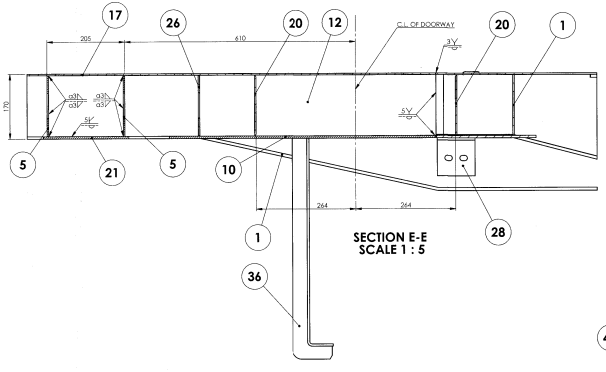

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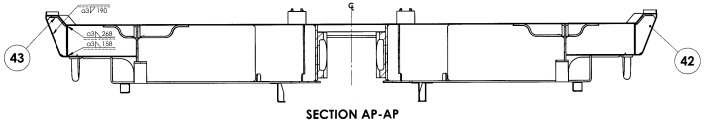

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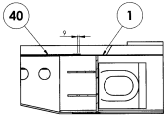

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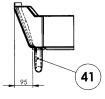

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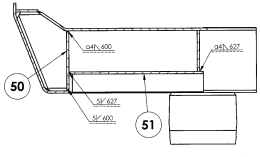

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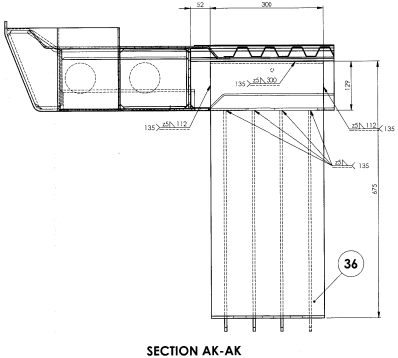

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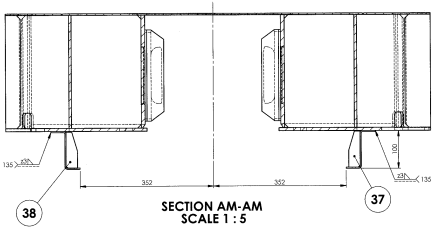

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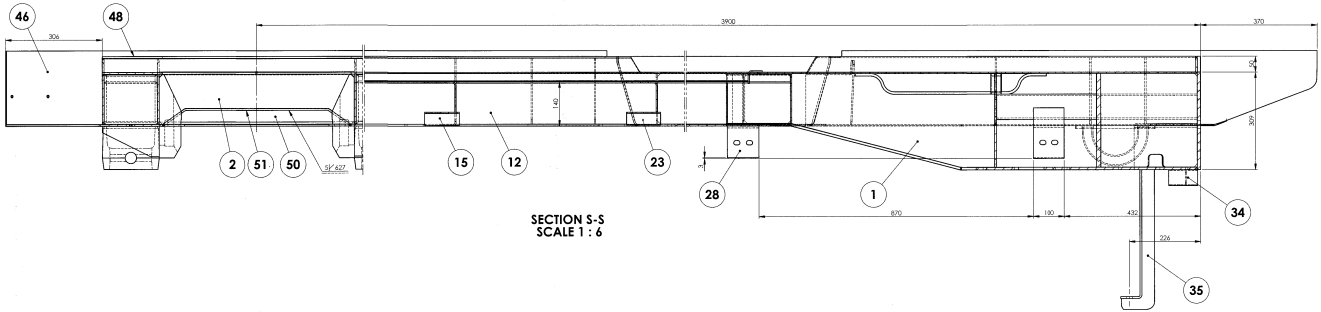
25-03-2021	19-04-2013	
DATE OF LATEST ALT	DATE OF FIRST ISSUE	AMENDME

REF.DRG.NO.LE11166-ALT-a

GROUP: 1-1 Under Frame		SURFACE AREA IN Sq.m.:-	WT/ASSY IN Kgs:
FRONT PART FOR GS (EOG)LHB COACH			SCALE 1:10 / SSE/D
			CHD
			ALT a / ALTD M.SIVAKUMAR
			DRN T.J.Kumaravelu
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 2 OF 5	LGS/EOG 58111003 A1

58111003

▽ ROUGH MACHINED	(C) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ (N/A) (FINISH MACHINED)	(R) CHAMFERED



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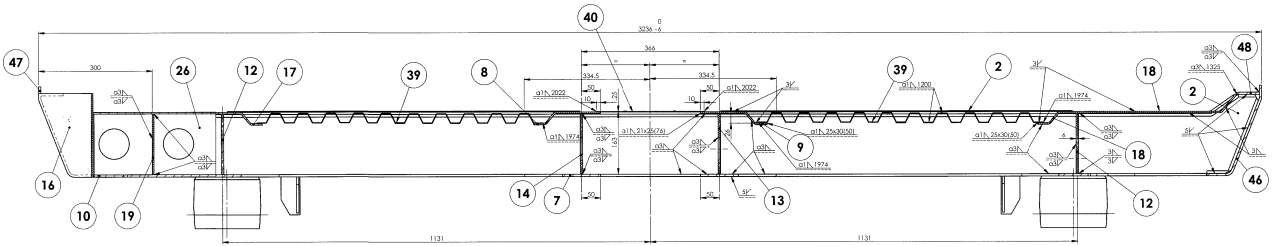

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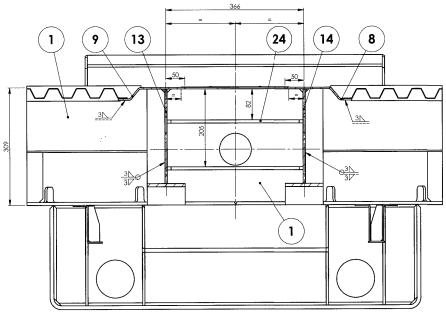

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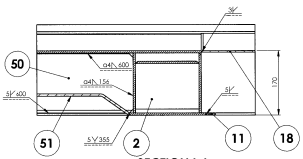
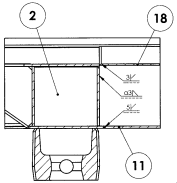
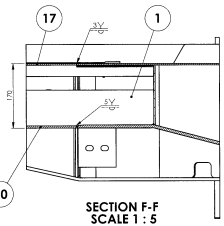


SECTION L-L
SCALE 1 : 5



SECTION K-K
SCALE 1 : 5



SECTION F-F
SCALE 1 : 5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO.CF/STD/-0-001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY REVOKE THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

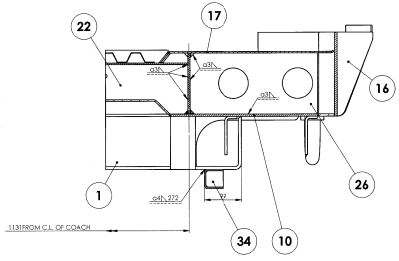
GROUP: I-I Under Frame	SURFACE AREA IN Sq.m.:	WT/ASSY IN Kgs:	
FRONT PART FOR GS (EOG)LHB COACH		SCALE 1:10	SSC/D
			CHD
		ALT. a	ALTD M.SIVAKUMAR
			DRN T.J.Kumaravelu
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 3 OF 5	LGS/EOG 58111003 A1

25-03-2021	19-04-2013	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AMENDME

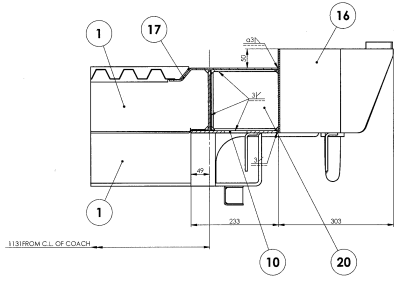
REF.DRG.NO.LE11166-ALT-a

58111003

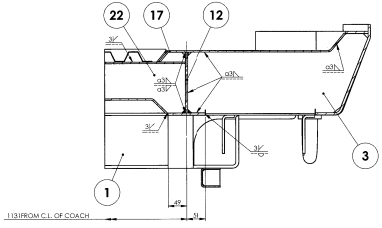
▽ ROUGH MACHINED	(R) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(C) CHAMFERED



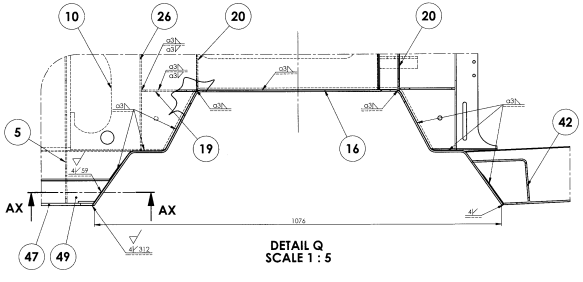
SECTION C-C
SCALE 1 : 5



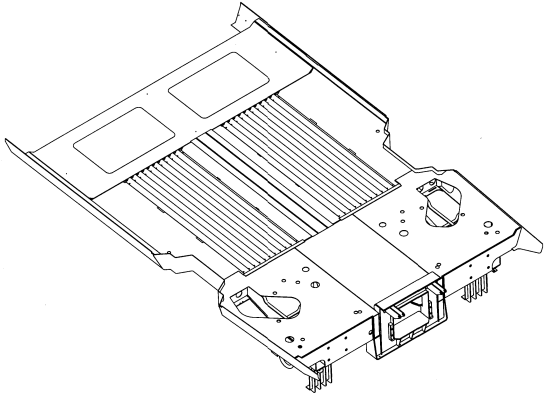
SECTION D-D
SCALE 1 : 5

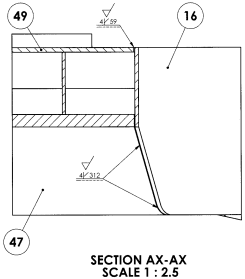


SECTION B-B
SCALE 1 : 5



DETAIL Q
SCALE 1 : 5





SECTION AX-AX
SCALE 1 : 2.5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO.FC/STD-5-0-01
AIM MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

GROUP: 1-1 UNDERFRAME	SURFACE AREA IN Sq.m.:	WT/ASSY IN Kgs:
FRONT PART FOR GS (EOG)LHB COACH		SCALE: 1:1
		SSE/D
		CHD
		ALT: a
		ALTD: M.SIVAKUMAR
		DRN: T.J.Kumaravelu
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038	SHEET 4 OF 5	LGS/EOG
		58111003
		A1

25-03-2021	19-04-2013	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	ANN/SWR

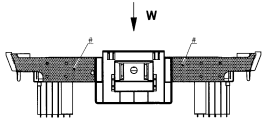
REF. DRG.NO.LE11166-ALT-a

58111003

▽ ROUGH MACHINED	(C) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(D) CHAMFERED

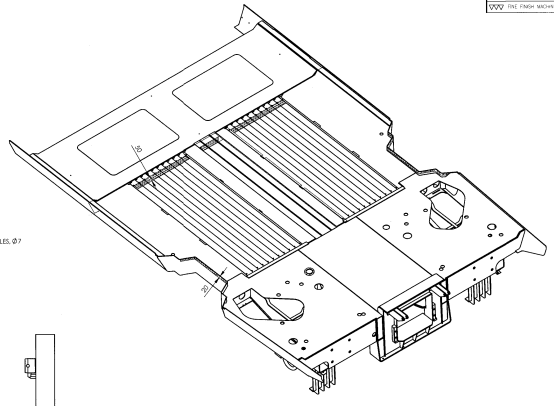
REVISIONS

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	m	Ø7 HOLES 2 NOS FOR RFLD. Ø9 HOLES 10 NOS AND M8 TAP HOLES 4 NOS FOR AIR BRAKING. Ø11 HOLES 2 NOS FOR ELE CONDUIT FIXING. SECTION-A-A'-A', DETAIL-AZ ADDED. NOTE-9 REVISED.		-sd-
	n	ITEMS 50, 51 AND SECTION AB-AB ADDED.		-sd-
	p	NOTE-4 REVISED AND MASKING AREA ADDED.		-sd-
	q	Ø9 HOLES 10 NOS DELETED. Ø7 HOLES 8 NOS ADDED.		



VIEW U
SCALE 1 : 24

SECTION AY-AY
SCALE 1 : 5



NOTE :-

1) ITEM-27 (NAME PLATE) SHALL BE WELDED OR RIVETTED AT LOCATION SHOWN IN THE DRAWING.

2) ALL SS WELD JOINTS TO BE PICKLED AND PASSIVATED BEFORE SURFACE TREATMENT.

3) FOR OUTSOURCED FRONT PART SUITABLE PLATE TREATMENT (OR) GRIT BLASTING (OR) SAND BLASTING (OR) PICKLING TO BE DONE AND EPOXY COATING TO RDSO. SPEC. NO. M&C/PCN/123/04 TO BE APPLIED TO A DFT OF MIN. 75 MICRONS.

$ 4) THE AREA OF MARKING IS APPLICABLE ON BOTH SIDES OF ALL WEBS.

5) THE AREAS MARKED IN RED OXIDE SHOULD NOT BE PAINTED WITH EPOXY COATING. IT SHOULD BE PAINTED WITH RED OXIDE ZINC CHROMATE PRIMER TO IS:2074-92 TO A DFT. OF MINIMUM 30 MICRONS WITH SMOOTH AND MATT FINISH.

@ 6) ITEM-35,36,37,38 & 45 TO BE SUPPLIED LOOSE AND WELDED AT UNDER FRAME COMPLETE STAGE.

* 7) MASKING TO BE DONE IN VERTICAL FACE ALSO.

** 8) MASKING TO BE DONE IN VERTICAL FACE AND BACK SIDE FACE OF THE MEMBERS.

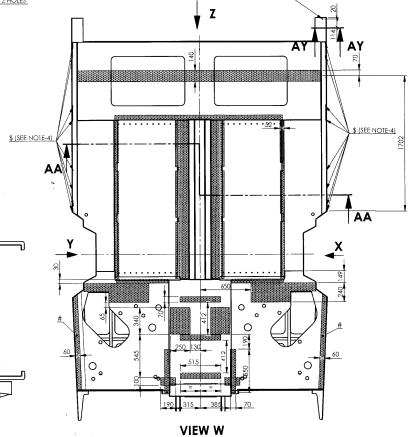
9) ALL TAP HOLES TO BE FITTED WITH **STAINLESS STEEL** SCREWS TO AVOID DAMAGE.

⊠ 10) TEMPLATE TO DRG. NO. ...&T/I-1503(X)1 SHALL BE USED TO CHECK THE PROFILE OF ITEM-16 TO DRG.NO. AAA11441.

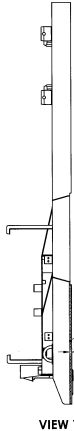
11) FOR **STAINLESS STEEL UNDERFRAME OF LWCBAC/EOG** COACH, ALL COMPONENTS TO MATERIAL OF IRS M41-1997 SHALL BE OF ASTM A666-10 TYPE 301L 1/16 HARD. ALTERNATIVELY MATERIAL TO RDSO SPEC CK-201 X2CrNi12 WITH YIELD STRENGTH OF MINIMUM 350 MPa MAY BE USED.

12) FOR **STAINLESS STEEL UNDERFRAME OF LWCBAC/EOG** COACH, ALL 3.15MM THICKNESS COMPONENTS TO MATERIAL OF IRS M41-1997 SHALL BE OF 3MM THICKNESS OF ASTM A666-10 TYPE 301L 1/16 HARD. ALTERNATIVELY MATERIAL TO RDSO SPEC CK-201 X2CrNi12 WITH YIELD STRENGTH OF MINIMUM 350 MPa MAY BE USED.

VIEW X
SCALE 1 : 24

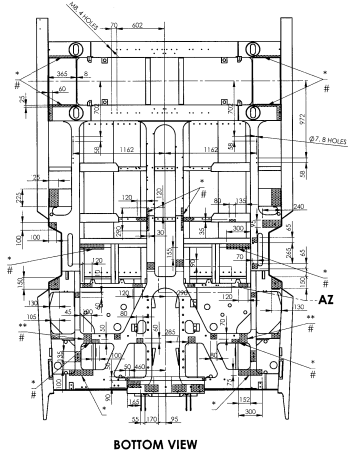


VIEW W
SCALE 1 : 24



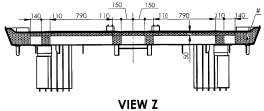
VIEW Y
SCALE 1 : 24

MARKING FOR RED OXIDE ZINC CHROMATE COATING

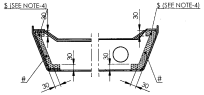


BOTTOM VIEW
SCALE 1 : 24

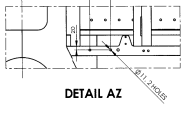
Default	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MATL	WT/UNIT IN KGS.	REMARKS
2	LOWER FLANGE		51	AAA11772		10.349	
2	WEB		50	AAA11771		4.461	
1	FLANGE PLATE		49	AAD11087		5.940	
1	FLANGE PLATE		48	AAD11086		5.940	
1	SOLE BAR		47	AAD11922		35.924	
1	SOLE BAR		46	AAD11923		35.923	
1	BRACKET		45	AAB11530		0.38	
2	FOOT PLATE BRACKET ASSEMBLY		44	58111067		3.254	
1	STIFFENING		43	AAA11506		1.095	
1	STIFFENING		42	AAA11833		1.096	
1	BRACKET COMPLETE		41	58111054		1.738	
1	COVERING SHEET		40	AAA13124		5.801	
2	CORRUGATED SHEET FLOOR COMPLETE		39	58113002		23.214	
1	BRACKET COMPLETE		38	59311026		0.444	⊗
1	BRACKET COMPLETE		37	59311025		0.444	⊗
2	MOUNTING BRACKET FOR BIO TOILET TANK		36	59311024		15.010	⊗
2	MOUNTING BRACKET FOR BIO TOILET TANK		35	59311023		10.205	⊗
2	CHANNEL COMPLETE		34	59311027		0.363	
1	BRACKET		33	AAB11527		4.14	
1	BRACKET		32	AAB11525		4.14	
1	BRACKET		31	AAB11524		10.33	
1	BRACKET		30	AAB11523		10.33	
4	BRACKET PLATE		29	AAB11522		0.73	
4	ANGLE		28	AAB11521		0.55	
1	NAME PLATE		27	AAA51072		0.063	
2	RIB		26	AAA12097		1.378	
2	RIB		25	AAA11438		0.431	
2	RIB		24	AAA11437		2.681	
1	CROSS MEMBER COMPLETE		23	49511007		7.491	
2	CROSS MEMBER COMPLETE		22	49511005		7.477	
2	FLANGE PLATE		21	AAA11432		3.021	
4	WEB		20	AAA11431		0.867	
2	WEB		19	AAA11430		0.720	
1	FLANGE PLATE		18	AAA11716		28.81	
1	FLANGE PLATE		17	AAA11715		28.808	
2	COLLAR		16	AAA11441		9.099	⊠
1	CROSS MEMBER COMPLETE		15	49511004		7.487	
1	WEB		14	AAA11721		14.188	
1	WEB		13	AAA11720		14.192	
2	WEB		12	AAA11719		14.347	
1	FLANGE PLATE		11	AAA11713		14.077	
1	FLANGE PLATE		10	AAA11712		14.074	
1	TOP FLANGE		9	AAA11718		11.95	
1	TOP FLANGE		8	AAA11717		11.954	
1	FLANGE PLATE		7	AAA11714		12.436	
2	MEMBER		6	AAA11427		2.292	
4	WEB		5	AAA11426		1.954	
1	MEMBER		4	AAA11425		2.701	
1	MEMBER		3	AAA11424		2.701	
1	WARN CROSS MEMBER COMPLETE		2	58111005		370.642	
1	HEADSTOCK		1	49512001		672.16	



VIEW Z
SCALE 1 : 24



SECTION AA-AA



DETAIL AZ

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs.

FRONT PART FOR GS (EOG)LHB COACH

SCALE 1:10 | SSE/D | CHD | ALT. a | ALTD M.SIVAKUMAR | DRN T.J.Kumaravelu

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

SHEET 5 OF 5

LGS/EOG

58111003 A1

25-03-2021 | 19-04-2013 | AMS/SVC
DATE OF LATEST ALT. | DATE OF FIRST ISSUE

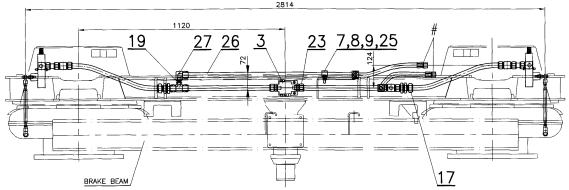
REF.DRG.NO.LE11166-ALT-a

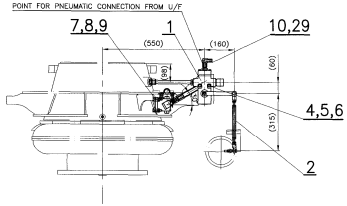
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR WITCHPAINTED DIMENSION AND POSSIBLE VALUES, REFER DRAWING NO. 00.00.00-A-0001.
AVAR MANUAL, A.DEPENDING UPON ALL MECHANICAL AND RELIEVED THE DRAWING FINAL ALL WELDING DYNEOLS ARE AS PER IS:813-1989, WITCHPAINTING IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

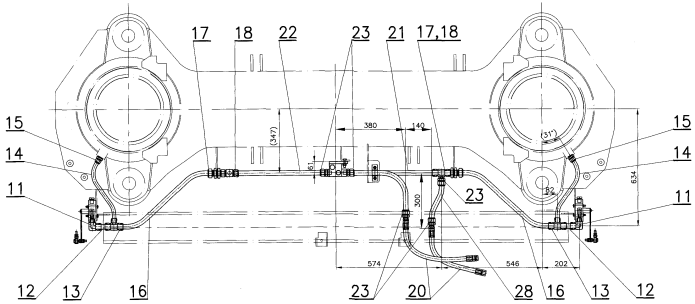
LGS/EOG/ASR-3-2-009

▽ ROUGH MACHINED	(12) ROUGH CLEANING	
▽▽ FINISH MACHINED	(18) CHAMFERED	
▽▽▽ FNC FINISH MACHINED		

ALTERATIONS	
(0)	03/2021
ITEMS-26 TO 29 ADDED. FOR ITEM-25 REF. DRG ALTD FROM 667320007/7 TO 581-3-5-028/7. QTY. FOR ITEMS-19,20&23 ALTD. FROM 2,3&4 TO 1,2&5 RESPECTIVELY. ITEM-24 DELETED. FOR ITEMS-4&7 PROPERTY CLASS 10.9 ADDED. FOR ITEMS-5&8 SPECIFICATION ALTD FROM IS:7002 TO DIN 6925/IS:1367 (Pt-8) AND PROPERTY CLASS ADDED.	
SSE/D	SME/D-41







NOTE

1. PRESSURE SETTING ON DUPLEX CHECK VALVE SHALL BE 1.5 BAR.
2. THE PRESSURE DROP SHALL BE LIMITED TO A MAX. OF 0.2 kg/SQ.CM IN ONE HOUR WHEN TESTED AT 6kg/sq.cm FOR THE BOGIE PIPING ARRGT.
3. ITEM MARKED '*' THUS ARE TO BE SUPPLIED BY AIR SPRING/PNEUMATIC CONTROL EQUIPMENT MANUFACTURER IN SET.
4. POINT MARKED '#' IS FOR PNEUMATIC CONNECTION FROM FIBA.
5. ITEM MARKED '$' ARE TO BE SUPPLIED BY FIBA MANUFACTURER IN SET.
6. ZINC ELECTROPLATED TO A3L OF IS:1367(PART ELEVEN).

NO OF ASSY REQUIRED PER COACH

TYPE OF COACH / COL.	1
(0) ALL TYPES OF LHB COACHES FITTED WITH AIR SPRING IN SECONDARY SUSPENSION	2

No.	OFF	DESCRIPTION & DIMENSIONS	ITEM	REF. DRG.	MAT. SPEC.	WEIGHT/UNIT	REMARKS
	2	STREET ELBOW 3/4"BSP(F)x3/4"BSP(M)	29	ICF/STD. 3-5-129			ITEM-2
	1	PIPE	28	AAA-3-2-171			ITEM-1
	1	FEMALE ELBOW CONNECTOR 1"ODx3/4"BSP(F)	27	ICF/STD. 3-5-059			ITEM-8
	1	PIPE	26	AAA-3-2-170			ITEM-1
	1	CLAMP	25	581-3-5-028			ITEM-7
	~~1~~	~~PIPE~~	~~24~~	~~667-3-2-010~~			~~ITEM-5~~
	5	MALE CONNECTOR 1"ODx3/4"BSP(M)	23	ICF/STD. 3-5-016			ITEM-4
	1	PIPE	22	667-3-2-010			ITEM-5
	1	PIPE	21	667-3-2-010			ITEM-4
	2	HOSE CONNECTION 3/4" x 550	20	DC/EMUM/ASR 0-5-009			ITEM-1 $
	1	HEX. NIPPLE 3/4"BSP(M)	19	ICF/STD. 3-5-025			ITEM-3
	2	FEMALE BRANCH TEE CONNECTOR 1"ODx3/4"BSP(F)	18	ICF/STD. 3-5-135			ITEM-6
	2	BULK HEAD SWIVEL UNION 1"OD	17	ICF/STD. 3-5-118			ITEM-1
	2	PIPE	16	667-3-2-010			ITEM-3
	2	MALE CONNECTOR 3/4"ODx3/4"BSP(M)	15	ICF/STD. 3-5-016			ITEM-17
	2	PIPE	14	667-3-2-010			ITEM-2
	2	REDUCING UNION TEE 1"ODx1"ODx3/4"OD	13	ICF/STD. 3-5-019			ITEM-4
	2	PIPE	12	667-3-2-010			ITEM-1
	2	MALE ELBOW CONNECTOR 1"ODx3/4"BSP(M)	11	ICF/STD. 3-5-023			ITEM-3
	2	HEX. NIPPLE 20 N1	10	ISO 4144-2003 TAB-12			
	4	WASHER ISO 7089-10-300HV	9	ISO 7089			SEE NOTE-6 ZINC ELECTRO PLATED
	4	ALL METAL PREVAILING TORQUE TYPE HEXAGON NUT M10-10	8	DIN 6925/ IS:1367(Pt-8)			SEE NOTE-6 ZINC ELECTRO PLATED
	4	HEX. HEAD SCREW IS:1364(PART-2)/ ISO 4017-M10x45-10.9	7	IS:1364 (PART-2)			SEE NOTE-6 ZINC ELECTRO PLATED
	4	WASHER ISO 7089-8-300HV	6	ISO 7089			SEE NOTE-6 ZINC ELECTRO PLATED
	4	ALL METAL PREVAILING TORQUE TYPE HEXAGON NUT M8-10	5	DIN 6925 IS:1367(Pt-8)			SEE NOTE-6 ZINC ELECTRO PLATED
	4	HEX. HEAD SCREW IS:1364(PART-2)/ ISO 4017-M8x70-10.9	4	IS:1364 (PART-2)			SEE NOTE-6 ZINC ELECTRO PLATED
	1	DUPLEX CHECK VALVE	3	SKETCH-K1051	STR NO C-K-407		*
	2	INSTALLATION LEVER ASSY L=315	2	SKETCH-K1050	STR NO C-K-407		*
	2	LEVELING VALVE	1	SKETCH-K1049	STR NO C-K-407		*

