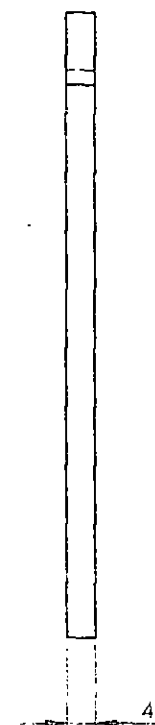
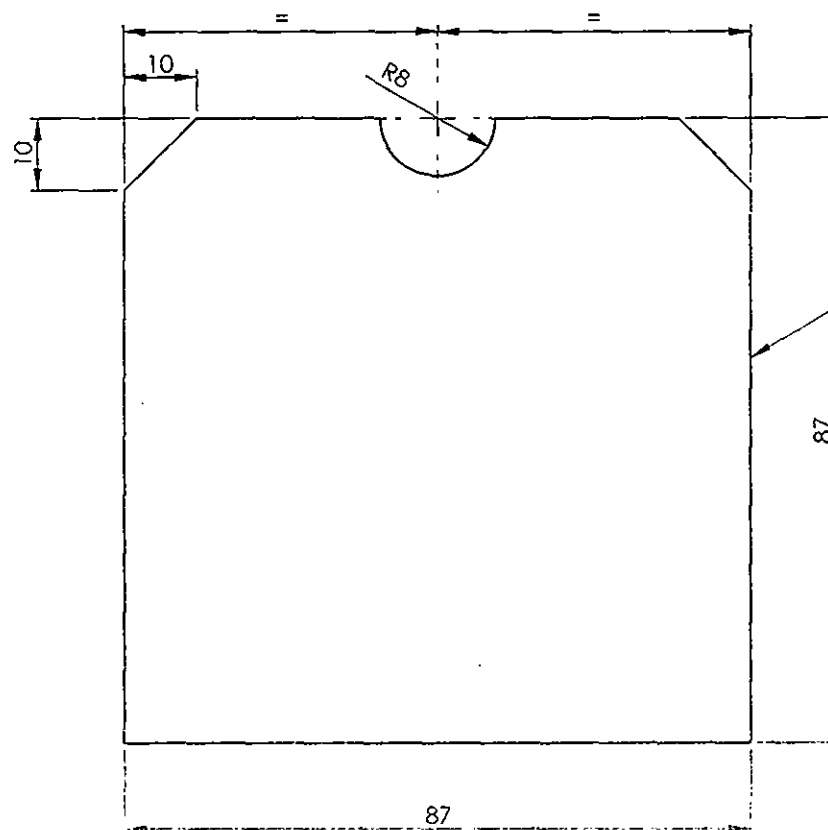


AAA16939

▽ ROUGH MACHINED	⊙ ROUGH CLEANED
▽▽ FINISH MACHINED	⊙⊙ BURRS REMOVED
▽▽▽ VACUUM TREATED	⊙⊙⊙ CHAMFERED

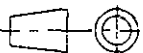
REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE



ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO IC/STD 9 0.001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS: 813 1986.

REF.DRG.NO.3 10113.0.20.200.121

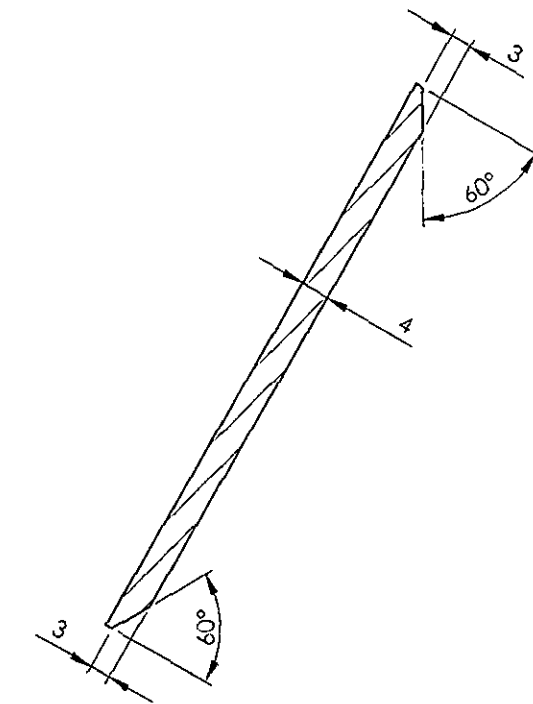
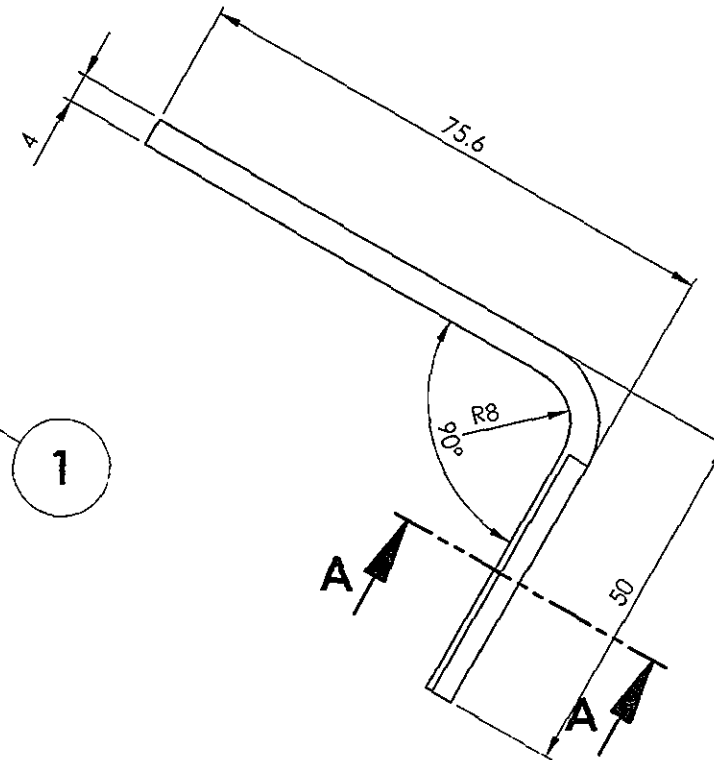
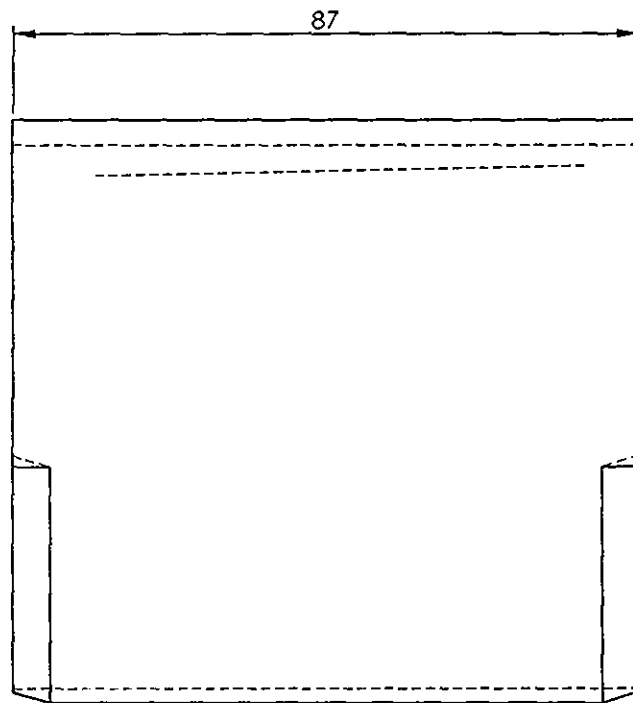
DATE OF LATEST ALT.	21-03-2013	AME/SME
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1	WEB	4 x 87 x 87	1		RDSO/SPEC C- K201 X2CrNi12	0.236	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m.:0.016			WT/ASSY IN Kgs:0.236		
WEB					SCALE 1:1	SSE/D	<i>h. S. Prasad</i>
						CHD	
					ALT.	ALTD	
						DRN	K.Sriram
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038							
					SHEET 1 OF 1		
					AAA16939		A3

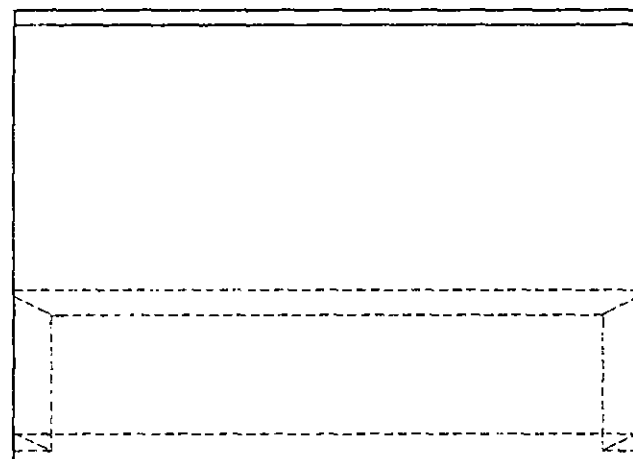
AAA16940

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

REVISIONS				APPROVED & DATE	
ALT.	ZONE	DESCRIPTION			



SECTION A-A



1	STIFFENING ANGLE	4 x 87 x 118	1		RDSO/SPEC C-K201 X2CrNi12	0.322	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m.:0.022			WT/ASSY IN Kgs:0.322		
STIFFENING ANGLE					SCALE	SSE/D	<i>As per lead</i>
					1:1	CHD	
					ALT.	ALTD	
					DRN	K.Sriram	
					INDIAN RAILWAY STANDARDS		SHEET 1 OF 1
AAA16940							
A3							
INTEGRAL COACH FACTORY, CHENNAI - 600038							

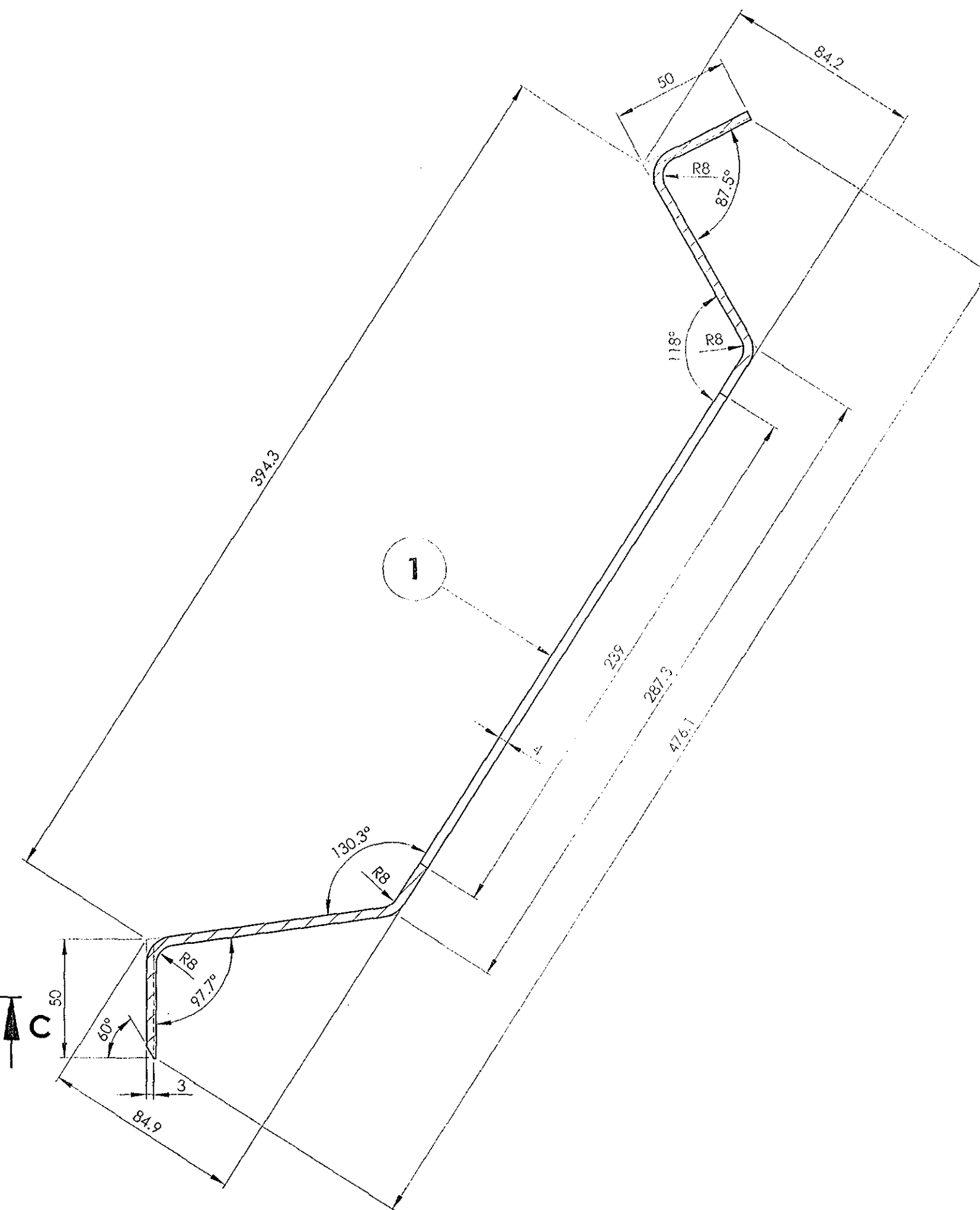
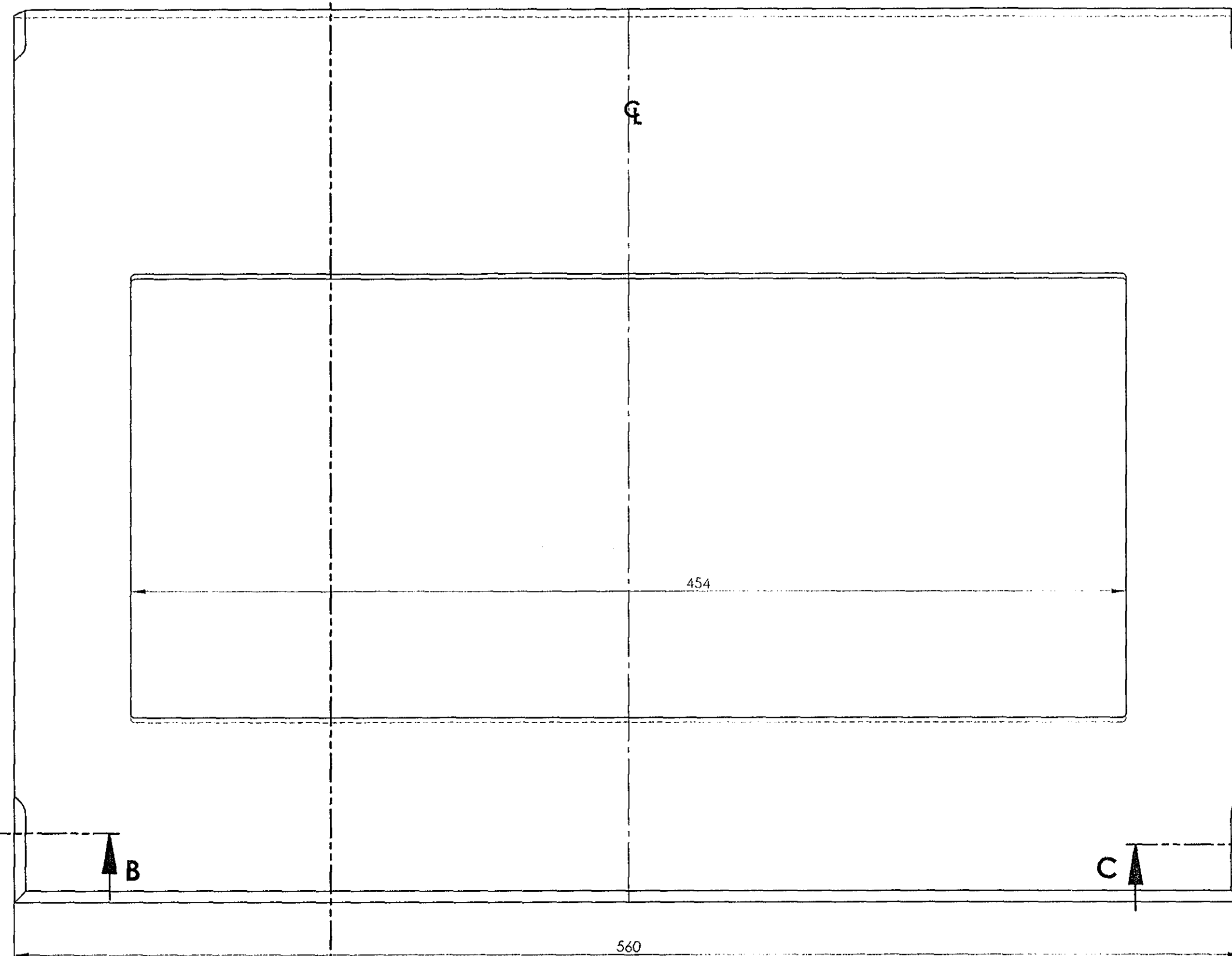
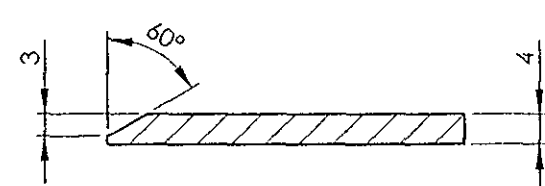
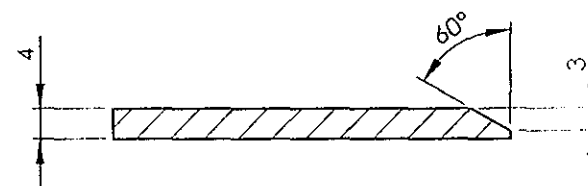
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO ICT/STD-9-0-001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS: 813 1986.

REF.DRG.NO.3 10113.0.20.200.117

AAA16941

▽ ROUGH MACHINED	⑥1 ROUGH CLEANED
▽▽ FINISH MACHINED	⑥1b BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	⑥1c CHAMFERED

REVISIONS				APPROVED & DATE
ALT.	ZONE	DESCRIPTION		

SECTION A-A
SCALE 1 : 2SECTION B-B
SCALE 1 : 1SECTION C-C
SCALE 1 : 1

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.

REF.DRG.NO.1 10113.0.20.200.127

DATE OF LATEST ALT.	21-03-2013	AME/SME
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1	TERMINAL FRAME	4 x 560 x 568	1	REF. DRGS	RDSO/SPEC C- K201 X2CIN12	6.658	REMARKS
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY				SURFACE AREA IN Sq.m.: 0.432		WT/ASSY IN Kgs: 6.658	
TERMINAL FRAME					SCALE 1:2	SSE/D CHD	<i>Surfaced</i>
					ALT	ALTD DRN	K.Sriram
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038					SHEET 1 OF 1		
					AAA16941		A2

AAA16942

▽ ROUGH MACHINED

① ROUGH CLEANED

▽▽ FINISH MACHINED

② BURRS REMOVED

▽▽▽ FINE FINISH MACHINED

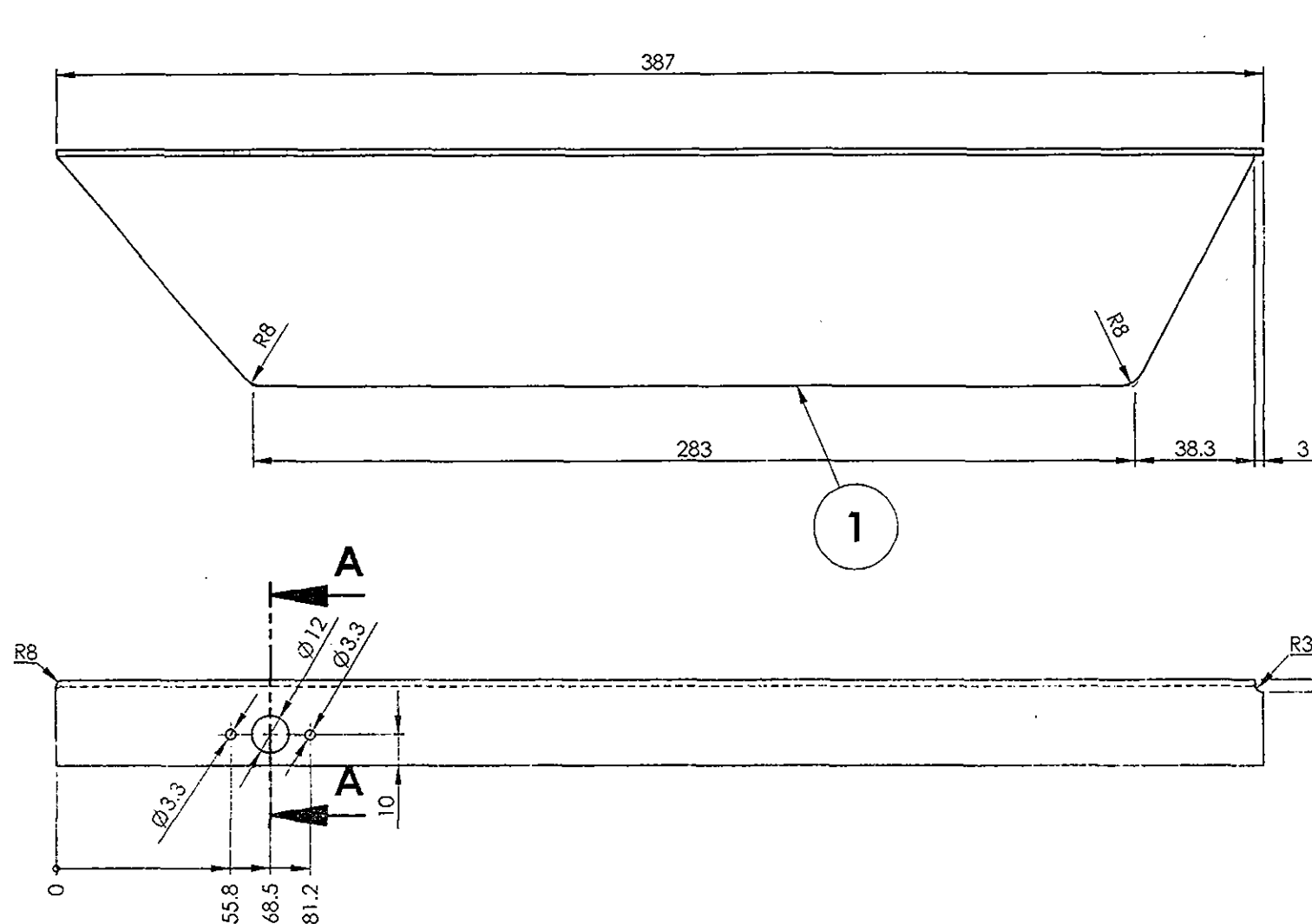
③ CHAMFERED

REVISIONS

ALT.

ZONE

DESCRIPTION

APPROVED &
DATESECTION A-A
SCALE 1:1

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.

REF.DRG.NO.3 10113.0.20.200.128

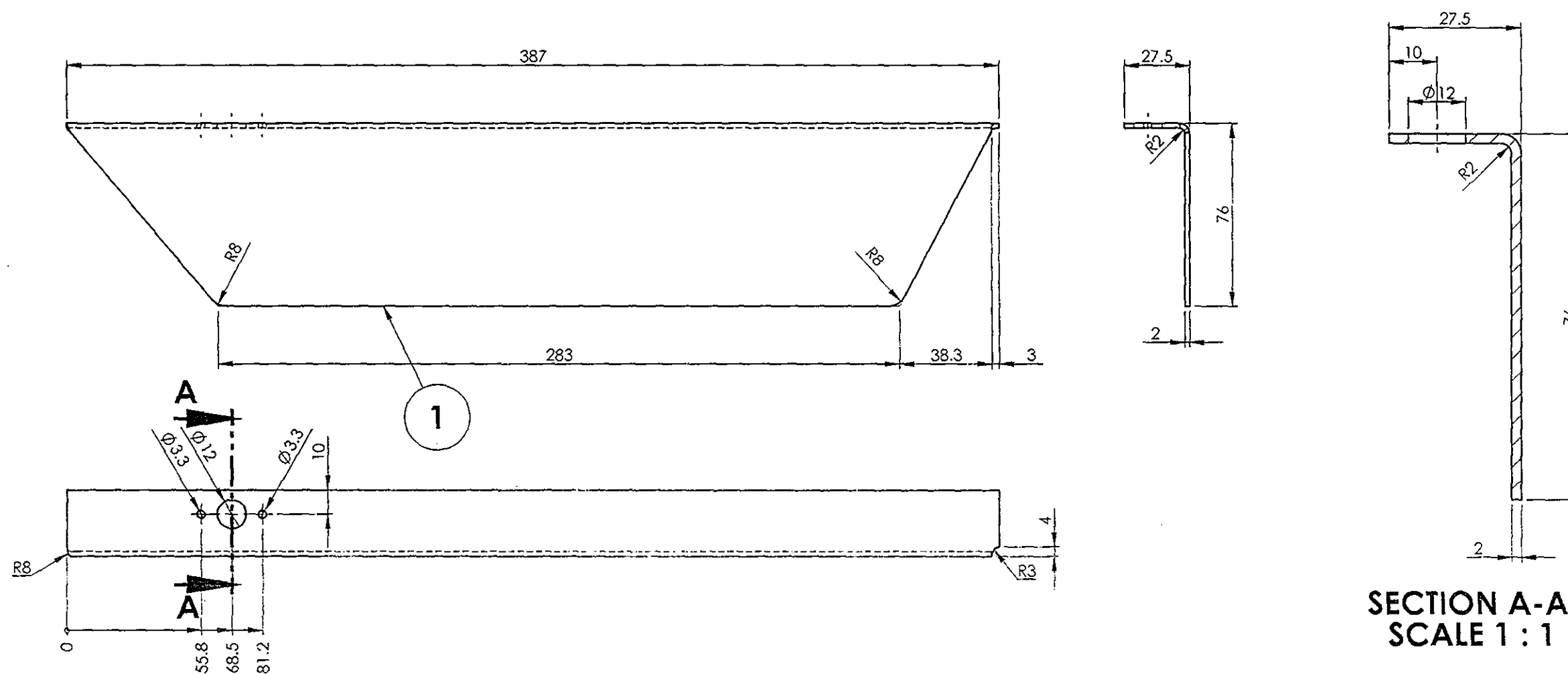
DATE OF LATEST ALT.	21-03-2013	AME/SME
DATE OF FIRST ISSUE		

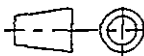
1	CLOSING ANGLE	2 x 101 x 387	1		RDSO/SPEC C-K201 X2CrNi12	0.556	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY				SURFACE AREA IN Sq.m.:0.071		WT/ASSY IN Kgs:0.556	
CLOSING ANGLE					SCALE 1:2	SSE/D CHD	hira prasad
					ALT.	ALTD	
						DRN	K.Sriram
INDIAN RAILWAY STANDARDS				SHEET 1 OF 1		AAA16942	
INTEGRAL COACH FACTORY, CHENNAI - 600038						A3	

AAA16943

▽ ROUGH MACHINED	⊖ ROUGH CLEANED
▽▽ FINISH MACHINED	⊖⊖ BURRS REMOVED
▽▽▽ FINE FINISH - VACUUM	⊖⊖⊖ CHAMFERED

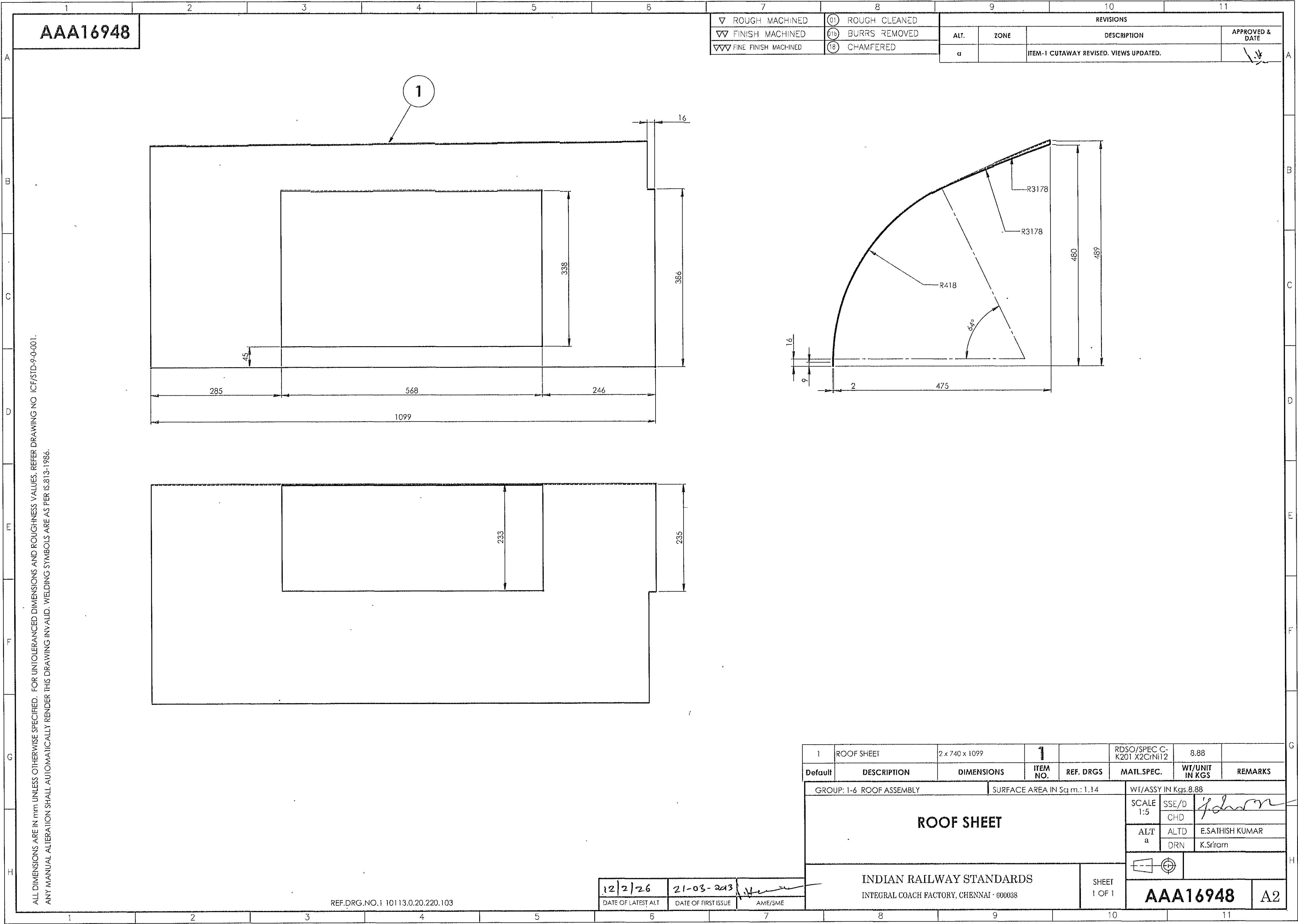
REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE

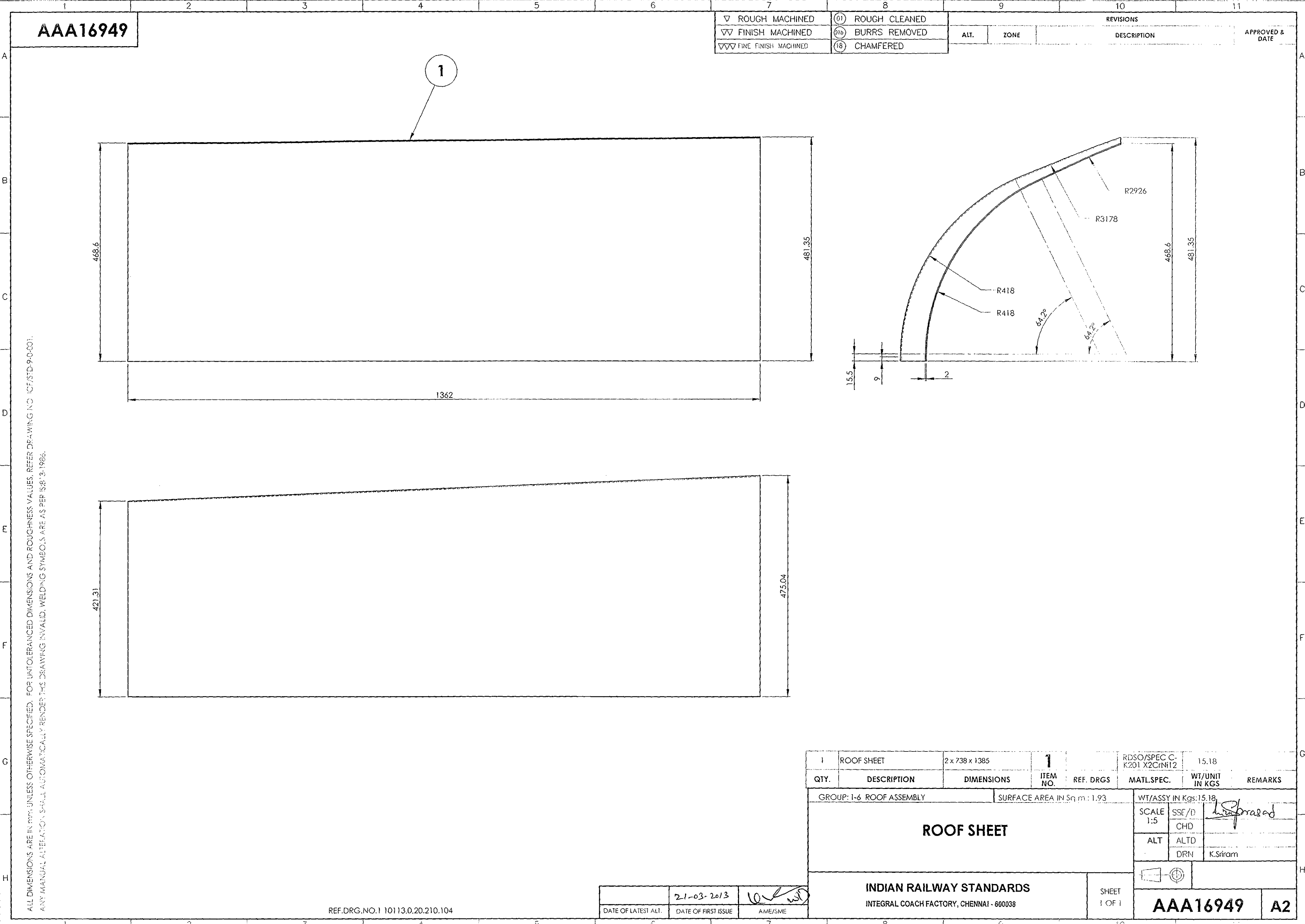
SECTION A-A
SCALE 1:1

1	CLOSING ANGLE	2 x 101 x 387	1		RDSO/SPEC C-K201 X2CrNi12	0.069	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m.:0.07			WT/ASSY IN Kgs:0.56		
CLOSING ANGLE					SCALE	SSE/D	<i>unspecified</i>
					1:2	CHD	
					ALT.	ALTD	
						DRN	K.Sriram
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038				SHEET 1 OF 1			
					AAA16943		A3

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.

REF.DRG.NO.3 10113.0.20.200.129





AAA16949

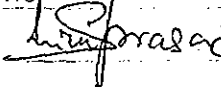

▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	①b BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	⑱ CHAMFERED

REVISIONS			APPROVED & DATE
ALT.	ZONE	DESCRIPTION	

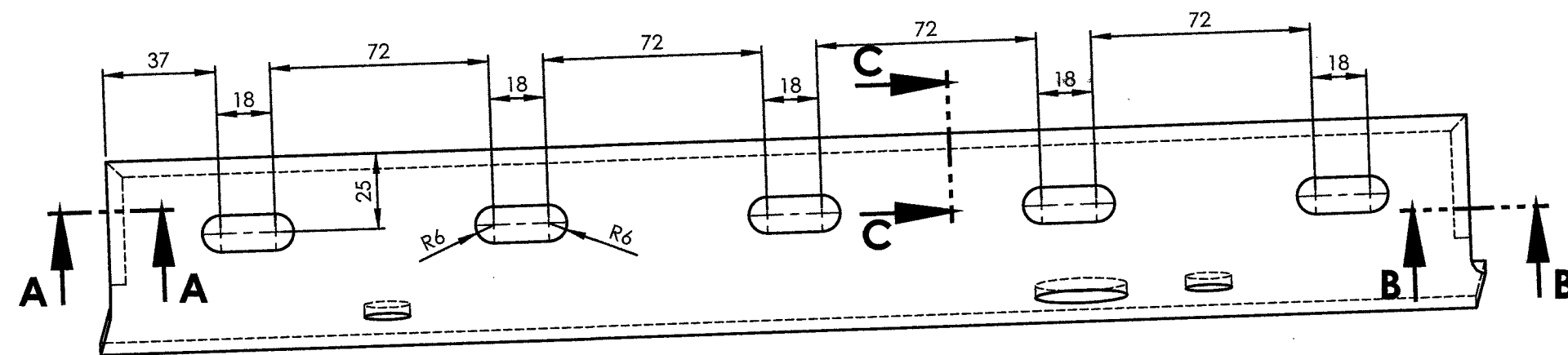
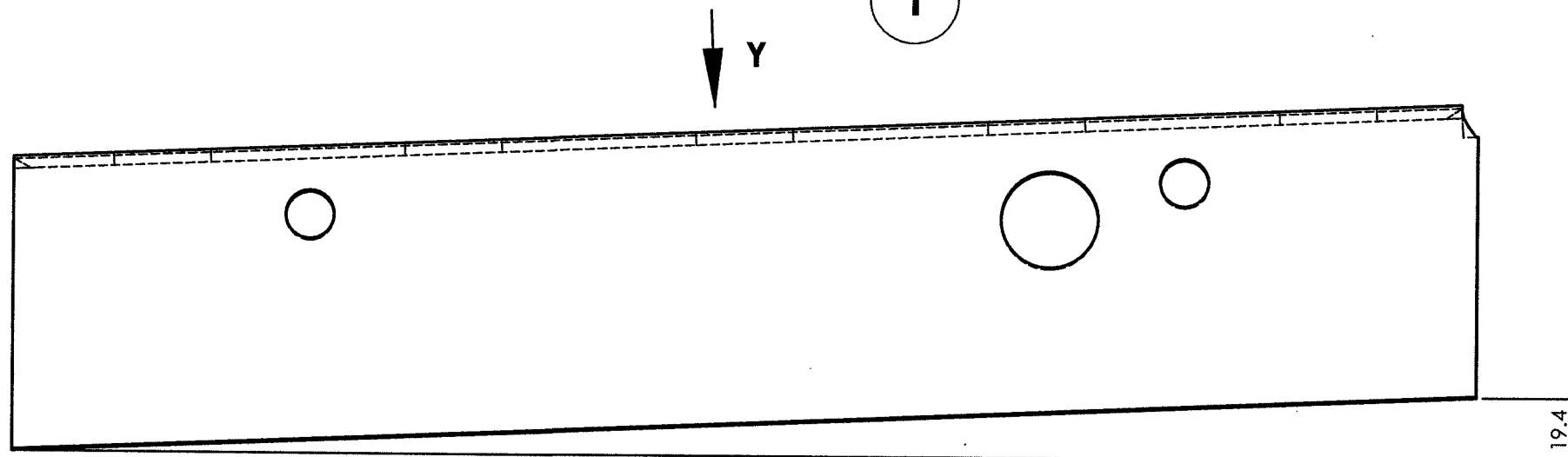
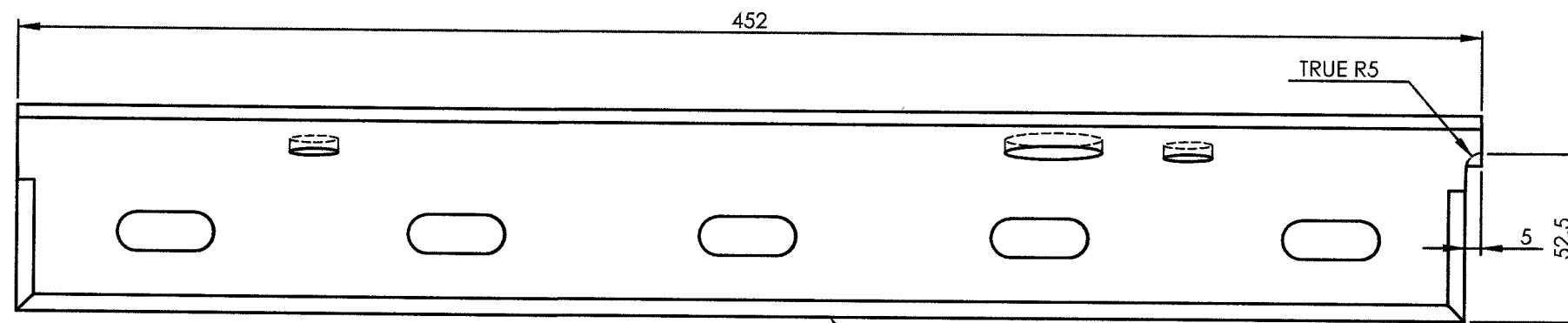
ALL DIMENSIONS ARE IN mm, UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO. 107/STD-9-0-001. ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS:813-1986.

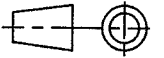
REF.DRG.NO.1 10113.0.20.210.104

DATE OF LATEST ALT.	21-03-2013	AME/SME
DATE OF FIRST ISSUE		

I	ROOF SHEET	2 x 738 x 1385	1		RDSO/SPEC C-K201 X2CrNi12	15.18	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: I-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m : 1.93			WT/ASSY IN Kgs:15.18		
ROOF SHEET					SCALE 1:5	SSE/D	
						CHD	
					ALT	ALTD	
						DRN	K.Sriram
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038							
					SHEET 1 OF 1	AAA16949	A2

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



1	STIFFENING ANGLE	4 x 157 x 458	1		RDSO/SPEC C- K201 X2CrNi12	1.84	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m.: 0.12			WT/ASSY IN Kgs:		
STIFFENING ANGLE					SCALE 1:2	SSE/D	L. Panduranga Rao
						CHD	
					ALT a	ALTD	E.SATHISH KUMAR
						DRN	K.Sriram
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038				SHEET 1 OF 1			
					AAA16950		
8		9		10		11	
						A2	

AAA16951

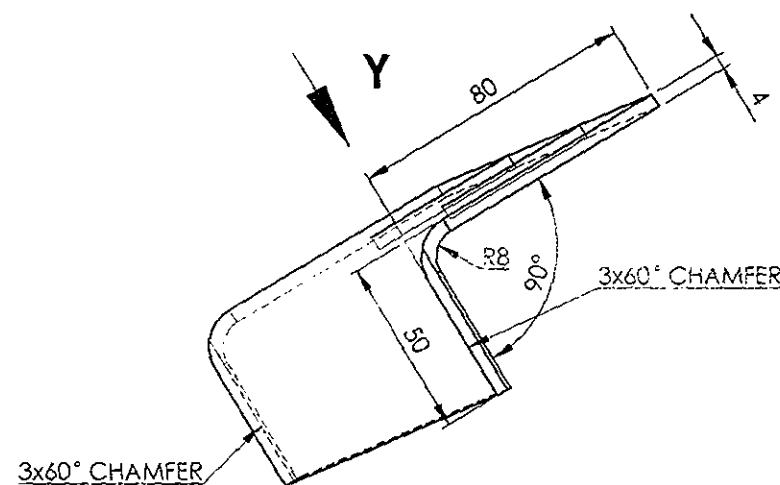
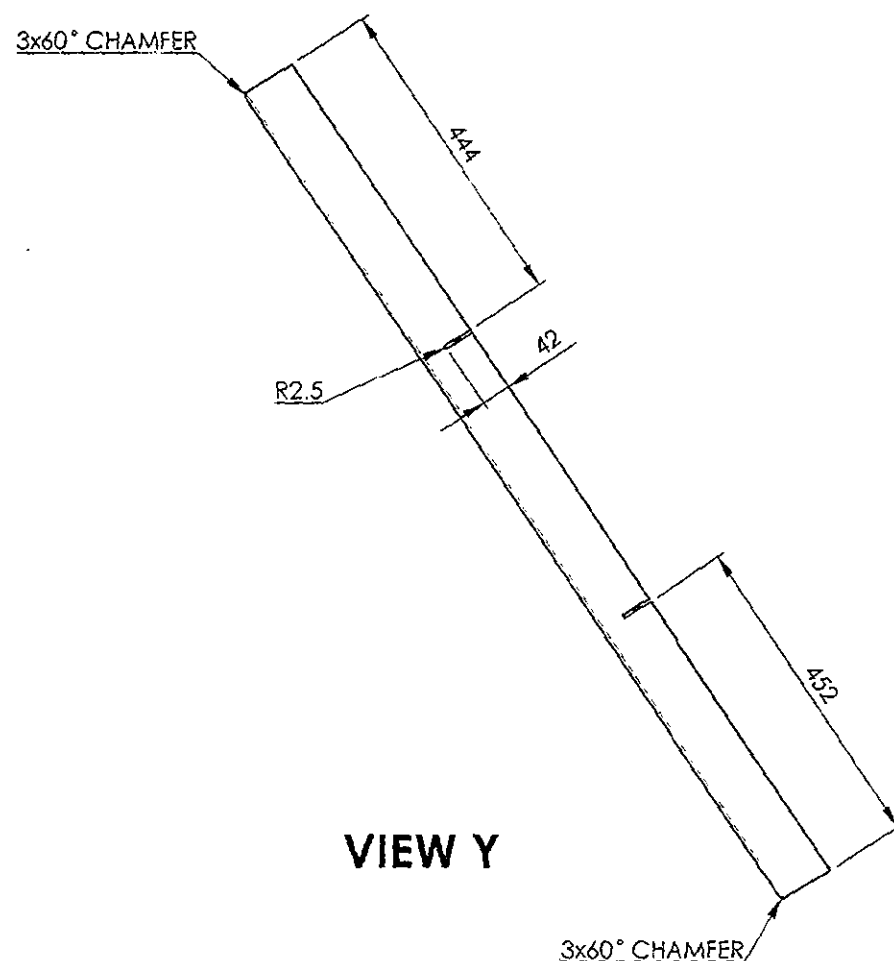
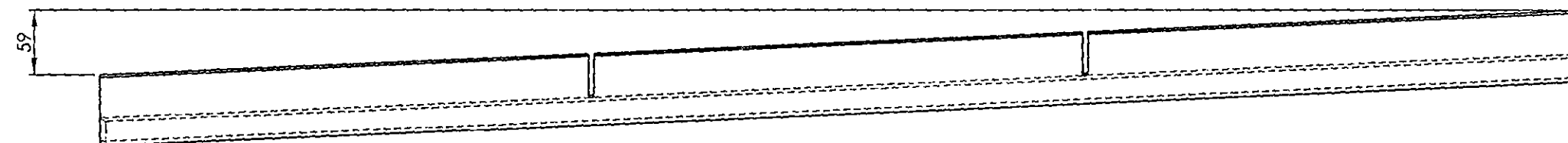
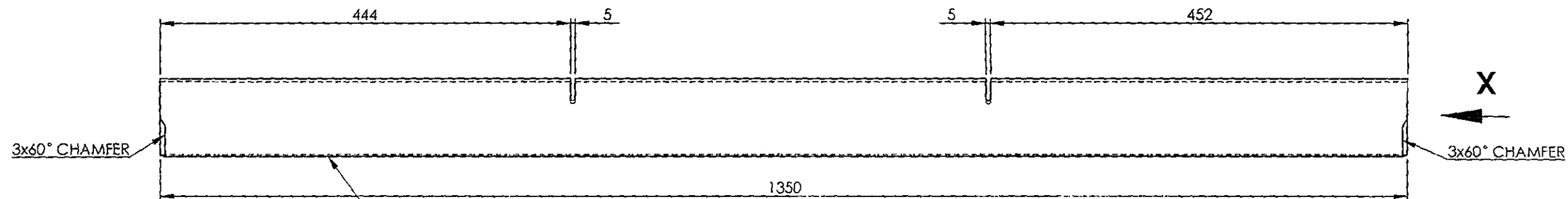
▽ ROUGH MACHINED	③ ROUGH CLEANED
▽▽ FINISH MACHINED	④ BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	⑤ CHAMFERED

REVISIONS

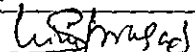
ALT.

ZONE

DESCRIPTION

APPROVED &
DATEVIEW X
SCALE 1:2

VIEW Y

1	STIFFENING ANGLE	4 x 121 x 1353	1		RDSO/SPEC C- K201 X2CrNi12	5.22	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m.:0.34			WT/ASSY IN Kgs:5.22		
STIFFENING ANGLE					SCALE	SSE/D	
					1:10	CHD	
					ALT.	ALTD	
						DRN	K.Sriram
					INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		
SHEET 1 OF 1		AAA16951	A3				

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

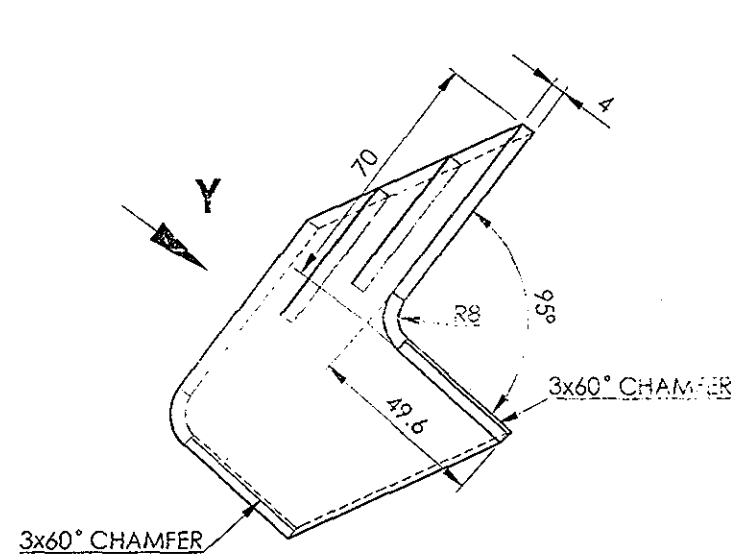
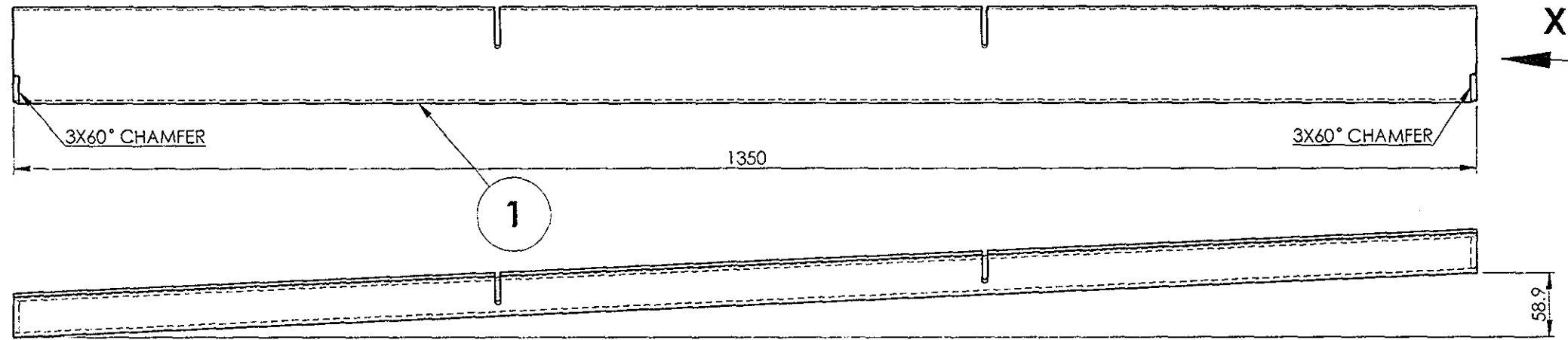
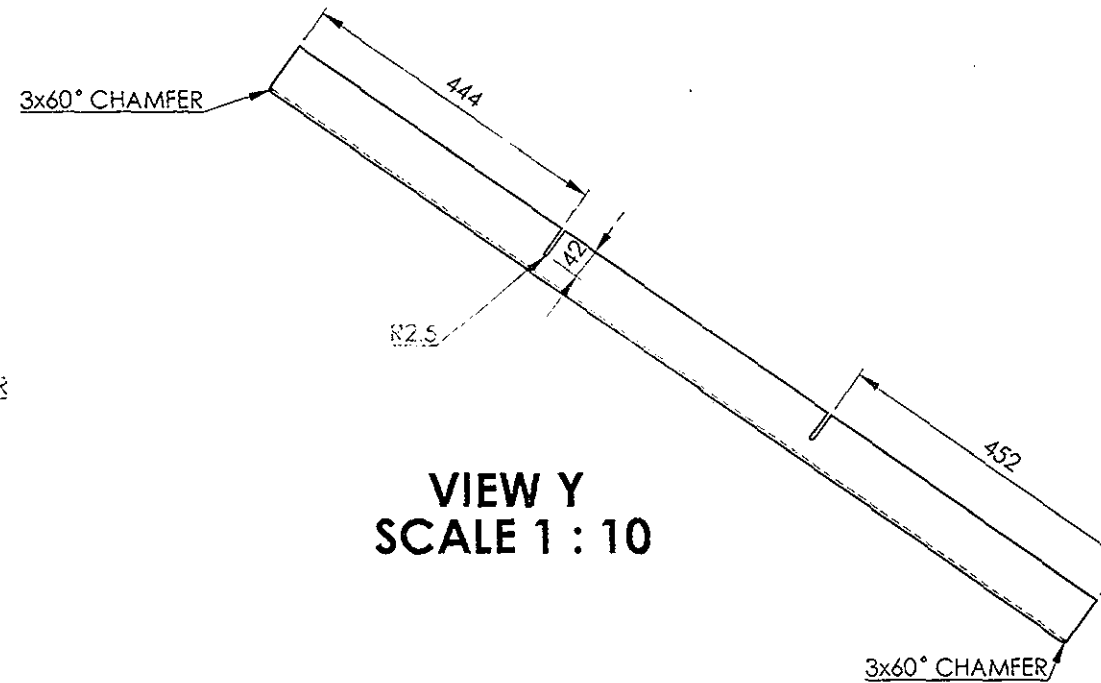
REF.DRG.NO.2 10113.0.20.200.110

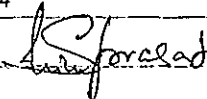
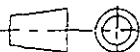
DATE OF LATEST ALT.	21-03-2013	AME/SME
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AAA16952

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

REVISIONS				APPROVED & DATE	
ALT.	ZONE	DESCRIPTION			

VIEW X
SCALE 1 : 2VIEW Y
SCALE 1 : 10

1	STIFFENING ANGLE	4 x 121 x 1350	1		RDSO/SPEC C- K201 X2CrNi12	4.84	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m.:0.32			WT/ASSY IN Kgs:4.84		
STIFFENING ANGLE					SCALE	SSE/D	
					1:5	CHD	
					ALT.	ALTD	
						DRN	K.Sriram
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038							
					SHEET 1 OF 1		AAA16952

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

REF.DRG.NO.2 10113.0.20.200.112

	21-03-2013	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME

AAA16953

▽ ROUGH MACHINED

▽▽ FINISH MACHINED

▽▽▽ FINE FINISH MACHINED

⊙ ROUGH CLEANED

⊙⊙ BURRS REMOVED

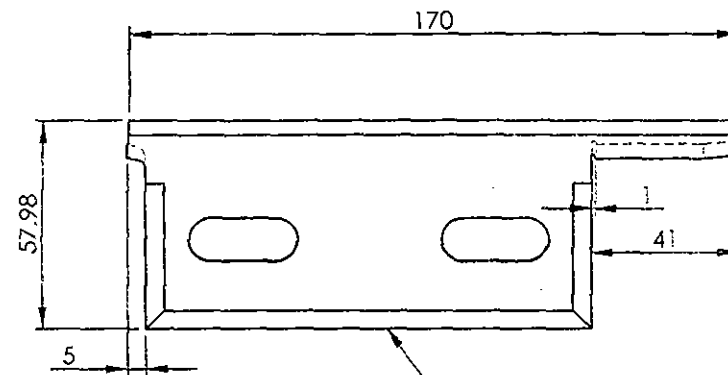
⊙⊙ CHAMFERED

REVISIONS

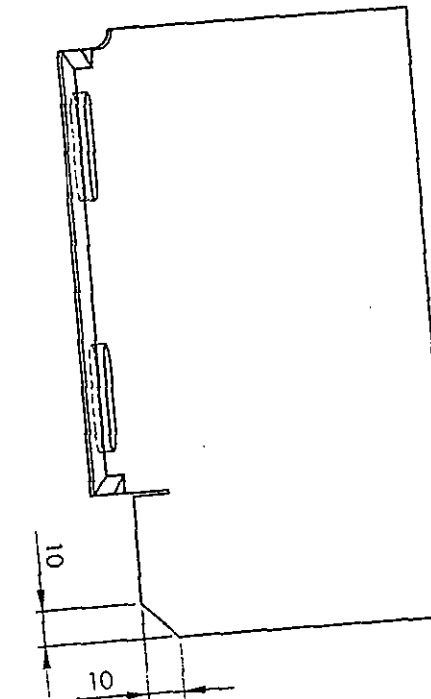
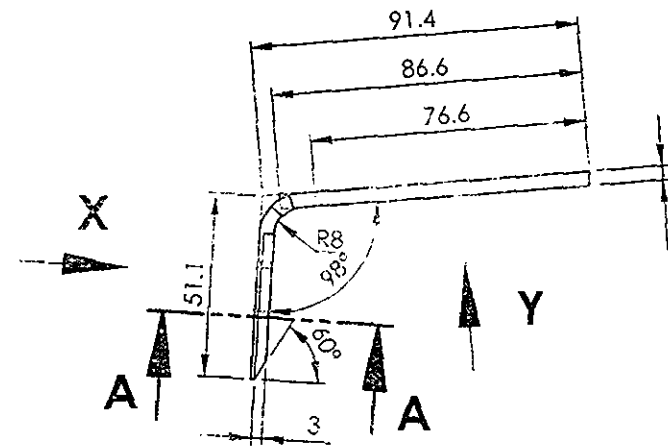
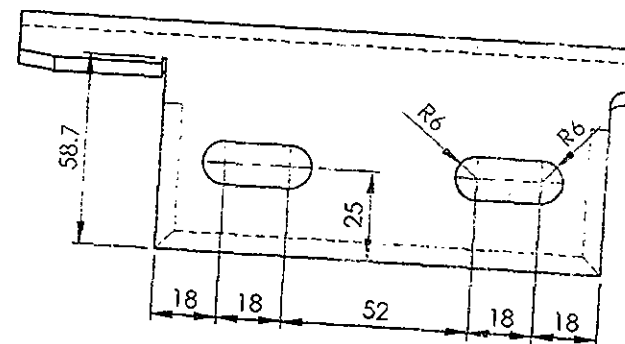
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ZONE