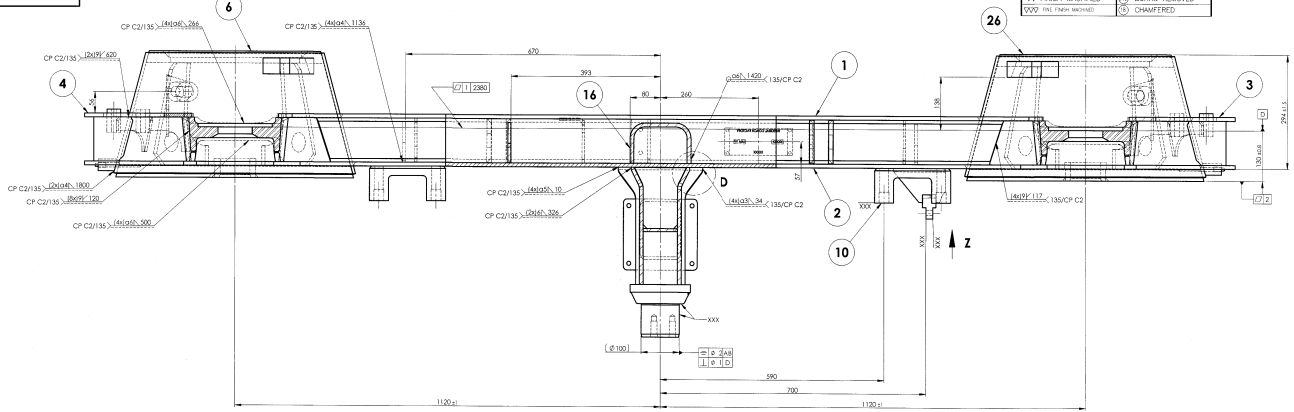
4 3 2 1	GROUP: 3-2 BRAKE PIPING	SUPERSEDED BY	
PER ASSY	PNEUMATIC PIPING ARRGT. WITH DOUBLE FERRULE FITTINGS FOR AIR SPRING IN SECONDARY SUSPENSION	SUPERSEDES LGS/EOG/ASR-3-2-009 ALT -/-	
		SCALE NTS	SSE/D CHD ALT DRN R. Nandan
		ALT.	0
DATA CODE No. 667	INDIAN RAILWAY STANDARDS	SHEET 1 OF 1	INTEGRAL COACH FACTORY CHENNAI – 600 038
			LGS/EOG/ASR-3-2-009

ASSEMBLY DRAWINGS		
11-03-2021	18.12.2020	
ALT. DATE OF LATEST ALTN.	DATE OF FIRST ISSUE	SME/

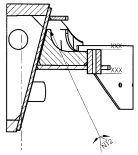
FORM:- FORM SIZE

66704001

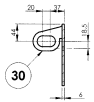
▽ ROUGH MACHINED	(C) ROUGH CLEANED
▽▽ FINISH MACHINED	(R) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(B) CHAMFERED



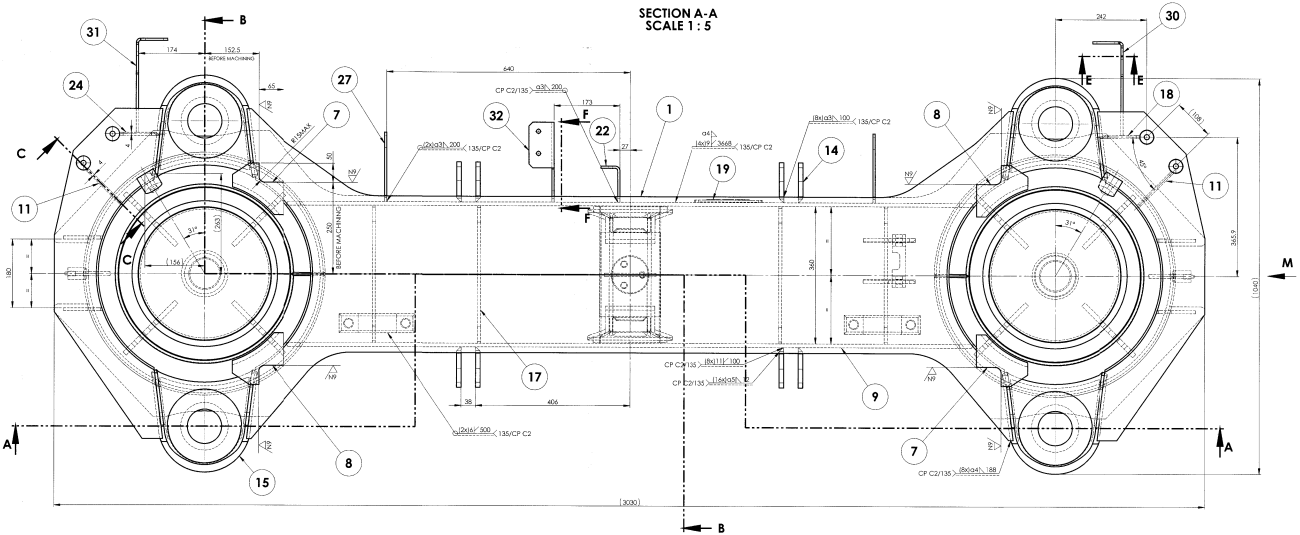
SECTION A-A
SCALE 1 : 5

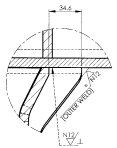


SECTION C-C
SCALE 1 : 5

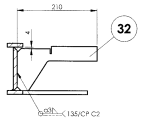


SECTION E-E
SCALE 1 : 5





DETAIL D
SCALE 1 : 2



SECTION F-F
SCALE 1 : 5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO IC7/STD-5-0001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS/ISO 2553-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

GROUP: 0-4 BOGIE BOLSTER	SURFACE AREA IN Sq.m.:	WT/ASSY IN Kgs:	
BOLSTER FOR RCF BOGIE WITH AIR SPRING BOGIE		SCALE 1:5	SSE/D
			CHD
		ALT. 0	ALTD
			DRN. C.Satishkumar
INDIAN RAILWAY STANDARDS, INTEGRAL COACH FACTORY, CHENNAI - 600038	SHEET 1 OF 2	LGS/EOG/ASR	66704001 A1

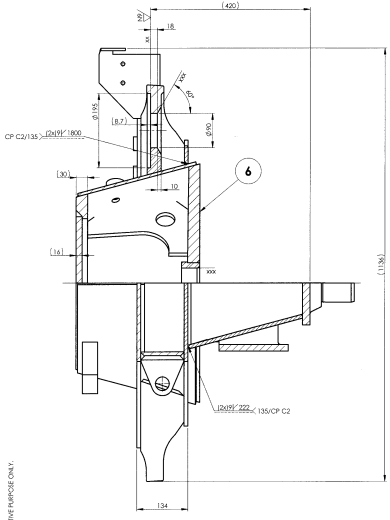
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	JAE/DCM
	09-08-2021	

REF.DRG.NO.LW04001 ALT '0'

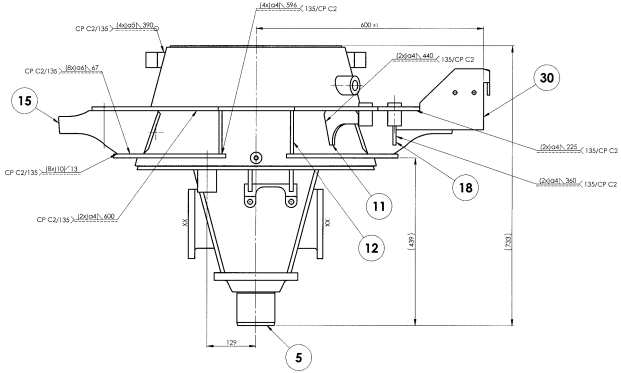
66704001

▽ ROUGH MACHINED	(G) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(C) CHAMFERED

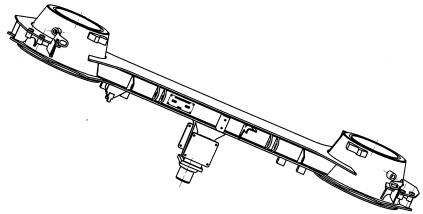
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	0	1.DRG. REDRAWN AS PER ICF FORMAT 2.WELDING NOTATIONS REVISED AS PER DN 15085-3. NOTE 6 & 7 ADDED 3.ALT.'0' ADDED 4.IN ELEVATION TOLERANCE ON DIM. 294 & 130 ALTD. AS ±1.5 & ±0.8 RESPECTIVELY AND TOLERANCE ON DIM. 450,240 & 20M ALTD. AS ±1.5 BASED ON RCF DRG.NO.LW04001 ALT.'F'		10-03-21 SMD/D.I



SECTION B-B
SCALE 1 : 5



VIEW FROM M
SCALE 1 : 5



XX SURFACE ONLY WITH PRIMING COAT	
XXX SURFACE WITHOUT ANY PAINTING	

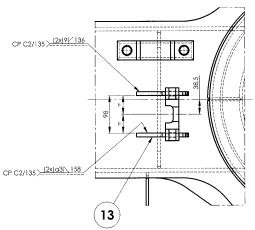
WELDING QUALITY SIG- SPEC. N 027 101	Q1	Q2	Q3	Q4
			X	

NOTE:

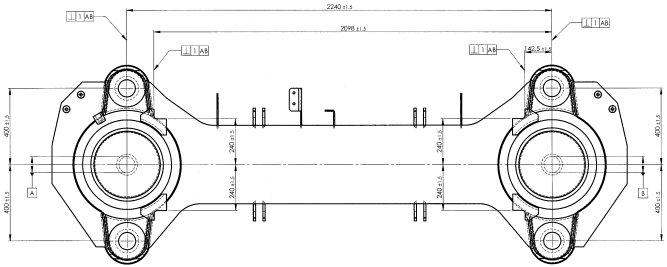
1. IF BOUGHT OUT,A SEPERATE IDENTIFICATION PLATE SHOULD BE TACK WELDED AT # DULY PUNCHED FOLLOWING LETTERS IN HEIGHT OF 10 mm MIN.

   a) INITIALS OF MANUFACTURER
   b) SCOPE OF WORK- FABRICATED BY/MACHINED BY
   c) MONTH AND YEAR OF MANUFACTURE

2. SURFACE PROTECTION AS PER MDTS166
3. THE MATERIAL SPECIFICATION FOR PLATES OF VARIOUS THICKNESS USED FOR FABRICATION OF BOLSTER WILL BE AS PER EN 10025 PART-V 2004 GRADE S355J2W+N WHEREVER OF EARLIER SPECIFIED MATERIAL GRADE i.e S152,3 & S355J2G3: EN:10025/29 IN VARIOUS RELATED SUB ASSEMBLY AND COMPONENT DRAWINGS
4.-
5. FOR WELD TESTING PREFERENCES AND CERTIFICATION LEVELS, REFER DRG NO.ICF/STD-9-0-998
6. FOR WELDING PROCEDURE SPECIFICATION(WPS), REFER DRG NO.ICF/STD-9-0-999
7. THIS DRG. SUPERSEDES 66704001-ANX-6 (LW04001 ALT 'b', ANX-6)



VIEW FROM Z
SCALE 1 : 5



QTY	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MATL	WT/UNIT IN KGS	REMARKS
1	BRACKET		32	AAA04179		0.84	
1	BRACKET FOR LEVELLING VALVE L.H		31	AAA04120		1.34	
1	BRACKET FOR LEVELLING VALVE R.H		30	AAA04119		1.34	
-	STIFFENER L.H		29	-AAA04117			
-	STIFFENER R.H		28	-AAA04118			
2	SUPPORT BRACKET		27	AAA04079		0.630	
1	DOME CUM AIR RESERVOIR ASSLY COMPLETE (R.H.)		26	66704011		143.33	
-	BRACKET FOR LEVELING VALVE		25	-66704010			
1	STIFFENER L.H		24	66704009		0.28	
-	SUPPORT BRACKET		23	–			
1	BRACKET FOR DUPLEX CHECK VALVE		22	AAA04078		0.701	
-	STIFFENER		21	-AAA04077			
-	NUMBER PLATE		20	–			
1	NUMBER PLATES FOR BOGIES BUILT IN I.C.F.		19	AAA03199		0.464	
1	STIFFENER R.H		18	66704007		0.28	
4	STIFFENER		17	AAA04058		1.713	
1	CENTER STIFFENER		16	AAA04057		8.985	
4	PIN BRACKET		15	AAA04056		16.472	
8	STIFFENER		14	AAA04055		0.633	
1	LATERAL DAMPER BRACKET		13	45504006		2.117	
4	STIFFENER		12	AAA04051		0.636	
2	STIFFENER		11	66704006		0.36	
2	ANTI ROLL BAR BRACKET		10	AAA04049		3.823	
2	BOLSTER SIDE WEB		9	AAA04048		14.717	
2	METAL STOP (L.H.)		8	AAA04047		3.091	
2	METAL STOP (R.H)		7	AAA04046		3.091	
1	DOME CUM AIR RESERVOIR ASSLY COMPLETE (L.H.)		6	66704005		143.33	
1	CENTER PIVOT ASSEMBLY		5	45504007		46.139	
1	VERTICAL DAMPER SUPPORT L.H		4	66704004		10.27	
1	VERTICAL DAMPER SUPPORT R.H		3	66704003		10.27	
1	BOLSTER LOWER PLATE		2	66704002		68.75	
1	BOLSTER UPPER PLATE		1	AAA04039		63.482	

GROUP: 9-4-BOGIE BOLSTER | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs:

SCALE 1:5 | SSE/D | CHD | ALT. 0 | ALTD | DRN. C.Satishkumar

BOLSTER
FOR RCF BOGIE WITH AIR SPRING BOGIE

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

SHEET 2 OF 2

LGS/EOG/ASR

66704001 | A1

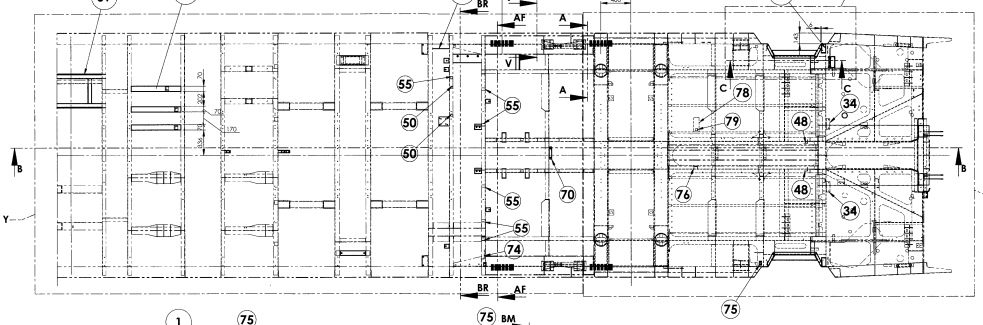
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	
	10-03-2021	SMD/D.I

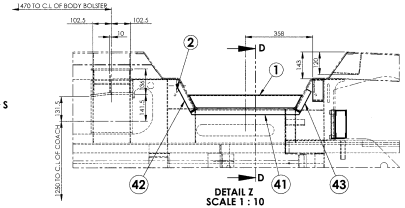
REF.DRG.NO.LW04001 ALT 'F'

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES REFER DRAWING NO.ICF/STD-9-0-001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS:813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

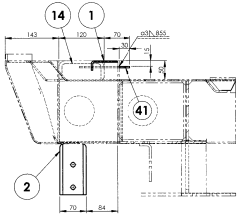
73911004

▽ ROUGH MACHINED	(C) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(R) CHAMFERED

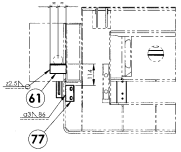




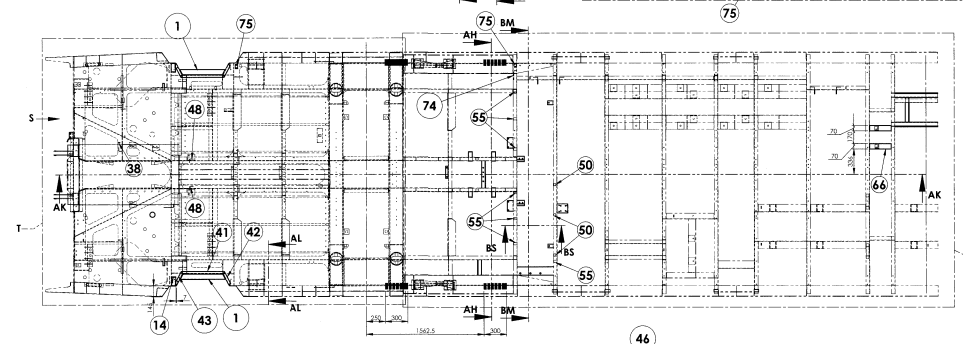
DETAIL Z
SCALE 1 : 10

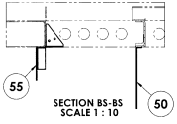


SECTION D-D
SCALE 1 : 5

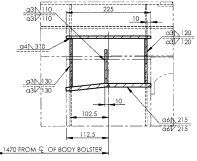


DETAIL BT
SCALE 1 : 10

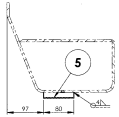




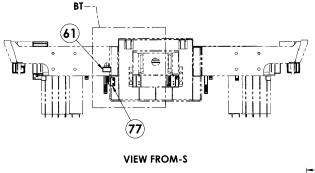
SECTION BS-BS
SCALE 1 : 10



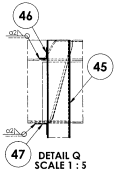
SECTION S-S
SCALE 1 : 5



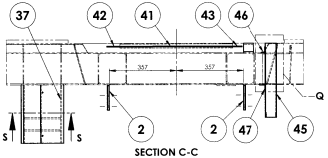
SECTION A-A
SCALE 1 : 5



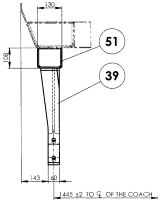
VIEW FROM-S



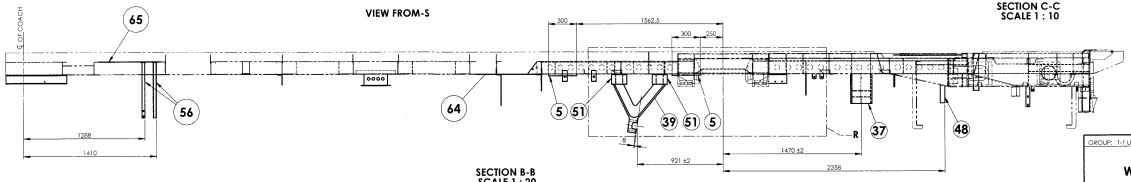
DETAIL Q
SCALE 1 : 5



SECTION C-C
SCALE 1 : 10



SECTION V-V
SCALE 1 : 10



SECTION B-B
SCALE 1 : 20

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNCLEARANCES DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO IC7/CTD-9-0001.
AIR MANUAL, ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER ISO 13-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

03-2021	13-04-2017	
DATE OF LA'BST ALT.	DATE OF FIRST ISSUE	AMENDMENT

REF.DRG.NO.

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs:

WELDING PARTS COMPLETE ON UNDERFRAME

SCALE: 1:100 | SSE/D | CHD

ALT. h | ALTD | M.SIVAKUMAR

DRN | CHINA SRINIVASA RAO

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

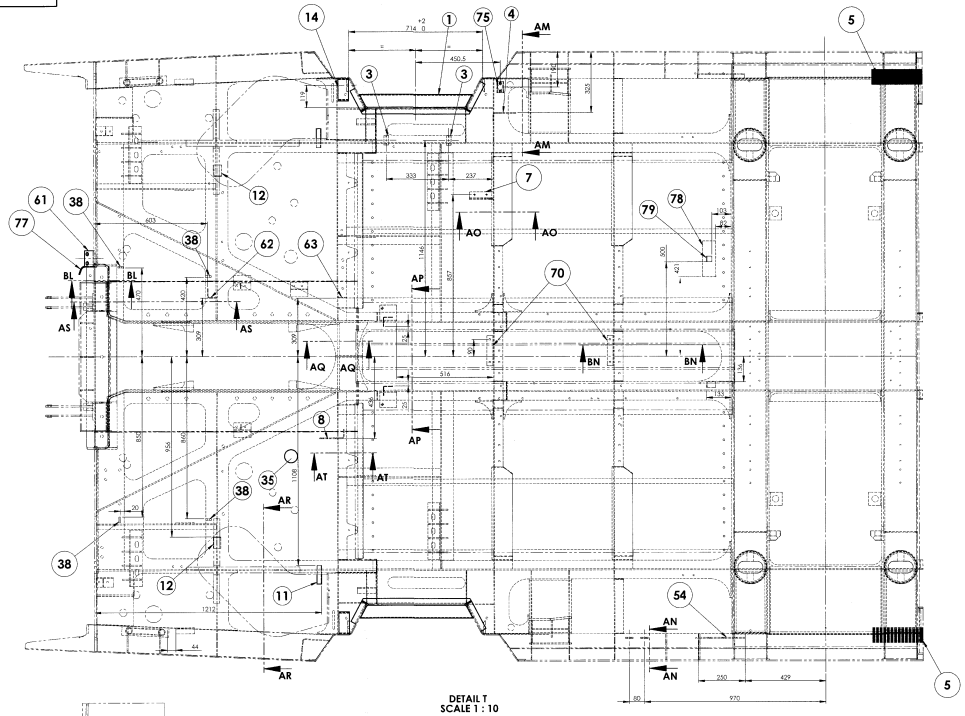
SHEET 1 OF 6

LWSCZ

73911004 | A1

73911004

▽ ROUGH MACHINED	⊗ ROUGH CLEANED
▽▽ FINISH MACHINED	⊗ BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	⊗ CHAMFERED



DETAIL T
SCALE 1 : 10

SECTION AM-AM
SCALE 1 : 5

SECTION AN-AN
SCALE 1 : 5

SECTION AO-AO
SCALE 1 : 5

SECTION AS-AS
SCALE 1 : 5

SECTION BL-BL
SCALE 1 : 5

SECTION AT-AT
SCALE 1 : 5

SECTION AP-AP
SCALE 1 : 5

SECTION AQ-AQ
SCALE 1 : 5

SECTION BN-BN
SCALE 1 : 10

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNDERSIGNED DIMENSIONS & NO ROUGHNESS VALUES, REFER DRAWING NO CT 1101-A-001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 813/1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs:

SCALE: 1:100 | SSE/D | CHD

ALT: h | ALTD | M.SIVAKUMAR

DRN: | CHINA SRINIVASA RAO

WELDING PARTS COMPLETE ON UNDERFRAME

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

SHEET 4 OF 6

LWSCZ

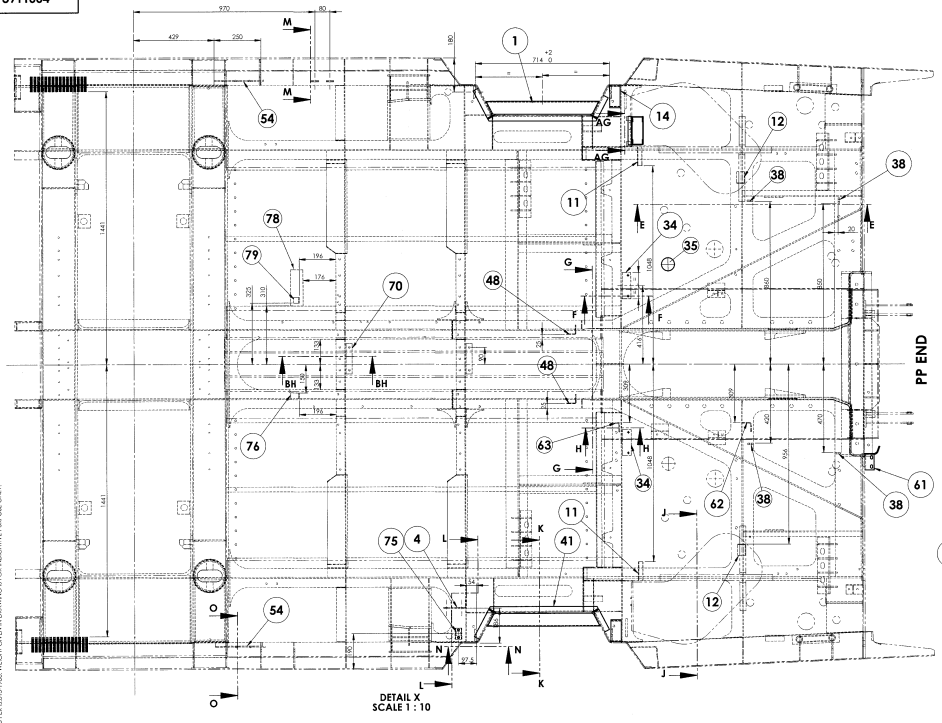
73911004 | A1

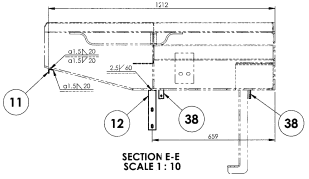
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AMEDMT
25-03-2021	13-04-2017	

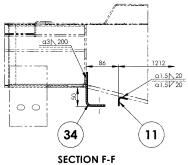
REF.DRG.NO.

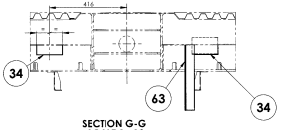
73911004

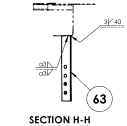
▽ ROUGH MACHINED	⊗ ROUGH CLEANED
▽▽ FINISH MACHINED	⊗ BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	⊗ CHAMFERED

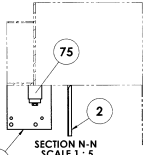


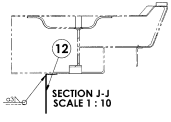

SECTION E-E
SCALE 1 : 10


SECTION F-F
SCALE 1 : 5

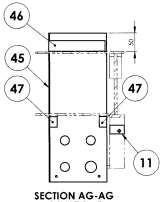

SECTION G-G
SCALE 1 : 10

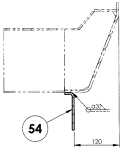

SECTION H-H
SCALE 1 : 10

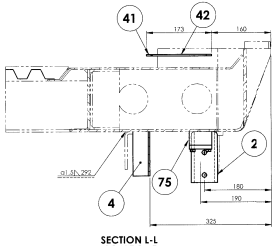

SECTION N-N
SCALE 1 : 5

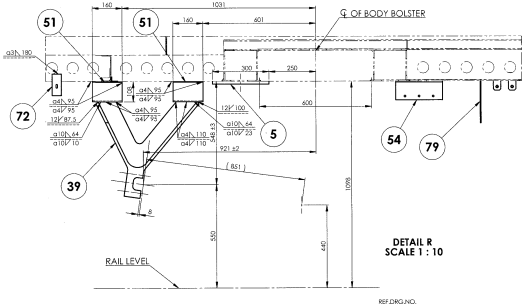

SECTION J-J
SCALE 1 : 10

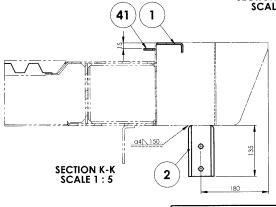
SECTION M-M
SCALE 1 : 5


SECTION AG-AG
SCALE 1 : 5


SECTION O-O
SCALE 1 : 5


SECTION L-L
SCALE 1 : 5




SECTION K-K
SCALE 1 : 5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR ANCILLARY/ADVANCED DIMENSIONS AND TOLERANCES VALUES, REFER DRAWING NO 9.27.010-A.0.001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THE DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 813:1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

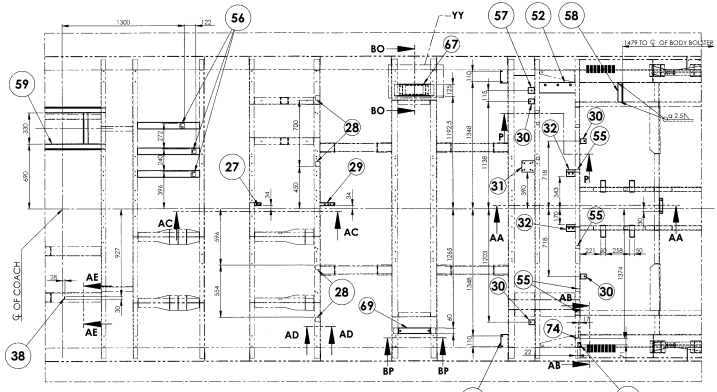
GROUP: 1-1 Under frame	SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:
WELDING PARTS COMPLETE ON UNDERFRAME		SCALE: 1:100	SSC/O
			CHD
		ALT.	ALTD M.SIVAKUMAR
		IN	DRN CHINA SRINIVASA RAO
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038	SHEET 2 OF 6		LWSCZ
			73911004 A1

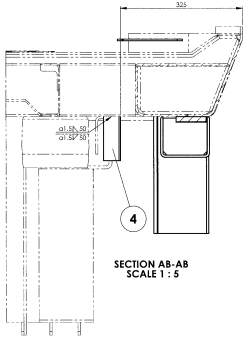
25-03-2021	13-04-2017	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AMENDMENT

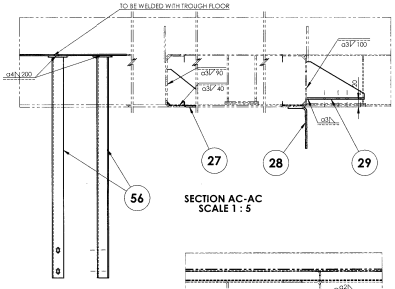
REF.DRG.NO.

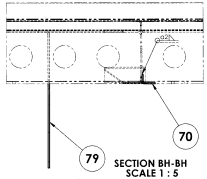
73911004

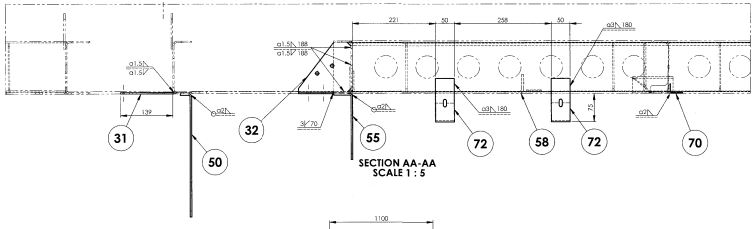
▽ ROUGH MACHINED	ⓒ ROUGH CLEANED
▽▽ FINISH MACHINED	ⓑ BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	ⓒ CHAMFERED

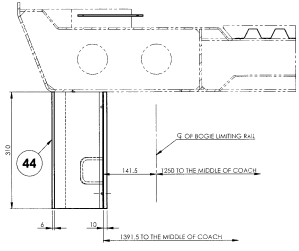


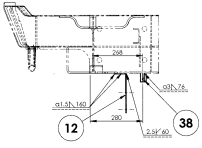


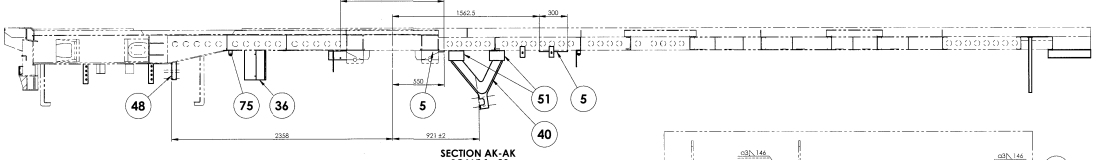


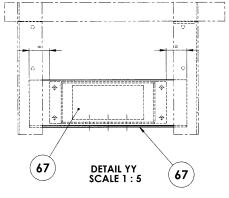


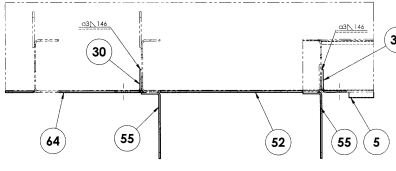


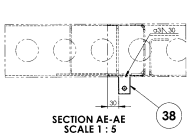










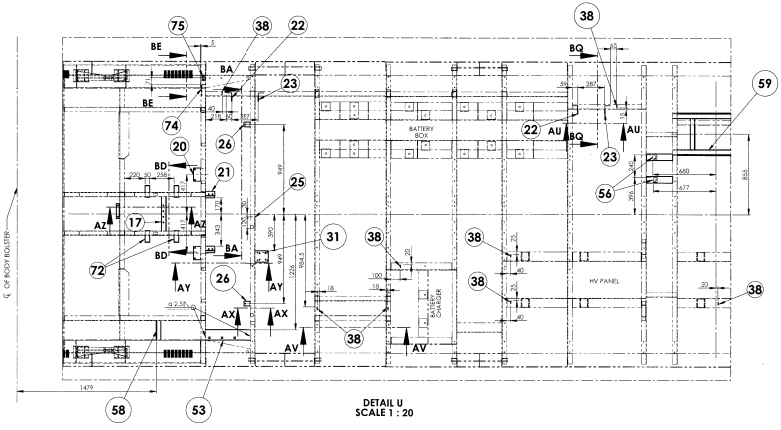


ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO ICF/CFD 5-0-001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THE DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

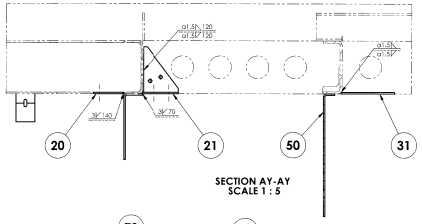
GROUP: 1-I Under frame	SURFACE AREA IN Sq.m.:	WT/ASSY IN Kgs	
WELDING PARTS COMPLETE ON UNDERFRAME		SCALE 1:100	SE/D CHD
		ALT TI	ALTD M.SIVAKUMAR DRN CHINA SRINIVASA RAO
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 3 OF 6	LWSCZ 73911004 A1
REF.DRG.NO.	25-03-2021 DATE OF LAST ALT. / 13-04-2017 DATE OF FIRST ISSUE	AMD/DATE	

73911004

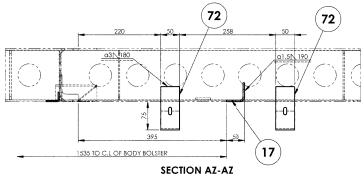
▽ ROUGH MACHINED		(C) ROUGH CLEANED	
▽▽ FINISH MACHINED		(B) BURRS REMOVED	
▽▽▽ FINE FINISH MACHINED		(D) CHAMFERED	



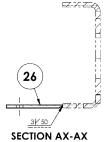
DETAIL U
SCALE 1 : 20



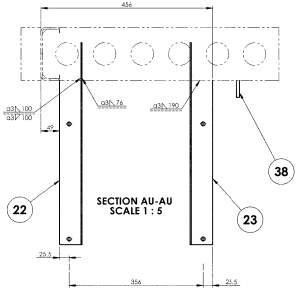
SECTION AY-AY
SCALE 1 : 5



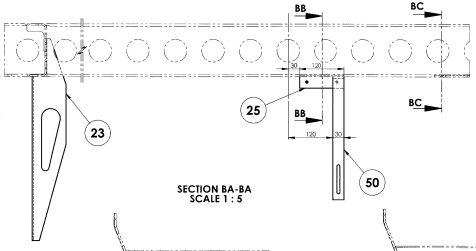
SECTION AZ-AZ
SCALE 1 : 5



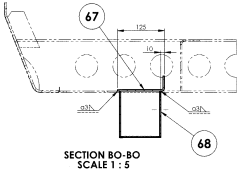
SECTION AX-AX
SCALE 1 : 2.5



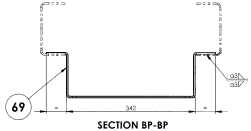
SECTION AU-AU
SCALE 1 : 5



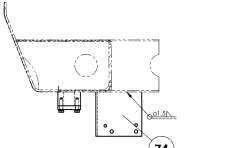
SECTION BA-BA
SCALE 1 : 5



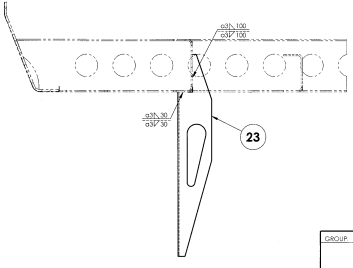
SECTION BO-BO
SCALE 1 : 5



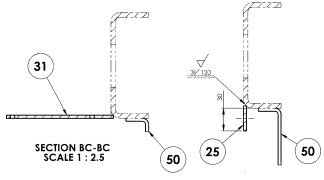
SECTION BP-BP
SCALE 1 : 5



SECTION BE-BE
SCALE 1 : 5



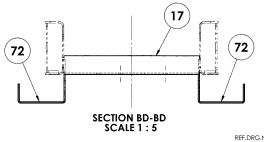
SECTION BQ-BQ
SCALE 1 : 5



SECTION BC-BC
SCALE 1 : 2.5

SECTION BB-BB
SCALE 1 : 2.5

SECTION AV-AV
SCALE 1 : 5



SECTION BD-BD
SCALE 1 : 5

REF.DRG.NO.

3-5-03-2021	13-04-2017	1-4-2
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/040

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.:

WELDING PARTS COMPLETE ON UNDERFRAME

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

WT/ASSY IN Kgs:	
SCALE 1:100	SSE/D
CHD	
ALT: h	ALTD M.SIVAKUMAR
DRN CHINA SRINIVASA RAO	
SHEET 5 OF 6	LWSCZ 73911004 A1

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO ICF/STD-9-0-001.
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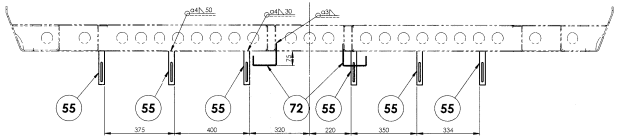
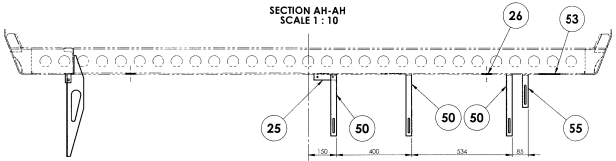
73911004

▽ ROUGH MACHINED	(R) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH (MICRO-FIN)	(C) CHAMFERED

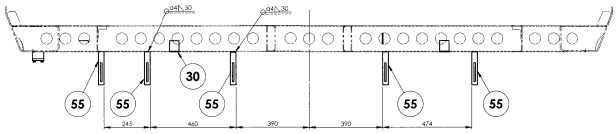
REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
f		ITEM-76 ADDED. QTY. FOR ITEM-55 ALTD. FROM 17 TO 13.	-sd-
g		LOCATING DIMENSIONS FOR ITEMS-61 & 75 ALTERED. ITEMS-60 & 73, SECTION A2-A2 DELETED. ITEM-77, DETAIL-B1 ADDED.	-SS-
h		ITEMS-78, 79 & SECTION-DD ADDED. LOCATING DIMENSION & QTY. REVISED FOR ITEM-76. ITEM-54 RESTORED. VIEWS UPDATED. WELDING NOTE DELETED. NOTE-1 TO 3 ADDED.	25/04/18



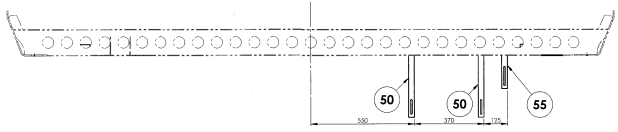
SECTION AH-AH
SCALE 1 : 10



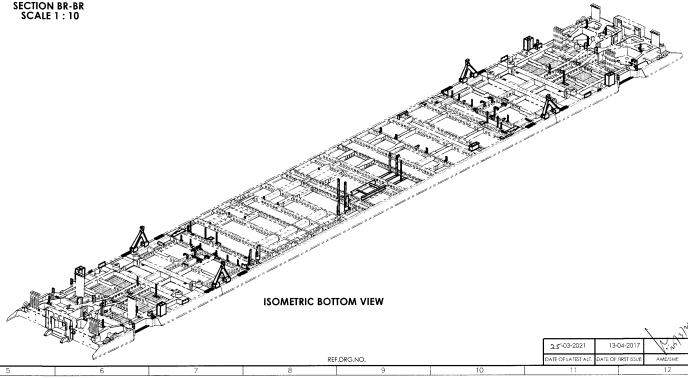
SECTION BM-BM
SCALE 1 : 10



SECTION AF-AF
SCALE 1 : 10



SECTION BR-BR
SCALE 1 : 10



ISOMETRIC BOTTOM VIEW

NOTE:-

✱ 1. ITEM-71 NOT REQUIRED FOR LECN/EOG COACHES.

FOR DRAWING NO.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MATL	WT/UNIT IN KGS	REMARKS
2	BRACKET		79	AAG11631		0.34	
2	PLATE		78	AAG11378		0.21	
2	BRACKET		77	AAF11934		0.33	
2	BRACKET		76	AAG11255		0.22	
4	PROTECTION CASE COMP.		75	73911011		0.581	
2	BRACKET		74	AAD11918		0.577	
-	~~PLATE~~		~~73~~	~~73911008~~			
8	CABLE SUPPORT		72	AAD11563		0.34	
4	~~COVERING SHEET~~		71	~~AAG11582~~		~~4.09~~	✱
6	ANGLE		70	AAC11552		0.214	
1	BRACKET		69	AAC11483		1.26	
1	BRACKET ASSEMBLY		68	58111066		2.436	
1	ANGLE		67	AAC11436		2.09	
2	FLAT	3.15x70x287	66		IRS M-41-1997	0.50	
3	FLAT	3.15x70x660	65		IRS M-41-1997	1.14	
1	FLAT		64	AAC11323		0.42	
2	BRACKET		63	AAB11999		0.97	
2	BRACKET		62	AAB11998		0.57	
2	BRACKET		61	AAB11997		0.29	
-			~~60~~	~~AAB11996~~			
1	SUPPORT BRACKET FOR 130 LTR. RESERVOIR		59	66711005		15.188	
2	ANGLE		58	AAB11963		0.85	
1	BRACKET		57	AAB11962		0.19	
5	BRACKET		56	66711004		0.869	
13	BRACKET		55	AAB11959		0.18	
4	BRACKET		54	AAB11958		1.14	
1	PLATE		53	AAB11978		1.66	
1	PLATE		52	AAB11965		1.30	
8	BRACKET		51	66711003		3.509	
5	BRACKET		50	AAB11953		0.31	
4	~~PROTECTION CASE~~		49	-			COVERED UNDER BRAKE DIEGUIS
4	ANGLE		48	AAB11144		0.412	
2	LUG		47	AAA11958		0.018	
1	SUPPORT ANGLE		46	AAA11957		0.110	
1	JUNCTION BOX		45	58111051		2.541	
4	COVERING SHEET		44	AAA11853		3.285	
4	BRACKET		43	AAA11854		0.113	
4	BRACKET		42	AAA11852		0.153	
4	BRACKET		41	AAA11519		0.531	
2	CONSOLE		40	AAA11831		17.693	
2	CONSOLE		39	AAA11829		17.693	
16	GROUNDING FLAP		38	AAA11456		0.081	
2	STOP COMPLETE		37	58111040		11.638	
2	STOP COMPLETE		36	58111039		11.638	
2	COVERING SHEET		35	AAA11454		0.060	
2	BRACKET		34	AAA11821		0.567	
1	~~BRACKET~~		~~33~~	~~AAA11815~~		~~0.330~~	
2	BRACKET COMPLETE		32	58111038		0.603	
2	BRACKET		31	AAA11822		0.524	
4	BRACKET		30	AAA11848		0.181	
1	BRACKET		29	AAA11841		0.399	
4	BRACKET		28	AAA11840		0.233	
1	BRACKET		27	AAA11839		0.269	
2	BRACKET		26	AAA11832		0.113	
1	BRACKET		25	AAA11819		0.123	
2	~~BRACKET~~		24	~~AAA11800~~		~~0.319~~	
2	BRACKET		23	AAA11861		1.182	
2	BRACKET		22	AAA11860		1.180	
2	BRACKET COMPLETE		21	58111050		0.414	
4	BRACKET		20	AAA11849		0.339	
2	~~BRACKET~~		~~19~~	~~AAA11834~~		~~0.490~~	
1	~~BRACKET~~		~~18~~	~~AAA11817~~		~~0.095~~	
1	MEMBER		17	AAA11837		1.009	
1	~~BRACKET~~		~~16~~	~~AAA11818~~		~~0.339~~	
2	~~BRACKET~~		~~15~~	~~AAA11823~~		~~0.798~~	
4	CHANNEL		14	AAA11451		0.670	
4	~~BRACKET COMPLETE~~		~~13~~	~~58111048~~		~~0.983~~	
4	BRACKET		12	AAA11526		0.206	
4	BRACKET		11	AAA11491		0.083	
1	BRACKET		10	AAA11453		0.232	
1	BRACKET		9	AAA11452		0.232	
1	BRACKET		8	AAA11816		1.471	
1	BRACKET COMPLETE		7	58111049		0.980	
4	PLATE		6	AAA11518		0.087	
8	LIFTING PLATFORM		5	AAA11504		2.695	
2	BRACKET		4	AAA11835		0.577	
2	BRACKET		3	AAA11847		0.145	
8	BRACKET		2	AAA11457		0.655	
6	ANGLE		1	AAA11450		1.582	

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs:

NOTE:

1. ALL WELD PERFORMANCE CLASS SHALL BE CP C2 UNLESS OTHERWISE SPECIFIED.
2. FOR WELD TESTING PREFERANCES REFER DRG. No. ICF/STD-P-0-998.
3. FOR WELD PROCEDURE SPECIFICATION REFER DRG. No. ICF/TTD-P-0-999.

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WELDING PARTS COMPLETE ON UNDERFRAME

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

SCALE 1:100	SSE/D
	CHD
ALT. h	ALTD M.SIVAKUMAR
	DRN CHINA SRINIVASA RAO

LWSCZ

SHEET 6 OF 6

73911004 A1

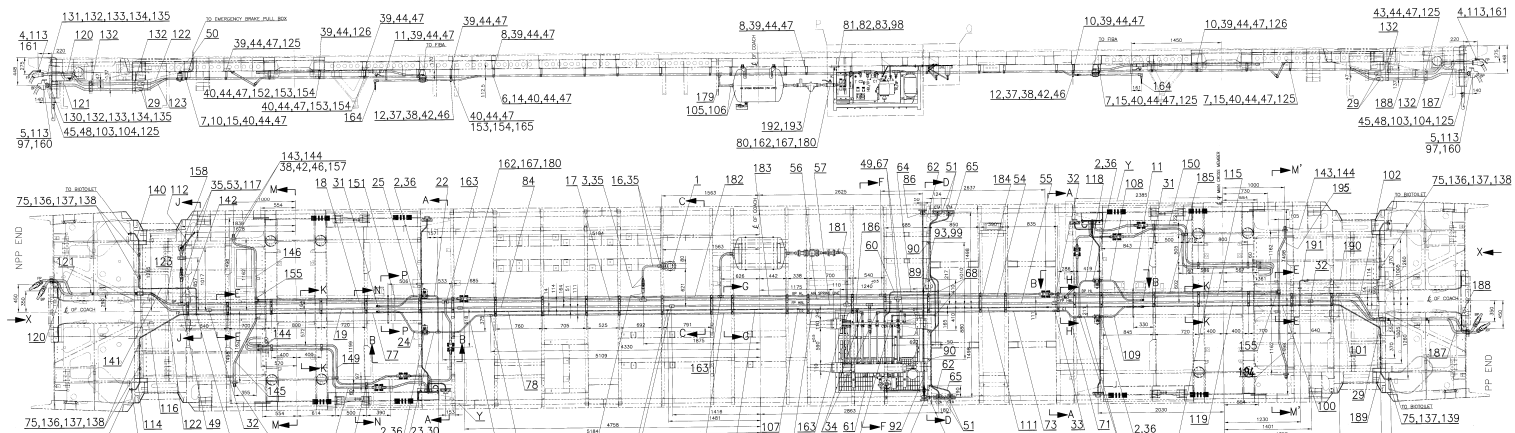
REF.DRG.NO.

DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AMG/SME
25-09-2021	13-04-2017	

LSCN/EOG/ASR-3-5-001

F	FOUGH MACHINED	CO	ROUGH CLEANING
FF	FINISH MACHINED	CB	CHAMFERED
FFF	FINE FINISH MACHINED		

ALTERATIONS



ALT	DATE OF LATEST ALTN	DATE OF FIRST ISSUE	SHEET SIZE	ASSEMBLY DRAWINGS	
	12-03-2021	15-09-2018	A1		

CAD FILE: C:\CAD-CAM\TROLLY\LOCO\TRAILER\LHB\

GROUP– 3-5 BRAKE PIPING

LAYOUT OF AIR BRAKE PIPING ARRGT. WITH SS PIPES & DOUBLE FERRULE FITTINGS (FOR LHB SCN EOG COACHES WITH FIBA/ASR)

DATA CODE No. 783

INDIAN RAILWAY STANDARDS

SHEET 1 OF 3

LSCN/EOG/ASR-3-5-001

SUPERSEDES BY

SUPERSEDES–CONTAINS NP-3-5-001 ALT-1

SCALE	DRN	CHK
1:10	C.T.	V.K.A.S.A.R.
1:20	DATE	15-09-2018
	S.M.K.Sharma	

ALT 0

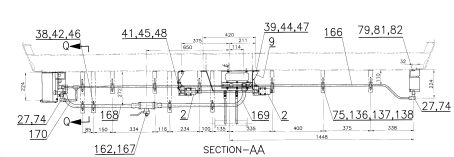
NATIONAL COACH FACTORY CHENNAI-38

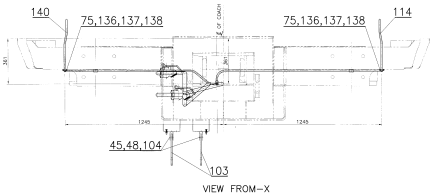
FORM R ATE 1200/0000

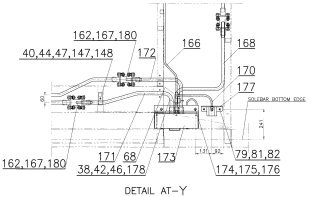
LSCN/EOG/ASR-3-5-001

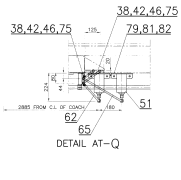
R	ROUGH MACHINED	CL	BOSCH CLEARING
RF	FINISH MACHINED	CH	CHAMFERED
RW	FINE FINISH MACHINED		

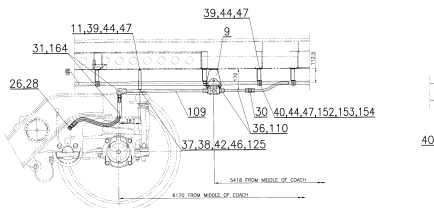
ALTERNATIVES

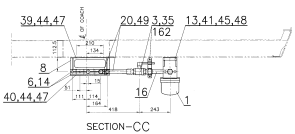


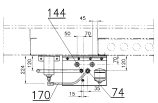


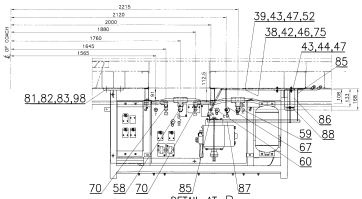


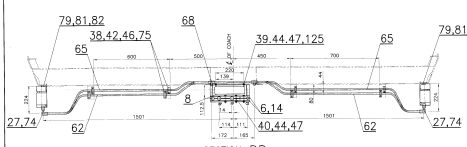


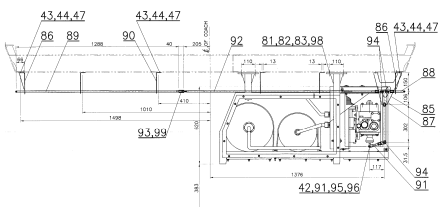


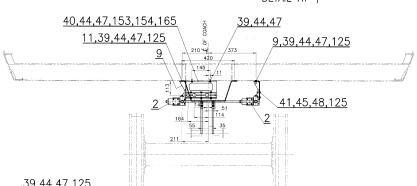


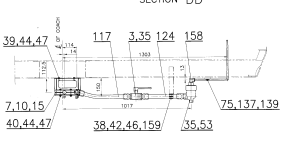


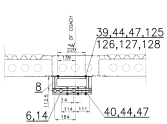


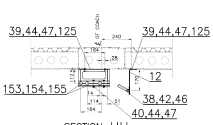












N	01	01	GROUP– 3–5 BRAKE PIPING
ASSEMBLY DRAWINGS			
10-05-2001	15-06-2009		
ALT	DATE OF LATEST ALTN	DATE OF FIRST ISSUE	SHEET 2 OF 3

SUPERSEDES: LSN/EOG/ASR-3-1-5-001 K/—/—

SCALE: 1:10 1:20 — DR. Kalpana — CH. Ravi Kumar — DRN. Kalpana — APP. Ravi Kumar — ALT. —

LAYOUT OF AIR BRAKE PIPING ARRGT. WITH SS PIPES & DOUBLE FERRULE FITTINGS (FOR LHB SCN EOG COACHES WITH FIBMASR)

CAD FILE: C:\WD-CAD\783\2-5\001\DRAWING

DATA CODE No. 783 — INDIAN RAILWAY STANDARDS — SHEET 2 OF 3 — LSCN/EOG/ASR-3-5-001

REGIONAL COACH FACTORY CHORAM-GB

FORM IR A1b 1260x840

LSCN/EOG/ASR-3-5-001

▽ ROUGH MACHINED	(01) ROUGH CLEANING	
▽▽ FINISH MACHINED		
▽▽▽ FINE FINISH MACHINED		

ALTERATIONS

(a) 03/2021
ASR LINE MODIFIED. ITEMS-194 & 195 ADDED. REF DRG FOR ITEM-156 ALTD FROM LGS/EOG/ASR 3-5-006 TO AAA35139. REF: RCF Lr. No. MD44121 Dt.17-02-21.
SSE/D SME/D-1

NOTE:-

1. ALL SCREW CONNECTIONS WITH NUTS OF STAINLESS STEEL HAVE TO BE GREASED WITH MOLYKOTE/MOLYBDENUM DISULPHIDE PRIOR TO BE SCEWED IN.
2. FASTENERS SHALL BE OF MAKE GKW OR TVS OR UNBRAKO OR LPS ONLY.