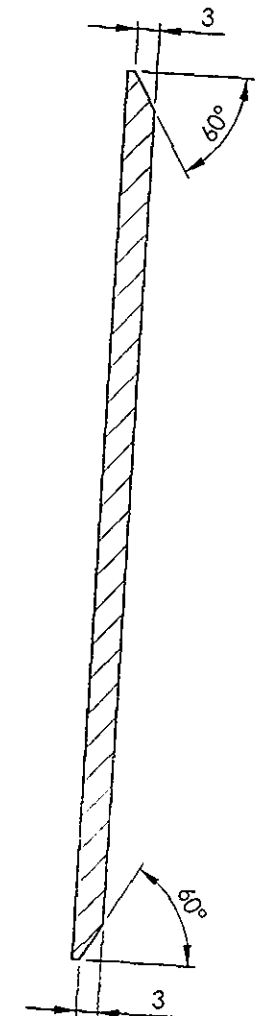
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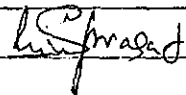
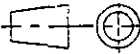
APPROVED &
DATE

VIEW X



VIEW Y

SECTION A-A
SCALE 1 : 1

1	STIFFENING ANGLE	4 x 136 x 170	1		RDSO/SPEC C- K201 X2CrNi12	0.63	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m.:0.04			WT/ASSY IN Kgs:0.63		
STIFFENING ANGLE					SCALE	SSE/D	
					1:2	CHD	
					ALT.	ALTD	
						DRN	K.Srirom
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038				SHEET 1 OF 1			
					AAA16953		A3

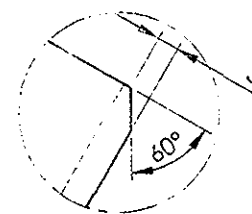
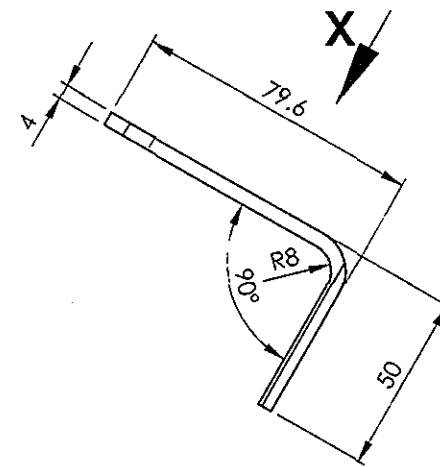
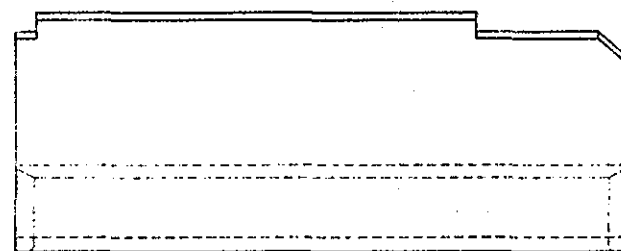
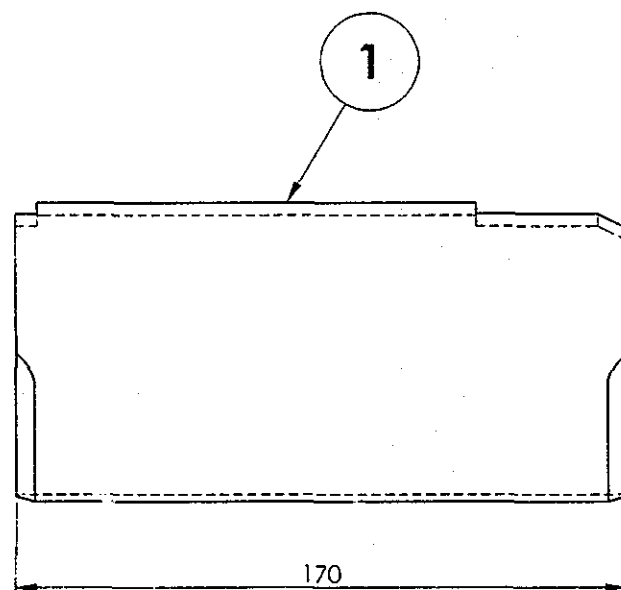
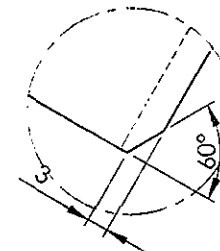
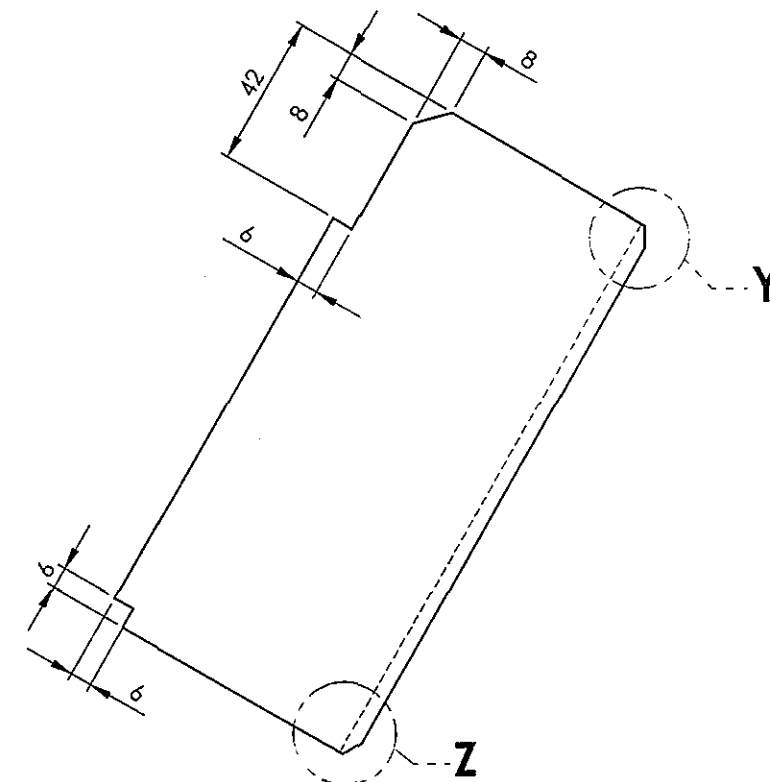
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO ICF/STD 9 0 001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS: 813-1986.

REF.DRG.NO.3 10113.C.20.200.114

AAA16954

▽ ROUGH MACHINED	⊖ ROUGH CLEANED
▽▽ FINISH MACHINED	⊖⊖ BURRS REMOVED
▽▽▽ FINE FINISH VAC-NEO	⊖⊖⊖ CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE

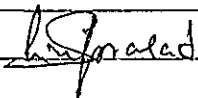
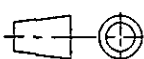
DETAIL Y
SCALE 1:1DETAIL Z
SCALE 1:1

VIEW X

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.

REF.DRG.NO.3 10113.0.20.200.116

	21-03-2013	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME

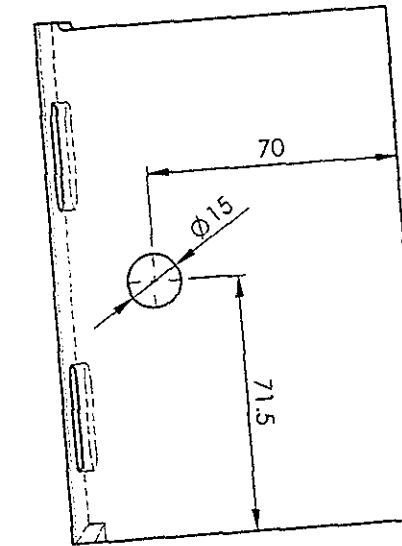
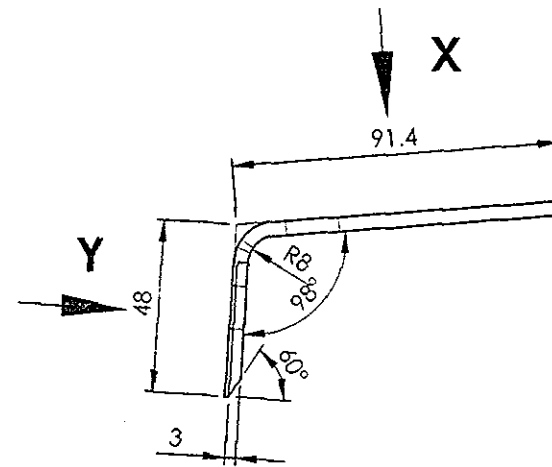
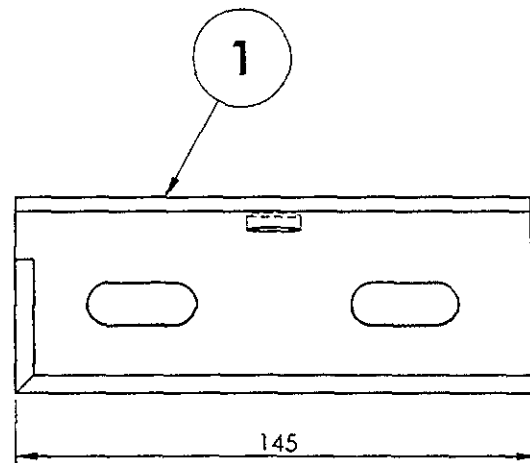
1	STIFFENING ANGLE	4 x 121 x 170	1		RDSO/SPEC C- K201 X2CrNi12	0.64	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m.:0.04			WT/ASSY IN Kgs:0.64		
STIFFENING ANGLE					SCALE	SSE/D	
					1:2	CHD	
					ALT.	ALTD	
						DRN	K.Srirom
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038							
					SHEET 1 OF 1		AAA16954

AAA16955

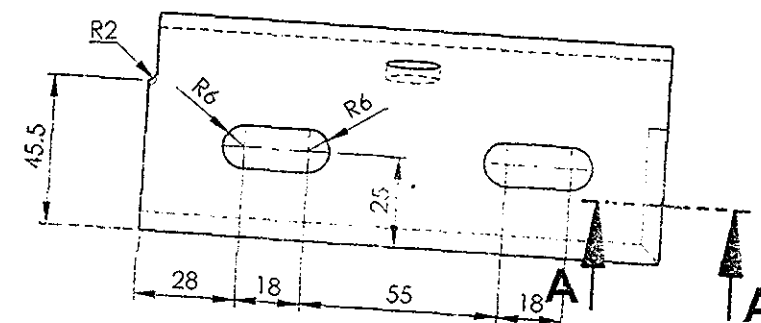
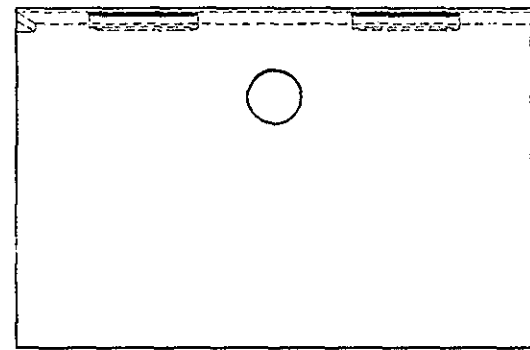
▽ ROUGH MACHINED	⊙ ROUGH CLEANED
▽▽ FINISH MACHINED	⊙ BURRS REMOVED
▽▽▽ FINISH MACHINED	⊙ CHAMFERED

REVISIONS

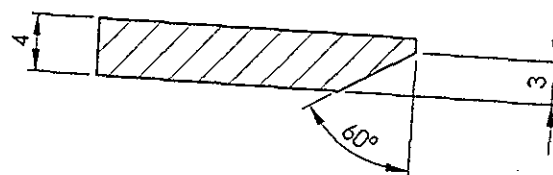
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
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VIEW X



VIEW Y

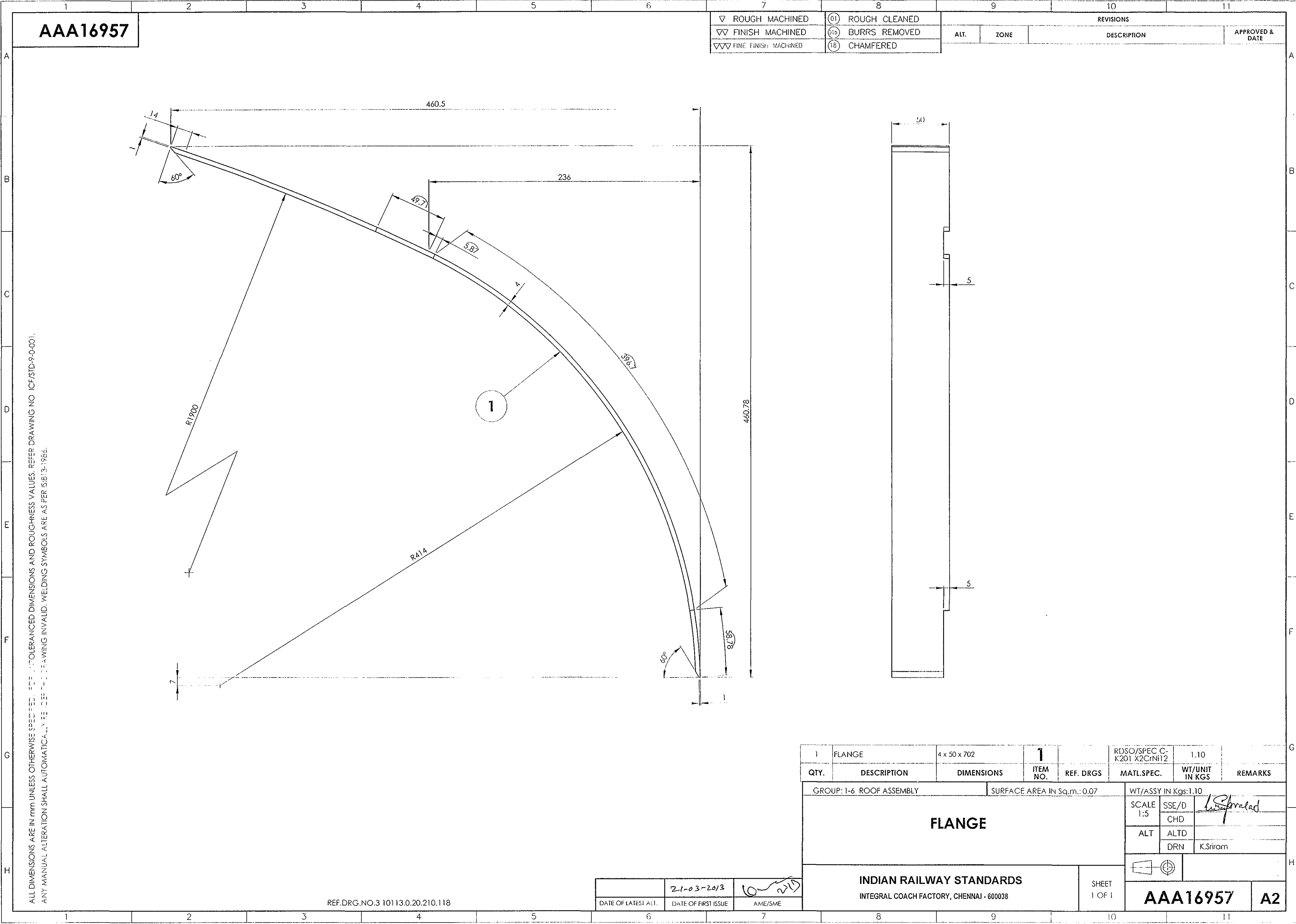
SECTION A-A
SCALE 2 : 1

1	STIFFENING ANGLE	4 x 135 x 145	1		RDSO/SPEC C- K201 X2CrNi12	0.57	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 ROOF ASSEMBLY		SURFACE AREA IN Sq.m.:0.04			WT/ASSY IN Kgs:0.57		
STIFFENING ANGLE					SCALE	SSE/D	
					1:2	CHD	
					ALT.	ALTD	
						DRN	K.Srirom
					INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038		
SHEET 1 OF 1		AAA16955	A3				

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AT 10° 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.

REF.DRG.NO.3 10113.0.20.200.126

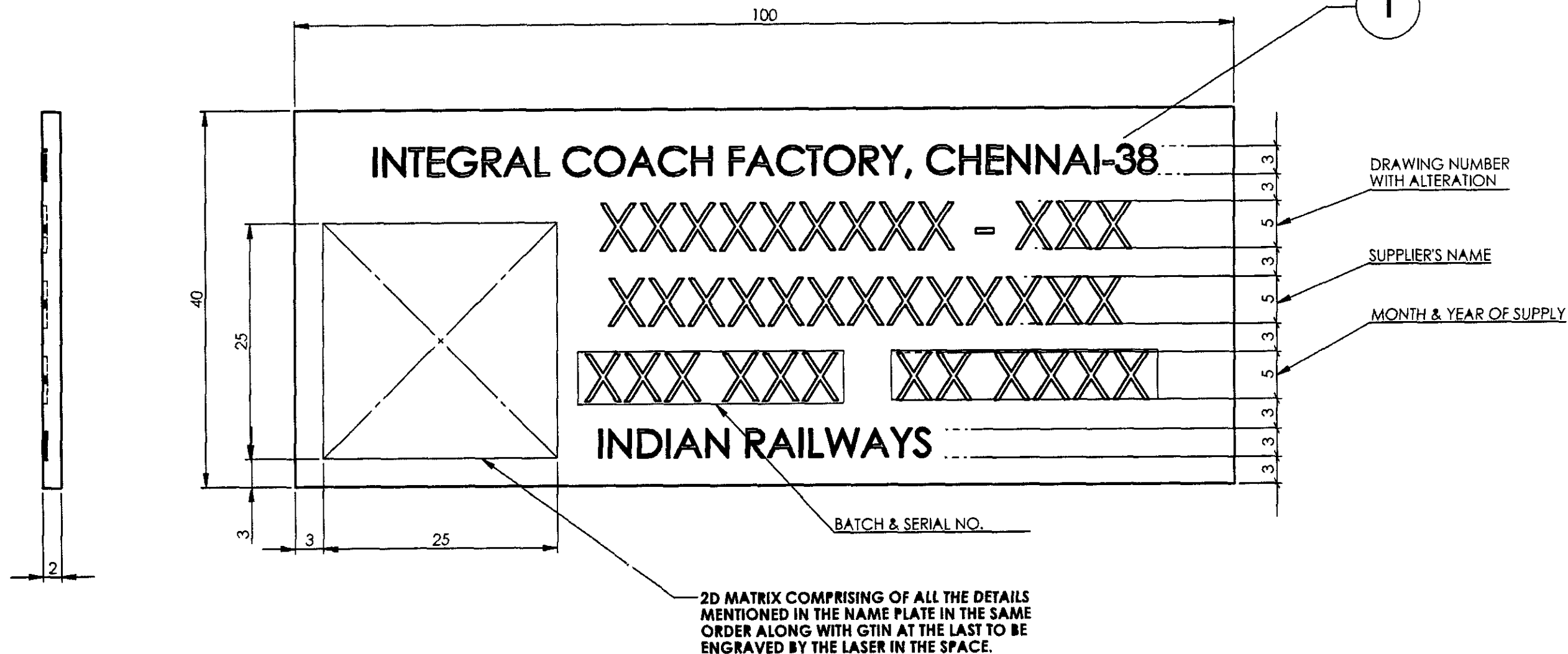
	21-03-2013	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	A.M.E./S.M.E.



AAA51072

▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	①① BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	①①① CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
a		NAME PLATE REVISED.	-sd-
b		DESIGN REVISED.	-sd-
c		BATCH & SERIAL NO. ADDED	-sd-
d		NOTE-2 ADDED.	<i>sd</i>

**NOTE:**

1. LETTERS TO BE PUNCHED OR ENGRAVED.

2. ALTERNATIVELY AISI-304/SS-304 (X02Cr19Ni10)/IS:6911(X04Cr19Ni9) ALSO ACCEPTABLE.

1	NAME PLATE FOR SUPPLIER IDENTIFICATION	2x40x100	1		RDSO/SPEC C-K201 X2 Cr Ni 12	0.063	\$
QTY	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 5-1 Body Side Doors		SURFACE AREA IN Sq.m.:0.009		WT/ASSY IN Kgs:			
NAME PLATE FOR SUPPLIER IDENTIFICATION				SCALE 2:1	SSE/D	<i>sd</i>	
				ALT. d	CHD		
INDIAN RAILWAY STANDARDS				ALT. d	ALTD	KUNTI THAKUR	
				ALT. d	DRN	G. NAGESWARAN	
INDIAN RAILWAY STANDARDS				SHEET 1 OF 1		AAA51072 A3	
INTEGRAL COACH FACTORY, CHENNAI - 600038							

06-07-2024	02.06.2010	<i>sd</i>
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME

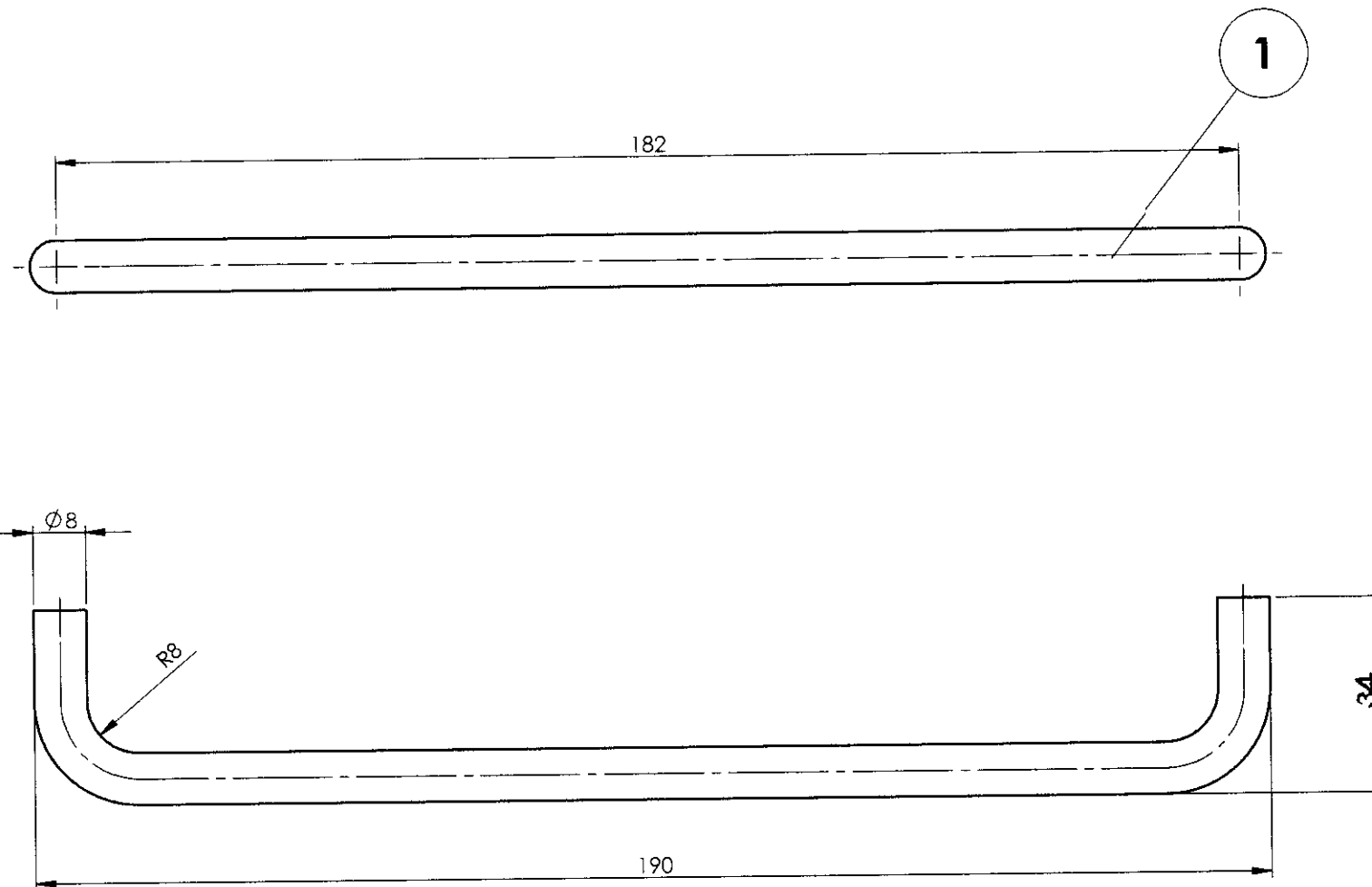
REF.DRG.NO.

AAD16738

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

REVISIONS

ALT.	ZONE	DESCRIPTION	APPROVED & DATE
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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

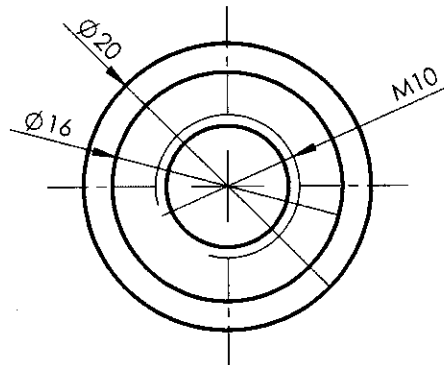
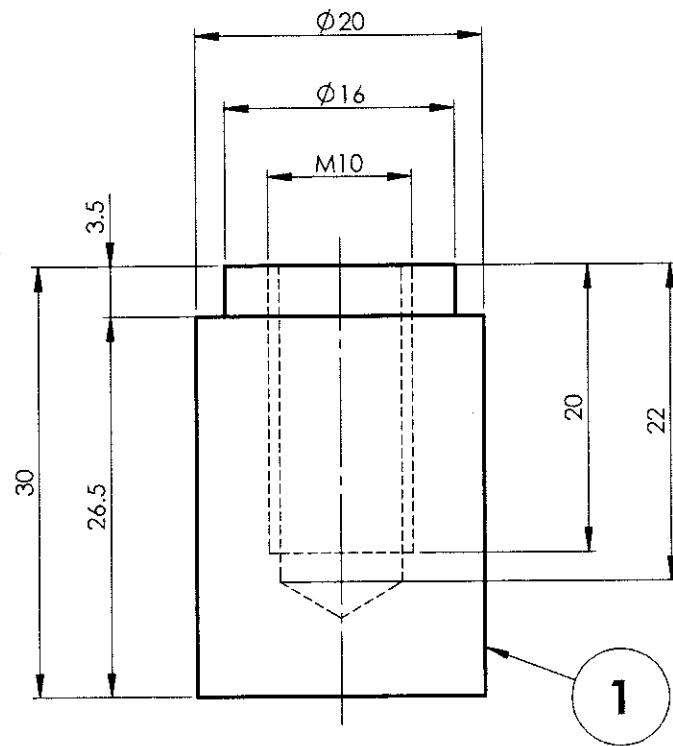
REF.DRG.NO.