NO. OFF III	NO. OFF II	NO. OFF I	DESCRIPTION & DIMENSIONS	ITEM	REF. DRG.	MAT.& SPECN.	WEIGHT/UNIT	REMARKS
–	1	–	PIPE 1" O.D	195	LGS/EOG/ASR 3-5-002			ITEM- 83
–	1	–	PIPE 1" O.D	194	LGS/EOG/ASR 3-5-002			ITEM- 82
–	–	1	20mm CHECK VALVE ASSY. WITH CHOKE	193	RDSO/SK 98112			RDSO/2015/CG -05
–	–	1	TWO WAY DIRT COLLECTOR 20mm BORE	192	RDSO/SK 97005			RDSO/2015/CG -05
–	1	–	PIPE 1/2" O.D	191	LGS/EOG/ASR 3-5-002			ITEM-74
–	1	–	PIPE 1/2" O.D	190	LGS/EOG/ASR 3-5-002			ITEM-73
–	1	–	PIPE 1/2" O.D	189	LGS/EOG/ASR 3-5-002			ITEM-72
–	1	–	BRAKE PIPE (NB)	188	MI005808			
–	1	–	FEED PIPE (NB)	187	MI005809			
–	1	–	PIPE 28 O.D	186	LGS/EOG/ASR 3-5-002			ITEM-71
–	1	–	PIPE 1" O.D	185	LGS/EOG/ASR 3-5-002			ITEM- 81
–	1	–	PIPE 1" O.D	184	LGS/EOG/ASR 3-5-002			ITEM-69
–	1	–	PIPE 1" O.D	183	LGS/EOG/ASR 3-5-002			ITEM-68
–	1	–	PIPE 1" O.D	182	LGS/EOG/ASR 3-5-002			ITEM-67
–	1	–	PIPE 1" O.D	181	LGS/EOG/ASR 3-5-002			ITEM-66
–	20	–	FLANGE MALE CONNECTOR PIPE TO EQPT. 20 mm NB (70mm PITCH)	180	ICF/STD 3-5-020			ITEM-1
–	1	–	PIPE 1" O.D	179	LGS/EOG/ASR 3-5-002			ITEM-65
9	–	–	PIPE CLIP (13)	178	LGS/EOG 3-5-030			ITEM-3
–	–	4	INDICATOR	177	A93736/A			RDSO/2015/CG -05
6	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M16	176	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
6	–	–	STAINLESS STEEL MACHINE WASHER 16.5	175	IS:2016-1967	AISI-304		
6	–	–	STAINLESS STEEL HEX. HD. SCREW M16x45	174	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
–	–	2	FIBA DEVICE	173	C149523			RDSO/2015/CG -05
–	1	–	PIPE 1" O.D	172	LGS/EOG/ASR 3-5-002			ITEM-64
–	1	–	PIPE 1" O.D	171	LGS/EOG/ASR 3-5-002			ITEM-63
–	1	–	PIPE 1/2" O.D	170	LGS/EOG/ASR 3-5-002			ITEM-62
–	1	–	PIPE 1" O.D	169	LGS/EOG/ASR 3-5-002			ITEM-61
–	1	–	PIPE 1" O.D	168	LGS/EOG/ASR 3-5-002			ITEM-60
–	–	9	ISOLATING COCK	167	RDSO/SK 97002			RDSO/2015/CG -05
–	1	–	PIPE 1/2" O.D	166	LGS/EOG/ASR 3-5-002			ITEM-59
3	–	–	BRACKET COMPLETE	165	LG36210			
–	–	4	HOSE CONNECTION R1/2"x600mm	164	I.3.3503/3			RDSO/2011/CG -04
–	3	–	REDUCING UNION TEE 28mm O.D x 1"BSPT	163	ICF/STD 3-5-019			ITEM 1
10	–	–	HANDLE LOCKING ARRGT. FOR ISOLATING COCK	162	CC35334			
–	–	2	ANGLE COCK (F.P)	161	RDSO DRG.NO. WD-88123-S-01			RDSO/2011/CG -04
–	–	2	ANGLE COCK (B.P)	160	RDSO DRG.NO. WD-88123-S-01			RDSO/2011/CG -04
3	–	–	PIPE CLIP (28.5)	159	LGS/EOG 3-5-028			ITEM-8
–	1	–	MALE ELBOW CONNECTOR 1/2" O.D x 1/4"BSPT	158	ICF/STD 3-5-023			ITEM-14
–	17	–	PIPE CLIP (26)	157	LGS/EOG 3-5-029			ITEM-6
–	4	–	PLATE	156	AAA35139			
–	3	–	UNION TEE 1" O.D	155	ICF/STD 3-5-018			ITEM-3
10	–	–	PIPE CLIP	154	LGS/EOG/ASR 3-5-003			
10	–	–	BRACKET	153	LG36181			
6	–	–	BRACKET COMPLETE	152	LG36179			
–	1	–	PIPE 1" O.D	151	LGS/EOG/ASR 3-5-002			ITEM- 80
–	2	–	PIPE 1" O.D	150	LGS/EOG/ASR 3-5-002			ITEM-57
–	2	–	PIPE 1" O.D	149	LGS/EOG/ASR 3-5-002			ITEM-56
10	–	–	BRACKET	148	LG36185			
10	–	–	PIPE CLIP	147	LG36184			
–	1	–	PIPE 1" O.D	146	LGS/EOG/ASR 3-5-002			ITEM- 79
–	1	–	PIPE 1" O.D	145	LGS/EOG/ASR 3-5-002			ITEM- 78
–	14	–	MALE CONNECTOR 1" O.D x 3/4"BSPT	144	ICF/STD 3-5-016			ITEM-4
–	–	4	HOSE CONNECTION 20 BORE x 550	143	DC/EMU/M/ASR 0-5-009			ITEM-1
–	1	–	PIPE 1/2" O.D	142	LGS/EOG/ASR 3-5-002			ITEM-53
–	1	–	PIPE 1/2" O.D	141	LGS/EOG/ASR 3-5-002			ITEM-52
–	1	–	PIPE 1/2" O.D	140	LGS/EOG/ASR 3-5-002			ITEM-51
10	–	–	STAINLESS STEEL HEX. HD. SCREW M5x16	139	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
78	–	–	STAINLESS STEEL NYLOC NUT M5	138	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
82	–	–	STAINLESS STEEL MACHINE WASHER A5.3	137	IS:2016-1967	AISI-304		
54	–	–	STAINLESS STEEL HEX. HD. SCREW M5x25	136	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
8	–	–	SPRING WASHER B10	135	LIHW09	IS:3063-1994		ITEM-21 COATING TO MDTS 057
8	–	–	HEX.NUT M10	134	LIHW09	IS:1364, PT.3-92-8		ITEM-4 COATING TO MDTS 057
4	–	–	RUBBER PACKING 4x30x70 FOR 25 NB PIPE	133				MDTS-030 EPDM QUALITY
12	–	–	U-CLAMP FOR 25 NB PIPE	132	CC36923			
2	–	–	FRP LINING FOR 25 NB PIPE	131	CC36538			ITEM-3
2	–	–	FRP LINING FOR 25 NB PIPE	130	CC36538			ITEM-4
–	2	–	UNION ELBOW 1/2"O.D	129	ICF/STD 3-5-017			ITEM-1
AS REQD	–	–	HARDENER KV 39.0650	128	K080	EP-DS		
AS REQD	–	–	VARNISH RAL 7012	127	K080	RAL7012, BASALTGr		
AS REQD	–	–	SCREW PROTECTION	126	243	ACRYLESTER WL420601		
AS REQD	–	–	MOLYBDENUM DISULPHIDE	125		MOLYBDANDISULFID		
–	1	–	PIPE 28 O.D	124	LGS/EOG/ASR 3-5-002			ITEM-50
–	1	–	PIPE 28 O.D	123	LGS/EOG/ASR 3-5-002			ITEM-49
–	1	–	PIPE 28 O.D	122	LGS/EOG/ASR 3-5-002			ITEM-48
–	1	–	PIPE 25 (NB)	121	MI006331			
–	1	–	PIPE 25 (NB)	120	MI006330			
–	1	–	PIPE 28 O.D	119	LGS/EOG/ASR 3-5-002			ITEM-47
–	1	–	PIPE 3/4" O.D	118	LGS/EOG/ASR 3-5-002			ITEM-46
–	1	–	PIPE 28 O.D	117	LGS/EOG/ASR 3-5-002			ITEM-45
–	1	–	PIPE 1/2" O.D	116	LGS/EOG/ASR 3-5-002			ITEM-44
–	1	–	PIPE 28 O.D	115	LGS/EOG/ASR 3-5-002			ITEM-43
–	1	–	PIPE 1/2" O.D	114	LGS/EOG/ASR 3-5-002			ITEM-42
–	4		HEX. PIPE NUT G1"	113	IS:3468-1991	AISI-304		
–	1	–	PIPE 1/2" O.D	112	LGS/EOG/ASR 3-5-002			ITEM-41
–	1	–	PIPE 1/2" O.D	111	LGS/EOG/ASR 3-5-002			ITEM-40
–	1	–	PIPE 3/4" O.D	110	LGS/EOG/ASR 3-5-002			ITEM-39
–	1	–	PIPE 3/4" O.D	109	LGS/EOG/ASR 3-5-002			ITEM-38
–	1	–	PIPE 3/4" O.D	108	LGS/EOG/ASR 3-5-002			ITEM-37
–	12	–	STRAIGHT UNION 1/2"O.D	107	ICF/STD 3-5-015			ITEM-1
–	2	–	MALE CONNECTOR 1"O.D x 1"BSPT	106	ICF/STD 3-5-016			ITEM-8
–	–	1	AIR RESERVOIR 150 Ltrs	105	ICF/STD 3-5-066			
4	–	–	HEX. FIT BOLT M12x27.5x50	104	IS:3640-1982			A2 TO IS:1367 (PART-14) -84
4	–	–	HOOK	103	LGS/EOG 3-5-026			
–	1	–	PIPE 28 O.D	102	LGS/EOG/ASR 3-5-002			ITEM-36
–	1	–	PIPE 28 O.D	101	LGS/EOG/ASR 3-5-002			ITEM-35
–	1	–	PIPE 1/2" O.D	100	LGS/EOG/ASR 3-5-002			ITEM-34
2	–	–	HEX. THIN NUT M10	99	IS:1364 (PART-4) 2002	IS:1367 (PART-14) 84, A2 70		
16	–	–	STAINLESS STEEL HEX. HD. SCREW M10x45	98	IS:1363 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
–	–	4	REDUCING BUSH 1 1/4"BSPT(M) x 1"BSP(F)	97	ICF/STD 3-5-036			ITEM-10
1	–	–	SPLIT PIN 1.6 x 12	96	IS:549-1974	A2 TO IS:1367 (PART-14) -84		
1	–	–	BOLT B6x30x23	95		IS:6863-70 A2-70		
3	–	–	FORK HEAD COMPLETE	94	LGS/EOG 3-5-024			
1	–	–	THREAD BUSH	93	LGS/EOG 3-5-023			
1	–	–	SLACK	92	LGS/EOG 3-5-022			
1	–	–	FORK HEAD	91	LGS/EOG 3-5-021			
4	–	–	BRACKET	90	LGS/EOG 3-5-020			
1	–	–	SLACK COMPLETE	89	LGS/EOG 3-5-019			
1	–	–	SLACK COMPLETE	88	LGS/EOG 3-5-018			
1	–	–	LEVER COMPLETE	87	LGS/EOG 3-5-017			
2	–	–	BRACKET COMPLETE	86	LGS/EOG 3-5-016			
2	–	–	BRACKET COMPLETE	85	LGS/EOG 3-5-015			
–	1	–	PIPE 28 O.D	84	LGS/EOG/ASR 3-5-002			ITEM-33
4	–	–	PACKING	83	LGS/EOG 3-5-014			
40	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M10	82	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
56	–	–	STAINLESS STEEL MACHINE WASHER 10.5	81	IS:2016-1967	AISI-304		
–	2	–	PIPE 1" O.D	80	LGS/EOG/ASR 3-5-002			ITEM-32
24	–	–	STAINLESS STEEL HEX. HD. SCREW M10x35	79	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
–	1	–	PIPE 1/2" O.D	78	LGS/EOG/ASR 3-5-002			ITEM-31
–	1	–	PIPE 1/2" O.D	77	LGS/EOG/ASR 3-5-002			ITEM-30
4	–	–	PIPE CLIP (26)	76	LGS/EOG 3-5-030			ITEM-7
–	40	–	PIPE CLIP (13)	75	LGS/EOG 3-5-029			ITEM-3
–	8	–	MALE CONNECTOR 1/2"O.D x 1/4"BSPT	74	ICF/STD 3-5-016			ITEM-13
–	1	–	PIPE 3/4" O.D	73	LGS/EOG/ASR 3-5-002			ITEM-29
–	1	–	PIPE 3/4" O.D	72	LGS/EOG/ASR 3-5-002			ITEM-28
–	1	–	PIPE 3/4" O.D	71	LGS/EOG/ASR 3-5-002			ITEM-27
–	2	–	PIPE 3/4" O.D	70	LGS/EOG/ASR 3-5-002			ITEM-26
–	1	–	PIPE 1/2" O.D	69	LGS/EOG/ASR 3-5-002			ITEM-25
–	7	–	UNION TEE 1/2"O.D	68	ICF/STD 3-5-018			ITEM-1
–	1	–	PIPE 1/2" O.D	67	LGS/EOG/ASR 3-5-002			ITEM-24
–	1	–	PIPE 1/2" O.D	66	LGS/EOG/ASR 3-5-002			ITEM-23
–	2	–	PIPE 1/2" O.D	65	LGS/EOG/ASR 3-5-002			ITEM-22
–	1	–	PIPE 1/2" O.D	64	LGS/EOG/ASR 3-5-002			ITEM-21
–	1	–	PIPE 1/2" O.D	63	LGS/EOG/ASR 3-5-002			ITEM-20
–	2	–	PIPE 1/2" O.D	62	LGS/EOG/ASR 3-5-002			ITEM-19
–	–	1	BRAKE DEVICE CONTAINER COMPLETE	61	C197437			RDSO/2011/CG -04
–	1	–	PIPE 1/2" O.D	60	LGS/EOG/ASR 3-5-002			ITEM-18
–	1	–	PIPE 28 O.D	59	LGS/EOG/ASR 3-5-002			ITEM-17
–	1	–	PIPE 28 O.D	58	LGS/EOG/ASR 3-5-002			ITEM-16
–	1	–	PIPE 28 O.D	57	LGS/EOG/ASR 3-5-002			ITEM-15
–	1	–	PIPE 28 O.D	56	LGS/EOG/ASR 3-5-002			ITEM-14
–	1	–	PIPE 28 O.D	55	LGS/EOG/ASR 3-5-002			ITEM-13
–	1	–	PIPE 28 O.D	54	LGS/EOG/ASR 3-5-002			ITEM-12
–	–	1	EMERGENCY BRAKE VALVE WITH 3/8 "x 1/4" REDUCER	53	4B89712/KI			RDSO/2011/CG -04
1	–	–	BRACKET	52	LGS/EOG 3-5-013			
–	–	4	INDICATOR	51	A93736/A			RDSO/2011/CG -04
–	–	1	EMERGENCY BRAKE LAYOUT IN PASSENGER AREA	50	LGS/EOG 3-5-003			
–	4	–	UNION TEE 28mm O.D	49	ICF/STD 3-5-018			ITEM-5
40	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M12	48	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
169	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M8	47	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
202	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M6	46	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
32	–	–	STAINLESS STEEL MACHINE WASHER 13	45	IS:2016-1967	AISI-304		
222	–	–	STAINLESS STEEL MACHINE WASHER 8.4	44	IS:2016-1967	AISI-304		
18	–	–	STAINLESS STEEL HEX. HD. SCREW M8x30	43	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
202	–	–	STAINLESS STEEL MACHINE WASHER 6.4	42	IS:2016-1967	AISI-304		
8	–	–	STAINLESS STEEL HEX. HD. SCREW M12x45	41	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
95	–	–	STAINLESS STEEL HEX. HD. SCREW M8x60	40	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
74	–	–	STAINLESS STEEL HEX. HD. SCREW M8x25	39	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
197	–	–	STAINLESS STEEL HEX. HD. SCREW M6x25	38	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
–	5	–	CLAMP	37	LGS/EOG 3-5-028			ITEM-5
–	8	–	MALE CONNECTOR 3/4"O.D x 1/2"BSPT	36	ICF/STD 3-5-016			ITEM-2
–	8	–	MALE CONNECTOR 28mm O.D x 1"BSPT	35	ICF/STD 3-5-016			ITEM-11
–	2	–	UNION ELBOW 3/4"O.D	34	ICF/STD 3-5-017			ITEM-2
–	2	–	STRAIGHT UNION 3/4"O.D	33	ICF/STD 3-5-015			ITEM-2
–	6	–	STRAIGHT UNION 28mm O.D	32	ICF/STD 3-5-015			ITEM-4
–	4	–	MALE ELBOW CONNECTOR 3/4" O.D x 1/2"BSPT	31	ICF/STD 3-5-023			ITEM-2
–	2	–	UNION TEE 3/4"O.D	30	ICF/STD 3-5-018			ITEM-2
–	4	–	FEMALE CONNECTOR 28mm O.D x 1"BSP	29	ICF/STD 3-5-107			ITEM-1
–	4	–	FEMALE CONNECTOR 3/4"O.D x 1/2"BSP	28	ICF/STD 3-5-107			ITEM-2
–	4	–	SWIVEL ELBOW 1/2"O.D	27	ICF/STD 3-5-022			ITEM-3
–	4	–	PIPE 3/4" O.D	26	LGS/EOG/ASR 3-5-002			ITEM-11
–	1	–	PIPE 3/4" O.D	25	LGS/EOG/ASR 3-5-002			ITEM-10
–	1	–	PIPE 3/4" O.D	24	LGS/EOG/ASR 3-5-002			ITEM-9
–	1	–	PIPE 3/4" O.D	23	LGS/EOG/ASR 3-5-002			ITEM-8
–	1	–	PIPE 3/4" O.D	22	LGS/EOG/ASR 3-5-002			ITEM-7
–	1	–	PIPE 3/4" O.D	21	LGS/EOG/ASR 3-5-002			ITEM-6
–	1	–	PIPE 28 O.D	20	LGS/EOG/ASR 3-5-002			ITEM-5
–	1	–	PIPE 28 O.D	19	LGS/EOG/ASR 3-5-002			ITEM-4
–	1	–	PIPE 28 O.D	18	LGS/EOG/ASR 3-5-002			ITEM-3
–	1	–	PIPE 28 O.D	17	LGS/EOG/ASR 3-5-002			ITEM-2
–	1	–	PIPE 28 O.D	16	LGS/EOG/ASR 3-5-002			ITEM-1
4	–	–	PIPE CLIP	15	LGS/EOG 3-5-089			
15	–	–	PIPE CLIP	14	LGS/EOG/ASR 3-5-005			
1	–	–	PACKING	13	LGS/EOG 3-5-010			
2	–	–	BRACKET	12	LGS/EOG 3-5-009			
2	–	–	BRACKET	11	LGS/EOG 3-5-008			
4	–	–	BRACKET COMPLETE	10	LGS/EOG 3-5-007			
4	–	–	BRACKET COMPLETE	9	LGS/EOG 3-5-006			
15	–	–	BRACKET COMPLETE	8	LG36212			
4	–	–	BRACKET	7	LGS/EOG 3-5-004			
15	–	–	BRACKET	6	LG36215			
–	–	2	HOSE CONNECTION FOR B.P L=796 mm	5	RDSO/SK 73547			RDSO/2011/CG -04
–	–	2	HOSE CONNECTION FOR F.P L=796 mm	4	WD-81027 S-01			RDSO/2011/CG -04
–	–	2	ISOLATING COCK 1"	3	C98906			RDSO/2011/CG -04
–	–	4	ANTI SKID VALVE	2	C131766 I.4.744			RDSO/2011/CG -04
–	–	1	BRAKE PIPE ACCELERATOR WITH BRACKET	1	2B82102			RDSO/2011/CG -04

NO. OFF: IV | III | II | I — III: PER COACH, II: PER COACH, I: PER COACH

GROUP – 3-5 BRAKE PIPING.

● LSCN/EOG/ASR, LWSCZ (WITH AIR SPRING) COACHES

LAYOUT OF AIR BRAKE PIPING ARRGT. WITH SS PIPES & DOUBLE FERRULE FITTINGS (FOR LHB SCN EOG COACHES WITH FIBA&ASR)

SUPERSEDED BY:
SUPERSEDES:-LSCN/EOG/ASR-3-5-001 ALT:-/-

SCALE		
1:20 1:10	SSE/D	
	CHD.	
	ALT	J.GUNASEKARAN
	DRN	K.M.V.Kumar
ALT.	a	

LSCN/EOG/ASR-9-0-002
ASSEMBLY DRAWINGS

ALT.	DATE OF LATEST ALTN	DATE OF FIRST ISSUE	SME/D-1
	12-03-2021	15-09-2018	

CAD FILE: C:\MD-CAD\783\3-5\0013SA00.DWG

DATA CODE NO. 783

INDIAN RAILWAY STANDARDS

SHEET 3 OF 3

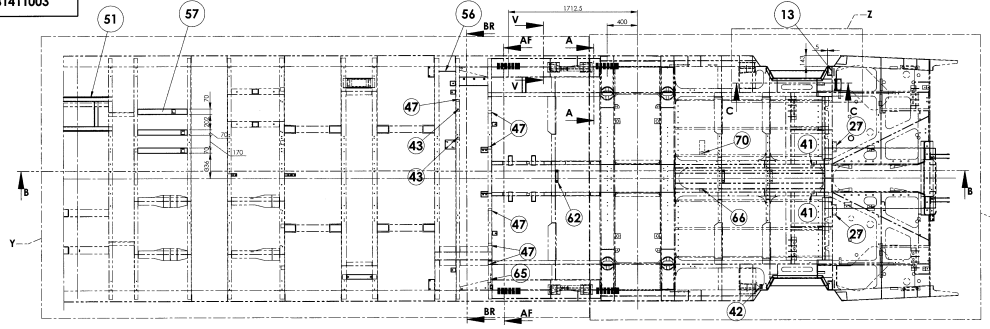
INTEGRAL COACH FACTORY CHENNAI-600038

LSCN/EOG/ASR-3-5-001

FORM IR A1a 1050x600

81411003

▽ ROUGH MACHINED	(R) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(C) CHAMFERED



ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO IC/STD/P-0.001.
ANY DIAGONAL DEFLECTION SHALL NOT EXCEED 1% OF DIAGONAL. WELDING SYMBOLS AS PER IS 813:1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

REF.DRG.NO.

DATE OF LATEST ALT.	DATE OF FIRST ISSUE	KAN/SME
25-03-2021	11-6-2019	

GRO.JP: 1-1 Under Frame | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs:

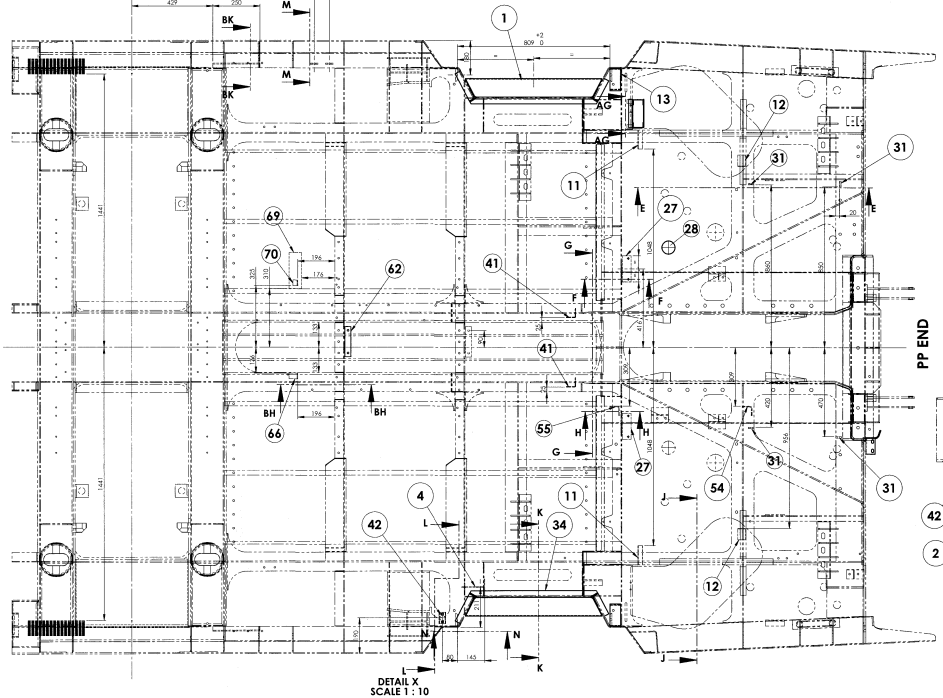
WELDING PARTS COMPLETE ON UNDERFRAME

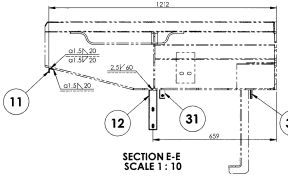
INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

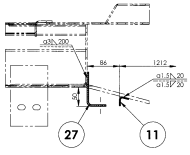
SCALE 1:100	DS/D
	CHD
ALT. d	ALT.D K.SETHURAMAN
	DRN. K.Sethuraman
	LWSCZ2
SHEET 1 OF 6	81411003
	A1

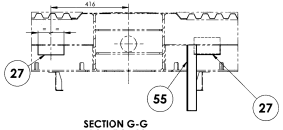
81411003

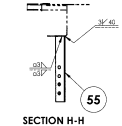
▽ ROUGH MACHINED	(C) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(R) CHAMFERED

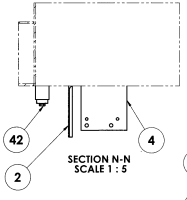


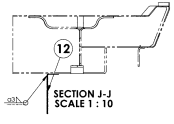


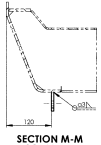


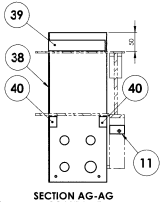


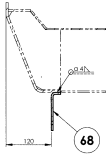


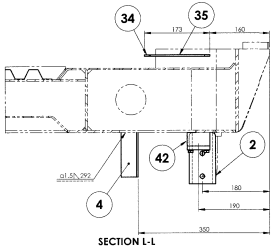


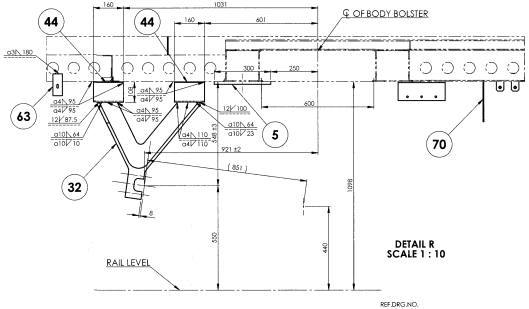


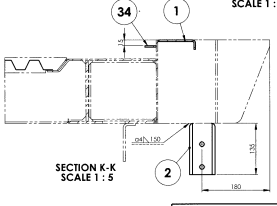












ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO CF/TD/D-90001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THE DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS8515-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

25-03-2021	11-6-2019	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	A-02-2016

REF.DRG.NO.

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.:

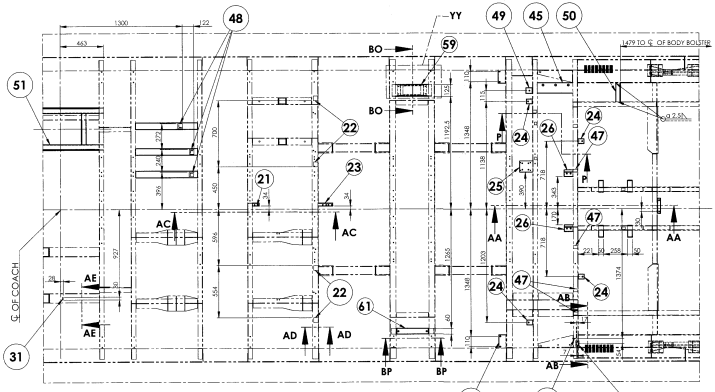
WELDING PARTS COMPLETE ON UNDERFRAME

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

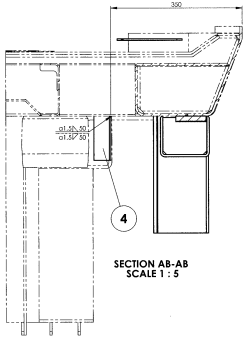
WT/ASSY IN Kgs	
SCALE 1:100	SSE/D
	CHD
ALT. d	ALTD K.SETHURAMAN
	DRN K.Sethuraman
	LWSCZ2
SHEET 2 OF 6	81411003 A1

81411003

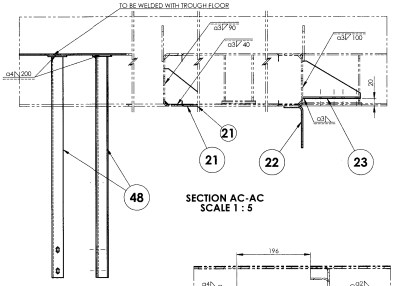
▽ ROUGH MACHINED	(RD) ROUGH CLEANED
▽▽ FINISH MACHINED	(BR) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(CH) CHAMFERED



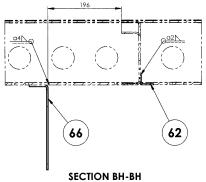
DETAIL Y
SCALE 1 : 20



SECTION AB-AB
SCALE 1 : 5



SECTION AC-AC
SCALE 1 : 5



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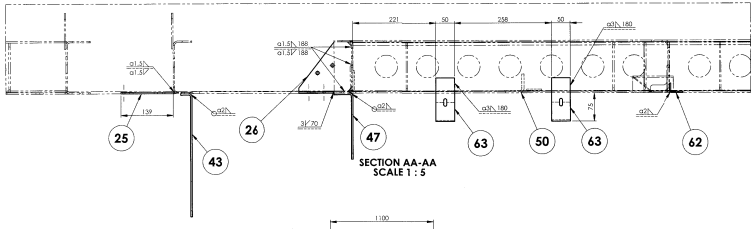

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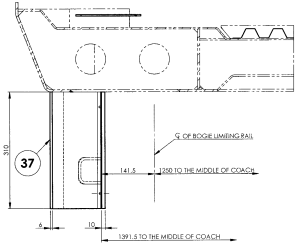

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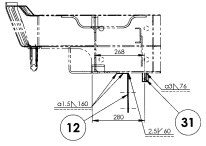
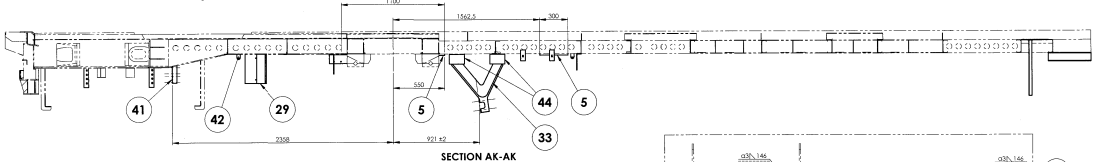


SECTION AR-AR
SCALE 1 : 10



SECTION AK-AK
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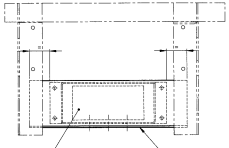
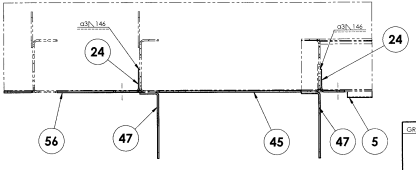


DETAIL YY
SCALE 1 : 5



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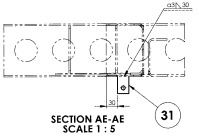
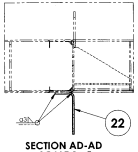


SECTION AE-AE
SCALE 1 : 5



SECTION AD-AD
SCALE 1 : 5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNCLUTRACTED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO IC7/ZED-4-0-001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS:813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

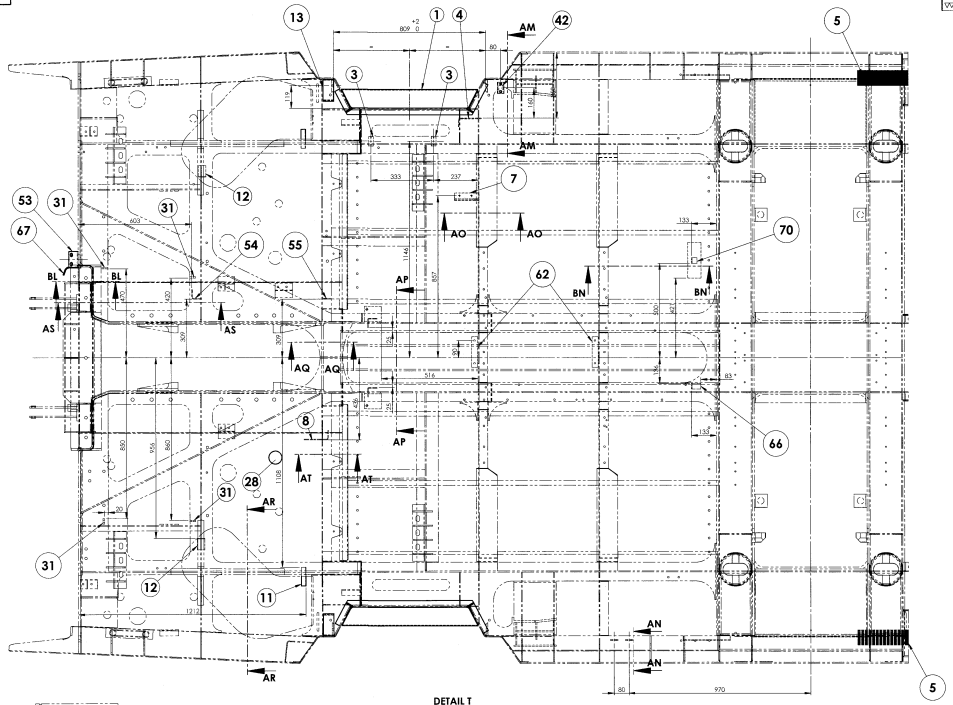
GROUP: 1-1 Under Frame	SURFACE AREA IN Sq.m.:	WT/ASSY IN Kgs:	
WELDING PARTS COMPLETE ON UNDERFRAME		SCALE 1:100	SSE/D
			CHD
		ALT. a	ALTD K.SETHURAMAN
			DRN K.Sethuraman
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 3 OF 6	LWSCZ2
			81411003 A1

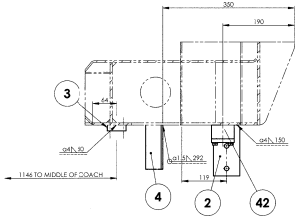
DATE OF LATEST ALT	DATE OF FIRST ISSUE	ANE/SME
25-03-2021	11-6-2019	

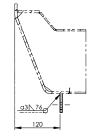
REF.DRG.NO.

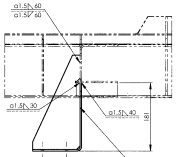
81411003

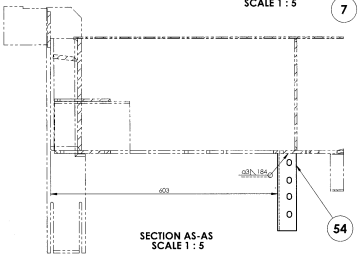
▽ ROUGH MACHINED	(R) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(C) CHAMFERED

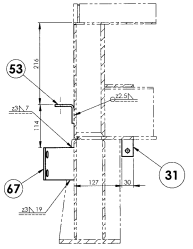


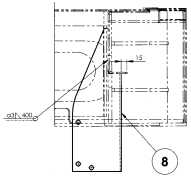


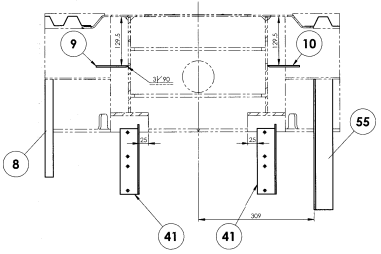


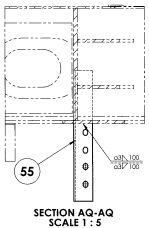


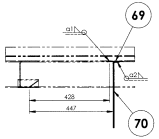












GROUP: 1-1 Under Frame	SURFACE AREA (IN Sq.m.):	WT/ASSY IN Kgs.	
WELDING PARTS COMPLETE ON UNDERFRAME		SCALE 1:100	DSE/D
			CHD
		ALT. d	ALTD K.SETHURAMAN
			DRN K.Sethuraman
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 4 OF 6	LWSCZ2 81411003 A1

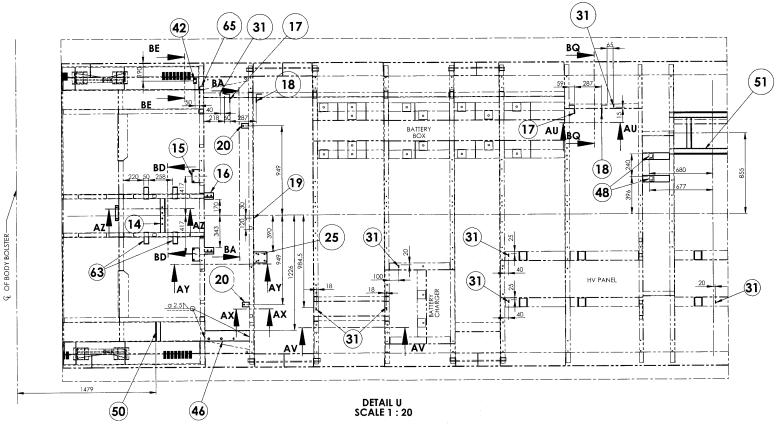
22-03-2021	11-6-2019	
DATE OF LASST ALT.	DATE OF FIRST ISSUE	A HEMANT

REF. DRG. NO.

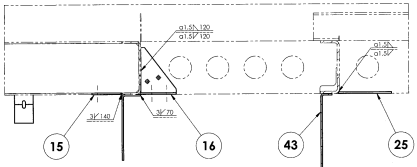
ALL DIMENSION ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNDIMENSIONED DIMENSIONS AND FOR OTHER NOTES REFER DRAWING NO. 07.0707-0-0-201.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THE DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS:813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

81411003

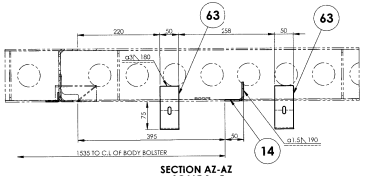
▽ ROUGH MACHINED	(C) ROUGH CLEANED
▽▽ FINISH MACHINED	(DB) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(CH) CHAMFERED



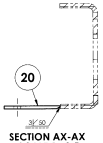
DETAIL U
SCALE 1 : 20



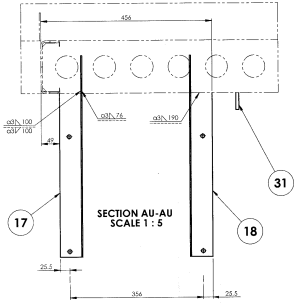
SECTION AY-AY
SCALE 1 : 5



SECTION AZ-AZ
SCALE 1 : 5



SECTION AX-AX
SCALE 1 : 2.5



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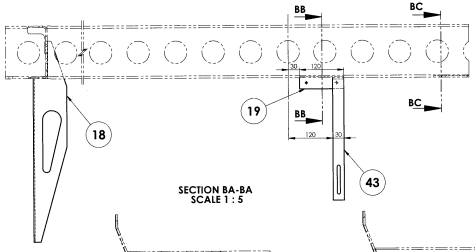

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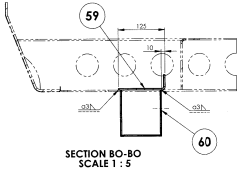

SECTION BO-BO
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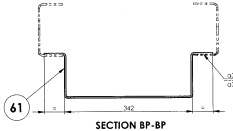
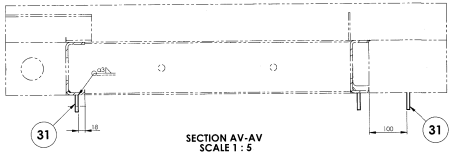
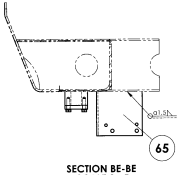


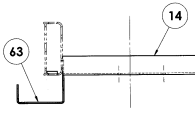
SECTION BP-BP
SCALE 1 : 5



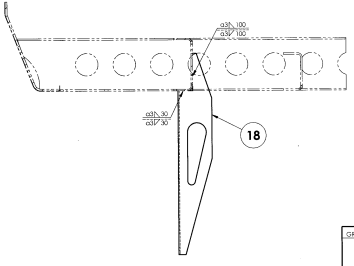
SECTION AV-AV
SCALE 1 : 5



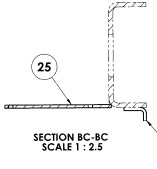
SECTION BE-BE
SCALE 1 : 5



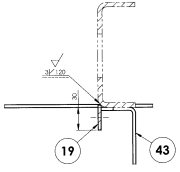
SECTION BD-BD
SCALE 1 : 5



SECTION BQ-BQ
SCALE 1 : 5



SECTION BC-BC
SCALE 1 : 2.5



SECTION BB-BB
SCALE 1 : 2.5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO IC/S/D/D-5-0001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THE DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

GROUP: 1-1 Under Frame	SURFACE AREA IN Sq.m.:	WT/ASSY IN Kgs:	
WELDING PARTS COMPLETE ON UNDERFRAME		SCALE 1:100	SSE/D
			CHD
		ALT	ALTD K.SETHURAMAN
		d	DRN K.Sethuraman
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 5 OF 6	LWSCZ2 81411003 A1

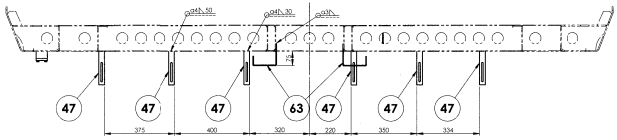
22-03-2021	11-6-2019		
DATE OF LATEST ALT	DATE OF FIRST ISSUE	AMD/DATE	

REF DRG.NO.

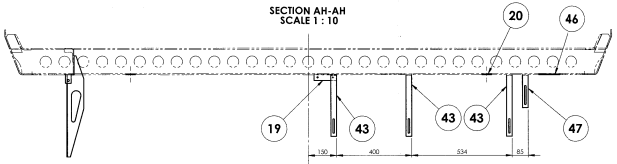
81411003

▽ ROUGH MACHINED	(R) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(C) CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
a	-	ITEM-66 ADDED, QTY. FOR ITEM-47 ALTD. FROM 17 TO13.	-Sd/-
b	-	ITEMS-52 & 64 AND SECTION-A1-A1 DELETED. ITEM-67 AND DETAIL VIEW -B3 ADDED. VIEWS UPDATED ACCORDINGLY.	-Sd/-
c	-	ITEM-4 RELOCATED. WELD NOTE DELETED. NOTE 1 TO 4 ADDED.	-Sd/-
d	-	ITEMS-68 & 69 TO 70 WITH SECTION BK-BK ADDED. SECTIONS BH-BH & BN-BN REVISED. LOCATION AND QUANTITY OF ITEM-66 REVISED FOR AIR SPRING PIPING STANDARDISATION.	21-10-21



SECTION AH-AH
SCALE 1 : 10



SECTION BM-BM
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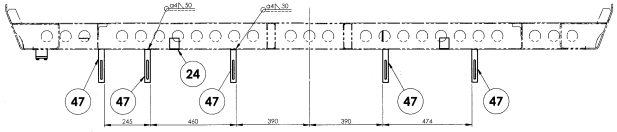

SECTION AF-AF
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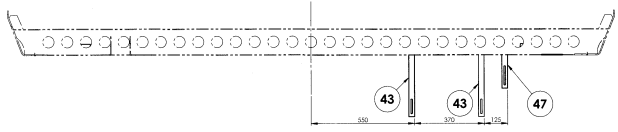

SECTION BR-BR
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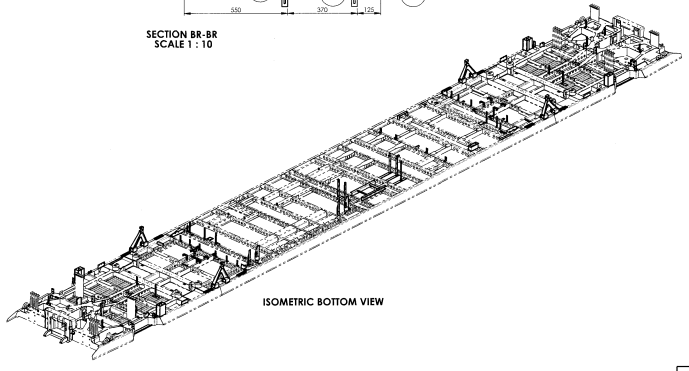


ISOMETRIC BOTTOM VIEW

NOTE:-

1) FINISHED COMPONENTS EXCEPT SS COMPONENTS SHALL BE THROUGHLY CLEANED AND APPLIED WITH EPOXY ZINC PHOSPHATE PRIMER AS PER RDSO/SPEC/Sn-M&C/PCN/130/2006 TO A DFT OF MINIMUM 60 MICRONS AND MDTS-094 SHALL BE FOLLOWED FOR PROCEDURE AND COLOUR SHADE EXCLUDING THE AREAS AS SPECIFIED IN DETAIL DRAWINGS.

2) ALL WELD PERFORMANCE CLASS SHALL BE CP C2 UNLESS OTHERWISE SPECIFIED.

3) FOR WELD TESTING PREFERANCES REFER DRG. No. ICF/STD-9-0-998.

4) FOR WELD PROCEDURE SPECIFICATION REFER DRG. No. ICF/STD-9-0-999.

FOR DRAW NO.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MATL	WT/UNIT IN KGS	REMARKS
2	BRACKET		70	AAG11631		0.33	
2	PLATE		69	AAG11378		0.21	
4	BRACKET		68	AAB11958		1.14	
2	BRACKET		67	AAF11934		0.33	
2	BRACKET		66	AAG11255		0.22	
2	BRACKET		65	AAD11918		0.577	
~~2~~	~~BRACKET COMPLETE~~		~~64~~	~~7391-1008~~		~~1.749~~	
8	CABLE SUPPORT		63	AAD11563		0.34	
6	ANGLE		62	AAC11552		0.214	
1	BRACKET		61	AAC11483		1.26	
1	BRACKET ASSEMBLY		60	5811066		2.436	
1	ANGLE		59	AAC11436		2.09	
2	FLAT	3.15x70x287	58		IRS M-41-1997	0.50	
3	FLAT	3.15x70x660	57		IRS M-41-1997	1.14	
1	PLATE		56	AAC11323		0.42	
2	BRACKET		55	AAB11999		0.97	
2	BRACKET		54	AAB11998		0.57	
2	BRACKET		53	AAB11997		0.29	
~~2~~	~~BRACKET~~		~~52~~	~~AAB11996~~		~~0.12~~	
1	SUPPORT BRACKET FOR 150 Lts. RESERVOIR		51	6671005		15.188	
2	ANGLE		50	AAB11963		0.85	
1	BRACKET		49	AAB11962		0.19	
5	BRACKET		48	6671004		0.869	
13	BRACKET		47	AAB11959		0.18	
1	PLATE		46	AAB11978		1.66	
1	PLATE		45	AAB11965		1.30	
8	BRACKET		44	6671003		3.509	
5	BRACKET		43	AAB11953		0.31	
4	PROTECTION CASE COMP.		42	7391011		0.581	
4	ANGLE		41	AAB11144		0.412	
2	LUG		40	AAA11958		0.018	
1	SUPPORT ANGLE		39	AAA11957		0.110	
1	JUNCTION BOX		38	5811051		2.541	
4	COVERING SHEET		37	AAA11853		3.285	
4	BRACKET		36	AAA11854		0.113	
4	BRACKET		35	AAA11852		0.153	
4	BRACKET		34	AAF11819		0.621	
2	CONSOLE		33	AAA11831		17.693	
2	CONSOLE		32	AAA11829		17.693	
16	CIRCUNDING FLAP		31	AAA11456		0.081	
2	STOP COMPLETE		30	5811040		11.638	
2	STOP COMPLETE		29	5811039		11.638	
2	COVERING SHEET		28	AAA11454		0.060	
2	BRACKET		27	AAA11821		0.567	
2	BRACKET COMPLETE		26	5811038		0.603	
2	BRACKET		25	AAA11822		0.524	
4	BRACKET		24	AAA11848		0.181	
1	BRACKET		23	AAA11841		0.399	
4	BRACKET		22	AAA11840		0.233	
1	BRACKET		21	AAA11839		0.269	
2	BRACKET		20	AAA11832		0.113	
2	BRACKET		19	AAA11819		0.123	
2	BRACKET		18	AAA11861		1.182	
2	BRACKET		17	AAA11860		1.180	
2	BRACKET COMPLETE		16	5811050		0.414	
4	BRACKET		15	AAA11849		0.339	
1	MEMBER		14	AAA11837		1.029	
4	CHANNEL		13	AAA11451		0.670	
4	BRACKET		12	AAA11526		0.206	
4	BRACKET		11	AAA11491		0.083	
1	BRACKET		10	AAA11453		0.232	
1	BRACKET		9	AAA11452		0.232	
1	BRACKET		8	AAA11816		1.471	
1	BRACKET COMPLETE		7	5811049		0.980	
4	PLATE		6	AAA11518		0.087	
8	LIFTING PLATFORM		5	AAA11504		2.695	
2	BRACKET		4	AAA11835		0.577	
2	BRACKET		3	AAA11847		0.145	
8	BRACKET		2	AAA11457		0.655	
4	ANGLE		1	AAA11818		2.531	

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs:

WELDING PARTS COMPLETE ON UNDERFRAME

SCALE 1:100 | DSE/O | CHD | ALT. d | ALTD | DRN | K.SETHURAMAN | K.Sethuraman

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI 600038

SHEET 6 OF 6

LWSCZ2

81411003 | A1

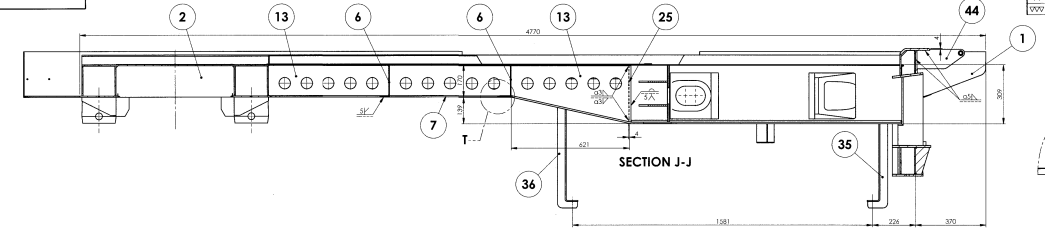
REF.DRG.NO.

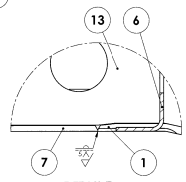
25-03-2021	11-6-2019	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AMD.SHEET

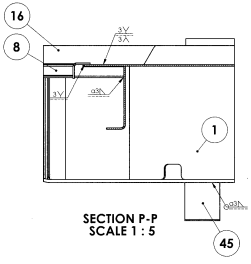
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNDIMENSIONED DIMENSIONS AND BOLT SPACES, REFER DRAWING NO. CC-7570-0-0-071.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING OBSOLETE AND ITS ELECTRONIC VERSION ARE FOR INDICATIVE PURPOSE ONLY.

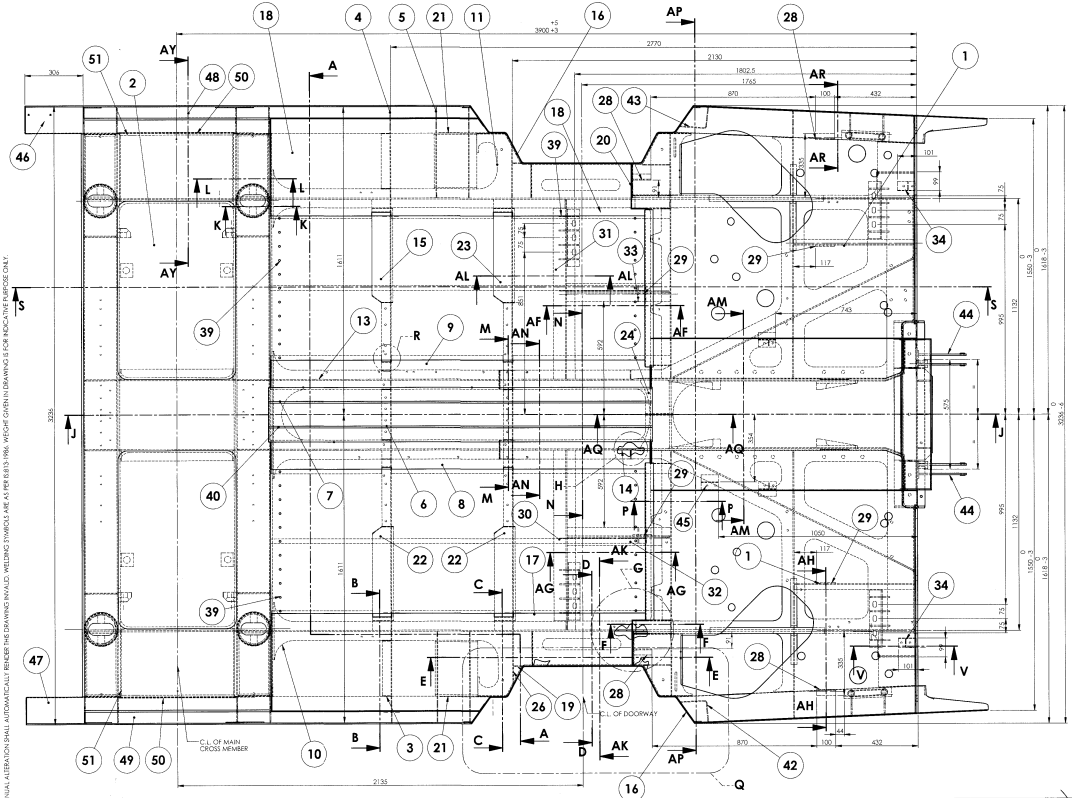
81411004

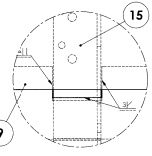
▽ ROUGH MACHINED	(C) ROUGH CLEANED
▽▽ FINISH MACHINED	(D) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(B) CHAMFERED

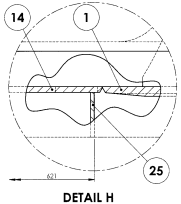


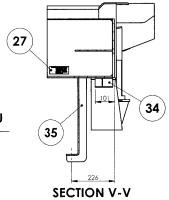


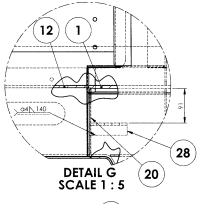


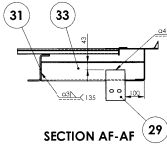


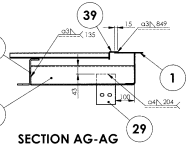












ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNDERBALANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO FCF/STD-R-0001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THE DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 815-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

03-03-2021	29-05-2019	
DATE OF LAST ALT.	DATE OF FIRST ISSUE	AMEJAME

REF.DRG.NO.

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs:

FRONT PART FOR LWSCZ2 COACH

SCALE 1:10	SSE/D
	CHD
ALT b	ALT'D M.SIVAKUMAR
	DRN. K.Sethuram & B.SHRAVANAN

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI -600038

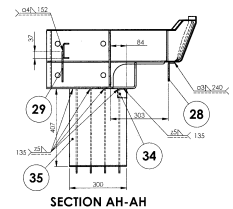
SHEET 1 OF 5

LWSCZ2

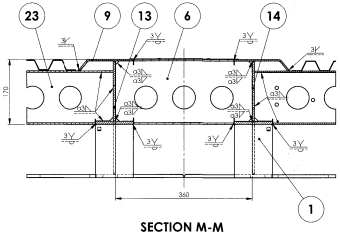
81411004 A1

81411004

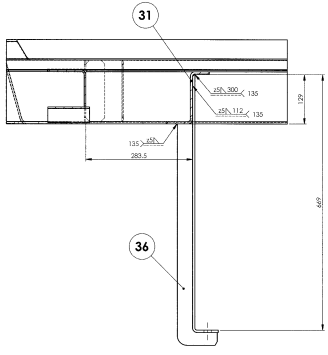
ROUGH MACHINED	ROUGH CLEANED
FINISH MACHINED	BURRS REMOVED
ENG. FINISH MACHINED	CHAMFERED



SECTION AH-AH



SECTION M-M
SCALE 1 : 5



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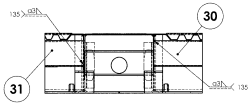
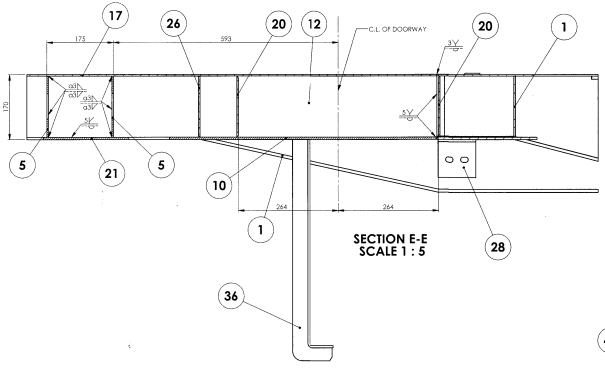
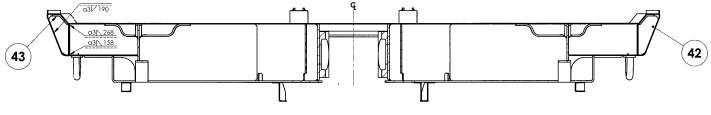


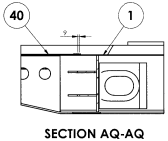
SECTION AN-AN



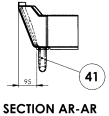
SECTION E-E
SCALE 1 : 5



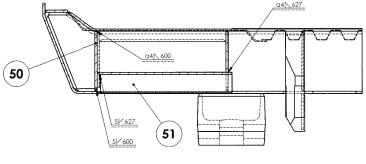
SECTION AP-AP



SECTION AQ-AQ



SECTION AR-AR



SECTION AY-AY
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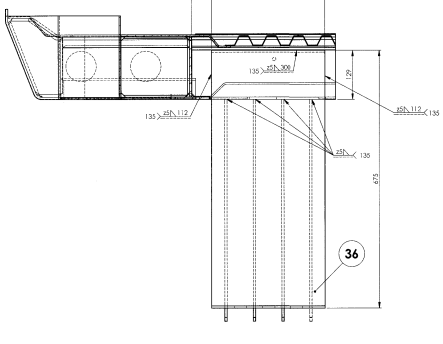
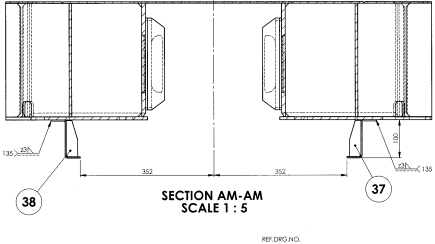


SECTION AK-AK
SCALE 1 : 5



SECTION AM-AM
SCALE 1 : 5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO ICF/STD/F-6.0.001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THE DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

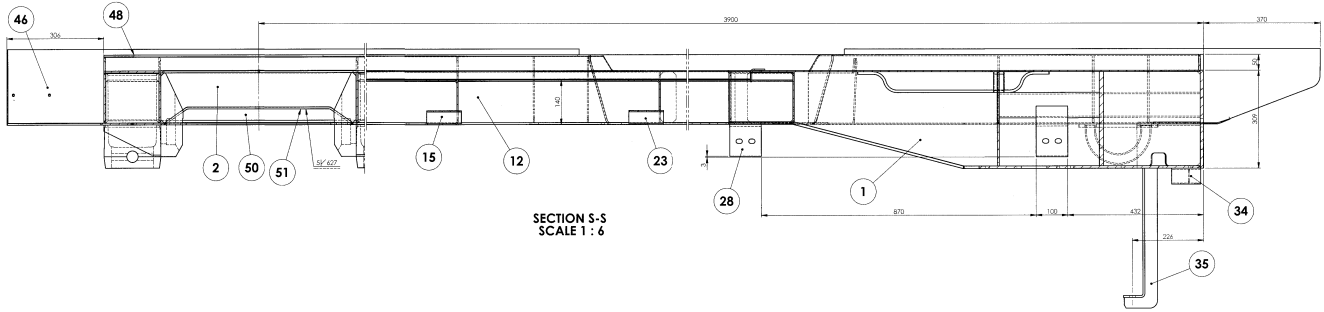
25-03-2021	29-05-2019	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	

REF. DRG. NO.