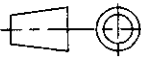
	-06-2020	N.K.X
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME

1	TIE ROD	Ø8x232	1		AISI-304	0.09	
Default	DESCRIPTION	DIMENSIONS	ITEM NO	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 Roof Construction				SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:	
TIE ROD					SCALE	SSE/D	P.MURUGAN
					1:1	CHD	
					ALT.	ALTD	
						DRN	
INDIAN RAILWAY STANDARDS					SHEET 1 OF 1		
INTEGRAL COACH FACTORY, CHENNAI - 600038					AAD16738		
					A3		

1		2		3		4		5		6		7		8																																			
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> AAD16884 </div>						<div style="display: flex; justify-content: space-between;"> <div> ▽ ROUGH MACHINED ▽▽ FINISH MACHINED ▽▽▽ FINE F.N.SH MACHINED </div> <div> (01) ROUGH CLEANED (012) BURRS REMOVED (18) CHAMFERED </div> </div>		<div style="display: flex; justify-content: space-between;"> <div colspan="3">REVISIONS</div> <div>APPROVED & DATE</div> </div>																																									
ALT.		ZONE		DESCRIPTION						APPROVED & DATE																																							
<div style="display: flex; align-items: center;"> <div style="flex: 1;"> </div> <div style="flex: 1;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">1</td> <td style="width: 45%;">SCREWING PIECE</td> <td style="width: 20%;">Ø 20 X 30</td> <td style="width: 5%;">1</td> <td style="width: 10%;">REF. DRGS</td> <td style="width: 10%;">MATL.SPEC.</td> <td style="width: 10%;">WT/UNIT IN KGS</td> <td style="width: 15%;">REMARKS</td> </tr> <tr> <td colspan="2">GROUP: 1-6 Roof Construction</td> <td colspan="2">SURFACE AREA IN Sq.m.:</td> <td colspan="4">WT/ASSY IN Kgs:</td> </tr> <tr> <td colspan="4" rowspan="3" style="text-align: center; vertical-align: middle;"> SCREWING PIECE </td> <td>SCALE</td> <td>SSE/D</td> <td colspan="2" rowspan="3" style="text-align: center; vertical-align: middle;"> <i>L. Panduranga</i> S K MUTHUKUMAR </td> </tr> <tr> <td>2:1</td> <td>CHD</td> </tr> <tr> <td>ALT.</td> <td>ALTD</td> </tr> <tr> <td colspan="4" rowspan="2" style="text-align: center; vertical-align: middle;"> INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038 </td> <td colspan="2" rowspan="2" style="text-align: center; vertical-align: middle;"> SHEET 1 OF 1 </td> <td colspan="2" rowspan="2" style="text-align: center; vertical-align: middle;"> <div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px;"> AAD16884 </div> <div style="border: 1px solid black; padding: 5px;"> A3 </div> </div> </td> </tr> <tr> </tr> </table> </div> </div>														1	SCREWING PIECE	Ø 20 X 30	1	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS	GROUP: 1-6 Roof Construction		SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:				SCREWING PIECE				SCALE	SSE/D	<i>L. Panduranga</i> S K MUTHUKUMAR		2:1	CHD	ALT.	ALTD	INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038				SHEET 1 OF 1		<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px;"> AAD16884 </div> <div style="border: 1px solid black; padding: 5px;"> A3 </div> </div>	
1	SCREWING PIECE	Ø 20 X 30	1	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS																																										
GROUP: 1-6 Roof Construction		SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:																																													
SCREWING PIECE				SCALE	SSE/D	<i>L. Panduranga</i> S K MUTHUKUMAR																																											
				2:1	CHD																																												
				ALT.	ALTD																																												
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038				SHEET 1 OF 1		<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px;"> AAD16884 </div> <div style="border: 1px solid black; padding: 5px;"> A3 </div> </div>																																											
DATE OF LATEST ALT.		DATE OF FIRST ISSUE		AME/SME																																													

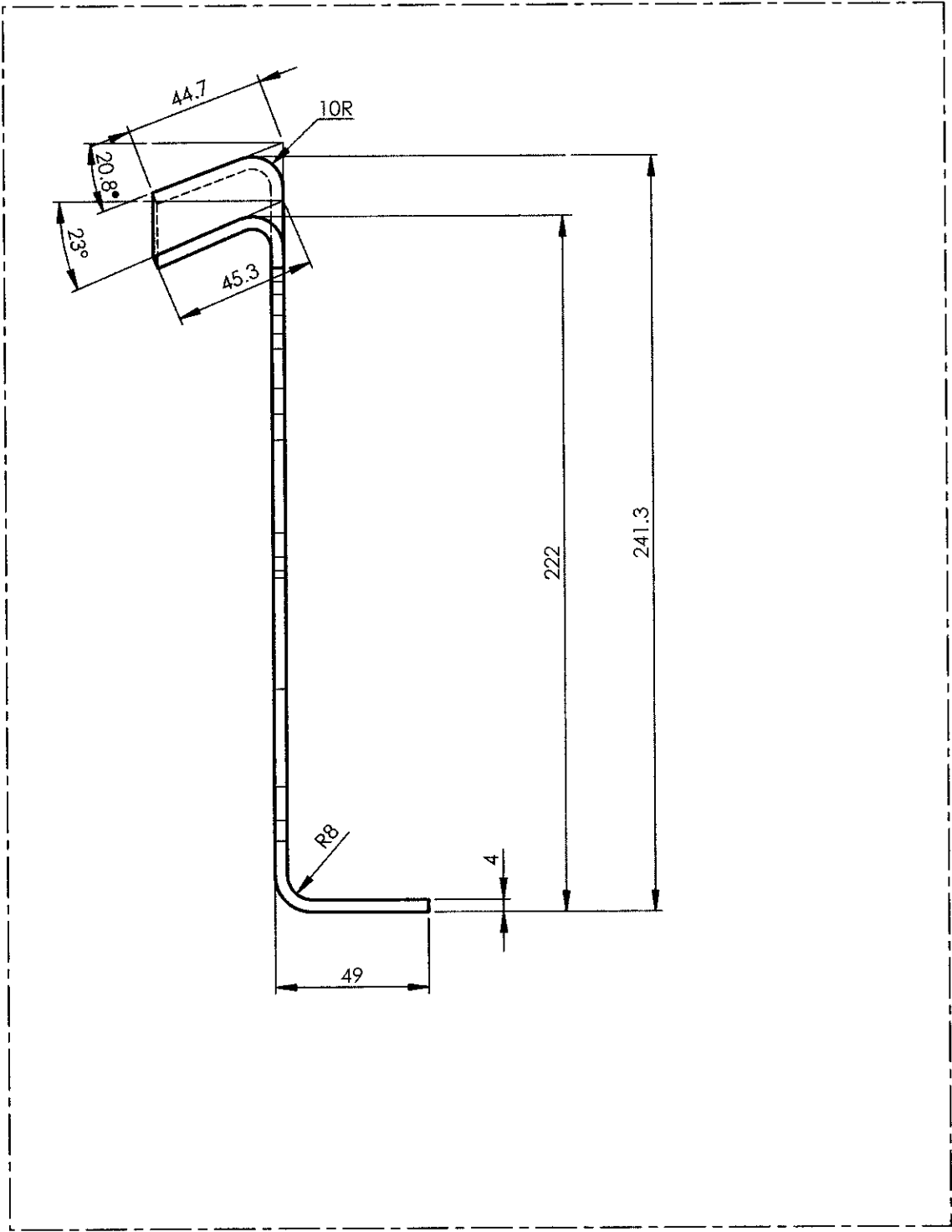
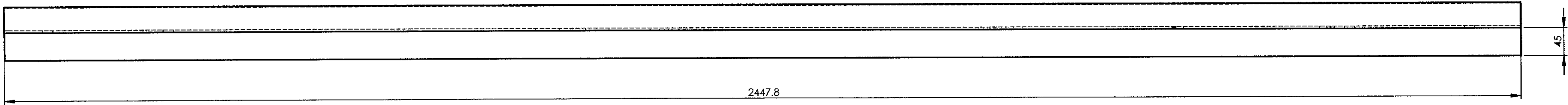
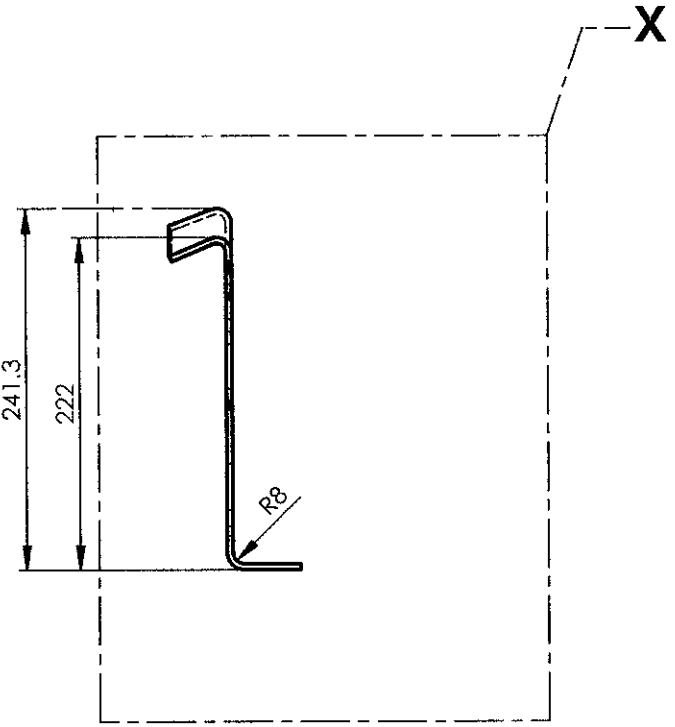
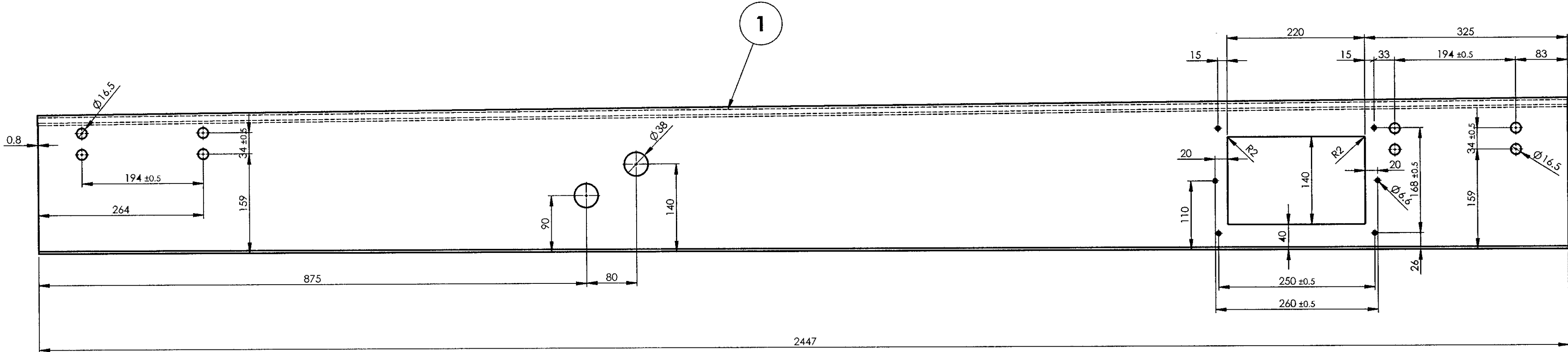
REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE



1	SCREWING PIECE	Ø 20 X 30	1		AISI 304	0.06	
QTY	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 Roof Construction		SURFACE AREA IN Sq.m.:			WT/ASSY IN Kgs:		
SCREWING PIECE					SCALE	SSE/D	<i>L. Panduranga Rao</i>
					2:1	CHD	
					ALT.	ALTD	
					-	DRN	S K MUTHUKUMAR
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038				SHEET 1 OF 1			
					AAD16884		A3

AAD16968

12		13		14		15		16	
▽	ROUGH MACHINED	①	ROUGH CLEANED	REVISIONS					
▽▽	FINISH MACHINED	②	BURRS REMOVED	ALT.	ZONE	DESCRIPTION			APPROVED & DATE
▽▽▽	FINE FINISH MACHINED	③	CHAMFERED	a		CABLE END FITTING HOLES DIA REVISED FROM Ø 37 TO Ø 38			sd/-
				b		HEIGHT OF CABLE END FITTING HOLES RAISED BY 10MM FROM BOTTOM AND FRESH AIR CUT OUT SIZE REVISED.			
				c		LOCATING DIMENSION OF DUCT OPENING REVISED FROM 318 TO 325.			K. Sathish Kumar



DETAIL X
SCALE 1 : 2

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR INTOLERANCED 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 IS813:1986. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY.

7-03-2024	26-07-2021	K. Sathish Kumar
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME

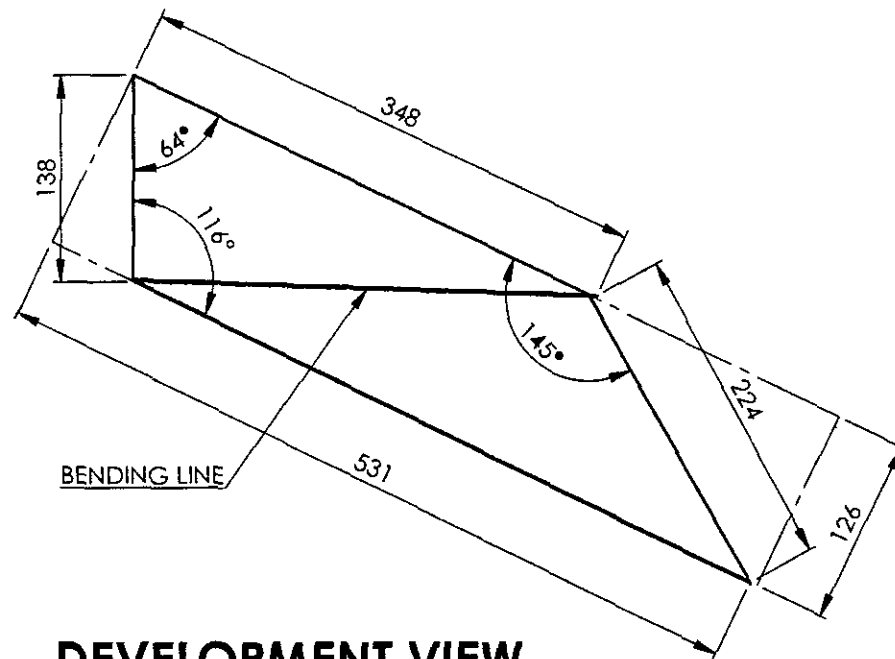
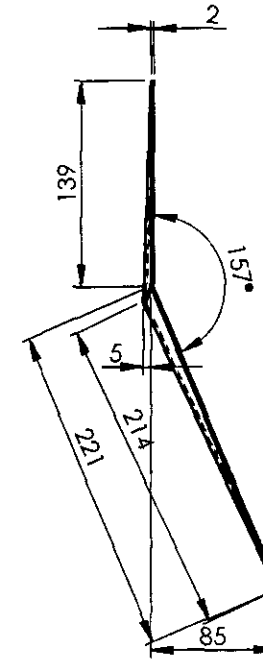
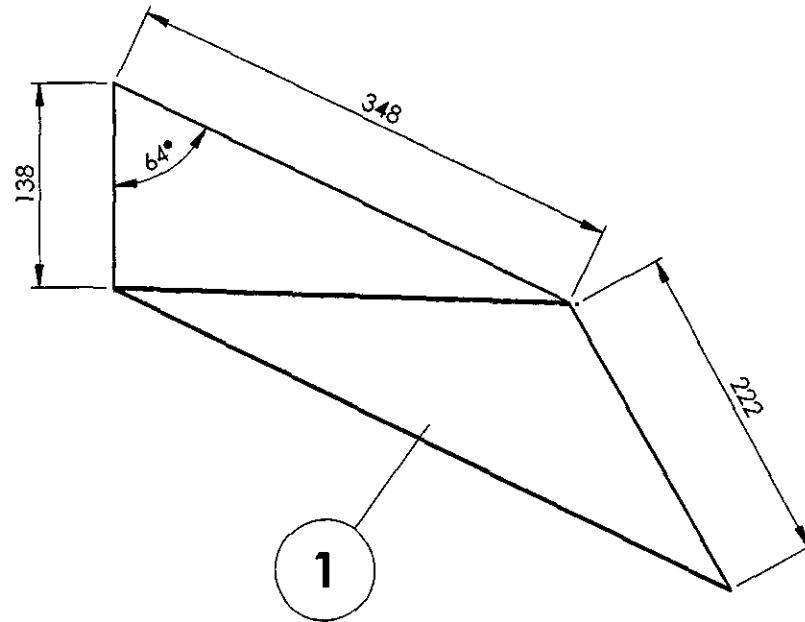
1	MEMBER	4x318x2448	1		RDSO SPEC C-K201 X2 Cr Ni 12	23.00	
QTY	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATLSPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 Roof Construction				SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:	
MEMBER				SCALE	SSE/D	K. Sathish Kumar	
				1:5	CHD	PANDU	
				ALT.	ALTD	ESATHISH KUMAR	
				c	DRN	ESATHISH KUMAR	
INDIAN RAILWAY STANDARDS				SHEET			
INTEGRAL COACH FACTORY, CHENNAI - 600038				1 OF 1		AAD16968	
						A1	

REF.DRG.NO.:-

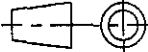
AAE16690

▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	①b BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	⑱ CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
a		DIMENSION REVISED. VIEWS UPDATED.	V. 12/4



DEVELOPMENT VIEW


1	SIDE SHEET	2 x 126 x 531	1		RDSO SPEC C-K201 X2 Cr Ni 12	865.21	
Default	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 Roof Construction		SURFACE AREA IN Sq.m.:			WT/ASSY IN Kgs:865.21		
SIDE SHEET					SCALE	SSE/D	<i>Panduranga Rao</i>
					1:5	CHD	
					ALT.	ALTD	E.SATHISH KUMAR
					2	DRN	E.SATHISH KUMAR
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038					SHEET 1 OF 1		
							
					AAE16690		A3
DATE OF LATEST ALT.		DATE OF FIRST ISSUE		AME/SME			

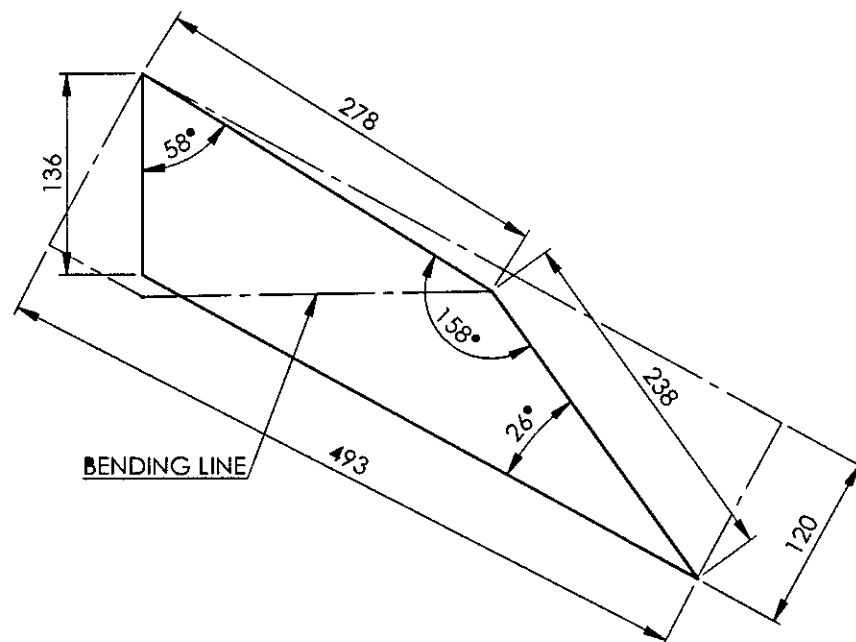
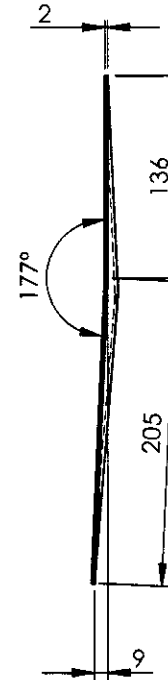
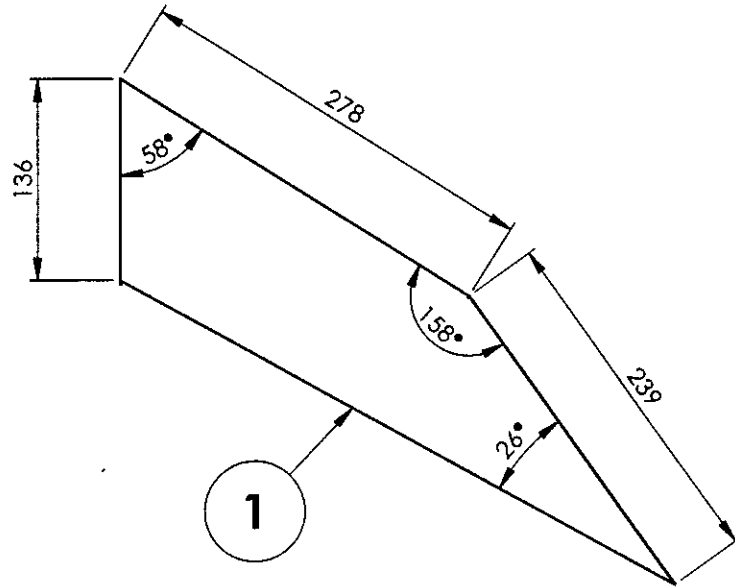
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED. FOR UNTOLERANCED DIMENSIONS AND ROUGHNESS VALUES, REFER DRAWING NO ICF/STD-9-0-001.
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. WELDING SYMBOLS ARE AS PER IS: 813-1986.

REF.DRG.NO.-

AAE16691

▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	①b BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	①c CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
a		DIMENSION REVISED. VIEWS UPDATED.	



DEVELOPMENT VIEW

1	SIDE SHEET	2 x 119 x 493	1		RDSO SPEC C-K201 X2 Cr Ni 12	612.89	
Default	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 Roof Construction				SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs: 612.89	
SIDE SHEET					SCALE 1:5	SSE/D CHD	P. Sathish Kumar
					ALT. a	ALTD DRN	E.SATHISH KUMAR
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038					SHEET 1 OF 1		
					AAE16691		A3

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.

REF.DRG.NO.-

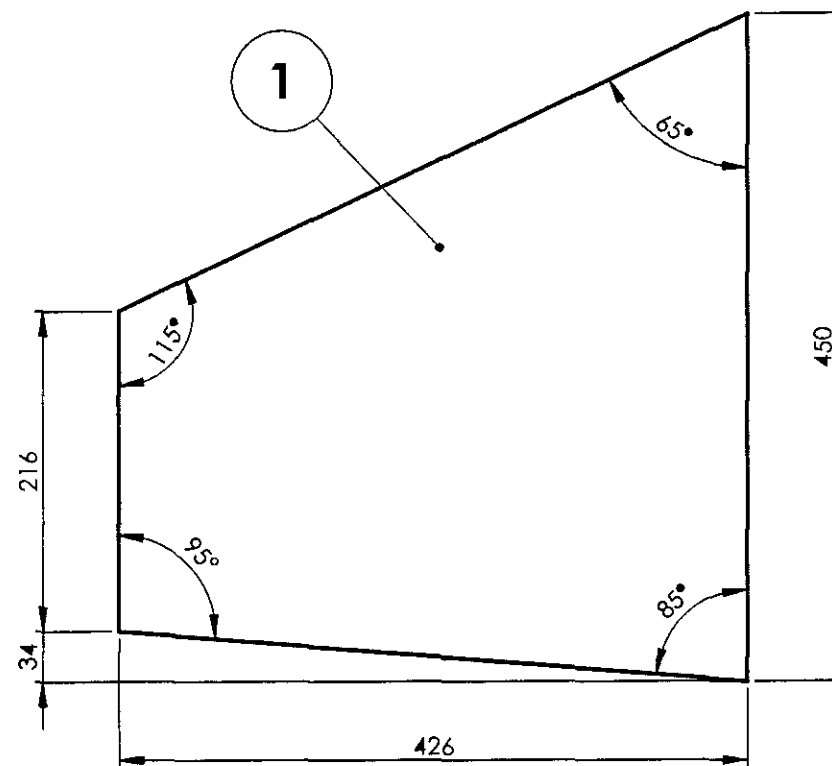
15-03-24	07-06-23	V. Sathish Kumar
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME

AAE16692

▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	①b BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	①8 CHAMFERED

REVISIONS

ALT.	ZONE	DESCRIPTION	APPROVED & DATE
		DIMENSION REVISED. VIEWS UPDATED.	<i>[Signature]</i> 19/12/24



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WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY


REF.DRG.NO.-

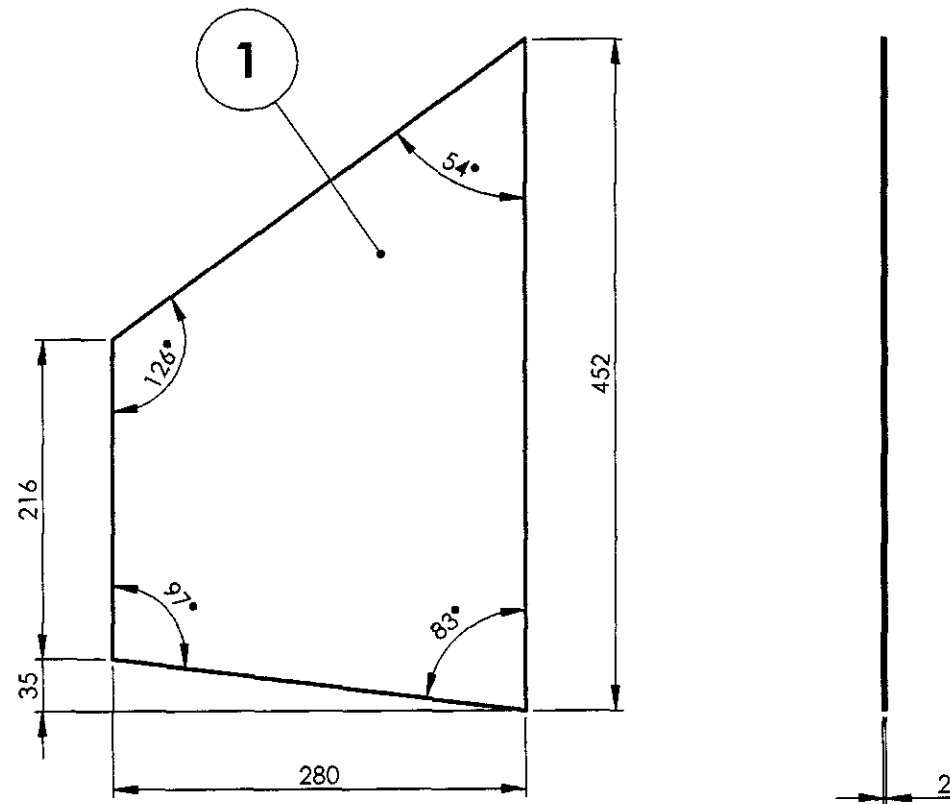
15-03-24	07-06-23	<i>[Signature]</i> 19/12/24
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME

1	BOTTOM SHEET	2 x 426 x 450	1		RDSO SPEC C-K201 X2 Cr NI 12	2.27	
QTY	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 Roof Construction		SURFACE AREA IN Sq.m.:			WT/ASSY IN Kgs:		
BOTTOM SHEET					SCALE	SSE/D	<i>L. Pandurangiah</i>
					1:5	CHD	
					ALT.	ALTD	E.SATHISH KUMAR
					2	DRN	E.SATHISH KUMAR
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038					SHEET 1 OF 1		AAE16692
					A3		

AAE16693

▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	①⑥ BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	①⑧ CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
a		DIMENSION REVISED. VIEWS UPDATED.	



1	TOP SHEET	3 x 280 x 452	1		RDSO SPEC C-K201 X2 Cr Ni 12	1.49	
QTY	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-6 Roof Construction				SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:	
TOP SHEET					SCALE 1:5	SSE/D CHD	✓ Panduregala
					ALT. a	ALTD	E.SATHISH KUMAR
						DRN	E.SATHISH KUMAR
INDIAN RAILWAY STANDARDS					SHEET 1 OF 1		
INTEGRAL COACH FACTORY, CHENNAI - 600038					AAE16693		A3
15-03-24		07-06-23	✓ 19/3/24				
DATE OF LATEST ALT.		DATE OF FIRST ISSUE	AME/SME				

REF.DRG.NO.-

UNLESS OTHERWISE STATED IN THE DRAWINGS, DIMENSIONS OVER TO OR BETWEEN SURFACES FOR WHICH NO LIMITS ARE GIVEN SHALL BE WITHIN THE TOLERANCES GIVEN BELOW.													
DEVIATIONS FOR LINEAR DIMENSIONS ALL DIMENSIONS IN MILLIMETRES													
CLASS OF DEVIATION		RANGE OF NOMINAL DIMENSIONS											
	ABOVE	0.5	3	6	30	120	315	1000	2000	4000	8000	12000	16000
	UPTO AND INCLUDING	3	6	30	120	315	1000	2000	4000	8000	12000	16000	20000
MACHINED		±0.1	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	±4	±5	±6
FABRICATED		-	±0.2	±0.5	±0.8	±1.2	±2	±3	±4	±5	±6	±7	±8

ROUGHNESS VALUE												
SYMBOL	▽▽▽▽			▽▽▽			▽▽			▽	~	
Ra IN MICRONS	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
ROUGHNESS GRADE	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12

DEVIATIONS FOR ANGULAR DIMENSIONS ALL DIMENSIONS IN MILLIMETRES								
CLASS OF DEVIATION	PERMISSIBLE VARIATIONS ON LENGTH OF SHORTER SIDE OF ANGLE							
	UPTO 10		OVER 10 TO 50		OVER 50 TO 120		OVER 120	
	DEGREE	mm PER 100 mm	DEGREE	mm PER 100 mm	DEGREE	mm PER 100 mm	DEGREE	mm PER 100 mm
MACHINED	±1°	±1.8	±30'	±0.9	±20'	±0.6	±10'	±0.3
PRESSED/ FABRICATED	±1°30'	±2.6	±50'	±1.5	±25'	±0.7	±15'	±0.4

ALTERATIONS		
①	2/99	
TITLE OF DRG. AND NOTE REVISED.		
SD	-Sd-	SME/DSS
②	01/2001	
DEVIATIONS FOR ANGULAR DIMENSIONS TABLE ADDED. DRG. REDRAWN IN CAD.		
-Sd-	31-01-2001	
SSE/D		SME/BD
③	10/2020	
NOTE-2 ADDED.		
SSE/D		SME/DI

- NOTE:**
1. TOLERANCE MENTIONED HERE ARE APPLICABLE WHEREVER SPECIFIC TOLERANCES ARE NOT INDICATED IN THE DRAWINGS.
2. THIS DRAWING COVERS THE GENERAL TOLERANCES REQUIREMENTS OF EN 15085.