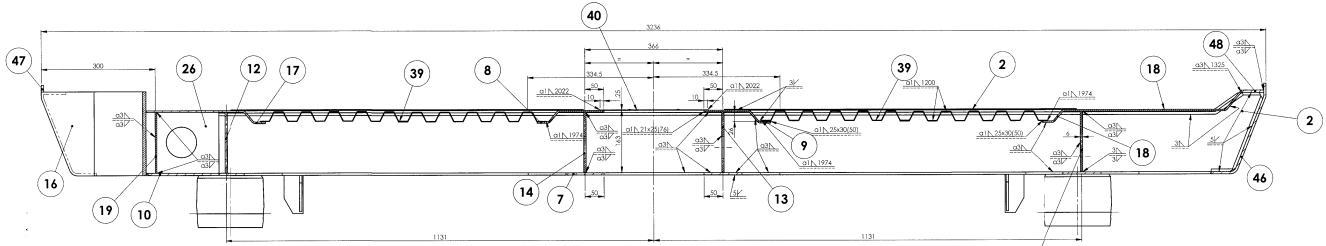
GROUP: 1-1 Under Frame	SURFACE AREA IN Sq.m.:	WT/ASSY IN Kgs:	
FRONT PART FOR LWSCZ2 COACH		SCALE 1:15	SSE/D
			CHD
		ALT. b	ALT'D M.SIVAKUMAR
			DRN. K.Santhanam & S.SABAVANAM
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 2 OF 5	LWSCZ2 81411004 A1

81411004

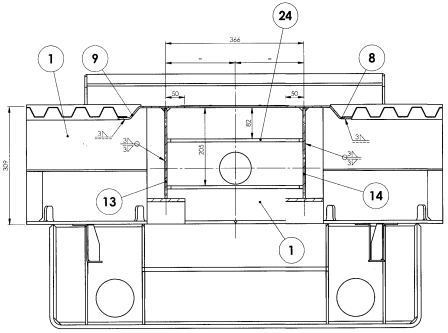
▽ ROUGH MACHINED	(C) ROUGH CLEANED
▽▽ FINISH MACHINED	(D) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(E) CHAMFERED



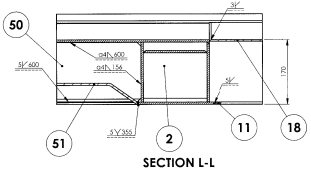
SECTION S-S
SCALE 1 : 6



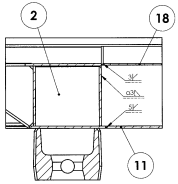
SECTION A-A
SCALE 1 : 5



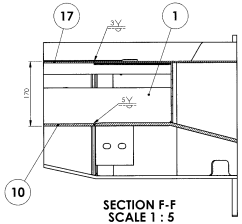
SECTION N-N
SCALE 1 : 5



SECTION L-L
SCALE 1 : 5



SECTION K-K
SCALE 1 : 5



SECTION F-F
SCALE 1 : 5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO CF-STD-P-00001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY BENDER THE DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 813:1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

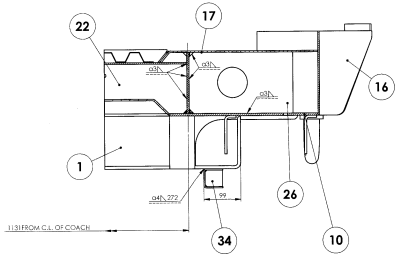
GROUP: 1-1 Under Frame	SURFACE AREA IN Sq.m.:	WT/ASSY IN Kgs:	
FRONT PART FOR LWSCZ2 COACH		SCALE 1:10	SSE/D
			CHD
		ALT b	ALTD M.SIVAKUMAR
			DRN K.Sathyanarayanan & B.SARAVANAN
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 3 OF 5	LWSCZ2 81411004 A1

25-03-2021	29-05-2019	
DATE OF LA BEST ALT	DATE OF FIRST ISSUE	AUTHORISE

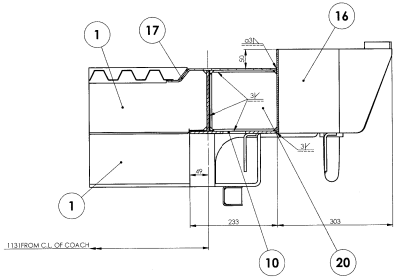
REF.DRG.NO.

81411004

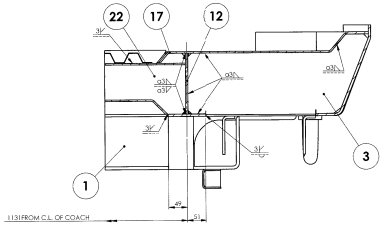
ROUGH MACHINED	ROUGH CLEANED
FINISH MACHINED	BURRS REMOVED
FINE FINISH MACHINED	CHAMFERED



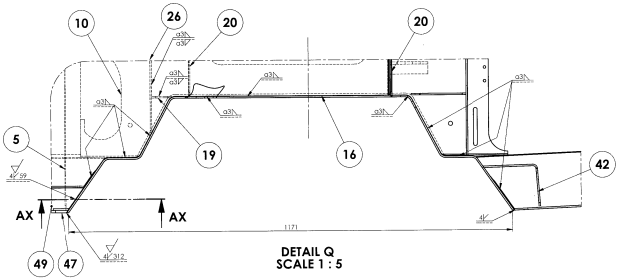
SECTION C-C
SCALE 1 : 5



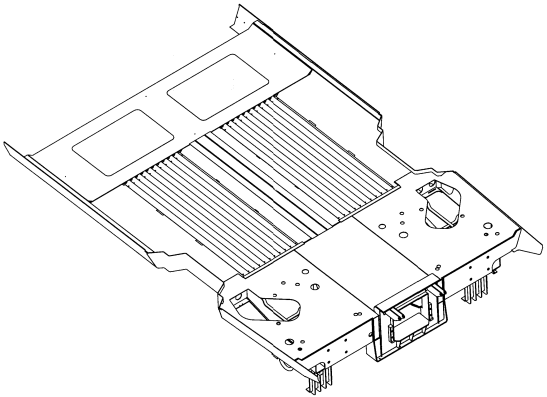
SECTION D-D
SCALE 1 : 5

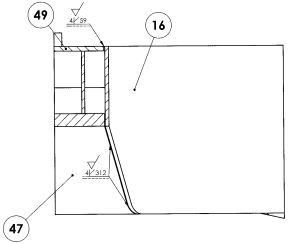


SECTION B-B
SCALE 1 : 5



DETAIL Q
SCALE 1 : 5





SECTION AX-AX
SCALE 1 : 2.5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNDIMENSIONED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO. ICF/STD/6-6/201.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THE DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS815-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.:

FRONT PART FOR LWSCZ2 COACH

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

WT/ASSY IN Kgs:	
SCALE 1:10	SSE/D
	CHD
ALT B	ACTD M.SIVAKUMAR
	DRN K.Sathyanarayanan & S.SARAVANAN
	LWSCZ2
SHEET 4 OF 5	81411004 A1

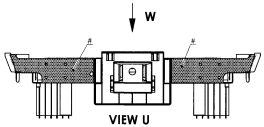
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	ARM/JAN
25-03-2021	29-05-2019	

REF.DRG.NO.

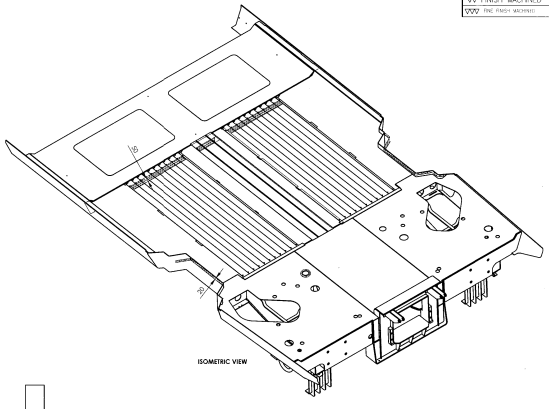
81411004

▽ ROUGH MACHINED	(C) ROUGH CLEANED
▽▽ FINISH MACHINED	(B) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(S) CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
a	-	DIA9-10 HOLES, M8-6 HOLES, Ø7-2 HOLES, ITEM 50 & 51 AND SECTION VIEW A1-A1 & A2-A2 ADDED. NOTE-10 REVISED AND NOTE-11,12,13&14 ADDED. MASKING FOR BIO TANK BRACKET ADDED.	-Sd-
b	-	Ø9 HOLES - 10 NOS DELETED. Ø7 HOLES - 4 NOS ADDED.	



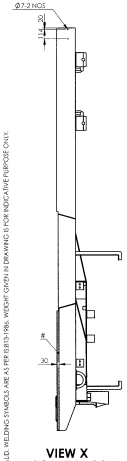
VIEW U
SCALE 1 : 24



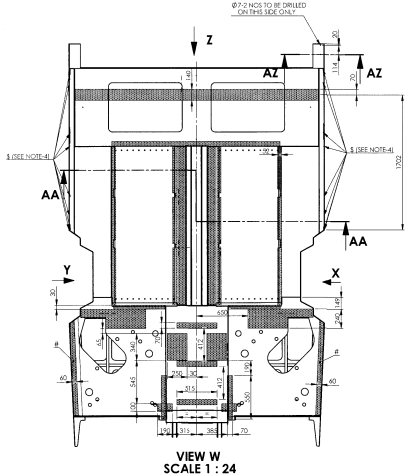
ISOMETRIC VIEW

NOTE :-

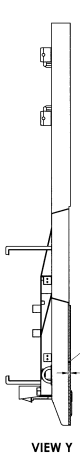
1. ITEM-27 (NAME PLATE) SHALL BE WELDED OR RIVETTED AT LOCATION SHOWN IN THE DRAWING.
2. ALL SS WELD JOINTS TO BE PICKLED AND PASSIVATED BEFORE SURFACE TREATMENT.
3. FOR OUTSOURCED FRONT PART SUITABLE PLATE TREATMENT (OR) GRIT BLASTING (OR) SAND BLASTING (OR) PICKLING TO BE DONE AND EPOXY COATING TO RDSO. SPEC. No. M&C/PCN/125/06 TO BE APPLIED TO A DFT OF MIN. 75 MICRONS.
4. THE AREA OF MARKING IS APPLICABLE ON BOTH SIDES OF ALL WEBS. ($)
5. THE AREAS MARKED THUS (#) SHOULD NOT BE PAINTED WITH EPOXY COATING. IT SHOULD BE PAINTED WITH RED OXIDE ZINC CHROMATE PRIMER TO IS:2074-92 TO A DFT. OF MINIMUM 20 MICRONS WITH SMOOTH AND MATT FINISH.
6. ITEM-35,36,37,38 & 45 TO BE SUPPLIED LOOSE AND WELDED AT UNDER FRAME COMPLETE STAGE. (@)
7. MASKING TO BE DONE IN VERTICAL FACE ALSO. (*)
8. MASKING TO BE DONE IN VERTICAL FACE AND BACK SIDE FACE OF THE MEMBERS. (**)
9. ALL TAP HOLES TO BE FITTED WITH NYLON/PLASTIC SCREWS TO AVOID DAMAGE.
10. TEMPLATE TO DRG. NO. J&T/T-157/01 SHALL BE USED TO CHECK THE PROFILE OF ITEM-16 TO DRG.NO. AA11771. (☒)
11. FOR **STAINLESS STEEL UNDERFRAME COMPLETE** ALL ITEMS WHEREVER IRS.M41-1997 IS MENTIONED SHALL BE OF ASTM-A666-15 TYPE 201 IN 1/16 HARD. FOR ALL OTHER ITEMS THE MATERIAL SPECIFICATION SHALL BE AS PER THE RESPECTIVE DRAWING.
12. ALL WELDING PERFORMANCE CLASS SHALL BE CP C2 UNLESS OTHERWISE SPECIFIED.
13. FOR WELD TESTING PREFERENCES REFER DRG. NO. ICF/STD-P-6-998.
14. ITEM-45 TO BE LOCATED AS SHOWN FOR GARIBRATH COACHES. (&)



VIEW X
SCALE 1 : 24

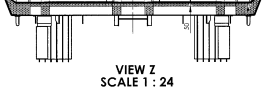


VIEW W
SCALE 1 : 24

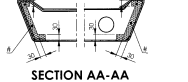


VIEW Y
SCALE 1 : 24

MARKING FOR RED OXIDE ZINC CHROMATE COATING

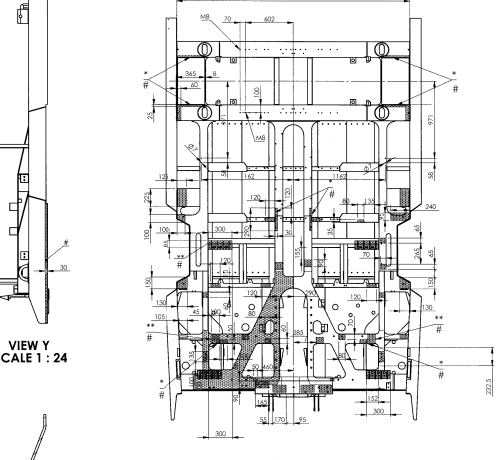


VIEW Z
SCALE 1 : 24



SECTION AA-AA

SECTION AZ-AZ
SCALE 1 : 5



BOTTOM VIEW
SCALE 1 : 24

Default	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MATL	WT/UNIT IN KGS	REMARKS
2	LOWER FLANGE		51	AAA11772		10.349	
2	WEB		50	AAA11771		4.461	
1	FLANGE PLATE		49	AAF11732		5.680	
1	FLANGE PLATE		48	AAF11733		5.685	
1	SOLE BAR		47	AAF11719		34.544	
1	SOLE BAR		46	AAF11720		34.543	
1	BRACKET		45	AAB11520		0.38	
2	FOOT PLATE BRACKET ASSEMBLY		44	5811 1067		3.254	
1	STIFFENING		43	AAA11506		1.095	
1	STIFFENING		42	AAA11833		1.096	
2	BRACKET COMPLETE		41	5811 1054		1.738	
1	COVERING SHEET		40	AAA13124		5.801	
2	FLOOR SHEET COMPLETE		39	5811 3002		0.000	
1	BRACKET COMPLETE		38	5931 1026		0.444	@
1	BRACKET COMPLETE		37	5931 1025		0.000	@
2	MOUNTING BRACKET FOR BIO TOILET TANK		36	5931 1024		0.000	@
2	MOUNTING BRACKET FOR BIO TOILET TANK		35	5931 1023		0.000	@
2	CHANNEL COMPLETE		34	5931 1027		0.363	
1	BRACKET		33	AAB11527		4.14	
2	BRACKET		32	AAB11525		4.14	
1	BRACKET		31	AAB11524		10.33	
1	BRACKET		30	AAB11523		10.33	
4	BRACKET PLATE		29	AAB11522		0.73	
4	ANGLE		28	AAB11521		0.55	
1	NAME PLATE		27	AAA51072		0.063	
2	RIB		26	AAA11736		1.219	
2	RIB		25	AAA11438		0.431	
2	RIB		24	AAA11437		2.681	
1	CROSS MEMBER COMPLETE		23	4951 1007		7.491	
2	CROSS MEMBER COMPLETE		22	4951 1005		7.477	
2	FLANGE PLATE		21	AAA11432		3.021	
4	WEB		20	AAA11431		0.867	
2	WEB		19	AAF11737		0.255	
1	FLANGE PLATE		18	AAF11722		28.07	
1	FLANGE PLATE		17	AAF11721		28.068	
2	COLLAR		16	AAB11711		9.755	☒
1	CROSS MEMBER COMPLETE		15	4951 1004		7.487	
1	WEB		14	AAA11721		14.188	
1	WEB		13	AAA11720		14.192	
2	WEB		12	AAA11719		14.347	
1	FLANGE PLATE		11	AAF11734		13.412	
1	FLANGE PLATE		10	AAF11735		13.406	
1	TOP FLANGE		9	AAA11718		11.95	
1	TOP FLANGE		8	AAA11717		11.934	
1	FLANGE PLATE		7	AAA11714		12.436	
2	MEMBER		6	AAA11427		2.292	
4	WEB		5	AAA11426		1.954	
1	MEMBER		4	AAA11425		2.701	
1	MEMBER		3	AAA11424		2.701	
1	MAIN CROSS MEMBER COMPLETE		2	5811 1005		0.000	
1	HEADSTOCK		1	4951 2001		672.16	

GROUP: 1-1 Under Frame | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs.:

FRONT PART FOR LWSCZ2 COACH

SCALE 1:10 | SSE/D | CHD | ALT. D | ALT'D M.SIVAKUMAR | DRN. K.Sathurshan & B.SARVANAN

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI 600038

SHEET 5 OF 5

LWSCZ2

81411004 A1

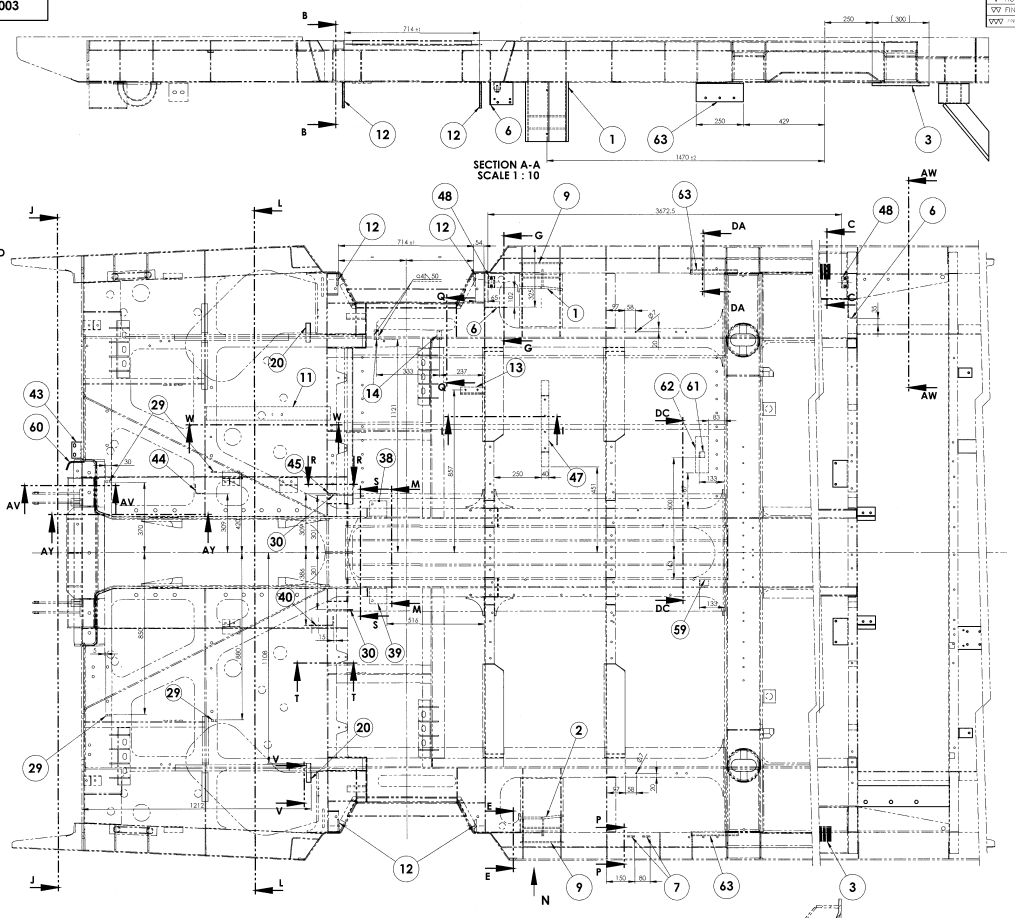
26-03-2021	29-05-2019	
DATE OF LARGEST ALT	DATE OF FIRST ISSUE	ANNL/MAR

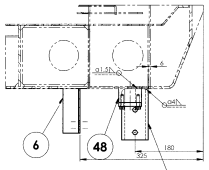
REF.DRG.NO.

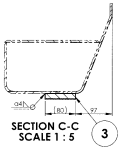
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO ICF/STD-P-6-001.
AUTO MANUAL ALTERATIONS SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS:813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

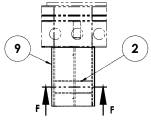
85111003

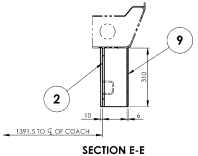
▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	② BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	③ CHAMFERED

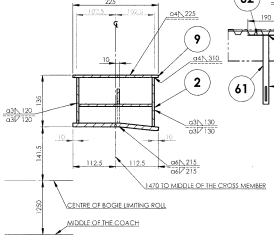


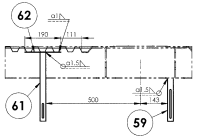


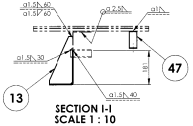


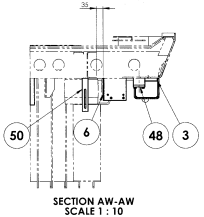












ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND FOR DIMENSIONS VALUES, REFER DRAWING NO CC/STD/A-0.03.
FOR GENERAL INSPECTION SHALL INCLUDE CHECK, REFER INSPECTION DRAWING 2-INLAL, WELDING STANDARD 2-INLAL, WELDING STANDARD 3-INLAL, REFER SUPPLIER DRAWING 5 FOR INDICATIVE PURPOSE ONLY.

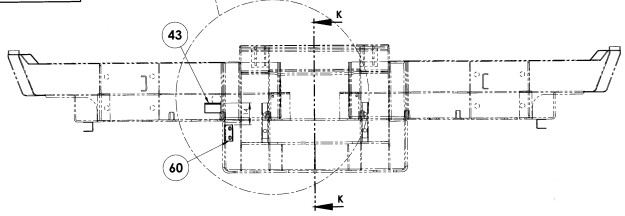
GROUP: UNDER FRAME	SURFACE AREA IN Sq.m.: 250.254	WT/ASSY IN Kgs:
WELDING PARTS COMPLETE ON UNDER FRAME		SCALE: 1:100 / SSE/D / CHD / ALT: d / ALTD: A.SURESH / DRN: K.SETHURAMAN
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 1 OF 5
		LWSCWAC/EOG/ASR
		85111003
		A1

DATE OF LATEST ALT.	DATE OF FIRST ISSUE	
25/3/21	07.2019	

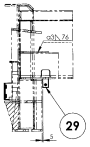
REF.DRG.NO.

85111003

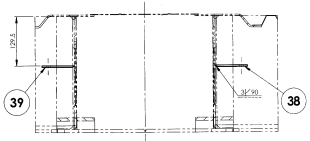
▽ ROUGH MACHINED	⊘ ROUGH CLEANED
▽▽ FINISH MACHINED	⊘ BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	⊘ CHAMFERED



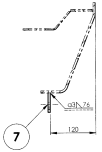
SECTION J-J
SCALE 1 : 10



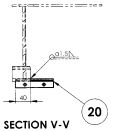
SECTION K-K
SCALE 1 : 10



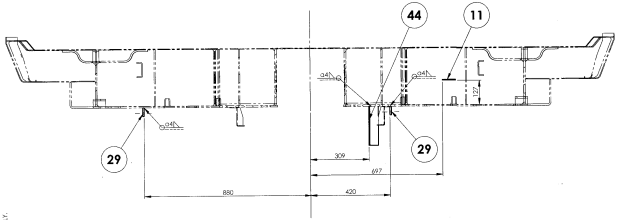
SECTION M-M
SCALE 1 : 5



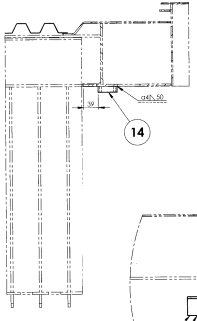
SECTION P-P
SCALE 1 : 5



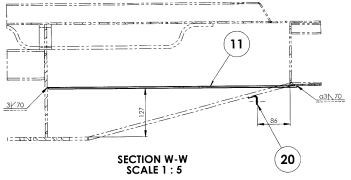
SECTION V-V
SCALE 1 : 5



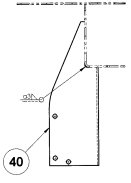
SECTION L-L
SCALE 1 : 10



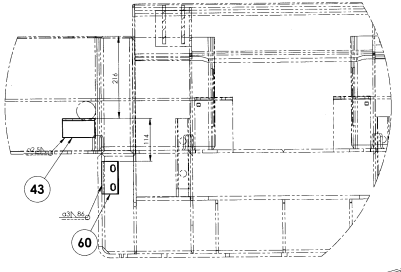
SECTION Q-Q
SCALE 1 : 5



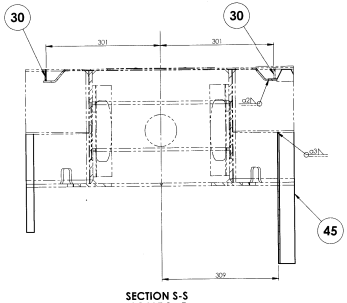
SECTION W-W
SCALE 1 : 5



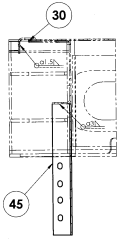
SECTION T-T
SCALE 1 : 5



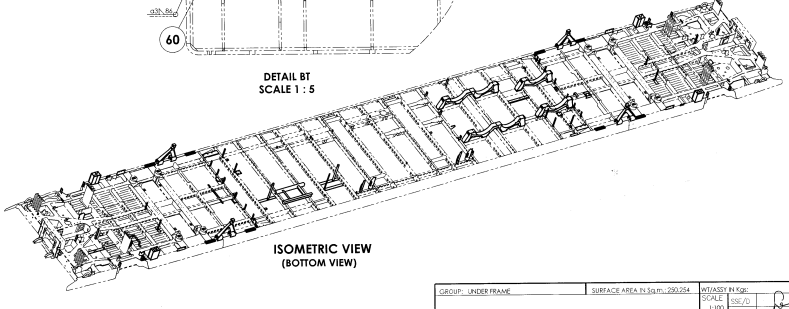
DETAIL BT
SCALE 1 : 5



SECTION S-S
SCALE 1 : 5



SECTION R-R
SCALE 1 : 5



ISOMETRIC VIEW
(BOTTOM VIEW)

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO.F/STD-9-0001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS 813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

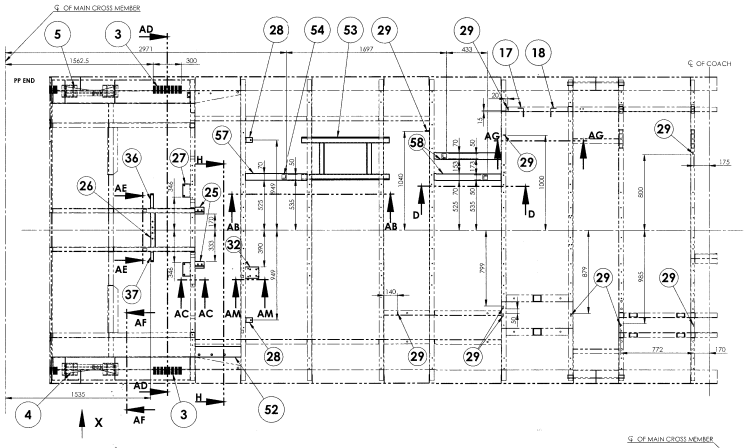
GROUP: UNDER FRAME	SURFACE AREA IN Sq.m.: 250.254	WT/ASSY IN Kgs:
WELDING PARTS COMPLETE ON UNDER FRAME		SCALE 1:100 / SIZE A0 / CHD / ALT d / ALTD / DRN. A.SURESH / K.SETHURAMAN
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038	SHEET 2 OF 5	LWSCWAC/EOG/ASR 85111003 A1

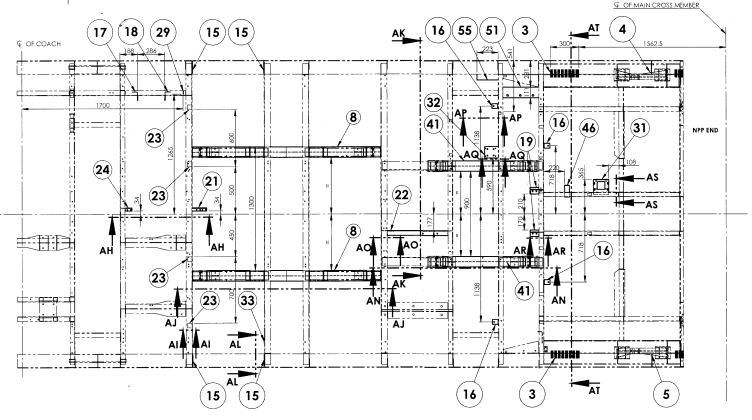
25/3/21	07-2019	
DATE OF LATEST ALT	DATE OF FIRST ISSUE	

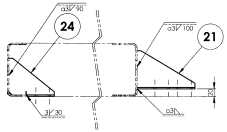
REF DRG.NO.

85111003

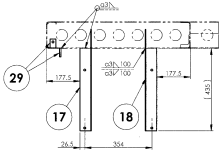
▽ ROUGH MACHINED	⊙ ROUGH CLEANED
▽▽ FINISH MACHINED	⊙ BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	⊙ CHAMFERED





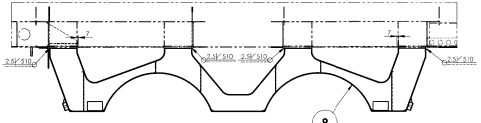


SECTION AH-AH
SCALE 1 : 5

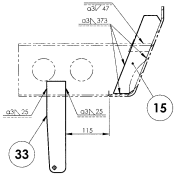


SECTION AG-AG
SCALE 1 : 10

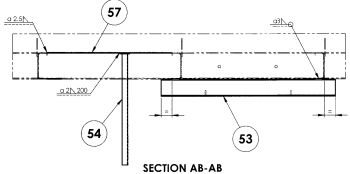
SECTION AI-AI
SCALE 1 : 5



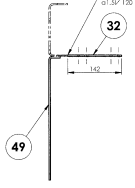
SECTION AJ-AJ
SCALE 1 : 10



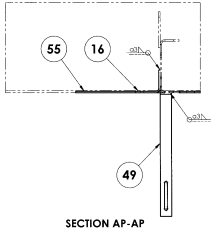
SECTION AL-AL
SCALE 1 : 5



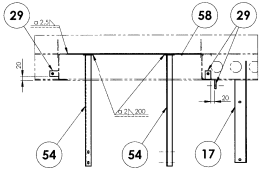
SECTION AB-AB
SCALE 1 : 10



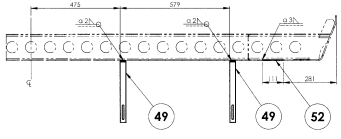
SECTION AM-AM
SCALE 1 : 5



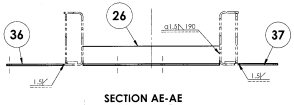
SECTION AP-AP
SCALE 1 : 5



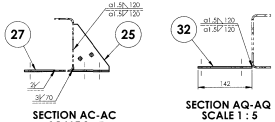
SECTION D-D
SCALE 1 : 10



SECTION H-H
SCALE 1 : 10

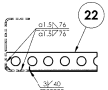


SECTION AE-AE
SCALE 1 : 5



SECTION AC-AC
SCALE 1 : 5

SECTION AQ-AQ
SCALE 1 : 5



SECTION AO-AO
SCALE 1 : 5

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO. IC7570-0-0001.
A.V. MANUAL ALTERATION SHALL AUTOMATICALLY PREDATE THIS DRAWING PRIMED. WELDING SYMBOLS ARE AS PER IS:813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

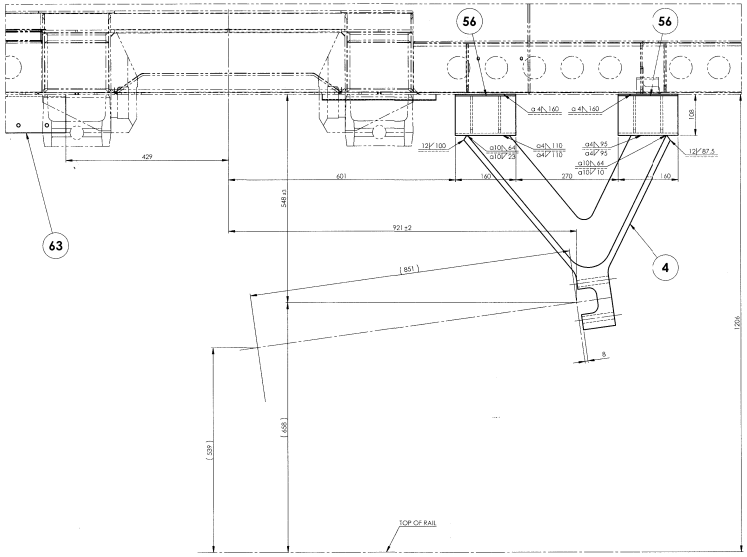
REF. DRG NO.

GROUP: UNDER FRAME	SURFACE AREA IN Sq.m.: 250.254	WT/ASSY IN Kgs:
WELDING PARTS COMPLETE ON UNDER FRAME		SCALE 1:100
		S.S./D
		CHD
		ALT. ALTD A.SURESH
		DRN K.SETHURAMAN
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038	SHEET 3 OF 5	LWSCWAC/EOG/ASR
		85111003 A1

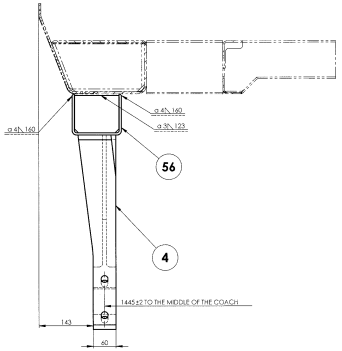
-25/12/21 | -07-2019
DATE OF LATEST ALT. | DATE OF FIRST ISSUE

85111003

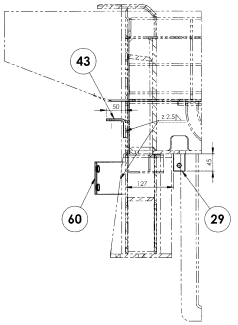
▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	② BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	③ CHAMFERED



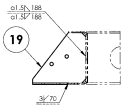
VIEW X
SCALE 1 : 5



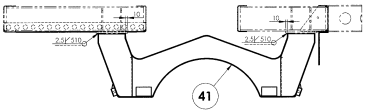
SECTION AF-AF
SCALE 1 : 5



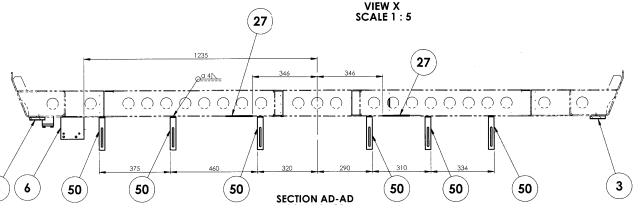
SECTION AV-AV
SCALE 1 : 5



SECTION AR-AR
SCALE 1 : 5



SECTION AN-AN
SCALE 1 : 10



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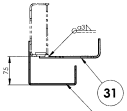
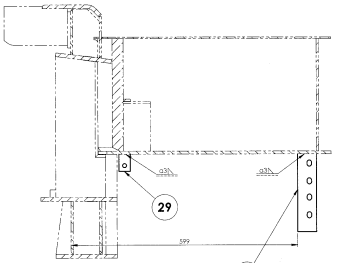
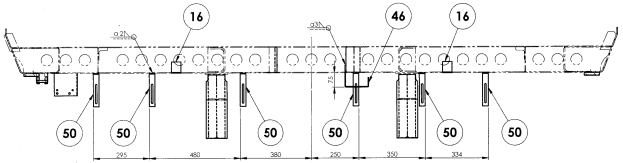
SCALE 1 : 10



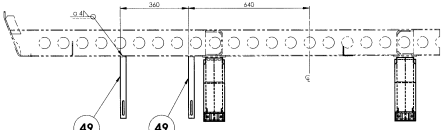
SECTION AS-AS
SCALE 1 : 5



SECTION AY-AY
SCALE 1 : 5



SECTION AT-AT
SCALE 1 : 10



SECTION AK-AK
SCALE 1 : 10

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO ICF/STD-9-0001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS815-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

GROUP: UNDER FRAME	SURFACE AREA IN Sq.m.: 250.234	WT/ASSY IN Kgs:	
WELDING PARTS COMPLETE ON UNDER FRAME		SCALE 1:100	SSE/D 25/3/21
			CHD
		ALT. a	ALTD A.SURESH
			DRN K.SETHURAMAN
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		SHEET 4 OF 5	LWSCWAC/EOG/ASR
			85111003 A1

25/3/21	-07-2019	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	

REF DRG NO.

85111003

▽ ROUGH MACHINED	(D) ROUGH CLEANED
▽▽ FINISH MACHINED	(E) BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	(F) CHAMFERED

REVISIONS				
ALT	ZONE	DESCRIPTION	APPROVED & DATE	
a	-	ITEM-59 ADDED. QTY. FOR ITEM-50 ALTD. FROM 14 TO 12.	sd/-	
b	-	ITEM-10-42 DELETED. ITEM-60, DETAIL-ST ADDED.SECTIONS: J-J, K-K,AY-AY,AT-AY REVISED.	sd/-	
c	-	ITEM-35 DELETED. DIMENSIONS CORRECTED IN VIEW-X. NOTE REVISED	sd/-	
d	-	ITEMS-A1-A3 & SECTIONS DA, DA, DB-DB, DC, DC ADDED. D-7 ADDED. ITEM-1 ALTD. FROM 4 TO 2. ITEM-2 ALTD. FROM 2 TO 4. VIEW-U SPACED. LOCATING DIM OF ITEM-49 ALTD. QTY. OF ITEM-89 ALTD. FROM 4 TO 2. DRG REVISED FOR FIRA & AISCE STANDARDIZATION		

WELD TESTING PREFERENCES AS PER EN 15085-3:2007(E) TABLE-4

WELD PERFORMANCE CLASS	QUALITY LEVEL FOR IMPERFECTIONS EN ISO 5817 €	INSPECTION CLASS	VOLUMETRIC TEST # RT or UT	SURFACE TEST # MPT or DPT	VISUAL EXAMINATION VT
CP C2	B	C2 $	NOT REQUIRED	NOT REQUIRED	100% *

THE TEST METHODS INDICATED IN THIS TABLE SHALL BE THE MINIMUM CAPABLE OF ENSURING COMPLIANCE OF THE WELDED JOINTS. ADDITIONAL TESTS DEPENDING ON THE MATERIAL, THE DESIGN OR CUSTOMER REQUIREMENTS MAY BE NECESSARY.

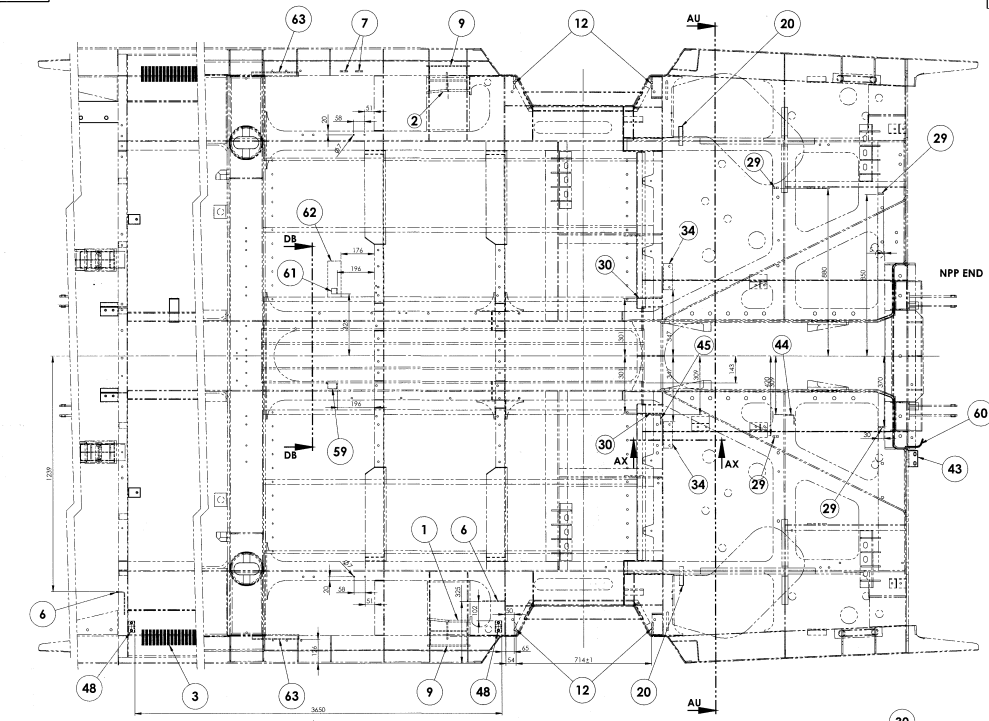
ALL NDT RT/UT/MPT/DPT) SHALL BE PERFORMED BY PERSONNEL CERTIFIED ACCORDING TO ISO-9712(ASNT/SNT LEVEL-2 AND SHALL BE DOCUMENTED.

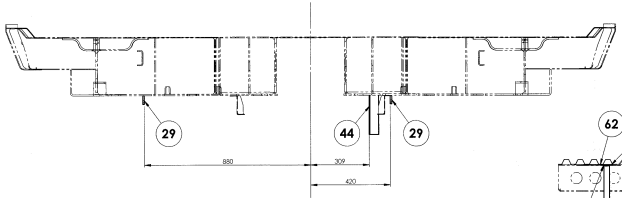
$ FOR INSPECTION CLASS C2, THE VISUAL EXAMINATION SHALL BE PERFORMED BY PERSONNEL CERTIFIED ACCORDING TO ISO-9712 AND SHALL BE DOCUMENTED.

* THE PERCENTAGES EXPRESSED, REFER TO THE TOTAL LENGTH TO BE EXAMINED FOR ONE GIVEN WELD. THUS: 100% MEANS TESTING THE ENTIRE LENGTH OF THE WELD AND ON ALL THE PIECES BUILT.

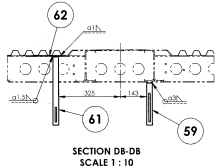
€ ALL APPLICABLE CLAUSES FOR VISUAL INSPECTION SHALL BE CARRIED OUT.

FOR APPLICABLE WELDING PROCEDURE SPECIFICATION (WPS) REFER DRAWING NO ICF/STD-9-0-999

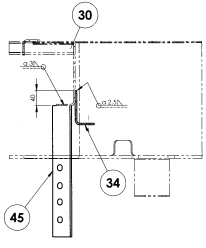




SECTION AU-AU
SCALE 1 : 10



SECTION DB-DB
SCALE 1 : 10



SECTION AX-AX
SCALE 1 : 5

QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MAT'L	WT/UNIT IN Kgs	REMARKS
4	BRACKET		63	AAB11958		1.14	
2	PLATE		62	AAG11378		0.21	
2	BRACKET		61	AAG11631		0.34	
2	BRACKET		60	AAF11934		0.33	
2	BRACKET		59	AAG11255		0.22	
2	FLAT	3.15x70x710	58		IRS M-41-1997	1.23	
1	FLAT	3.15x70x660	57		IRS M-41-1997	1.14	
8	BRACKET		56	66711003		3.509	
1	FLAT		55	AAC11323		0.42	
3	BRACKET		54	66711004		0.869	
1	SUPPORT BRACKET FOR 150 LTR. RESERVOIR		53	66711005		15.188	
1	PLATE		52	AAB11978		1.66	
1	PLATE		51	AAB11965		1.30	
12	BRACKET		50	AAB11959		0.18	
5	BRACKET		49	AAB11953		0.31	
4	PROTECTION CASE COMP.		48	75911011		0.581	
1	BRACKET		47	AAG11093		0.61	
1	CABLE SUPPORT		46	AAD11563		0.34	
2	BRACKET		45	AAB11999		0.97	
2	BRACKET		44	AAB11998		0.57	
2	BRACKET		43	AAB11997		0.29	
~~4~~	~~BRACKET~~		~~42~~	~~AAB11996~~		~~0.12~~	
2	FRAME UPPER PART		41	49511033		18.305	
1	BRACKET		40	AAA11816		1.471	
1	BRACKET		39	AAA11452		0.232	
1	BRACKET		38	AAA11453		0.232	
1	BRACKET		37	AAA11817		0.095	
1	BRACKET		36	AAA11818		0.139	
~~3~~	~~COVERING SHEET~~		~~35~~	~~AAA11464~~		~~0.040~~	
2	BRACKET		34	AAA11821		0.567	
1	BRACKET		33	AAA11455		0.354	
2	BRACKET		32	AAA11822		0.524	
1	BRACKET		31	AAA11823		0.798	
4	COVERING SHEET		30	AAA11925		0.082	
19	GROUNDING FLAP		29	AAA11456		0.081	
2	BRACKET		28	AAA11832		0.113	
2	BRACKET		27	AAA11849		0.339	
1	MEMBER		26	AAA11837		1.029	
2	BRACKET COMPLETE		25	58111050		0.414	
1	BRACKET		24	AAA11839		0.269	
4	BRACKET		23	AAA11840		0.233	
1	BRACKET		22	AAA11919		1.339	
1	BRACKET		21	AAA11841		0.399	
1	BRACKET		20	AAA11491		0.083	
2	BRACKET COMPLETE		19	58111038		0.603	
2	BRACKET		18	AAA11861		1.182	
2	BRACKET		17	AAA11860		1.180	
4	BRACKET		16	AAA11848		0.181	
4	RIB		15	AAA11918		0.321	
4	BRACKET		14	AAA11847		0.145	
1	BRACKET COMPLETE		13	58111049		0.980	
8	BRACKET		12	AAA11457		0.655	
1	BRACKET		11	AAA11913		1.444	
~~4~~	~~BRACKET COMPLETE~~		~~10~~	~~58111068~~		~~0.992~~	
4	COVERING SHEET		9	AAA11912		3.285	
2	FRAME UPPER PART		8	49511035		28.589	
4	GROUNDING FLAP		7	AAA11910		0.087	
4	BRACKET		6	AAA11835		0.577	
2	CONSOLE		5	AAA11831		17.693	
2	CONSOLE		4	AAA11829		17.693	
8	LIFTING PLATFORM		3	AAA11504		2.695	
2	STOP COMPLETE		2	58111040		11.638	
2	STOP COMPLETE		1	58111039		11.638	

GROUP: UNDER FRAME | SURFACE AREA IN Sq.m : 250.254 | WT/ASSY IN Kgs:

WELDING PARTS COMPLETE ON UNDER FRAME

SCALE: 1:100 | SIZE/D | CHD | 25/3/21

ALT: d | ALTD: A.SURESH | DRN: K.SETHURAMAN

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

SHEET 5 OF 5

LWSCWAC/EOG/ASR

85111003 | A1

DATE OF LATEST ALT.	DATE OF FIRST ISUE	ANALYSIS
25/3/21	-07-2019	25/3/21

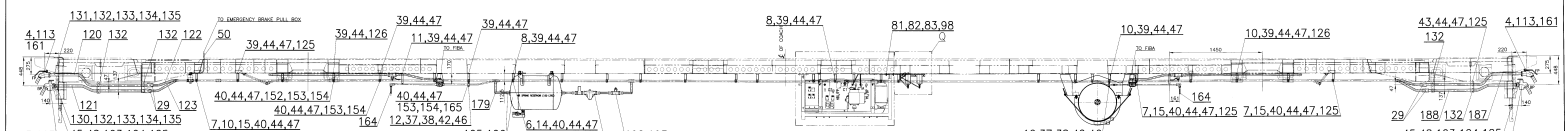
REF.DRG.NO.

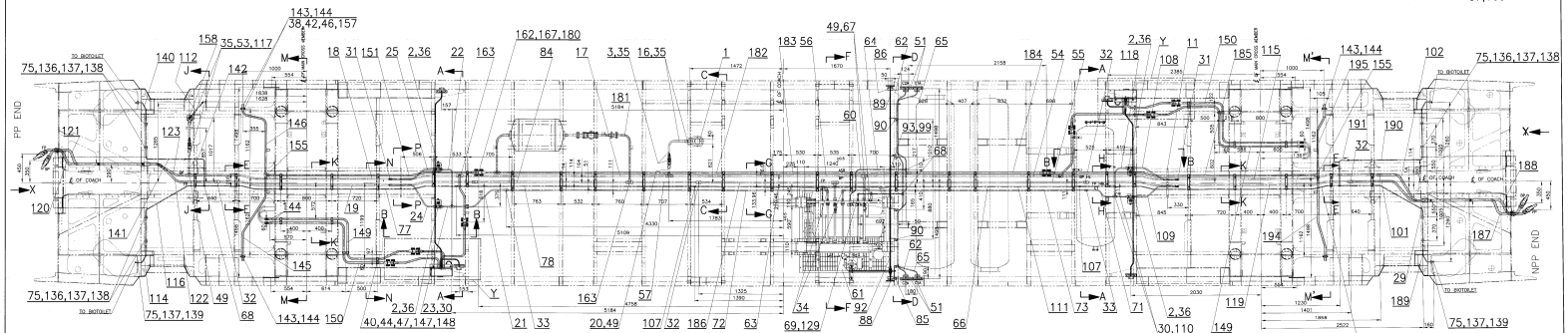
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNFOLDED/ACTUAL DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO CF/STD-9-0-001.
ANY MANUAL FILLER/PUTTY USAGE, AUTOMATICALLY REFUSED. THIS DRAWING CONTAINS SHEET METAL PARTS. WEIGHTS STAMPED ARE AS PER BS70-1983. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

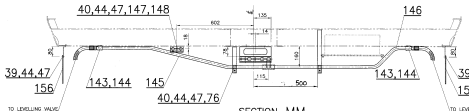
LWSCWAC/EOG/ASR-3-5-001

F	ROUGH MACHINED	Q1	ROUGH CLEANING
FF	FINISH MACHINED	DC	DIAMPTECH
FFF	FINE FINISH MACHINED		

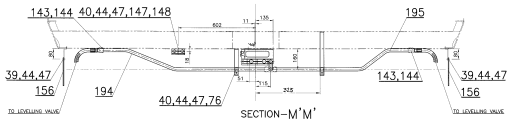
ILLUSTRATIONS



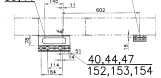




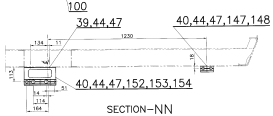
SECTION–MM



SECTION–M'M'



SECTION–KK



SECTION–NN

ALT	DATE OF LATEST ALTN	DATE OF FIRST ISSUE	SMC/3-1
	31-10-2018		

ASSEMBLY DRAWINGS

GROUP:– 3–5 BRAKE PIPING

SUPERSEDED BY
SUPERSEDES LWSCWAC/EOG/ASR-3-5-001(W)A

LAYOUT OF AIR BRAKE PIPING ARRGT.
(FOR LHB AC 3 TIER EOG COACH WITH FIBA&ASR)

SCALE	1:10 1:20
DRD	Y.K.Kakade
ALT	A.Biswas
DRN	K.M.V.Kumar
ALT.	0

CAD FILE: C:\MD-CAD\2017\3-5\2017\5A05.DWG

DATA CODE No. 851

INDIAN RAILWAY STANDARDS

SHEET 1 OF 3

INTEGRAL COACH FACTORY CHENNAI-38

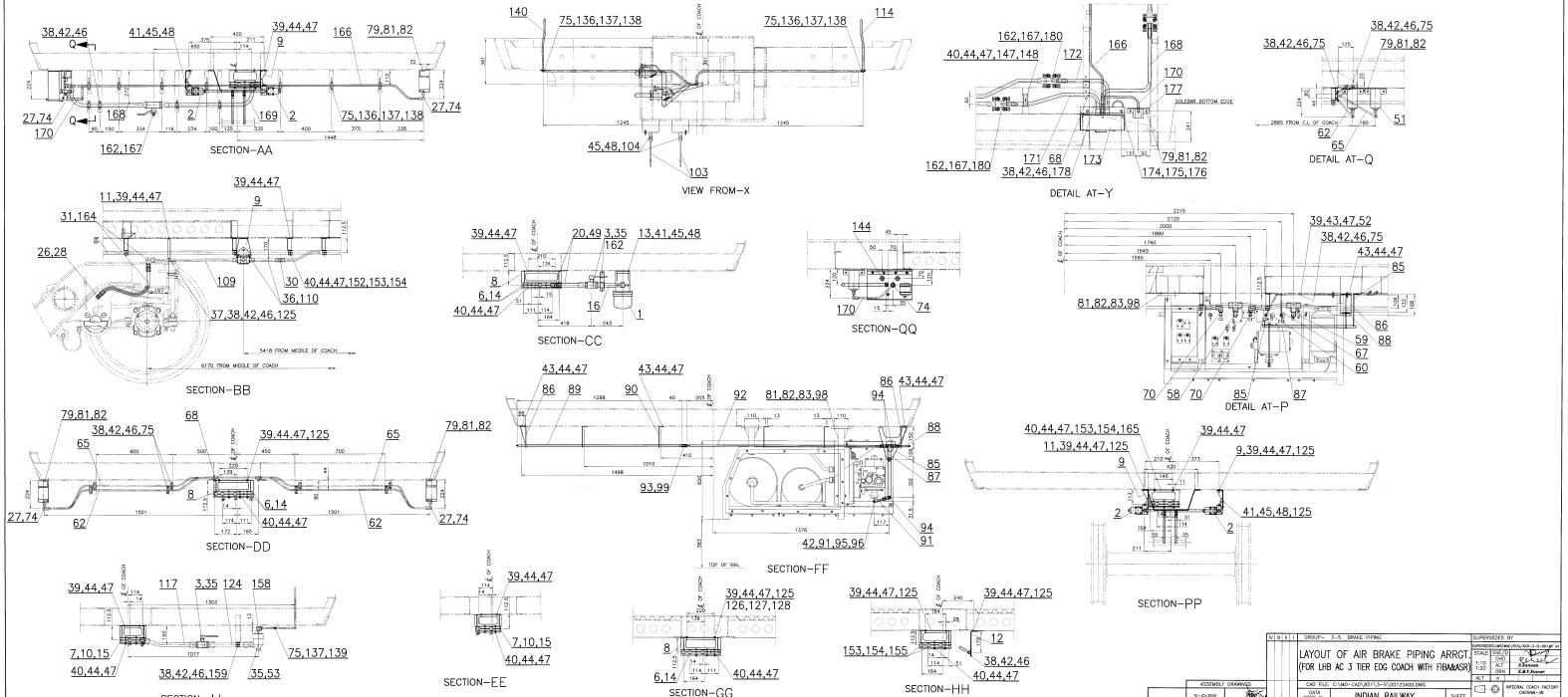
LWSCWAC/EOG/ASR-3-5-001

FORM B A1G 1200x800

LWSCWC/EOG/ASR-3-5-001

F	ROUGH MACHINED	Q	ROUGH CLOSING
SF	FINISH MACHINED	B	CHAMFERED
VF	FINE FINISH MACHINED		

ALTERATIONS



N	B	E	I	GROUP– 3–5 BRAKE PIPING	SUPERSEDED BY
				LAYOUT OF AIR BRAKE PIPING ARRGT (FOR LHB AC 3 TIER EOG COACH WITH FIBA&ASR)	SUPERSEDES:LWSCWC/EOG/ASR-3-5-001(AF 10)
					SCALE 1:25 1:20 — DSG CHD ALT DRN — Y.Kumar — Z.Z.Ansari — Z.Z.Ansari
					ALT —
					INTEGRAL COACH FACTORY CHENNAI–38
				CAD FILE: C:\IND-CAD\RDSO\3-5\D\01253530.DWG	
				DATE 31-10-2019 — CODE No. 851 — INDIAN RAILWAY STANDARDS — SHEET 2 OF 3 — LWSCWC/EOG/ASR-3-5-001	
ALT	DATE OF LATEST ALTN	DATE OF FIRST ISSUE	SMC/3-1		

ASSEMBLY DRAWINGS

FORM IR A1b 1280x900

LWSCWAC/EOG/ASR-3-5-001

∇	ROUGH MACHINED	(01) ROUGH CLEANING
∇∇	FINISH MACHINED	(18) CHAMFERED
∇∇∇	FINE FINISH MACHINED	

ALTERATIONS	
(a)	03/2021
ASR LINE MODIFIED. ITEMS-194 & 195 ADDED. REF.DRG FOR ITEM-156 ALTD FROM LGS/EOG/ASR-3-5-006 TO AAA35139. REF: RCF Ltr no. MD4412/ Dt: 17-02-2021	
SSE/D	SME/D-I

NOTE:-

1. ALL SCREW CONNECTIONS WITH NUTS OF STAINLESS STEEL HAVE TO GREASED WITH MOLYKOTE/MOLYBDENUM DISULPHIDE PRIOR TO BE SCEWED IN.
2. FASTENERS SHALL BE OF MAKE GKW OR TVS OR UNBRAKO OR LPS ONLY.