QTY		DESCRIPTION & DIMENSION	ITEM	REF.DRGS	MAT.SPEC	WEIGHT/UNIT	REMARKS
1	GROUP:	OPEN TOLERANCES AND SURFACE FINISH				SUPERSEDED BY:	
						SUPERSEDES: ICF/STD-9-0-001 Alt.a/-	
						SCALE	SSE/D
						CHD	M. K. Muralidar
						ALTD	10/20
						DRN	R. Muralidar
						Alpha Alt:- c	
						INTEGRAL COACH FACTORY CHENNAI-38	
						ICF/STD-9-0-001	

ASSEMBLY DRAWINGS		28-10-2020			
		DATE OF LATEST ALT	DATE OF FIRST ISSUE	AME/SME	
		0	Num. Alt.		

DATA CODE NO.	INDIAN RAILWAY STANDARDS	SHEET
140		1 OF 1

PART LIST FOR CLASSIFICATION LEVELS (CL) AS PER EN 15085-2

CL1 PARTS	CL2 PARTS	CL3 PARTS
<u>Bogies</u> Bogie frames, Bogie bolsters, headstock, transoms, nose suspension brackets) Wheel set mountings, axle boxes, spring supports, shock absorbers, vibration dampers. Brake equipment (eg.magnetic track brake, brake rods, brake triangles, brake cylinders, brake cross beams, levers)	Payload container for non-dangerous materials	Cranks and levers for various operations
	other transport containers	striking plates
	Internal parts of passenger coaches(partitions, walls, doors, panelling)	Equipment boxes and switch cabinets in rail vehicles(including gear boxes and consoles for hand brake operation, without supporting frame)
	supporting frame for internal parts (electrical, air-conditioning and compressed air installations)	holders for index plates
<u>Bodyshell components(eg. underframes, structures)</u> underframes(solebars, cross bearers, modular frames, Body Bolster, headstock) vehicle body (front walls/Nose cone, side walls, roof, end walls) Buffers & drawgear	Driving cab equipment	wheel scotches
	Lavatory parts and water containers with installations	covers for freight wagons(heat protection on tank wagons)
	Sliding doors in vehicles including runways	steps, handrails, railings on rail vehicles (Inside the Coach)
	Fastenings for brake pipes	seating frames
Supporting frames for heavy components (eg. traction units, pantographs) Supporting frames for external equipment parts (eg. tanks, electrical, air-conditioning and air containers) Supporting frames for heavy duty vehicles including road/rail vehicles Welded components for drag transmission from bogie to vehicle (bolster)	Non-self supporting equipment boxes underneath the base frame(without supporting frame)	window frames
	Gear boxes and consoles for hand brake operation	ventilation grills
	Steps, hand rails (including handrails in entry areas) and railings external to the vehicle	
	Machine room equipment(transformer casing, transformer suspension, engine suspension, transmission suspension, attachment for traction motor, instrument racks); if they are assembled outside of the carbody	
finishing welding of castings within components indicated above external fuel tanks pressure gas tanks, tanks and containers of rail vehicles with test pressure containers for dangerous materials	Exhaust pipes	
	Entrance doors, end doors, foot step	
	self-supporing equipment boxes and underfloor containers(fresh water and waste-water containers)	
	External machine equipement parts(transformer, engine, transmission suspension)	
	Roof construction(pantograph, panelling)	
	Power transmission parts (traction coupling, cardan shafts)	
	Traversers(ie. car wagon)	
	Turning and tipping equipment	
	Obstacle deflectors	
	Stanchions and lashing rings	
	Compressed-air reservoirs for rail vehicles	
	Pressurised pipes	
	Seat frame, hand holds and luggage racks	

GENERAL GUIDELINES FOR WELDING ELECTRODES/FILLER WIRES AND SHIELDING GASES
IN COACH FABRICATION (SEE NOTE-5)

Sl. No	Parent Material Used for fabrication	Welding Process	Electrode / Filler wire (Specification & Grade)	Shielding Gas designation & Composition	Fabrication component description
1	Mild steel (IS:2062 grade E250A, E250B0 & E250BR, E250C) with Mild steel	MMAW (111)	IRS M 28 – ‘A2’ Class (Eq – ER4211X of IS:814)	N.A.	Non critical mild steel components. Also for tack welding
2	Mild steel (IS:2062 grade E250C) with Mild steel		IRS M 28 – ‘A3 or A4’ Class (Eq – EB5326H2JX of IS:814)	N.A.	Bogie frames & bolsters
3	HSLA Steels & weathering steels like Corten steel (IRS M41) & EN 10025-5 steels with same material and with mild steels (IS: 2062)		IRS M 28 – ‘D’ Class (Eq – E8018 of AWS A 5.5)	N.A.	Sub-assembly parts of underframe, Bogie frame components
4	Stainless steel (SS 301, SS 301L, SS304, SS409M) with stainless steel (similar welding)		IRS M 28 – ‘M2’ Class (Eq – E308L of AWS A 5.4)	N.A.	SS partition frames,
5	Stainless steel (SS 316/SS 316L) with similar steel		IRS M 28 – ‘M3’ Class (Eq – E316 of AWS A 5.4)	N.A.	Water tank, Bio toilet parts and lavatory parts
6	Stainless steel (all grades) with stainless steel. Also dissimilar welding of SS with Mild Steel / Corten steel & EN10025-5 steel		IRS M 28 – ‘M4’ Class (Eq – E309L of AWS A 5.4)	N.A	Body jig assembly fabrication of side wall, End wall with roof and door corner sheets
7	Manganese steel liner with mild steel / corten steel		IRS M 28 – ‘M5’ Class (Eq – E18.8MnR26 of IS:5206)	N.A	Wear plate (Rubbing pad) fabrication in bogie frames.
8	Mild steel (Grade E250C of IS 2062) with mild steel	GMAW (135)	IRS M 46 – Class I (Eq – ER70S6 of AWS A 5.18)	ISO: 14175 C1 100% CO ₂ (Or) M21 80%Ar + 20%CO ₂ (ACM)	Bogie frames, Bolsters & Under Frame assembly.
9	Corten steel to IRSM – 41& Weathering Steel to EN10025-5 with same material and with mild steel (IS: 2062)		IRS M 46 – Class IV (Eq – ER80SG of AWS A 5.28)		Subassembly Components of bogie & under frame
10	Stainless Steel (SS 301, SS 301L, SS304, SS409M) with same grade of stainless steels		IRS M 46 – Class VI (Eq – ER308L of AWS A 5.9)	ISO: 14175 M13 98% Ar + 2% O ₂ (Or) M12 98% Ar + 2% CO ₂	Side Wall Assembly & endwall assembly
11	SS grades (SS 301, SS 301L, SS304, SS409M) with SS and dissimilar welding of SS with Mild Steel / Corten steel		IRS M 46 – Class VII (Eq – ER309L of AWS A 5.9)		Trough floor sheet with underframe assembly, body shell assembly and side wall with sole bar(u/f)

NOTE:

- THE CLASSIFICATION LEVEL TABLE PREPARED BASED ON EN15085-2 AND IS NOT EXHAUSTIVE AND INDICATIVE ONLY.
- FOR ITEMS WHICH ARE NOT CATEGORIZED IN THE LIST, ICF SHALL ALLOT SUITABLE CLASSIFICATION LEVELS.
- ICF RESERVES THE RIGHT TO CHANGE CLASSIFICATION LEVEL BASED ON CUSTOMER FEEDBACK/DESIGN CHANGE/FEEDBACK FROM PRODUCTION SHOPS ETC.
- CLASSIFICATION LEVEL FOR EACH COMPONENT SHALL BE INDICATED IN LIST OF PARTS (LOP)/BILL OF MATERIALS (BOM) BY PLANNING DEPT.
- THIS IS FOR REFERENCE ONLY. SHIELDING GASES SHALL BE USED AS PER RELEVANT WPS OF PARTICULAR WELD JOINT AND AS RECOMMENDED BY THE ELECTRODE MANUFACTURERS. FOR FURTHER INFORMATION, REFER IRS M28 & IRS M46.

12	Aluminium alloys IS: 737:2008 Grade 31000-H2 and similar	GMAW (131)	ER 4043 of AWS A 5.10	ISO: 14175 I1 100% Argon	AC duct fabrication
13	Mild steel (Grade E250C of IS 2062) with mild steel	FCAW (136)	IRS M 46 – Class I (Eq – E71T12 of AWS A 5.20)	ISO: 14175 C1 100% CO ₂	Bogie frames, Bolsters & Under Frame assembly.
14	Corten steel to IRSM – 41& Weathering Steel to EN10025-5 with same material and with mild steel (IS: 2062)		IRS M 46 – Class IV (Eq – E81T1W2C of AWS A 5.29)		Subassembly Components of bogie & under frame
15	Stainless Steel (SS 301, SS 301L, SS304, SS409M) with same grade of stainless steels		IRS M 46 – Class VI (Eq – E308LT1-1 of AWS A 5.22)		SS+SS in Side wall Assembly & endwall assembly
16	SS grades (SS 301, SS 301L, SS304, SS409M) with SS and dissimilar welding of SS with Mild Steel / Corten steel		IRS M 46 – Class VII (Eq - E309LT1-1 of AWS A 5.22)		Trough floor sheet with underframe assembly, body shell assembly and side wall with sole bar(u/f)
17	SS 316 with SS 316 and SS 316 with corten steel / Mild steel	GTAW/ TIG (141)	E309LMoT1-1 of AWS A 5.22	ISO: 14175 I1 100% Argon	Bio toilet , Biotoilet J bracket with underframe
18	Stainless Steel (SS 301, SS 301L, SS304, SS409M) with same grade of stainless steels		Electrode: EWLa2 / EWTh2 (AWS A 5.12) Filler wire: ER308L of AWS A 5.9		Roof & Side wall Assembly & Body Shell Assembly
19	SS grades (SS 301, SS 301L, SS304, SS409M) with SS and dissimilar welding of SS with Mild Steel / Corten steel		Electrode: EWLa2 / EWTh2 (AWS A 5.12) Filler wire : ER309L of AWS A 5.9		Side wall with sole bar dissimilar joints
20	Stainless Steel (SS 409M, SS304)	MIG brazing (983)	DIN 1733-SG-Cu A18	ISO: 14175 I1 100% Argon	Side Wall Assembly

DESCRIPTION & DIMENSION		ITEM	REF.DRGS	MAT.SPEC	WEIGHT/UNIT	REMARKS
GROUP: 9-0		SUPERSEDED BY:				
SCALE		SUPERSEDES: ICF/STD-9-0-998 ALT 1/-				
NTS		SSE/D	SABAPATHY NATHAN M			
		CHD	J. RAMESH			
		ALTD	J. RAMESH			
		DRN	J. RAMESH			
Alpha Alt:- 9						
DATA CODE NO.		INDIAN RAILWAY STANDARDS			SHEET	INTEGRAL COACH FACTORY CHENNAI-38
140					1 OF 2	ICF/STD-9-0-998

TABLE-1 FOR BOGIE & ITS COMPONENTS

WELD TESTING PREFERENCES AS PER EN 15085-3: 2022 (FUSION WELDING)

WELD PERFORMANCE CLASS	QUALITY LEVEL FOR IMPERFECTIONS EN ISO 5817	INSPECTION CLASS	VOLUMETRIC TEST RT	SURFACE TEST MPT or DPT	VISUAL EXAMINATION VT
CP B1	B	CT2	100 %	10 %	100 %
CP C2	B	CT2	NOT REQUIRED	10 %	100 %
CP C2	C	CT3	NOT REQUIRED	NOT REQUIRED	100 %

CONTENTS OF THE TABLE IS SIMILAR TO TABLE-3 OF EN 15085-3, BUT CUSTOMIZED TO ICF REQUIREMENTS.

TABLE-2 FOR SHELL & ITS COMPONENTS

WELD TESTING PREFERENCES AS PER EN 15085-3: 2022 (FUSION WELDING)

WELD PERFORMANCE CLASS	QUALITY LEVEL FOR IMPERFECTIONS EN ISO 5817	INSPECTION CLASS	VOLUMETRIC TEST RT	SURFACE TEST MPT or DPT	VISUAL EXAMINATION VT
CP C2	C	CT3	NOT REQUIRED	NOT REQUIRED	100 %

CONTENTS OF THE TABLE IS SIMILAR TO TABLE-3 OF EN 15085-3, BUT CUSTOMIZED TO ICF REQUIREMENTS.

NOTE: (FOR FUSION WELDING)

- THE VENDOR/SUPPLIER SHOULD POSSESS VALID ISO:3834-2 OR EN 15085-2 CERTIFICATION AND SHALL FULLY COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATION.
- 'UT' IS NOT PERMITTED IN VOLUMETRIC TEST OF BUTT WELDS.
- ISO: 5817 SHALL BE FOLLOWED FOR QUALITY LEVELS FOR IMPERFECTIONS OF FUSION WELDED JOINT. ISO-13919-1 FOR LASER WELD TABLE AND EN15085-3 FOR SPOT WELDING TABLE.
- ISO: 17636 SHALL BE FOLLOWED FOR 'RT' AND SHALL ENSURE UNAMBIGUOUS IDENTIFICATION OF EACH SECTION AND EACH ITEM.
- ACCEPTANCE LEVEL FOR 'RT' SHALL BE AS PER ISO: 10675-1, LEVEL-1.
- ISO: 17637 SHALL BE FOLLOWED FOR VISUAL TESTING OF FUSION WELDED JOINTS.
- ACCEPTANCE LEVEL FOR 'VT' SHALL BE AS PER COL-2 OF ABOVE TABLE.
- ISO: 17638 SHALL BE FOLLOWED FOR MAGNETIC PARTICLE TEST OF FUSION WELDED JOINTS.
- ACCEPTANCE LEVEL FOR 'MPT' SHALL BE AS PER ISO: 23278, LEVEL-2X.
- ISO: 3452-1 SHALL BE FOLLOWED FOR PENETRANT TESTING OF FUSION WELDED JOINTS.
- ACCEPTANCE LEVEL FOR 'DPT' SHALL BE AS PER ISO: 23277, LEVEL-2X.
- ALL NDT (RT/MPT/DPT) SHALL BE PERFORMED BY PERSONNEL CERTIFIED ACCORDING TO ISO 9712 LEVEL-II AND SHALL BE DOCUMENTED.
- FOR INSPECTION CLASS CT2, THE VISUAL EXAMINATION SHALL BE PERFORMED BY PERSONNEL CERTIFIED ACCORDING TO ISO 9712 LEVEL-II AND SHALL BE DOCUMENTED. FOR CT3 SUITABLY TRAINED PERSONNEL BY RESPONSIBLE WELDING COORINATOR.
- THE TEST METHODS INDICATED SHALL BE THE MINIMUM CAPABLE OF ENSURING COMPLIANCE OF THE WELDED JOINTS. ADDITIONAL TESTS DEPENDING ON THE MATERIAL AND DESIGN MAY BE INSISTED BY THE PURCHASER.
- THE PERCENTAGES EXPRESSED, REFER TO THE TOTAL LENGTH TO BE EXAMINED FOR ONE GIVEN WELD.
 - 10% MEANS: TESTING OF 10% OF THE ENTIRE LENGTH OF THE WELD ON ALL THE PIECES BUILT OR 100% TESTING ON 1 OF EVERY 10 ITEMS BUILT.
 - 100% MEANS: TESTING OF THE ENTIRE LENGTH OF THE WELD AND ON ALL THE PIECES BUILT.
- MACRO EXAMINATION SHALL BE CARRIED OUT AS PER ISO: 17639 ON ATLEAST ONE REPRESENTATIVE TEST PIECE FOR EACH WPS USED IN THE WELDED COMPONENT. THE TEST PIECE SHOULD MEET THE REQUIREMENTS OF COL-2 OF ABOVE TABLE FOR ALL INTERNAL IMPERFECTIONS.
- PRODUCTION WELD TESTS SHALL BE CONDUCTED AS PER CLAUSE 4.2 OF EN 15085-4.
- PRODUCTION WELD TESTS SHOULD BE CHECKED IN ACCORDANCE WITH EN ISO 15613 AND TESTS SHALL BE DOCUMENTED.
- IN ADDITION TO THE ABOVE REQUIREMENTS, ANY SPECIFIC REQUIREMENTS MENTIONED IN RESPECTIVE DRAWINGS SHALL BE ADHERED TO.

TABLE-3 FOR SPOT AND SEAM WELDING

WELD TESTING PREFERENCES AS PER EN 15085-3: 2022

WELD PERFORMANCE CLASS	QUALITY LEVEL FOR IMPERFECTIONS EN-15085-3	INSPECTION CLASS	VOLUMETRIC TEST RT	SURFACE TEST MPT or DPT	VISUAL EXAMINATION VT
CP C2	TABLE-F2 OF EN15085-3	CT3	NOT REQUIRED	NOT REQUIRED	100 %

CONTENTS OF THE TABLE IS SIMILAR TO TABLE-3 OF EN 15085-3, BUT CUSTOMIZED TO ICF REQUIREMENTS.

NOTE: (FOR SPOT & SEAM WELDING)

- FOR WELD QUALITY, SURFACE QUALITY AND SHEAR STRENGTH REQUIREMENTS EN15085-3 TABLE F-2, F-3 AND TABLE F-4 SHALL BE FOLLOWED.
- WELDING OPERATORS NEED TO BE QUALIFIED AS PER ISO: 14732.
- WELDING PROCEDURE SPECIFICATION SHALL BE QUALIFIED AS PER ISO 15609-5/ISO, 15614-12/ISO & 15613.
- FOR INSPECTION CLASS CT3, SUITABLY TRAINED PERSONNEL BY RESPONSIBLE WELDING COORDINATOR/COMPETENT PERSON OF MANUFACTURER SHALL BE DEPLOYED AND SHOULD BE DOCUMENTED.
- SWPT (SIMPLIFIED WELD PRODUCTION TEST) TO BE DONE DAILY AND NWPT(NORMAL WELD PRODUCTION TEST) TO BE DONE ONCE IN SIX MONTHS AS PER EN15085-3 TABLE F-2 REQUIREMENTS AND SHALL BE DOCUMENTED.

TABLE-4 FOR SURFACE QUALITY OF SPOT WELDS (REF. EN15085-3 TABLE F-3)

SURFACE QUALITY AS PER EN15085-3	REQUIREMENTS	APPLICATION
2	SURFACES WHERE WELDING MARKS (ELECTRODE IMPRESSIONS,RING SHAPED REINFORCEMENT-FORMATION,IMPERFECTIONS, THROUGH HEAT DISTORTION ETC.) DO NOT AMOUNT TO MORE THAN 10% OF THE PARTICULAR SINGLE SHEET METAL THICKNESS. NOTE: IF REQUIRED THE INDENTATION CAN BE FILLED IN.	AESTHETIC SIDE OF PASSENGER COACH SIDE WALLS, NOSE CONE AND ROOFS.
3	SURFACES WHERE WELDING MARKS DO NOT AMOUNT TO MORE THAN 25% OF THE PARTICULAR METAL THICKNESS. IN THIS AREA ARE ALSO FIRMLY ADHERING WELDING SPATTER PERMITTED AS LONG AS THE DRAWING DOES NOT DEMAND THAT IT SHALL BE FREE OF BURRS AND SPATTERS.	SURFACES FOR NON-AESTHETIC REQUIREMENT.

TABLE-5 FOR LASER WELDING

WELD TESTING PREFERENCES AS PER EN 15085-3: 2022

WELD PERFORMANCE CLASS	QUALITY LEVEL FOR IMPERFECTIONS ISO-13919-1	INSPECTION CLASS	VOLUMETRIC TEST RT	SURFACE TEST MPT or DPT	VISUAL EXAMINATION VT
CP C2	C	CT3	NOT REQUIRED	NOT REQUIRED	100 %

CONTENTS OF THE TABLE IS SIMILAR TO TABLE-3 OF EN 15085-3, BUT CUSTOMIZED TO ICF REQUIREMENTS.

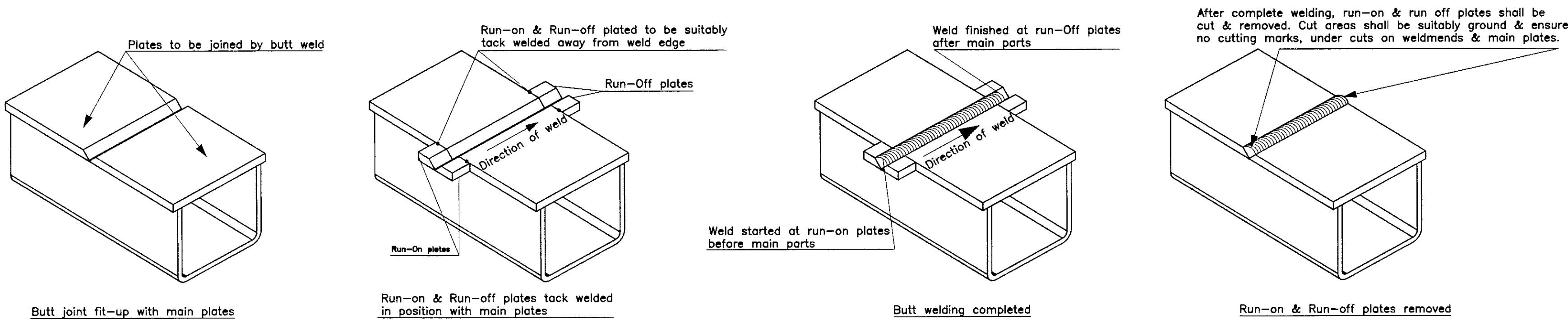
NOTE: (FOR LASER WELDING)

- FOR VISUAL EXAMINATION (VT) AND OTHER ROUTINE TESTS ISO 13919-1 SHALL BE USED. .
- WELDING OPERATORS NEED TO BE QUALIFIED AS PER ISO 14732.
- WELDING PROCEDURE SPECIFICATION SHALL BE QUALIFIED AS PER ISO 15609-4/ISO, 15614-11/ISO & 15613.
- FOR INSPECTION CLASS CT3 SUITABLY TRAINED PERSONNEL BY RESPONSIBLE WELDING COORDINATOR/COMPENT PERSON/MANUFACTURER SHALL BE DEPLOYED AND SHOULD BE DOCUMENTED.
- LASER WELDING TESTING REQUIREMENTS AS PER TABLE GIVEN BELOW SHALL BE FOLLOWED.
- SWPT (SIMPLIFIED WELD PRODUCTION TEST) TO BE DONE IN ONCE IN EVERY WEEK AND NWPT(NORMAL WELD PRODUCTION TEST) TO BE DONE ONCE IN SIX MONTHS AS PER ISO 15614-11 & ISO 13919-1 AND SHALL BE DOCUMENTED.

TABLE-6 LASER WELDING TESTING STANDARDS - FOR INFORMATION

TEST METHOD	TESTING STANDARD	ACCEPTANCE CRITERIA STANDARD
VISUAL TESTING (VT)	ISO 17637	ISO 13919-1
MAGNETIC PARTICLE TESTING (MPT)	ISO 17638	ISO 23278 LEVEL-2X
DYE PENETRANT TESTING (DPT)	ISO 3452-1	ISO 23277, LEVEL-2X
RADIO GRAPHIC TESTING	ISO 17636	ISO 10675-1, LEVEL-1

TABLE-7 Use of Run-on & Run-off plates in butt joints with CP B1 weld performance class



Note:

- Thickness, material & edge preparation of Run-on & Run-off plates shall be the same as of parent materials.
- After welding, 1% of the removed run-on & run-off plates may be used for sample testing (macro etch testing).

GENERAL INSTRUCTIONS:

- TRIAXIAL WELDS AND USE OF BACKINGS OR BACK STRIPS SHALL BE AVOIDED.
- WELDING GAPS SHALL BE SEALED WITH APPROVED QUALITY OF SEALING COMPOUND TO IS:1580 TO AVOID MOISTURE CREEP.
- CREVICE IN WELDMENT TIP IF ANY, SHALL BE WELDED AND GROUND SMOOTHLY.
- STAGE INSPECTION SHOULD BE DONE AND DOCUMENTED AS PER CLAUSE-6 OF EN 15085-5 AND REPORTS SHOULD BE SUBMITTED TO INSPECTION AGENCY.
- INSPECTION AND TESTING BEFORE/DURING/AFTER WELDING SHALL BE DONE AS PER CLAUSE-14 OF ISO 3834-2 AND REPORTS SHALL BE SUBMITTED TO THE INSPECTION AGENCY.
- THIRD PARTY INSPECTION AGENCY LIKE RITES/RDSO SHALL COLLECT ALL THE WELD TEST REPORTS FROM THE VENDORS AND SUBMIT THE SAME TO ICF.
- WELDING OF REPLACED MATERIAL AFTER SAMPLE COLLECTION AND SUBSEQUENT WELD TEST(DPT) BY INSPECTION AGENCIES ALSO TO BE CARRIED OUT AS PER THIS DRAWING. FOR WPS DETAILS, REFER DRAWING No.140-9-0-999 (LATEST ALTERATION).