NO.	OFF		DESCRIPTION & DIMENSIONS	ITEM	REF. DRG.	MAT.& SPECN.	WEIGHT/UNIT	REMARKS
–	1	–	PIPE 1" O.D	195	LGS/EOG/ASR 3-5-002			ITEM-77
–	1	–	PIPE 1" O.D	194	LGS/EOG/ASR 3-5-002			ITEM-76
–	–	1	20mm CHECK VALVE ASSY. WITH CHOKE	193	RDSO/SK 98112			RDSO/2015/CG -05
–	–	1	TWO WAY DIRT COLLECTOR 20mm BORE	192	RDSO/SK 97005			RDSO/2015/CG -05
–	1	–	PIPE 1/2" O.D	191	LGS/EOG/ASR 3-5-002			ITEM-74
–	1	–	PIPE 1/2" O.D	190	LGS/EOG/ASR 3-5-002			ITEM-73
–	1	–	PIPE 1/2" O.D	189	LGS/EOG/ASR 3-5-002			ITEM-72
–	1	–	BRAKE PIPE (NB)	188	MI005808			
–	1	–	FEED PIPE (NB)	187	MI005809			
–	1	–	PIPE 28 O.D	186	LGS/EOG/ASR 3-5-002			ITEM-71
–	1	–	PIPE 1" O.D	185	LGS/EOG/ASR 3-5-002			ITEM-70
–	1	–	PIPE 1" O.D	184	LGS/EOG/ASR 3-5-002			ITEM-69
–	1	–	PIPE 1" O.D	183	LGS/EOG/ASR 3-5-002			ITEM-68
–	1	–	PIPE 1" O.D	182	LGS/EOG/ASR 3-5-002			ITEM-67
–	1	–	PIPE 1" O.D	181	LGS/EOG/ASR 3-5-002			ITEM-66
–	20	–	FLANGE MALE CONNECTOR PIPE TO EQPT. 20 mm NB (70mm PITCH)	180	ICF/STD 3-5-020			ITEM-1
–	1	–	PIPE 1" O.D	179	LGS/EOG/ASR 3-5-002			ITEM-65
9	–	–	PIPE CLIP (13)	178	LGS/EOG 3-5-030			ITEM-3
–	–	4	INDICATOR	177	A93736/A			RDSO/2015/CG -05
6	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M16	176	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
6	–	–	STAINLESS STEEL MACHINE WASHER 16.5	175	IS:2016-1967	AISI-304		
6	–	–	STAINLESS STEEL HEX. HD. SCREW M16x45	174	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
–	–	2	FIBA DEVICE	173	C149523			RDSO/2015/CG -05
–	1	–	PIPE 1" O.D	172	LGS/EOG/ASR 3-5-002			ITEM-64
–	1	–	PIPE 1" O.D	171	LGS/EOG/ASR 3-5-002			ITEM-63
–	1	–	PIPE 1/2" O.D	170	LGS/EOG/ASR 3-5-002			ITEM-62
–	1	–	PIPE 1" O.D	169	LGS/EOG/ASR 3-5-002			ITEM-61
–	1	–	PIPE 1" O.D	168	LGS/EOG/ASR 3-5-002			ITEM-60
–	–	9	ISOLATING COCK	167	RDSO/SK 97002			RDSO/2015/CG -05
–	1	–	PIPE 1/2" O.D	166	LGS/EOG/ASR 3-5-002			ITEM-59
3	–	–	BRACKET COMPLETE	165	LG36210			
–	–	4	HOSE CONNECTION R1/2"x650mm	164	RDSO/DRG No CG-19036			RDSO/2011/CG -04
–	3	–	REDUCING UNION TEE 28mm O.D x 1"BSPT	163	ICF/STD 3-5-019			ITEM-1
10	–	–	HANDLE LOCKING ARRGT. FOR ISOLATING COCK	162	CC35334			
–	–	2	ANGLE COCK (F.P)	161	RDSO DRG.NO. WD-88123-S-01			RDSO/2011/CG -04
–	–	2	ANGLE COCK (B.P)	160	RDSO DRG.NO. WD-88123-S-01			RDSO/2011/CG -04
3	–	–	PIPE CLIP (28.5)	159	LGS/EOG 3-5-028			ITEM-8
–	1	–	MALE ELBOW CONNECTOR 1/2" O.D x 1/4"BSPT	158	ICF/STD 3-5-023			ITEM-14
–	17	–	PIPE CLIP (26)	157	LGS/EOG 3-5-029			ITEM-6
–	4	–	PLATE	156	AAA35139			
–	3	–	UNION TEE 1" O.D	155	ICF/STD 3-5-018			ITEM-3
10	–	–	PIPE CLIP	154	LGS/EOG/ASR 3-5-003			
10	–	–	BRACKET	153	LG36181			
10	–	–	BRACKET COMPLETE	152	LG36179			
–	1	–	PIPE 1" O.D	151	LGS/EOG/ASR 3-5-002			ITEM-58

NO.	OFF		DESCRIPTION & DIMENSIONS	ITEM	REF. DRG.	MAT.& SPECN.	WEIGHT/UNIT	REMARKS
–	2	–	PIPE 1" O.D	150	LGS/EOG/ASR 3-5-002			ITEM-57
–	2	–	PIPE 1" O.D	149	LGS/EOG/ASR 3-5-002			ITEM-56
10	–	–	BRACKET	148	LG36185			
10	–	–	PIPE CLIP	147	LG36184			
–	1	–	PIPE 1" O.D	146	LGS/EOG/ASR 3-5-002			ITEM-55
–	1	–	PIPE 1" O.D	145	LGS/EOG/ASR 3-5-002			ITEM-54
–	14	–	MALE CONNECTOR 1" O.D x 3/4"BSPT	144	ICF/STD 3-5-016			ITEM-4
–	–	4	HOSE CONNECTION 20 BORE x 550	143	DC/EMU/M/ASR 0-5-009			ITEM-1
–	1	–	PIPE 1/2" O.D	142	LGS/EOG/ASR 3-5-002			ITEM-53
–	1	–	PIPE 1/2" O.D	141	LGS/EOG/ASR 3-5-002			ITEM-52
–	1	–	PIPE 1/2" O.D	140	LGS/EOG/ASR 3-5-002			ITEM-51
10	–	–	STAINLESS STEEL HEX. HD. SCREW M5x16	139	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
78	–	–	STAINLESS STEEL NYLOC NUT M5	138	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
82	–	–	STAINLESS STEEL MACHINE WASHER A5.3	137	IS:2016-1967	AISI-304		
54	–	–	STAINLESS STEEL HEX. HD. SCREW M5x25	136	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
12	–	–	SPRING WASHER B10	135	LIHW09	IS:3063-1994		ITEM-21 COATING TO MDTS 057
12	–	–	HEX.NUT M10	134	LIHW09	IS:1364, PT.3-92-8		ITEM-4 COATING TO MDTS 057
4	–	–	RUBBER PACKING 4x30x70 FOR 25 NB PIPE	133				MDTS-030 EPDM QUALITY
12	–	–	U-CLAMP FOR 25 NB PIPE	132	CC36923			
2	–	–	FRP LINING FOR 25 NB PIPE	131	CC36538			ITEM-3
2	–	–	FRP LINING FOR 25 NB PIPE	130	CC36538			ITEM-4
–	2	–	UNION ELBOW 1/2"O.D	129	ICF/STD 3-5-017			ITEM-1
AS REQD	–	–	HARDENER KV 39.0650	128	K080	EP-DS		
AS REQD	–	–	VARNISH RAL 7012	127	K080	RAL7012, BASALTGr		
AS REQD	–	–	SCREW PROTECTION	126	243	ACRYLESTER WL420601		
AS REQD	–	–	MOLYBDENUM DISULPHIDE	125		MOLYBDANDISULFID		
–	1	–	PIPE 28 O.D	124	LGS/EOG/ASR 3-5-002			ITEM-50
–	1	–	PIPE 28 O.D	123	LGS/EOG/ASR 3-5-002			ITEM-49
–	1	–	PIPE 28 O.D	122	LGS/EOG/ASR 3-5-002			ITEM-48
–	1	–	PIPE 25 (NB)	121	MI006331			
–	1	–	PIPE 25 (NB)	120	MI006330			
–	1	–	PIPE 28 O.D	119	LGS/EOG/ASR 3-5-002			ITEM-47
–	1	–	PIPE 3/4" O.D	118	LGS/EOG/ASR 3-5-002			ITEM-46
–	1	–	PIPE 28 O.D	117	LGS/EOG/ASR 3-5-002			ITEM-45
–	1	–	PIPE 1/2" O.D	116	LGS/EOG/ASR 3-5-002			ITEM-44
–	1	–	PIPE 28 O.D	115	LGS/EOG/ASR 3-5-002			ITEM-43
–	1	–	PIPE 1/2" O.D	114	LGS/EOG/ASR 3-5-002			ITEM-42
–	4	–	HEX. PIPE NUT G1"	113	IS:3468-1991	AISI-304		
–	1	–	PIPE 1/2" O.D	112	LGS/EOG/ASR 3-5-002			ITEM-41
–	1	–	PIPE 1/2" O.D	111	LGS/EOG/ASR 3-5-002			ITEM-40
–	1	–	PIPE 3/4" O.D	110	LGS/EOG/ASR 3-5-002			ITEM-39
–	1	–	PIPE 3/4" O.D	109	LGS/EOG/ASR 3-5-002			ITEM-38
–	1	–	PIPE 3/4" O.D	108	LGS/EOG/ASR 3-5-002			ITEM-37
–	12	–	STRAIGHT UNION 1/2"O.D	107	ICF/STD 3-5-015			ITEM-1
–	2	–	MALE CONNECTOR 1"O.D x 1"BSPT	106	ICF/STD 3-5-016			ITEM-8
–	–	1	AIR RESERVOIR 150 Ltrs	105	ICF/STD 3-5-066			
4	–	–	HEX. FIT BOLT M12x27.5x50	104	IS:3640-1982			A2 TO IS:1367 (PART-14) -84
4	–	–	HOOK	103	LGS/EOG 3-5-026			
–	1	–	PIPE 28 O.D	102	LGS/EOG/ASR 3-5-002			ITEM-36
–	1	–	PIPE 28 O.D	101	LGS/EOG/ASR 3-5-002			ITEM-35

NO.	OFF		DESCRIPTION & DIMENSIONS	ITEM	REF. DRG.	MAT.& SPECN.	WEIGHT/UNIT	REMARKS
–	1	–	PIPE 1/2" O.D	100	LGS/EOG/ASR 3-5-002			ITEM-34
2	–	–	HEX. THIN NUT M10	99	IS:1364 (PART-4) 2002	IS:1367 (PART-14) 84, A2 70		
16	–	–	STAINLESS STEEL HEX. HD. SCREW M10x45	98	IS:1363 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
–	–	4	REDUCING BUSH 1 1/4"BSPT(M) x 1"BSP(F)	97	ICF/STD 3-5-036			ITEM-10
1	–	–	SPLIT PIN 1.6 x 12	96	IS:549-1974	A2 TO IS:1367 (PART-14) -84		
1	–	–	BOLT B6x30x23	95		IS:6863-70 A2-70		
3	–	–	FORK HEAD COMPLETE	94	LGS/EOG 3-5-024			
1	–	–	THREAD BUSH	93	LGS/EOG 3-5-023			
1	–	–	SLACK	92	LGS/EOG 3-5-022			
1	–	–	FORK HEAD	91	LGS/EOG 3-5-021			
4	–	–	BRACKET	90	LGS/EOG 3-5-020			
1	–	–	SLACK COMPLETE	89	LGS/EOG 3-5-019			
1	–	–	SLACK COMPLETE	88	LGS/EOG 3-5-018			
1	–	–	LEVER COMPLETE	87	LGS/EOG 3-5-017			
2	–	–	BRACKET COMPLETE	86	LGS/EOG 3-5-016			
2	–	–	BRACKET COMPLETE	85	LGS/EOG 3-5-090			
–	1	–	PIPE 28 O.D	84	LGS/EOG/ASR 3-5-002			ITEM-33
4	–	–	PACKING	83	LGS/EOG 3-5-014			
40	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M10	82	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
56	–	–	STAINLESS STEEL MACHINE WASHER 10.5	81	IS:2016-1967	AISI-304		
–	2	–	PIPE 1" O.D	80	LGS/EOG/ASR 3-5-002			ITEM-32
24	–	–	STAINLESS STEEL HEX. HD. SCREW M10x35	79	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
–	1	–	PIPE 1/2" O.D	78	LGS/EOG/ASR 3-5-002			ITEM-31
–	1	–	PIPE 1/2" O.D	77	LGS/EOG/ASR 3-5-002			ITEM-30
4	–	–	PIPE CLIP (26)	76	LGS/EOG 3-5-030			ITEM-7
–	40	–	PIPE CLIP (13)	75	LGS/EOG 3-5-029			ITEM-3
–	8	–	MALE CONNECTOR 1/2"O.D x 1/4"BSPT	74	ICF/STD 3-5-016			ITEM-13
–	1	–	PIPE 3/4" O.D	73	LGS/EOG/ASR 3-5-002			ITEM-29
–	1	–	PIPE 3/4" O.D	72	LGS/EOG/ASR 3-5-002			ITEM-28
–	1	–	PIPE 3/4" O.D	71	LGS/EOG/ASR 3-5-002			ITEM-27
–	2	–	PIPE 3/4" O.D	70	LGS/EOG/ASR 3-5-002			ITEM-26
–	1	–	PIPE 1/2" O.D	69	LGS/EOG/ASR 3-5-002			ITEM-25
–	7	–	UNION TEE 1/2"O.D	68	ICF/STD 3-5-018			ITEM-1
–	1	–	PIPE 1/2" O.D	67	LGS/EOG/ASR 3-5-002			ITEM-24
–	1	–	PIPE 1/2" O.D	66	LGS/EOG/ASR 3-5-002			ITEM-23
–	2	–	PIPE 1/2" O.D	65	LGS/EOG/ASR 3-5-002			ITEM-22
–	1	–	PIPE 1/2" O.D	64	LGS/EOG/ASR 3-5-002			ITEM-21
–	1	–	PIPE 1/2" O.D	63	LGS/EOG/ASR 3-5-002			ITEM-20
–	2	–	PIPE 1/2" O.D	62	LGS/EOG/ASR 3-5-002			ITEM-19
–	–	1	BRAKE DEVICE CONTAINER COMPLETE	61	C197437			RDSO/2011/CG -04
–	1	–	PIPE 1/2" O.D	60	LGS/EOG/ASR 3-5-002			ITEM-18
–	1	–	PIPE 28 O.D	59	LGS/EOG/ASR 3-5-002			ITEM-17
–	1	–	PIPE 28 O.D	58	LGS/EOG/ASR 3-5-002			ITEM-16
–	1	–	PIPE 28 O.D	57	LGS/EOG/ASR 3-5-002			ITEM-15
–	1	–	PIPE 28 O.D	56	LGS/EOG/ASR 3-5-002			ITEM-14
–	1	–	PIPE 28 O.D	55	LGS/EOG/ASR 3-5-002			ITEM-13
–	1	–	PIPE 28 O.D	54	LGS/EOG/ASR 3-5-002			ITEM-12
–	–	1	EMERGENCY BRAKE VALVE WITH 3/8 "x 1/4" REDUCER	53	4B89712/KI			RDSO/2011/CG -04
1	–	–	BRACKET	52	LGS/EOG 3-5-013			
–	–	4	INDICATOR	51	A93736/A			RDSO/2011/CG -04

NO.	OFF		DESCRIPTION & DIMENSIONS	ITEM	REF. DRG.	MAT.& SPECN.	WEIGHT/UNIT	REMARKS
–	–	1	EMERGENCY BRAKE LAYOUT IN PASSENGER AREA	50	LGS/EOG 3-5-003			
–	4	–	UNION TEE 28mm O.D	49	ICF/STD 3-5-018			ITEM-5
40	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M12	48	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
169	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M8	47	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
202	–	–	STAINLESS STEEL PREVAILING TORQUE NUT M6	46	IS:7002-2005(91)	IS:1367 (PART-14) 84, A2 70		
32	–	–	STAINLESS STEEL MACHINE WASHER 13	45	IS:2016-1967	AISI-304		
222	–	–	STAINLESS STEEL MACHINE WASHER 8.4	44	IS:2016-1967	AISI-304		
18	–	–	STAINLESS STEEL HEX. HD. SCREW M8x30	43	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
202	–	–	STAINLESS STEEL MACHINE WASHER 6.4	42	IS:2016-1967	AISI-304		
8	–	–	STAINLESS STEEL HEX. HD. SCREW M12x45	41	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
95	–	–	STAINLESS STEEL HEX. HD. SCREW M8x60	40	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
74	–	–	STAINLESS STEEL HEX. HD. SCREW M8x25	39	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
197	–	–	STAINLESS STEEL HEX. HD. SCREW M6x25	38	IS:1364 (PART-2) 2002	IS:1367 (PART-14) 84, A2 70		
–	5	–	CLAMP	37	LGS/EOG 3-5-028			ITEM-5
–	8	–	MALE CONNECTOR 3/4"O.D x 1/2"BSPT	36	ICF/STD 3-5-016			ITEM-2
–	8	–	MALE CONNECTOR 28mm O.D x 1"BSPT	35	ICF/STD 3-5-016			ITEM-11
–	2	–	UNION ELBOW 3/4"O.D	34	ICF/STD 3-5-017			ITEM-2
–	2	–	STRAIGHT UNION 3/4"O.D	33	ICF/STD 3-5-015			ITEM-2
–	6	–	STRAIGHT UNION 28mm O.D	32	ICF/STD 3-5-015			ITEM-4
–	4	–	MALE ELBOW CONNECTOR(WITH CONICAL SEATING) 3/4" O.D x M26x1.5 (M)	31	ICF/STD 3-5-137			ITEM-1
–	2	–	UNION TEE 3/4"O.D	30	ICF/STD 3-5-018			ITEM-2
–	4	–	FEMALE CONNECTOR 28mm O.D x 1"BSP	29	ICF/STD 3-5-107			ITEM-1
–	4	–	FEMALE CONNECTOR 3/4"O.D x 1/2"BSP	28	ICF/STD 3-5-107			ITEM-2
–	4	–	SWIVEL ELBOW 1/2"O.D	27	ICF/STD 3-5-022			ITEM-3
–	4	–	PIPE 3/4" O.D	26	LGS/EOG/ASR 3-5-002			ITEM-11
–	1	–	PIPE 3/4" O.D	25	LGS/EOG/ASR 3-5-002			ITEM-10
–	1	–	PIPE 3/4" O.D	24	LGS/EOG/ASR 3-5-002			ITEM-9
–	1	–	PIPE 3/4" O.D	23	LGS/EOG/ASR 3-5-002			ITEM-8
–	1	–	PIPE 3/4" O.D	22	LGS/EOG/ASR 3-5-002			ITEM-7
–	1	–	PIPE 3/4" O.D	21	LGS/EOG/ASR 3-5-002			ITEM-6
–	1	–	PIPE 28 O.D	20	LGS/EOG/ASR 3-5-002			ITEM-5
–	1	–	PIPE 28 O.D	19	LGS/EOG/ASR 3-5-002			ITEM-4
–	1	–	PIPE 28 O.D	18	LGS/EOG/ASR 3-5-002			ITEM-3
–	1	–	PIPE 28 O.D	17	LGS/EOG/ASR 3-5-002			ITEM-2
–	1	–	PIPE 28 O.D	16	LGS/EOG/ASR 3-5-002			ITEM-1
4	–	–	PIPE CLIP	15	LGS/EOG 3-5-089			
15	–	–	PIPE CLIP	14	LGS/EOG/ASR 3-5-005			
1	–	–	PACKING	13	LGS/EOG 3-5-010			
2	–	–	BRACKET	12	LGS/EOG 3-5-009			
2	–	–	BRACKET	11	LGS/EOG 3-5-008			
4	–	–	BRACKET COMPLETE	10	LGS/EOG 3-5-007			
4	–	–	BRACKET COMPLETE	9	LGS/EOG 3-5-006			
15	–	–	BRACKET COMPLETE	8	LG36212			
4	–	–	BRACKET	7	LGS/EOG 3-5-004			
15	–	–	BRACKET	6	LG36215			
–	–	2	HOSE CONNECTION FOR B.P L=796 mm	5	RDSO/SK 73547			RDSO/2011/CG -04
–	–	2	HOSE CONNECTION FOR F.P L=796 mm	4	WD-81027 S-01			RDSO/2011/CG -04
–	–	2	ISOLATING COCK 1"	3	C98906			RDSO/2011/CG -04
–	–	4	ANTI SKID VALVE	2	C131766 I.4.744			RDSO/2011/CG -04
–	–	1	BRAKE PIPE ACCELERATOR WITH BRACKET	1	2B82102			RDSO/2011/CG -04

IV III II I — GROUP – 3-5 BRAKE PIPING.

SUPERSEDED BY:

SUPERSEDES: LWSCWAC/EOG/ASR-3-5-001Alt nil

● LWSCWAC/EOG/ASR (WITH AIR SPRING) COACHES

PER COACH

LAYOUT OF AIR BRAKE PIPING ARRGT. (FOR LHB AC 3 TIER EOG COACH WITH FIBA&ASR)

SCALE	SSE/D	
1:20 1:10	CHD.	
	ALT	R.Kannan
	DRN	K.M.V.Kumar
ALT.	a	

LWSCWAC/EOG/ASR-9-0-002

ASSEMBLY DRAWINGS

ALT.	DATE OF LATEST ALTN	DATE OF FIRST ISSUE	SME/D-1
		31-10-2019	

CAD FILE: C:\MD-CAD\851\3-5\0013SA00.DWG

DATA CODE NO. 851

INDIAN RAILWAY STANDARDS

SHEET 3 OF 3

INTEGRAL COACH FACTORY CHENNAI-600038

LWSCWAC/EOG/ASR-3-5-001

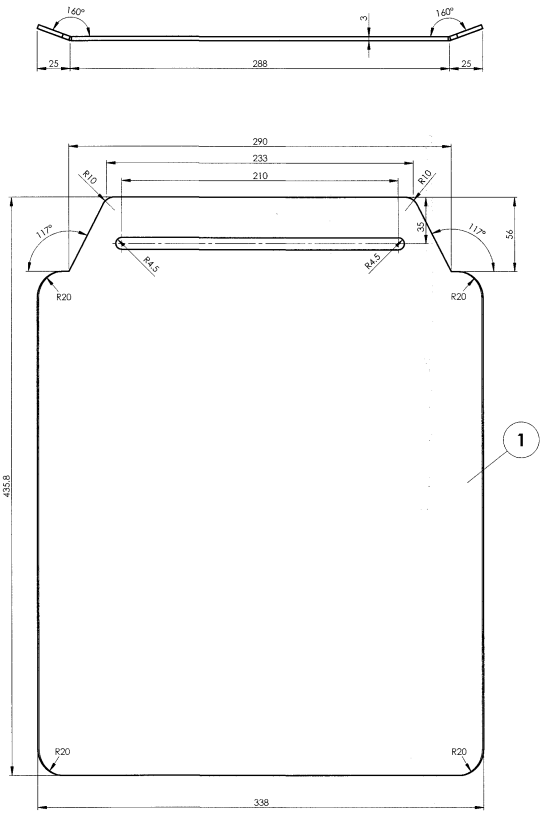
FORM IR A1a 1050x600

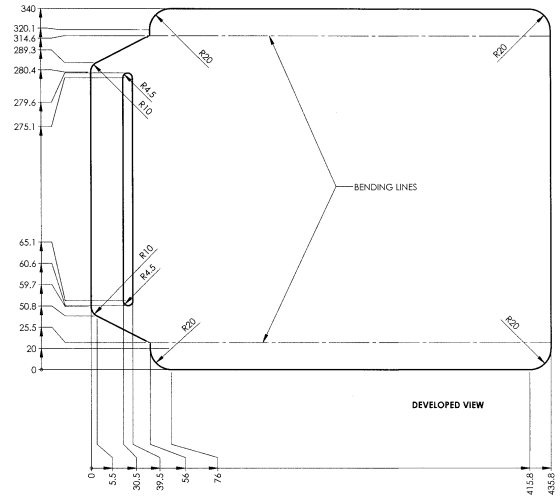
AAA35139

▽ ROUGH MACHINED	(01) ROUGH CLEANED		
▽▽ FINISH MACHINED	(B16) BURRS REMOVED		
▽▽▽ FINE FINISH MACHINED	(18) CHAMFERED		

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO. ICF/STD-P-0-001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS813-1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY





NOTE :

1. LOCATION OF COVER PLATE TO BE BOLTED/ADJUSTED AT SUITABLE POSITION TO COVER LEVELLING VALVE PROPERLY

QTY	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
1	PLATE	3x340x436	1		IRS M-41-97	3.33	

GROUP: 3-5 | SURFACE AREA IN Sq.m.: | WT/ASSY IN Kgs:

PROTECTION PLATE FOR LEVELLING VALVE
(FOR LHB COACHES WITH AIR SPRING)

SCALE 1:5 | SSE/D | CHD | ALT | ALTD | DRN: C.Satishkumar

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038

SHEET 1 OF 1

AAA35139 A2

REF.DRG.NO.LW36 73 ALT'c'

DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AUTHORISED
	09.03.2021	