ALTERATION	
09/2018	NOTES-4 TO 7 MODIFIED. AND NOTE-12 ADDED.
-Sd/-SSE/D	-Sd/-SME/BD
11/2020	WELDING TABLE, NOTES & TITLE BLOCK REVISED. SHEET-2 ADDED.
-Sd/-SSE/D	3.11.20 SME/AME
12/2020	'GENERAL INSTRUCTIONS' ADDED IN SHEET-2.
-Sd/-SSE/D	-Sd/-SME
02/2021	TITLE REVISED. CLASSIFICATION TABLE REVISED AS PER EN 15085-2.
-Sd/-SSE/D	6.2.21 SME
10/2022	GENERAL GUIDELINES FOR WELDING ELECTRODES/FILLER WIRES AND SHIELDING GASES ADDED IN SHEET-1.
-Sd/-SSE/D	31.10.22 AME
9/2023	ALL DATA UPDATED BASED ON EN15085-3:2022 AND AWTI LR.No.AWTI/79 DT.31-8-2023.
-Sd/-SSE/D	8.9.23 AME
12/2024	GENERAL INSTRUCTION No. 7 ADDED AS PER WQMS EXTERNAL AUDIT INSTRUCTIONS.
SSE/D	AME

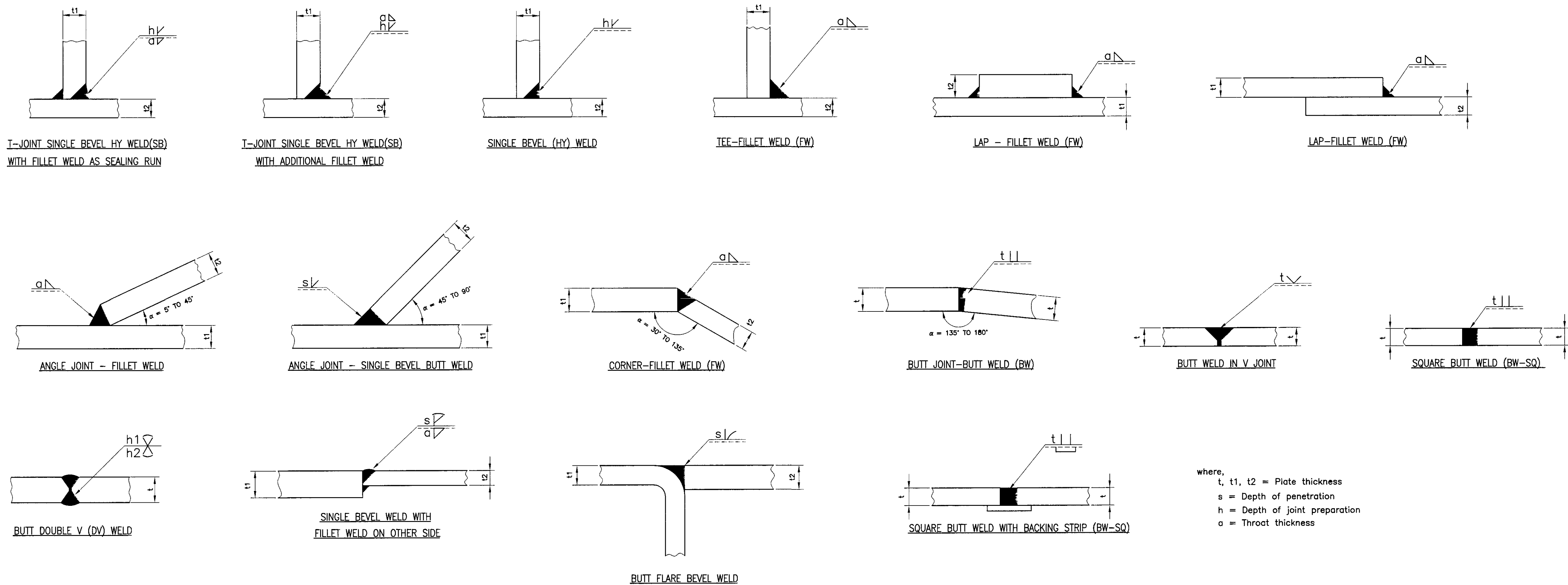
QTY	DESCRIPTION & DIMENSION	ITEM	REF.DRGS	MAT.SPEC	WEIGHT/UNIT	REMARKS
1	GROUP: 9-0					SUPERSEDED BY:
						SUPERSEDES: ICF/STD-9-0-998 ALT 1/-
						SCALE SSE/D SABAPATHY NATHAN M
						NTS CHD
						ALTD J. RAMESH
						DRN J. RAMESH
						Alpha Alt:- g
						INTEGRAL COACH FACTORY CHENNAI-38
						ICF/STD-9-0-998

S.No.	MATERIAL	THICKNESS	JOINT	TYPE OF WELD	POSITION	GAS	PROCESS	WPS No.	REMARKS
GMAW									
1	IRS M41 + IRS M41	6 mm + 8 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/6N8/FW/PB/315	
2	IRS M41 + IS 2062	6 mm + 16 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/6N16/FW/PB/317	
3	IRS M41 + IS 2062	6 mm + 12 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/6N12/FW/PB/316	
4	IRS M41 + IRS M41	10 mm + 10 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/10N10/FW/PB/325	
5	IRS M41 + IS 2062	10 mm + 16 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/10N16/FW/PB/324	
6	IRS M41 + IRS M41	5 mm + 10 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/5N10/FW/PB/318	
7	IS 2062 + IS 2062	12 mm + 16 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/12N16/FW/PB/326	
8	IRS M41 + IRS M41	8 mm + 8 mm	T	FW	PA	CO ₂	GMAW	ICF/WPS/GMAW/CS/8N8/FW/PA/012	
9	IRS M41 + IS 2062	8 mm + 16 mm	T	FW	PA	CO ₂	GMAW	ICF/WPS/GMAW/CS/8N16/FW/PA/004	
10	IS 2062 + IS 2062	12 mm + 10 mm	T	FW	PA	CO ₂	GMAW	ICF/WPS/GMAW/CS/12N10/FW/PA/002	
11	IRS M41 + IRS M41	10 mm + 10 mm	T	FW	PA	CO ₂	GMAW	ICF/WPS/GMAW/CS/10N10/FW/PA/001	
12	DIN1630(st 52.4) + DIN17182(GS20Mn5V)	14 mm + 10 mm	T-PIPE	FW	PB	ACM	GMAW	ICF/WPS/GMAW/DIS/14N10/FW/PB/701-PIPE	
13	IRS M41 + IRS M41	10 mm + 8 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/10N8/FW/PB/502	
14	IRS M41 + IRS M41	8 mm + 5 mm	LAP	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/8N5/LAP/PB/503	
15	IRS M41 + IRS M41	10 mm + 5 mm	T	FW	PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/10N5/FW/PG/505	
16	IRS M41 + IRS M41	1.6 mm + 1.6 mm	LAP	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/1.6N1.6/LAP/PB/510	
17	IRS M41 + IRS M41	2 mm + 2 mm	T	FW	PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/2N2/FW/PG/511	
18	IRS M41 + IRS M41	2 mm + 3.15 mm	T	FW	PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/2N3.15/FW/PG/512	
19	IRS M41 + IRS M41	10 mm + 10 mm	T	FW	PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/10N10/FW/PG/301	
20	IRS M41 + IS 2062	8 mm + 12 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/8N12/FW/PB/287	
21	IRS M41 + IS 2062	8 mm + 16 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/8N16/FW/PB/286	
22	IRS M41 + IS 2062	10 mm + 12 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/10N12/FW/PB/285	
23	IS 2062 + IRS M41	8 mm + 10 mm	T	FW	PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/8N10/FW/PG/302	
24	IRS M41 + IRS M41	5 mm + 5 mm	T	FW	PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/5N5/FW/PG/342	
25	IRS M41 + IRS M41	2 mm + 2 mm	T	FW	PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/2N2/FW/PG/341	
26	IRS M41 + IRS M41	2 mm + 5 mm	LAP	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/2N5/LAP/PB/321	
27	IRS M41 + IRS M41	2 mm + 2 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/2N2/FW/PB/323	
28	IRS M41 + IRS M41	4 mm + 8 mm	T	FW	PF	CO ₂	GMAW	ICF/WPS/GMAW/CS/4N8/FW/PF/010	
29	IRS M41 + IRS M41	4 mm + 6 mm	T	FW	PF	CO ₂	GMAW	ICF/WPS/GMAW/CS/4N6/FW/PF/09	
30	IRS M41 + EN 10025	8 mm + 15 mm	LAP	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/DIS/8N15/LAP/PB/06	
31	EN 10393 + IRS M41	10 mm + 6 mm	T	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/DIS/10N6/FW/PB/01	
32	IS 2062 + IS 2062	22 mm + 22 mm	BUTT	BW-DV	PA	CO ₂	GMAW	ICF/WPS/GMAW/CS/22N22/BW/PA/309	
33	IS 2062 + IS 2062	16 mm + 20 mm	T	BW-HV	PA	CO ₂	GMAW	ICF/WPS/GMAW/CS/16N20/BW/PA/006	
34	IS 2062 + IS 2062	16 mm + 16 mm	BUTT	BW-HV	PA	CO ₂	GMAW	ICF/WPS/GMAW/CS/16N16/BW/PA/001	
35	EN 10025:2004 S355 J2 + EN 10025:2004 S355 J2	10 mm + 10 mm	T	BW-HV	PA	ACM	GMAW	ICF/WPS/GMAW/CS/10N10/BW/PA/705	
36	EN 10025:2004 S355 J2 + EN 10025:2004 S355 J2	18 mm + 12 mm	T	BW-HV	PA	ACM	GMAW	ICF/WPS/GMAW/CS/18N12/BW/PA/704	
37	EN 10025:2004 S355 J2 + EN 10025:2004 S355 J2	12 mm + 12 mm	T	BW-HV	PA	ACM	GMAW	ICF/WPS/GMAW/CS/12N12/BW/PA/703	
38	EN 10025:2004 S355 J2 + EN 10025:2004 S355 J2	8 mm + 10 mm	T	BW-HV	PA	ACM	GMAW	ICF/WPS/GMAW/CS/8N10/BW/PA/702	
39	DIN 1630(st.52.4) + EN 10025:2004 S355 J2	10 mm + 12 mm	T-PIPE	BW-HV	PA	ACM	GMAW	ICF/WPS/GMAW/DIS/10N12/BW/PA/706 PIPE	
40	IS 2062 + IS 2062	16 mm + 16 mm	BUTT	BW-HV	PE	CO ₂	GMAW	ICF/WPS/GMAW/CS/16N16/BW/PE/508	
41	IRS M41 + IRS M41	2 mm + 2 mm	BUTT	BW-SQ	PA	CO ₂	GMAW	ICF/WPS/GMAW/CS/2N2/BW/PA/322	
42	IRS M41 + IRS M41	8 mm + 8 mm	BUTT	BW-HV	PF	CO ₂	GMAW	ICF/WPS/GMAW/CS/8N8/BW/PF/08	
43	IRS M41 + EN 10293	6 mm + 15 mm	T	BW-HV	PB	CO ₂	GMAW	ICF/WPS/GMAW/DIS/6N15/BW/PB/07	
44	IRS M41 + EN 10293	8 mm + 10 mm	T	BW-HV	PB	CO ₂	GMAW	ICF/WPS/GMAW/DIS/8N10/BW/PB/03	
45	IRS M41 + IRS M41	5 mm + 5 mm	TEE	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/5N5/FW/PB/526	
46	IRS M41 + IRS M41	8 mm + 8 mm	TEE	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/8N8/FW/PB/531	
47	IRS M41 + IRS M41	6 mm + 6 mm	TEE	FW	PB	CO ₂	GMAW	ICF/WPS/GMAW/CS/6N6/FW/PB/530 Rev 01	
48	IRS M41 + IRS M41	5 mm + 5 mm	TEE	FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/5N5/FW/PB/550	
49	IRS M41 + IRS M41	5 mm + 5 mm	BUTT	BW-SV	PA	ACM	GMAW	ICF/WPS/GMAW/CS/5N5/FW/PA/551	
50	IRS M41 + IRS M41	4 mm + 6 mm	TEE	FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/4N6/FW/PB/552	
51	DIN EN 10293 G20Mn+QT + IRS M41	15 mm + 6 mm	SPL	BW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/15N6/BW/PB/553	
52	DIN EN 10025 355IO + IRS M41	12 mm + 6 mm	LAP	FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/12N6/LAP/PB/554	
53	IRS M41 + IRS M41	5 mm + 5 mm	TEE	FW	PF	CO ₂	GMAW	ICF/WPS/GMAW/CS/5N5/FW/PF/538	
54	IRS M41 + IRS M41	8 mm + 8 mm	TEE	FW	PG	ACM	GMAW	ICF/WPS/GMAW/CS/8N8/FW/PG/557	
55	IRS M41 + IS 2062	8 mm + 12 mm	TEE	FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/8N12/FW/PB/558	
56	IRS M41 + IS 2062	8 mm + 20 mm	TEE	FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/8N20/FW/PB/559	
57	IRS M41 + IS 2062	8 mm + 16 mm	TEE	FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/8N16/FW/PB/561	
58	IRS M41 + IRS M41	5 mm + 5 mm	TEE	FW	PF	ACM	GMAW	ICF/WPS/GMAW/CS/5N5/FW/PF/564	
59	IRS M41 + IRS M41	6 mm + 6 mm	BUTT	BW-SQ	PF	CO ₂	GMAW	ICF/WPS/GMAW/CS/6N6/BW/PF/566	
60	IRS M41 + IRS M41	5 mm + 5 mm	BUTT	BW-SQ	PF+PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/5N5/BW/PF+PG/567	
61	EN10025-5 S355 J2 W+N + EN10025-5 S355 J2 W+N	10 mm + 10 mm	TEE	BW-FW	PA	ACM	GMAW	ICF/WPS/GMAW/CS/10N10/BW+FW/PA/574	
62	DIN 1630 st52.4 + DIN 17182(GSMn5V)	14 mm + 10 mm	TEE-PIPE	FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/14N10/FW/PB/570	
63	IS 2062 + IS 2062	16 mm + 16 mm	BUTT	BW-SV	PA	ACM	GMAW	ICF/WPS/GMAW/CS/16N16/BW/PA/562	
64	EN10025-5 S355 J2 W+N + EN10025-5 S355 J2 W+N	8 mm + 10 mm	TEE	BW	PA	ACM	GMAW	ICF/WPS/GMAW/CS/BW/8N10/PA/571	
65	DIN 1630 st52.4 + EN10025-5 S355 J2 W+N	10 mm + 12 mm	TEE	BW-FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/10N12/BW+FW/PB/575	
66	EN10025-5 S355 J2 W+N + EN10025-5 S355 J2 W+N	12 mm + 12 mm	TEE	BW-FW	PA	ACM	GMAW	ICF/WPS/GMAW/CS/12N12/BW+FW/PB/572	
67	EN10025-5 S355 J2 W+N + EN10025-5 S355 J2 W+N	18 mm + 12 mm	TEE	BW	PA	ACM	GMAW	ICF/WPS/GMAW/CS/18N12/BW/PA/573	
68	IS 2062 + IS 1875	16 mm + 12 mm	LAP	FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/16N12/FW/PB/587	
69	IRS M41 + IRS M41	6 mm + 6 mm	TEE	FW	PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/6N6/FW/PG/632	
70	IRS M41 + IRS M41	2 mm + 2 mm	LAP	FW	PD	CO ₂	GMAW	ICF/WPS/GMAW/CS/2N2/LAP/PD/612	
71	IRS M41 + IRS M41	3.15 mm + 3.15 mm	BUTT	BW-SQ	PA	CO ₂	GMAW	ICF/WPS/GMAW/CS/3.15N3.15/BW/PA/619	
72	IS737:2008Gr.31000-H2 + IS737:2008Gr.31000-H2	2.5 mm +2.5 mm	TEE	FW	PB	Ar	GMAW	ICF/WPS/GMAW/ALU/2.5N2.5/FW/PB/583	
73	EN10025-5 S355 J2 W+N + DIN 17182(GSMn5V)	10 mm + 16 mm	TEE	FW	PB	ACM	GMAW	ICF/WPS/GMAW/CS/10N16/FW/PB/636	
74	EN10025+EN 1630	14mm+12 mm	T	BW+FW	PB	ACM	GMAW	ICF-WPS-GMAW-CS-12N12-BW+FW-PB-634	
75	EN10025+EN 10025	10mm+10 mm	T	FW	PB	ACM	GMAW	AWTI-WPS-GMAW-CS-10N10-FW-PB-592	
76	EN10025+EN 10025	12mm+22 mm	T	FW	PA	ACM	GMAW	AWTI-WPS-GMAW-CS-12N22-FW-PA-594	
77	IS 2062+ IS 2062	16mm+16 mm	T	FW	PA	ACM	GMAW	AWTI-WPS-GMAW-CS-16N16-FW-PA-588	
78	EN10025+EN 10025	22mm+22 mm	BUTT	BW	PA	ACM	GMAW	AWTI-WPS-GMAW-CS-22N22-BW-PA-602	
79	EN10025+EN 10025	10mm+10mm	T	FW	PA	ACM	GMAW	AWTI-WPS-GMAW-CS-10N10-BW+FW-PA-584	
80	EN10025+EN 10025	10mm+12 mm	T	FW	PB	ACM	GMAW	AWTI-WPS-GMAW-CS-10N12-FW-PB-593	
81	IRSM 41+DIN EN 10293	8mm+15 mm	SINGLE BEVEL TEE	BW	PB	CO2	GMAW	ICF-WPS-GMAW-CS-15N8-BW-PB-03	CONSOLE WITH SOLE BAR
82	SS409M+SS 409M	2mm+3 mm	BUTT	BW	PA	ARGON	GMAW	ICF-WPS-GMAW BRAZING-SS-2n3-BW-PA-306	MIG BRAZING
83	EN10025+EN 10025	12mm+12 mm	BUTT	BW	PA	ACM	GMAW	ICF-WPS-GMAW-CS-12+12-BW-PA-607	
84	IRS M41 + IRS M41	3.15 mm +3.15 mm	BUTT	SQ BUTT	PG	CO ₂	GMAW	ICF/WPS/GMAW/CS/3.15N3.15/BW/PG/616	
85	IRS M41 + IRS M41	3.15 mm +3.15 mm	BUTT	SQ BUTT	PA	CO ₂	GMAW	AWTI-WPS-GMAW-CS-3.15N3.15-BW-PA-622	

S.No.	MATERIAL	THICKNESS	JOINT	TYPE OF WELD	POSITION	GAS	PROCESS	WPS No.	REMARKS
FCAW									
1	IRS M41 + AISI301	10 mm + 1.7 mm	LAP	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/DIS/10N1.7/LAP/PB/504	
2	IRS M41 + AISI 304	6 mm + 2 mm	CORNER	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/DIS/6N2/CORNER/PB/05	
3	AISI 304 + AISI 304	2 mm + 1.25 mm	LAP	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/AISI304/2N1.25/LAP/PB/02	
4	SS 409M + SS 409M	2.5 mm + 3 mm	T	FW	PA	CO ₂	FCAW	ICF/WPS/FCAW/SS409M/2.5N3/FW/PA/003	
5	SS 409M + SS 409M	2.5 mm + 2 mm	FLARE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/SS409M/2.5N2/FW/PB/002	
6	SS 409M + SS 409M	2.5 mm + 4 mm	T	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/SS409M/2.5N4/FW/PB/001	
7	AISI 304 + AISI 304	1.25 mm + 1.25 mm	LAP	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/AISI304/1.25N1.25/LAP/PB/04	
8	SS 409M + SS 409M	3 mm + 3 mm	TEE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/SS409M/3N3/FW/PB/519	
9	SS 409M + SS 409M	2 mm + 2 mm	TEE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/SS409M/2N2/FW/PB/598	
10	SS 409M + SS 409M	3 mm + 3 mm	TEE	FW	PB	ACM	FCAW	ICF/WPS/FCAW/SS409M/3N3/FW/PB/585	
11	AISI 316 + AISI 316	6 mm + 6 mm	TEE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/AISI316/6N6/FW/PB/581	
12	AISI 304 + AISI 304	2 mm + 2 mm	TEE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/SS/2N2/FW/PB/579	
13	AISI 304 + AISI 304	1.25 mm + 1.25 mm	LAP	FW	PB	ACM	FCAW	ICF/WPS/FCAW/SS/1.25N1.25/PB/611	
14	AISI 304 + SS 409M	1.7 mm + 2 mm	TEE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/SS/1.7N2/FW/PB/578	
15	AISI 304 + SS 409M	2 mm + 2 mm	TEE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/SS/2N2/FW/PB/576	
16	AISI 304 + SS 409M	1.2 mm + 2 mm	TEE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/SS/1.2N2/FW/PB/580	
17	IRS M41 + SS 409M	2 mm + 2 mm	TEE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/SS/2N2/FW/PB/599	
18	AISI 316 + IRS M41	6 mm + 5 mm	TEE	FW	PB	CO ₂	FCAW	ICF/WPS/FCAW/DIS/6N5/FW/PB/582	

GTAW									
1	AISI 304 + SS 409M	Ø12 mm + 2 mm	Spl	FW	PJ	Ar	GTAW	ICF/WPS/GTAW/DIS/DIA12N2/FW/PJ/001-PIPE	Window bar+Sheet
2	AISI 304 + AISI 304	1.25 mm + 1.25 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/AISI304/1.25N1.25/LAP/PB/619	
3	SS 409M + SS 409M	3 mm + 2.5 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS409M/3N2.5/LAP/PB/311	
4	SS 409M + SS 409M	2.5 mm + 8 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS409M/2.5N8/LAP/PB/308	
5	SS 409M + SS 409M	2.5 mm + 3 mm	T	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS409M/2.5N3/FW/PB/305	
6	SS 409M + SS 409M	2.5 mm + 2 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS409M/2.5N2/LAP/PB/304	
7	SS 409M + SS 409M	4 mm + 2.5 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS409M/4N2.5/LAP/PB/302	
8	SS 409M + SS 409M	5 mm + 2.5 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS409M/5N2.5/LAP/PB/301	
9	SS 409M + SS 409M	2 mm + 4 mm	T	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS409M/2N4/FW/PB/611	
10	SS 409M + SS 409M	2 mm + 4 mm	T	FW	PD	Ar	GTAW	ICF/WPS/GTAW/SS409M/2N4/FW/PD/607	
11	AISI 304 + SS 409M	1.25 mm + 2 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/DIS/1.25N2/LAP/PB/606	
12	SS 409M + AISI 304	2 mm + 1.7 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/DIS/2N1.7/LAP/PB/605	
13	SS 409M + SS 409M	2 mm + 2.5 mm	T	FW	PG	Ar	GTAW	ICF/WPS/GTAW/SS409M/2N2.5/FW/PG/604	
14	AISI 304 + AISI 304	1.7 mm + 1.7 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/AISI304/1.7N1.7/LAP/PB/603	
15	AISI 304 + AISI 304	1.25 mm + 1.7 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/AISI304/1.25N1.7/LAP/PB/602	
16	IRS M41 + SS 409M	6 mm + 2 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/DIS/6N2/LAP/PB/200	
17	SS 409M + SS 409M	2 mm + 2 mm	LAP	FW	PG	Ar	GTAW	ICF/WPS/GTAW/SS409M/2N2/LAP/PG/196	
18	SS 409M + SS 409M	8 mm + 2.5 mm	Sq. BUTT	BW	PA	Ar	GTAW	ICF/WPS/GTAW/SS409M/8N2.5/BW/PA/312	Sidewall+Backpieces
19	SS 409M + SS 409M	4 mm + 2.5 mm	Single V	BW	PA	Ar	GTAW	ICF/WPS/GTAW/SS409M/4N2.5/BW/PA/303	
20	SS 409M + SS 409M	3 mm + 2.5 mm	FLARE	FW	PA	Ar	GTAW	ICF/WPS/GTAW/SS409M/3N2.5/FLARE/PA/310	Sidewall+Backpieces
21	SS 409M + SS 409M	2.5 mm + 2.5 mm	FLARE	FW	PA	Ar	GTAW	ICF/WPS/GTAW/SS409M/2.5N2.5/FLARE/PA/309	
22	SS 409M + SS 409M	3 mm + 3 mm	TEE	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS409M/3N3/FW/PB/524	
23	SS 409M + SS 409M	3 mm + 3 mm	TEE	FW	PD	Ar	GTAW	ICF/WPS/GTAW/SS409M/3N3/FW/PD/543*Wla	Lanthanum electrode
24	Duplex 2101 + Duplex 2101	2 mm + 2 mm	TEE	FW	PD	Ar	GTAW	ICF/WPS/GTAW/DUP2101/2N2/FW/PD/539*Duplex	Duplex stainless steel
25	SS 409M + SS 409M	3 mm + 3 mm	TEE	FW	PD	Ar	GTAW	ICF/WPS/GTAW/SS409M/3N3/FW/PD/536	
26	SS 409M + SS 409M	3 mm + 3 mm	Sq.BUTT	BW	PA	Ar	GTAW	ICF/WPS/GTAW/SS409M/3N3/BW/PA/590	Two passes
27	AISI 304 + AISI 304	1.7 mm + 2 mm	TEE	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS/1.7N2/FW/PB/621	08.07.2021
28	IRS M41 + SS 409M	8 mm + 3 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/DIS/8N3/LAP/PB/517	
29	SS409M + AISI 304	1.7 mm + 1.25 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS/1.7N1.25/FW/LAP/PB/620	08.07.2021
30	AISI 304 + AISI 304	1.2 mm + 1.2 mm	LAP	FW	PB	Ar	GTAW	ICF/WPS/GTAW/SS/1.2N1.2/FW/LAP/PB/644	
31	SS 409M + SS 409M	3 mm + 3 mm	LAP	FW	PG	Ar	GTAW	ICF/WPS/GTAW/SS/3N3/FW/LAP/PG/640	
32	IRS M41 + SS 409M	5 mm + 3 mm	LAP	FW	PD	Ar	GTAW	ICF/WPS/GTAW/DIS/5N3/FW/LAP/PD/646	
33	SS409M+SS304	3mm+1.2mm	LAP	FW	PB	Ar	GTAW	ICF-WPS-GTAW-SS-3N1.2-FW-PB-642	
34	SS409M+SS409M	2.5mm+8mm	LAP	FW	PB	Ar	GTAW	ICF-WPS-GTAW-SS-2.5N8-LAP-PB-308	

ALTERATIONS	
①	9/2023
ALL DATA UPDATED BASED ON EN15085-3:2022 AND AWTI LR.No.AWTI/79 DT.31-8-2023.	
-Sd-	8.9.23
SSE/D	AME
②	12/2024
NOTE-4 ADDED W.R.T AWTI LR.AWTI/79 DT.19-11-2024	
③	
SSE/D	AME



where,
t, t1, t2 = Plate thickness
s = Depth of penetration
h = Depth of joint preparation
a = Throat thickness

TABLE-1

RANGE OF QUALIFICATION FOR BUTT WELDS MATERIAL THICKNESS AND DEPOSITED METAL THICKNESS AS PER EN ISO 15614-1:2017 TABLE-7				
THICKNESS OF TEST PIECE 't' IN mm	RANGE OF QUALIFICATION			DEPOSITED WELD METAL THICKNESS FOR EACH PROCESS 's' IN mm
	PARENT MATERIAL THICKNESS			
	LEVEL 1	LEVEL 2		
		SINGLE RUN		
t≤3		0.5t TO 2t		MAX 2 s
3<t≤12	1.5 TO 2t	0.5t(3MIN) TO 1.3t	3 TO 2t ^a	MAX 2 s ^a
12<t≤20	5 TO 2t	0.5t TO 1.1t	0.5t TO 2t	MAX 2 s
20<t≤40	5 TO 2t	0.5t TO 1.1t	0.5t TO 2t	MAX 2 s when s < 20 MAX 2 t when s ≥ 20
40<t≤100	5 TO 200t	–	0.5t TO 2t	MAX 2 s when s < 20 MAX 200 t when s ≥ 20
100<t≤150	5 TO 200t	–	50 TO 2t	MAX 2 s when s < 20 MAX 300 t when s ≥ 20
t>150	5 TO 1.33t	–	50 TO 2t	MAX 2 s when s < 20 MAX 1.33 t when s ≥ 20
'a' FOR LEVEL-1, WHEN IMPACT REQUIREMENTS ARE SPECIFIED BUT IMPACT TESTS HAVE NOT BEEN PERFORMED, THE MAXIMUM THICKNESS OF QUALIFICATION IS LIMITED TO 12mm.				

° FOR LEVEL-1, WHEN IMPACT REQUIREMENTS ARE SPECIFIED BUT IMPACT TESTS HAVE NOT BEEN PERFORMED, THE MAXIMUM THICKNESS OF QUALIFICATION IS LIMITED TO 12mm.

TABLE-2

FOR LEVEL-2: RANGE OF QUALIFICATION FOR MATERIAL THICKNESS AND THROAT THICKNESS OF FILLET WELDS AS PER EN ISO 15614-1:2017 TABLE-8				
THICKNESS OF TEST		RANGE OF QUALIFICATION		
PIECE 't' IN mm	MATERIAL THICKNESS IN mm	THROAT THICKNESS		
		SINGLE RUN	MULTI-RUN	
t ≤ 3	0.7t TO 2t			
3 < t ≤ 30	3t TO 2t	0.75a TO 1.5a		NO RESTRICTION
t ≥ 30	≥ 5			

WHERE A FILLET WELD IS QUALIFIED BY MEANS OF A BUTT WELD TEST, THE THROAT THICKNESS RANGE SHALL BE BASED ON THE THICKNESS OF THE DEPOSITED WELD METAL.

NOTE: 'a' IS THE NOMINAL THROAT THICKNESS AS SPECIFIED IN pWPS FOR THE TEST PIECE.

'a' - IN CASE OF DIFFERENT MATERIAL THICKNESSES, THE RANGE OF QUALIFICATION OF BOTH THICKNESSES OF THE TEST PIECES SHALL BE CALCULATED SEPARATELY.

WHERE A FILLET WELD IS QUALIFIED BY MEANS OF A BUTT WELD TEST, THE THROAT THICKNESS RANGE SHALL BE BASED ON THE THICKNESS OF THE DEPOSITED WELD METAL. NOTE: 'a' IS THE NOMINAL THROAT THICKNESS AS SPECIFIED IN PWPS FOR THE TEST PIECE.

't' - IN CASE OF DIFFERENT MATERIAL THICKNESSES, THE RANGE OF QUALIFICATION OF BOTH THICKNESSES OF THE TEST PIECES SHALL BE CALCULATED SEPARATELY.

TABLE-3

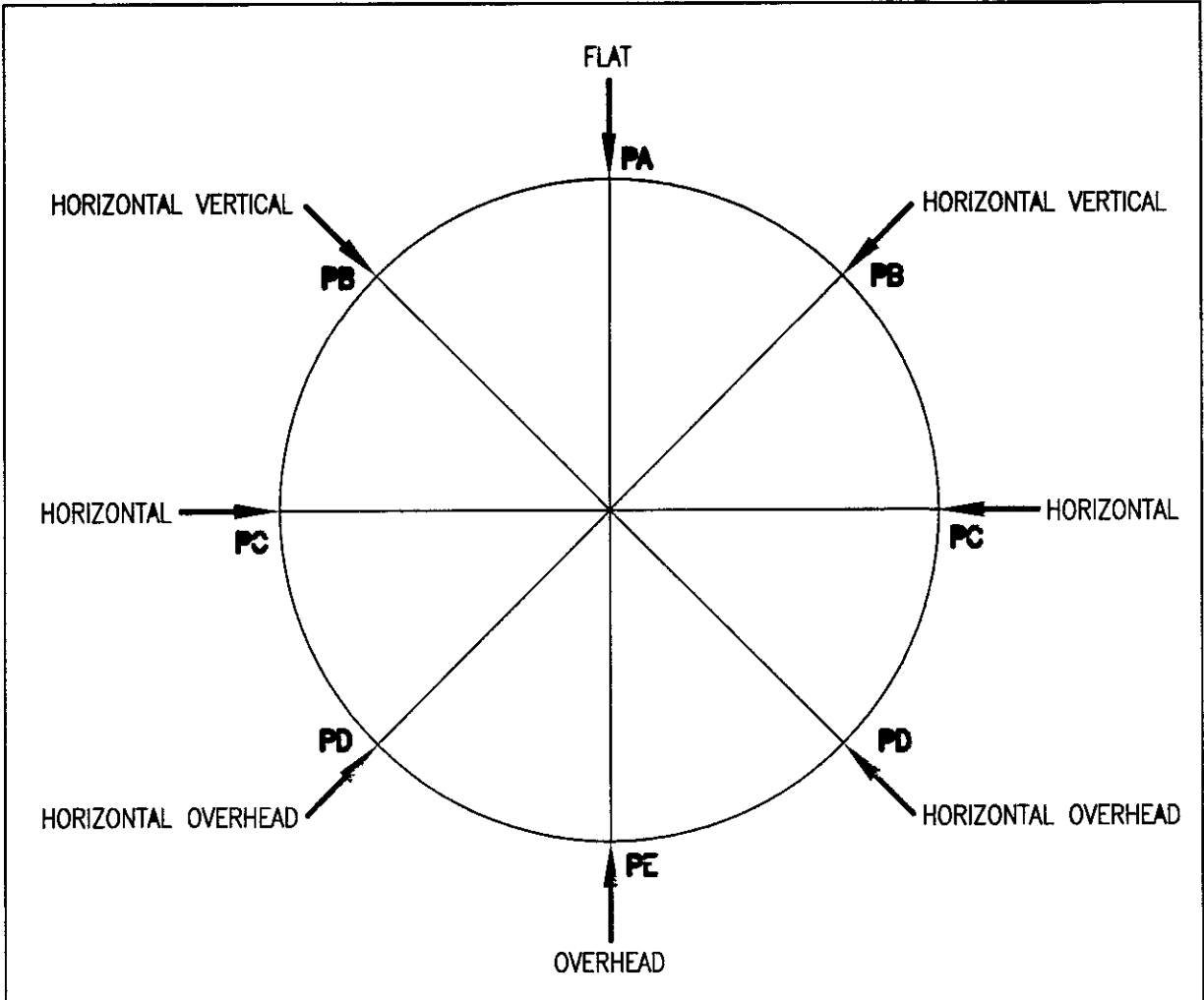
TERMS	DESCRIPTION	SYMBOL
FLAT POSITION	HORIZONTAL WORKING, CENTERLINE OF WELD VERTICAL, CAPPING LAYER ON CAPPING	PA
HORIZONTAL VERTICAL POSITION	HORIZONTAL WORKING, CAPPING LAYER TOWARDS THE CAPPING	PB
HORIZONTAL POSITION	HORIZONTAL WORKING, CENTERLINE OF WELD HORIZONTAL	PC
HORIZONTAL OVERHEAD POSITION	HORIZONTAL WORKING, OVERHEAD CAPPING LAYER TOWARDS THE BOTTOM	PD
OVERHEAD POSITION	HORIZONTAL WORKING, OVERHEAD CENTERLINE OF WELD VERTICAL, CAPPING LAYER UNDERNEATH	PE
VERTICAL UP POSITION	WORKING UPWARDS	PF
VERTICAL DOWN POSITION	WORKING DOWNWARDS	PG

TABLE-4

WELD PROCESS (EN ISO 4063)	CODE
MMAW - MANUAL METAL ARC WELDING	111
GMAGW - METAL ACTIVE GAS ARC WELDING (MAG)	135
FGAW - METAL ARC WELDING (ACTIVE GAS SHIELD)	136
GTAW - TUNGSTEN INERT GAS ARC WELDING (TIG)	141
SELF SHIELDED ARC WELDING	114
SUBMERGED ARC WELDING	12
METAL INERT GAS WELDING (MIG)	131
METAL ARC WELDING (INERT GAS SHIELD)	137
PLASMA ARC WELDING	15
OXY-ACETYLENE WELDING	311
LBM - LASER BEAM WELDING WITH GAS	522
RSW - RESISTANCE SPOT WELDING (DIRECT)	212
RSW - RESISTANCE SPOT WELDING (INDIRECT)	211

NOTE:

- 1.1 RANGE OF QUALIFICATION FOR INFORMATION ONLY.
- 1.2 FOR RANGE OF QUALIFICATION REFER EN ISO: 15614-1(LATEST REVISION)
2. FOR DETAIL SPECIFICATIONS REFER THE APPLICABLE WELD PROCEDURE SPECIFICATION (WPS).
3. IF ANY JOINT IS NOT COVERED IN THIS DRAWING, THE ASSEMBLY SHOP/VENDOR MAY DEVELOP WPS FOR THE SAME AND SUBMIT TO AWTI/ICF AND GET IT APPROVED.
4. FOR LATEST WPS, ICF WORKSHOPS MAY REFER ICF WEBSITE LINK AS FOLLOWS: DEPARTMENT/MECHANICAL/DEPT.SUB SECTIONS/IMS/WQMS/WPS



WELD POSITION (EN ISO 6947:1997)

QTY	DESCRIPTION & DIMENSION	ITEM	REF.DRGS	MAT.SPEC	WEIGHT/UNIT	REMARKS
	GROUP: 9-0					SUPERSEDED BY:
						SUPERSEDES:
						SCALE SSE/D 12/24
						NTS CHD J.RAMESH
						ALTD DRN UKKAPAWAN T/NAZARUL HAQUE
						Alpha Alt:- b
						INTEGRAL COACH FACTORY CHENNAI-38
						ICF/STD-9-0-999

ASSEMBLY DRAWINGS		
2-12-2024	16-09-2017	AME/SME
DATA CODE NO. 140		

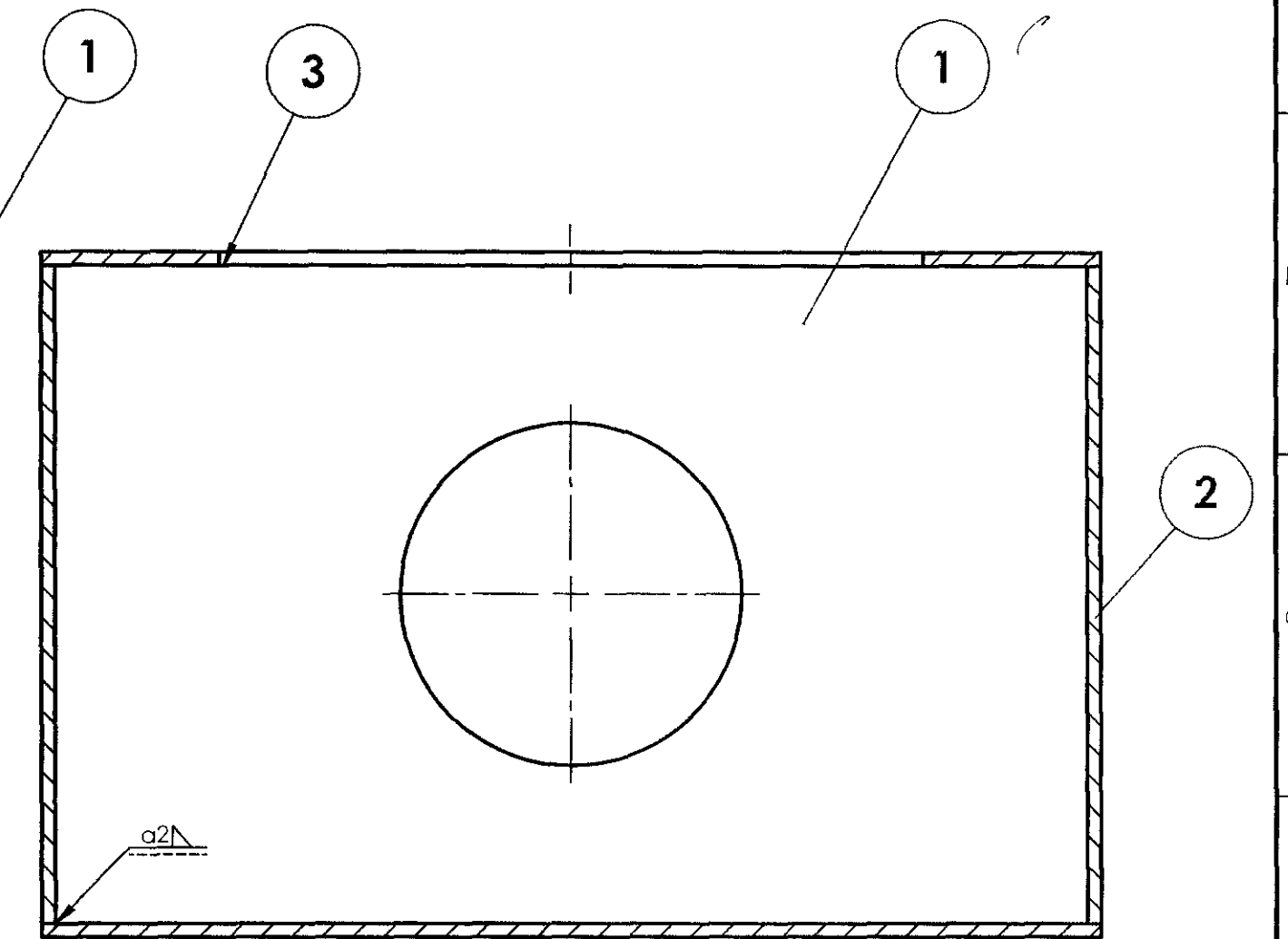
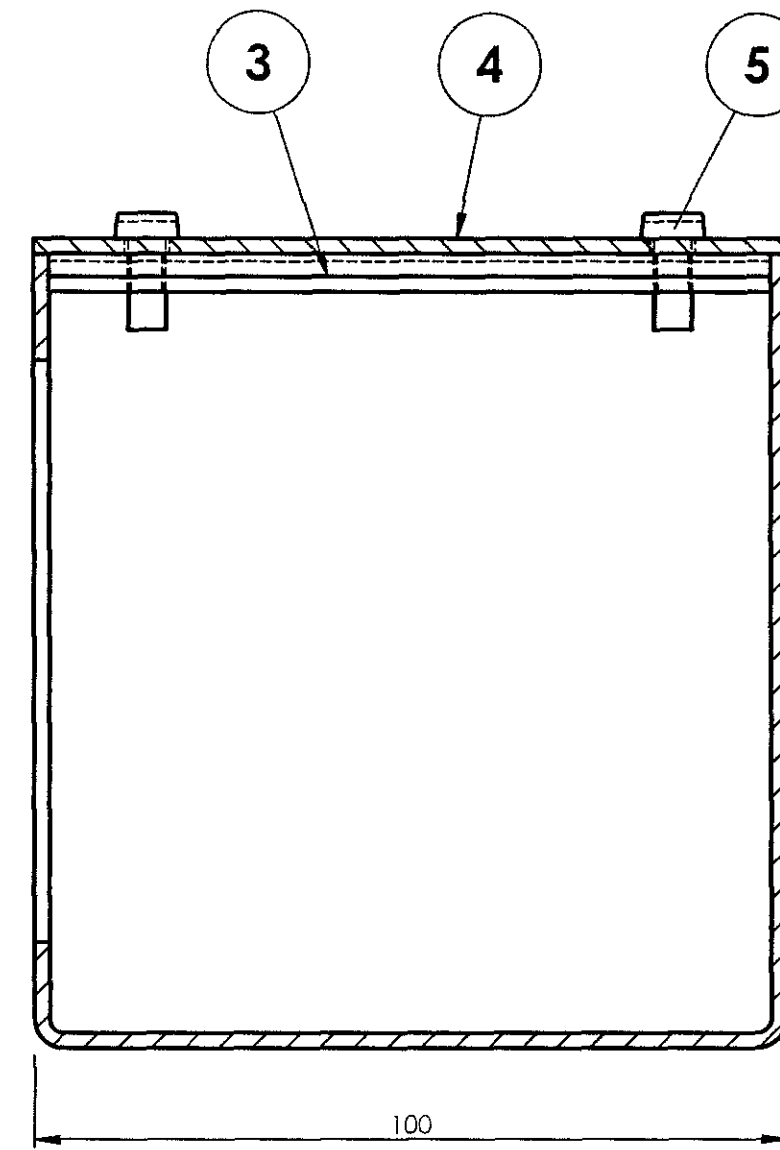
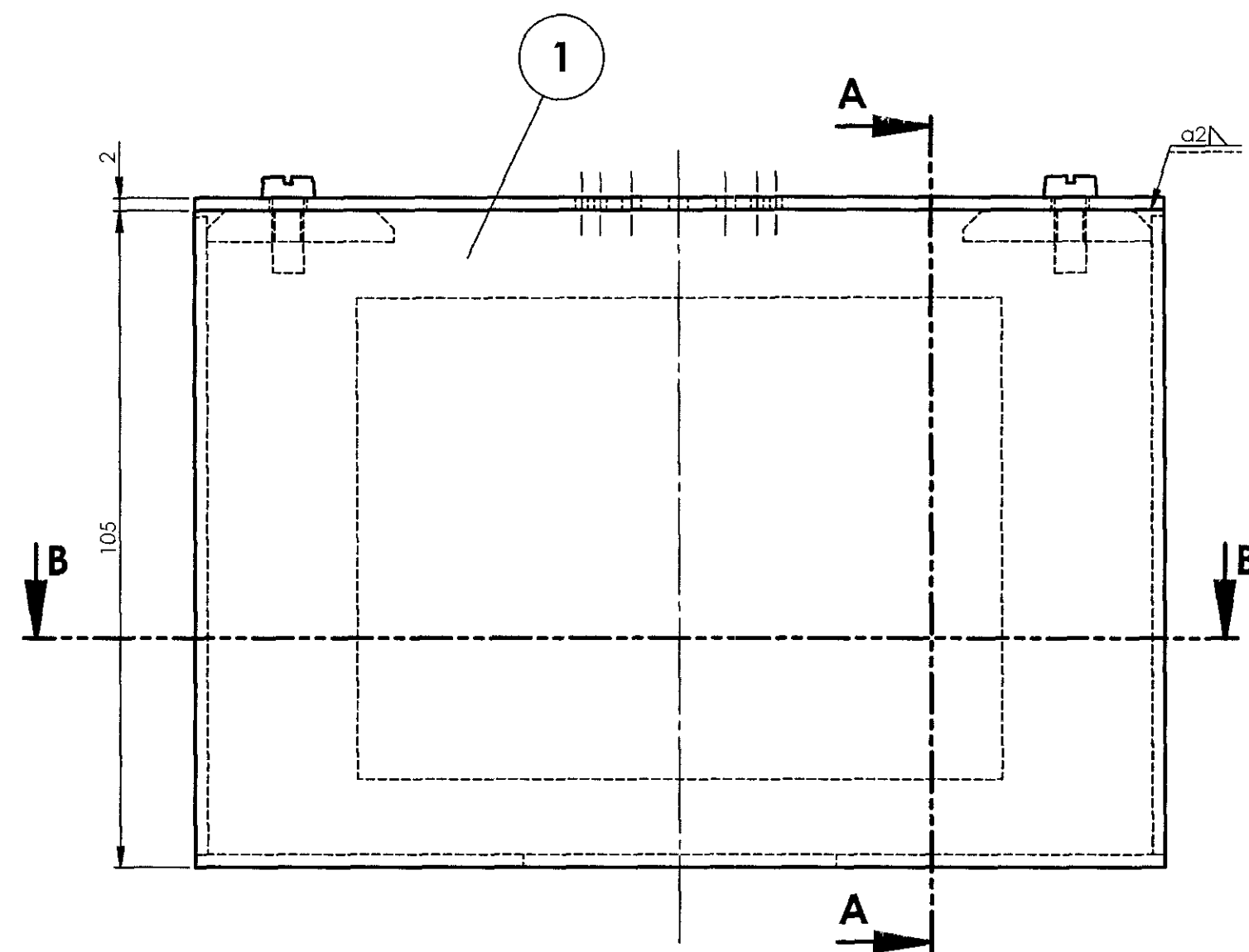
59310016

▽ ROUGH MACHINED
▽ FINISH MACHINED
▽ FINE FINISH MACHINED

(01) ROUGH CLEANED
(01b) BURRS REMOVED
(01b) CHAMFERED

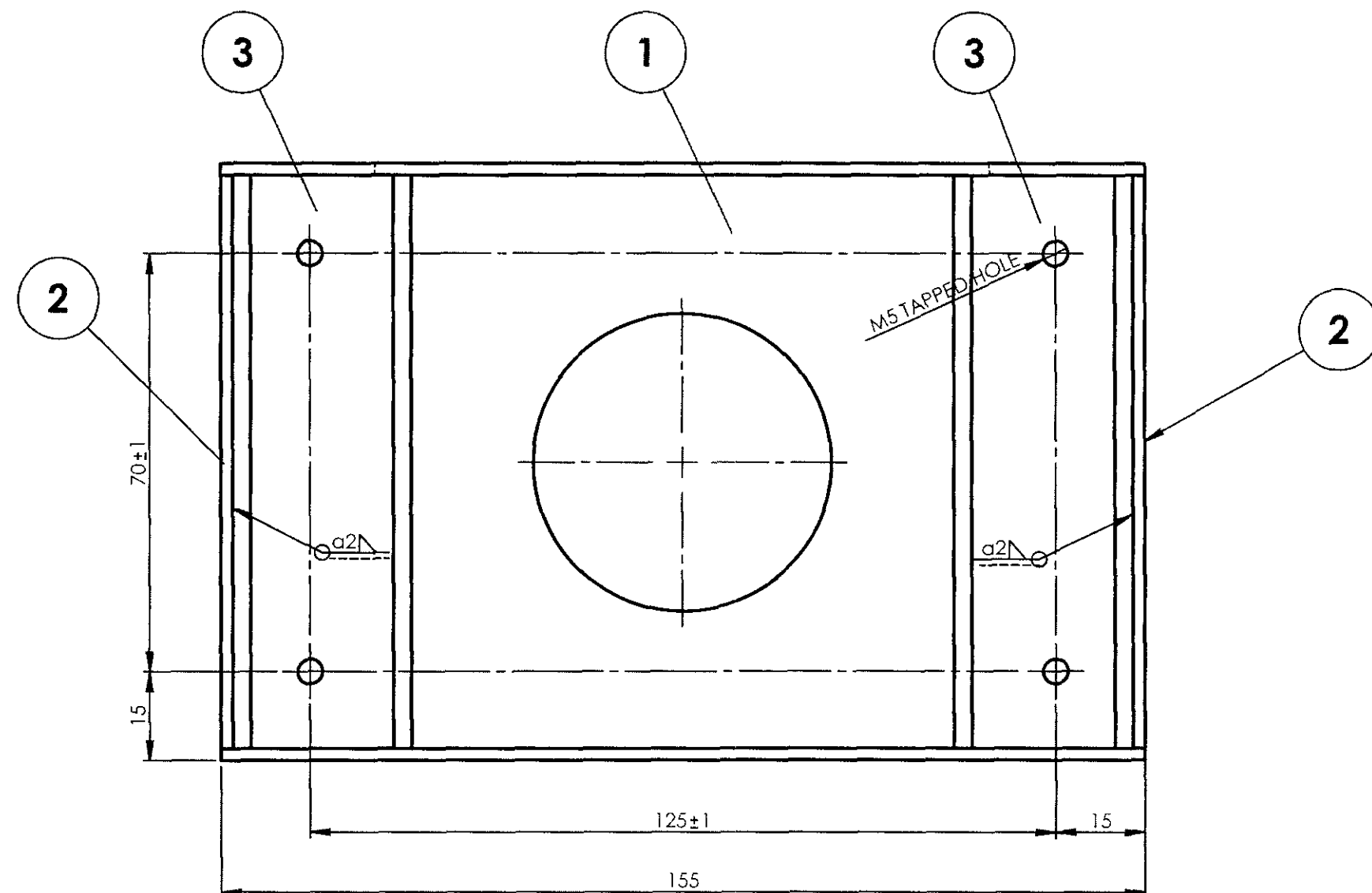
REVISIONS

ALT.	DESCRIPTION	ZONE	APPROVED & DATE
a	ITEMS-1 & 4 DESIGN REVISED. ALL VIEWS UPDATED ACCORDINGLY. NOTE 7 TO 9 ADDED.		<i>[Signature]</i>

SECTION B-B
SCALE 1 : 1SECTION A-A
SCALE 1 : 1

NOTE:

1. STAINLESS STEEL ELECTRODE OF SAME COMPOSITION AS PER TABLE-3 OF RDSO/SPEC C-K201 SHALL BE USED FOR WELDING.
2. ALL WELD SPATTERS SHALL BE GROUND.
3. ALL WELDED JOINTS SHALL BE PICKLED AND PASSIVATED BEFORE SURFACE TREATMENT.
4. ALL SHARP CORNERS SHALL BE ROUNDED OFF.
5. ALL WELDINGS SHALL BE TIG WELDING UNLESS OTHERWISE SPECIFIED.
6. ALL HOLES ARE TO BE JIG DRILLED.
7. ALL WELD PERFORMANCE CLASS SHALL BE **CP C2** UNLESS OTHERWISE SPECIFIED.
8. FOR WELD TESTING PREFERENCES REFER DRG. No. ICF/STD-9-0-998.
9. FOR WELD PROCEDURE SPECIFICATION REFER DRG. No. ICF/STD-9-0-999.



VIEW WITHOUT ITEMS-4&5

4	CHEESE HEAD SCREW	ISO 1207-M5x12-A2-70	5	IS:1366			
1	COVER PLATE		4	AAC10044		0.03	
2	PLATE		3	AAC10043		0.11	
2	CLOSING PLATE		2	AAC10042		0.02	
1	CHANNEL		1	AAC10041		0.59	
Default	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MATL	WT/UNIT IN KGS	REMARKS

GROUP: I-0 SURFACE AREA IN Sq.m.: WT/ASSY IN Kgs:

DRAIN BOX

SCALE 1:2	SSE/D	<i>[Signature]</i>
CHD		
ALT a	ALTD	T.J.Kumaravelu
	DRN	RAMANUJA RAO.PVN

INDIAN RAILWAY STANDARDS
INTEGRAL COACH FACTORY, CHENNAI - 600038SHEET
1 OF 1

LWSCWAC/EOG

59310016 A2

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.

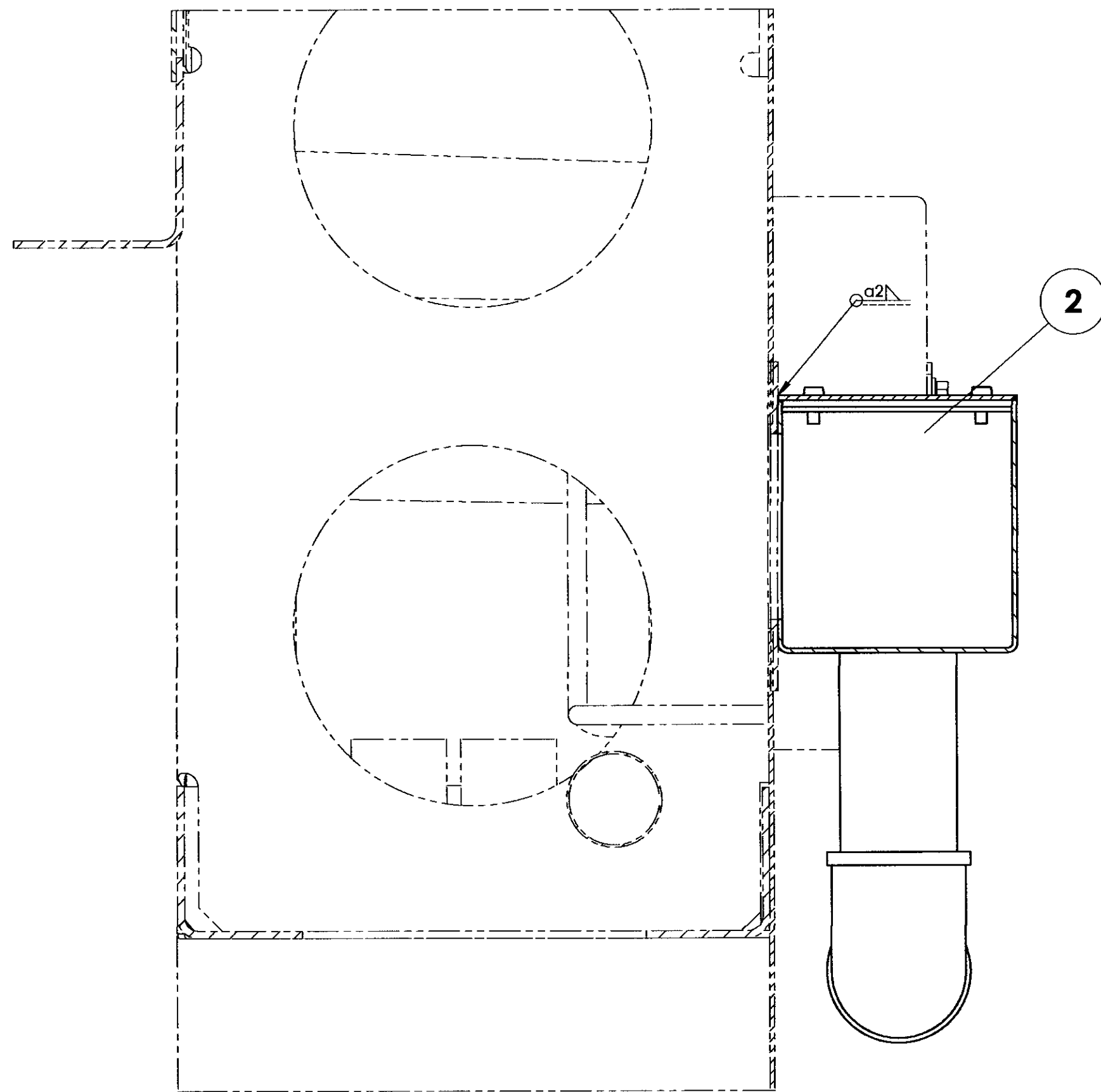
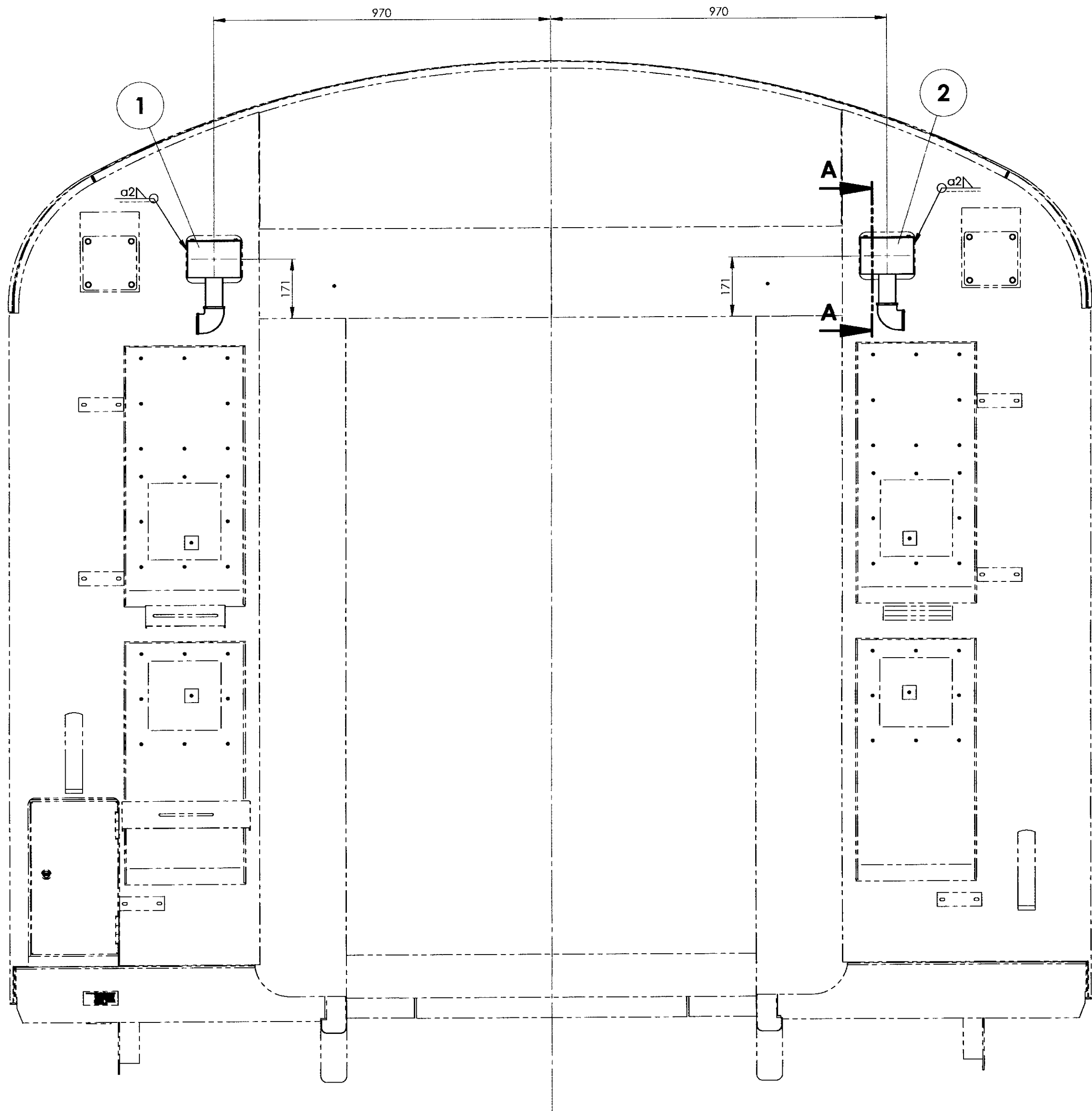
REF.DRG.NO.-

12-08-25	23-09-16	<i>[Signature]</i>
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME

83110009

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

REVISIONS				APPROVED & DATE
ALT.	ZONE	DESCRIPTION		
a		ITEMS 1 & 2 DESIGN REVISED AND VIEWS UPDATED ACCORDINGLY.		16/2



SECTION A-A
SCALE 1 : 2

NOTE:

1. STAINLESS STEEL ELECTRODE OF SAME COMPOSITION AS PER TABLE-3 OF RDSO/SPEC C-K201 SHALL BE USED FOR WELDING.
2. ALL WELDINGS SHALL BE TIG WELDING UNLESS OTHERWISE SPECIFIED.
3. ALL WELD SPATTERS SHALL BE GROUND.
4. ALL WELDED JOINTS SHALL BE PICKLED AND PASSIVATED BEFORE SURFACE TREATMENT.
5. ALL SHARP CORNERS SHALL BE ROUNDED OFF.
6. ALL WELD PERFORMANCE CLASS SHALL BE **CP C2** UNLESS OTHERWISE SPECIFIED.
7. FOR WELD TESTING PREFERENCES REFER DRG. No. ICF/STD-9-0-998.
8. FOR WELD PROCEDURE SPECIFICATION REFER DRG. No. ICF/STD-9-0-999.


1	DRAIN DUCT FOR RMPU(R.H.)		2	#3110011		1.543	
1	DRAIN DUCT FOR RMPU(L.H.)		1	#3110010		1.543	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MATL	WT/UNIT IN KGS	REMARKS
GROUP: 1-0 Body Shell				SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:	
RMPU TROUGH DRAIN HOUSING ARRGT.				SCALE 1:10	SSE/D CHO	16/2	
				ALT. a	ALTD DRN	Kunli Thakur	
						T.J.Kumaravelu	
						LWLRM/PP2	
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038				SHEET 1 OF 1		83110009	
						A1	

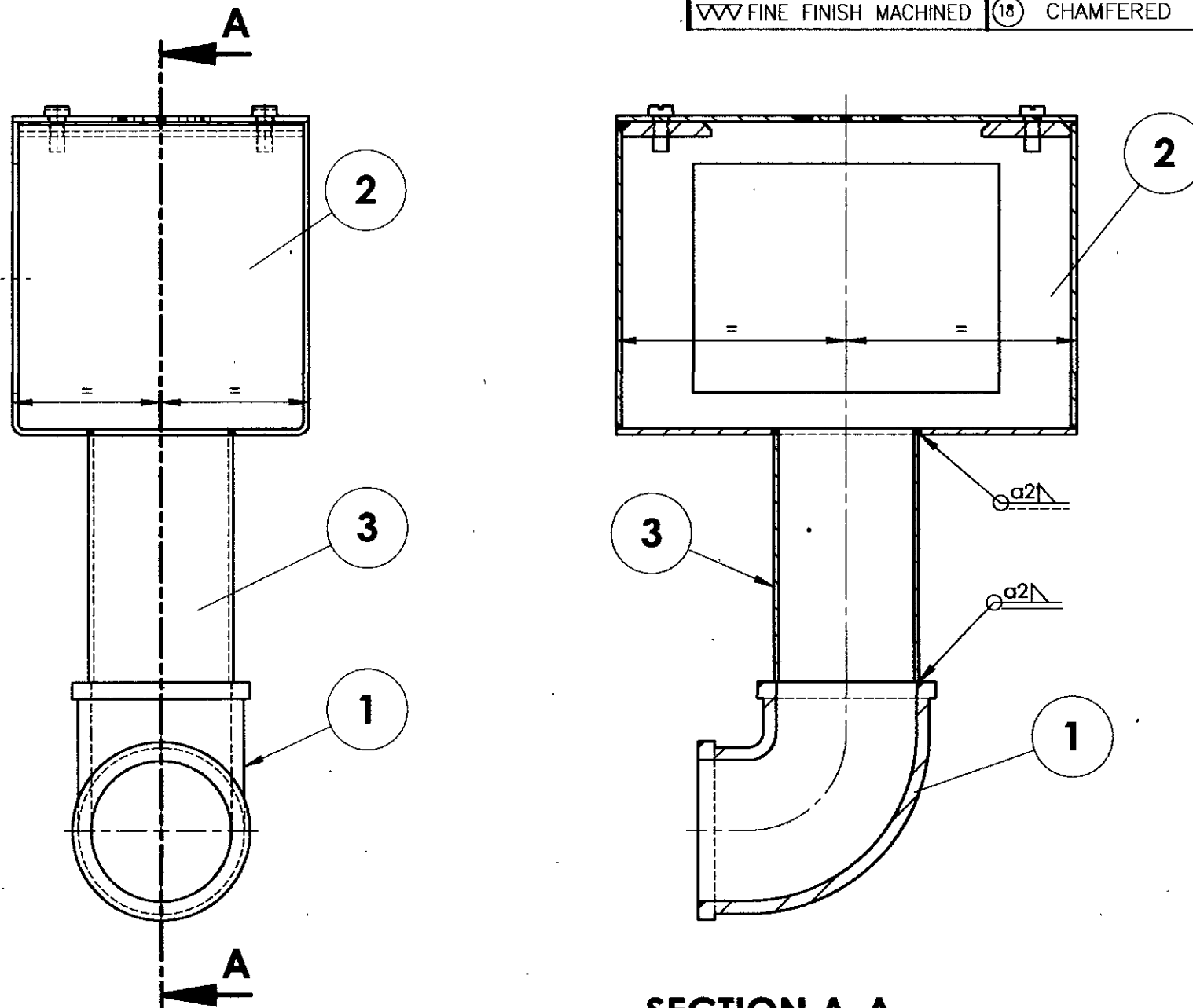
17-03-2026	16-02-26	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/ME

REF.DRG.NO.-

83110010

▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	①b BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	①8 CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
a		ITEM-3 ADDED. VIEWS UPDATED ACCORDINGLY.	



SECTION A-A

NOTE:

1. STAINLESS STEEL ELECTRODE OF SAME COMPOSITION AS PER TABLE-3, OF RDSO/SPEC C-K201 SHALL BE USED FOR WELDING.
2. ALL WELDINGS SHALL BE TIG WELDING UNLESS OTHERWISE SPECIFIED.
3. ALL WELD SPATTERS SHALL BE GROUND.
4. ALL WELDED JOINTS SHALL BE PICKLED AND PASSIVATED BEFORE SURFACE TREATMENT.
5. ALL SHARP CORNERS SHALL BE ROUNDED OFF.
6. ALL WELD PERFORMANCE CLASS SHALL BE **CP C2** UNLESS OTHERWISE SPECIFIED.
7. FOR WELD TESTING PREFERENCES REFER DRG. No. ICF/STD-9-0-998.
8. FOR WELD PROCEDURE SPECIFICATION REFER DRG. No. ICF/STD-9-0-999.

1	DRAIN PIPE	1.65x OD 48.5 x85	3		AISI-304	0.17	
1	DRAIN BOX		2	59310016		0.880	
1	ELBOW	1.5" A1	1	IS:1879-2010 TAB-4	AISI 304	0.52	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MATL	WT/UNIT IN KGS	REMARKS

GROUP: 1-0 Body Shell

SURFACE AREA IN Sq.m.:

WT/ASSY IN Kgs:

DRAIN DUCT FOR RMPU(L.H.)

SCALE

1:2

SSE/D

CHD

ALT.

2

ALTD

DRN

LWLRRM/PP2

INDIAN RAILWAY STANDARDS

INTEGRAL COACH FACTORY, CHENNAI - 600038

SHEET
1 OF 1

83110010

A3

17-03-2026

DATE OF LATEST ALT.

16-02-2026


DATE OF FIRST ISSUE

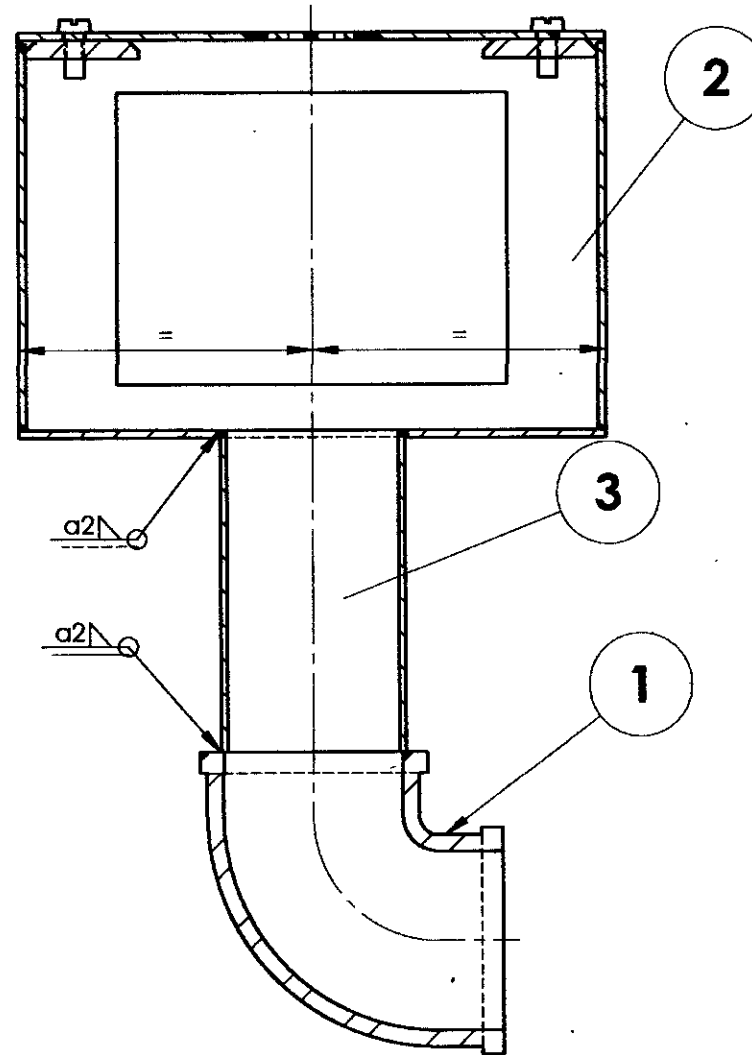
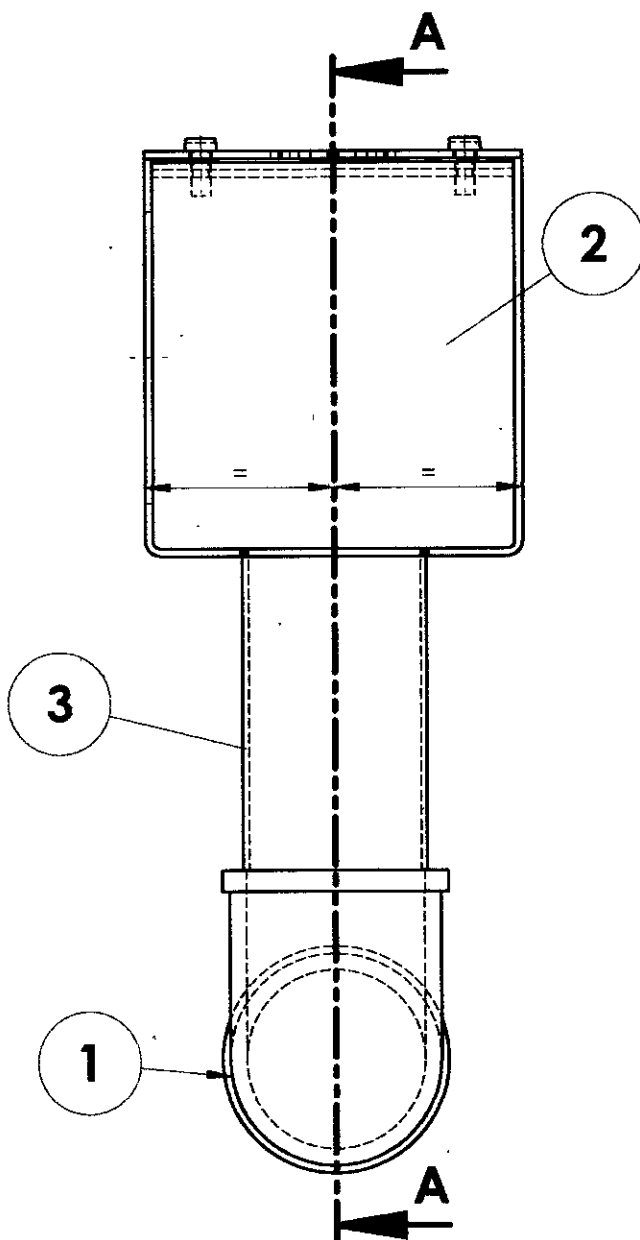
AME/SME

REF.DRG.NO.-

83110011

▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	①b BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	①8 CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
a		ITEM-3 ADDED.VIEWS UPDATED ACCORDINGLY.	



SECTION A-A

NOTE:

1. STAINLESS STEEL ELECTRODE OF SAME COMPOSITION AS PER TABLE-3 OF RDSO/SPEC C-K201 SHALL BE USED FOR WELDING.
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7. FOR WELD TESTING PREFERENCES REFER DRG. No. ICF/STD-9-0-998.
8. FOR WELD PROCEDURE SPECIFICATION REFER DRG. No. ICF/STD-9-0-999.

1	DRAIN PIPE	1.65x OD 48.5 x85	3		AISI-304	0.17	
1	DRAIN BOX		2	59310016		0.880	
1	ELBOW	1.5" A1	1	IS:1879-2010 TAB-4	AISI 304	0.52	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DRGS.	MATL	WT/UNIT IN KGS	REMARKS

GROUP: 1-0 Body Shell

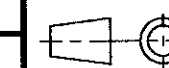
SURFACE AREA IN Sq.m.:

WT/ASSY IN Kgs:

DRAIN DUCT FOR RMPU(R.H.)SCALE
1:2SSE/D
CHD*B. [Signature]*ALT.
aALTD
DRNKunti Thakur
T.J.Kumaravelu

INDIAN RAILWAY STANDARDS

INTEGRAL COACH FACTORY, CHENNAI - 600038

SHEET
1 OF 1**LWLRRM/PP2****83110011****A3**

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 EN ISO 2553.
WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY

REF.DRG.NO.-


17 -03-2026

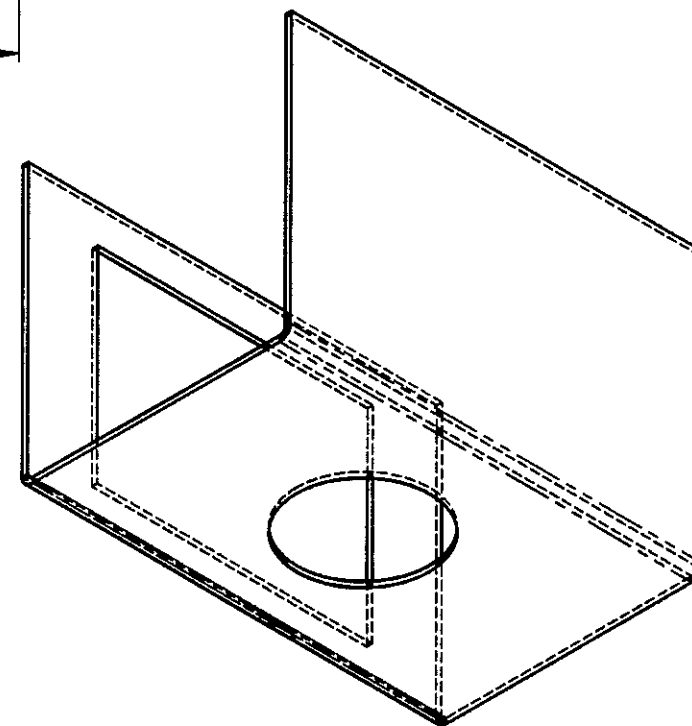
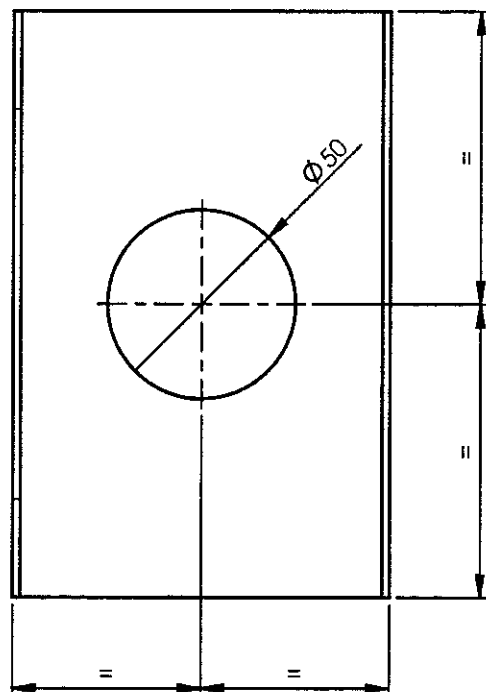
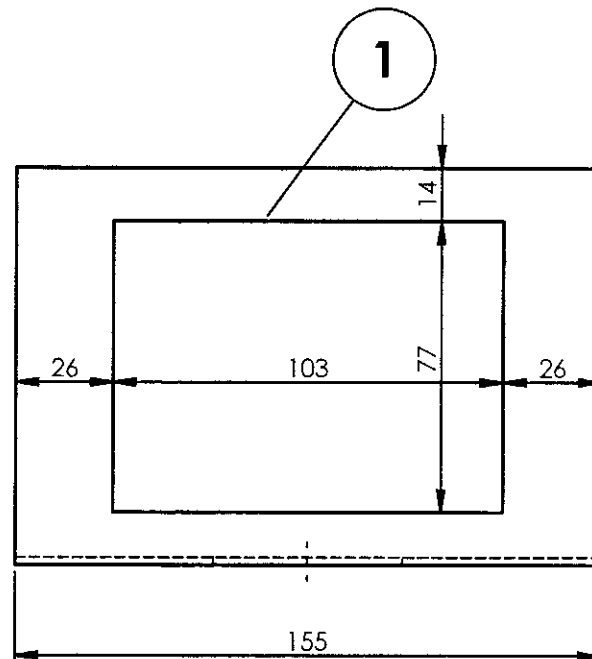
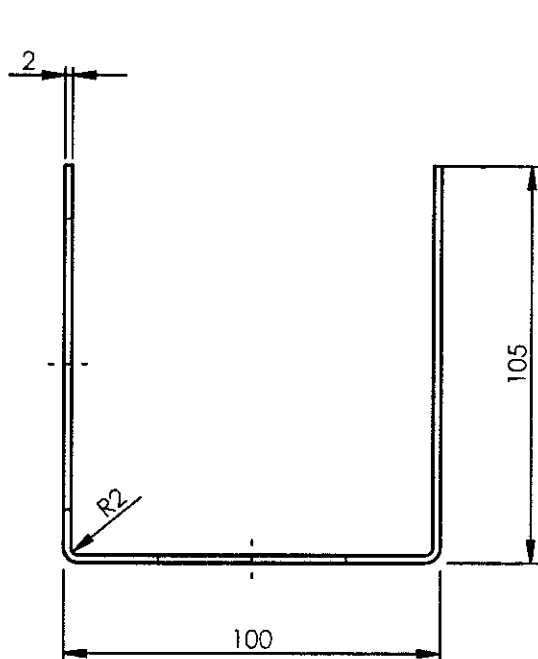
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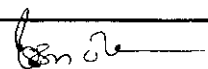
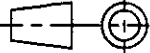
AME/SME

AAC10041

▽ ROUGH MACHINED	① ROUGH CLEANED
▽▽ FINISH MACHINED	①b BURRS REMOVED
▽▽▽ FINE FINISH MACHINED	⑱ CHAMFERED

REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE
a		CUT AWAY SIZE REVISED.	



1	CHANNEL	2x155x302	1		RDSO/SPEC C-K201.X2CrNi12	0.59	
Default	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: -		SURFACE AREA IN Sq.m.:			WT/ASSY IN Kgs:		
CHANNEL					SCALE	SSE/D	
					1:2	CHD	
					ALT.	ALTD	T.J.Kumaravelu
					a	DRN	RAMANUJA RAO.PVN
INDIAN RAILWAY STANDARDS INTEGRAL COACH FACTORY, CHENNAI - 600038				SHEET 1 OF 1			
					AAC10041		
						A3	

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

REF.DRG.NO.

12-08-25

23-09-16



DATE OF LATEST ALT.

DATE OF FIRST ISSUE

AME/SME

1		2		3		4		5		6		7		8		
AAC10042				▽ ROUGH MACHINED		③ ROUGH CLEANED		REVISIONS								
				▽▽ FINISH MACHINED		④ BURRS REMOVED		ALT.		ZONE		DESCRIPTION			APPROVED & DATE	
				▽▽▽ FINE FINISH MACHINED		⑧ CHAMFERED										

1

102

96

R2

2

1	CLOSING PLATE	2X96X102	1		RDSO/SPEC C-K201 X2CrNi12	0.02	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-0		SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:			
CLOSING PLATE				SCALE	SSE/D	L. Panduranga Rao	
				1:1	CHD		
				ALT.	ALTD		
				DRN	RAMNAUJA RAO,PVN		
INDIAN RAILWAY STANDARDS				SHEET 1 OF 1		AAC10042	
INTEGRAL COACH FACTORY, CHENNAI - 600038						A3	

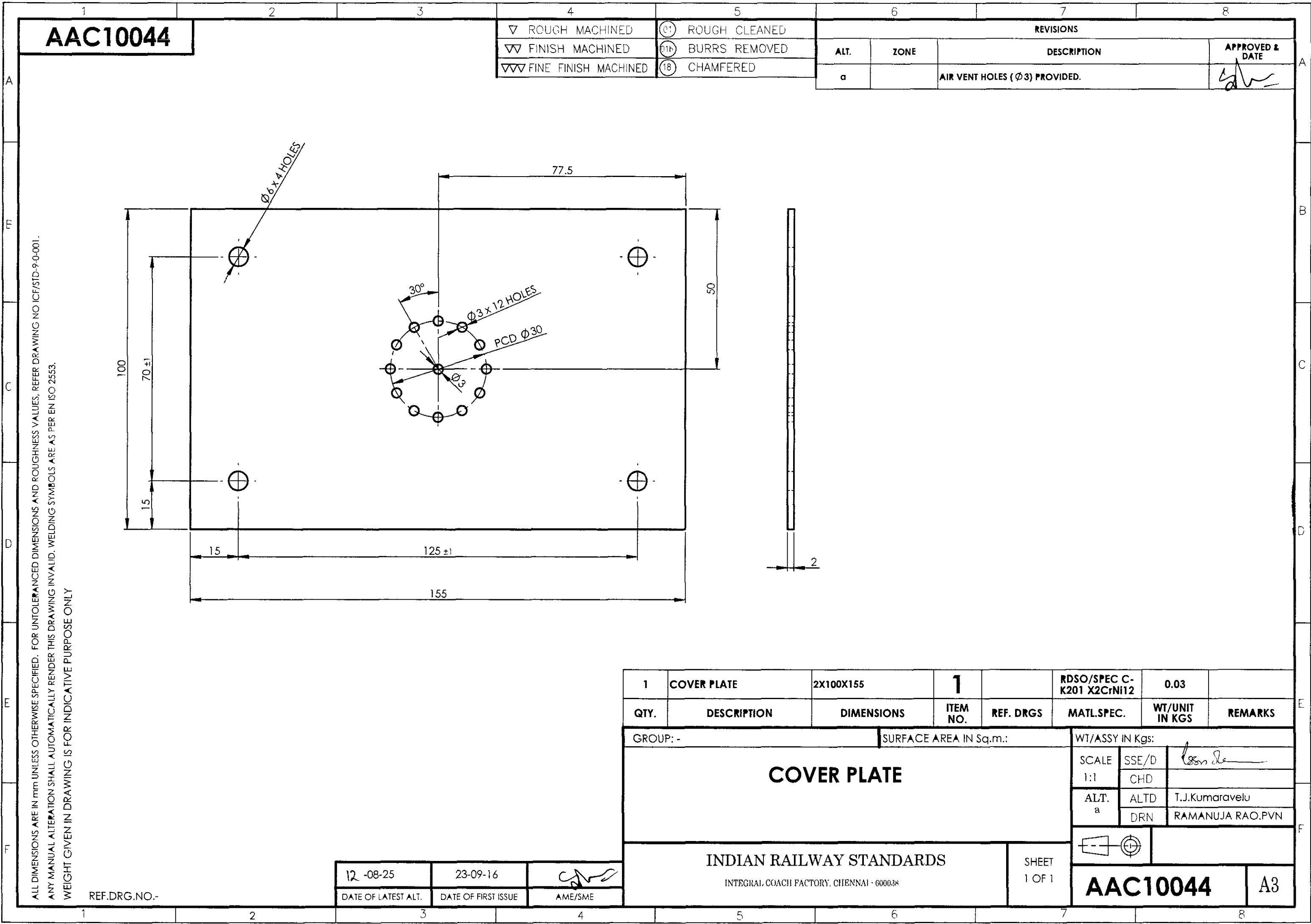
	23-9-16	
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME

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

REF.DRG.NO.-

1		2		3		4		5		6		7		8																																																							
AAC10043				▽ ROUGH MACHINED		① ROUGH CLEANED		REVISIONS																																																													
				▽▽ FINISH MACHINED		② BURRS REMOVED		ALT.		ZONE		DESCRIPTION																																																									
				▽▽▽ FINE FINISH MACHINED		③ CHAMFERED		APPROVED & DATE																																																													
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<div><div>1</div><div>96</div><div>30</div><div>3 X 45°</div><div>5</div></div>																																																																					
<table><tr><td>1</td><td>PLATE</td><td>5x30x96</td><td>1</td><td></td><td>RDSO/SPEC C-K201 X2CrNi12</td><td>0.11</td><td></td></tr><tr><td>QTY.</td><td>DESCRIPTION</td><td>DIMENSIONS</td><td>ITEM NO.</td><td>REF. DRGS</td><td>MATL.SPEC.</td><td>WT/UNIT IN KGS</td><td>REMARKS</td></tr><tr><td colspan="2">GROUP: 1-0</td><td colspan="2">SURFACE AREA IN Sq.m.:</td><td colspan="4">WT/ASSY IN Kgs:</td></tr><tr><td colspan="4" rowspan="4">PLATE</td><td>SCALE</td><td>SSE/D</td><td colspan="2" rowspan="4"><div><div></div><div>L. Danduranga Rao</div></div></td></tr><tr><td>1:1</td><td>CHD</td></tr><tr><td>ALT.</td><td>ALTD</td></tr><tr><td>DRN</td><td>RAMANUJA RAO,PVN</td></tr><tr><td colspan="4">INDIAN RAILWAY STANDARDS</td><td colspan="2">SHEET 1 OF 1</td><td colspan="2">AAC10043</td></tr><tr><td colspan="4">INTEGRAL COACH FACTORY, CHENNAI - 600038</td><td colspan="2"></td><td colspan="2">A3</td></tr></table>																1	PLATE	5x30x96	1		RDSO/SPEC C-K201 X2CrNi12	0.11		QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS	GROUP: 1-0		SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:				PLATE				SCALE	SSE/D	<div><div></div><div>L. Danduranga Rao</div></div>		1:1	CHD	ALT.	ALTD	DRN	RAMANUJA RAO,PVN	INDIAN RAILWAY STANDARDS				SHEET 1 OF 1		AAC10043		INTEGRAL COACH FACTORY, CHENNAI - 600038						A3	
1	PLATE	5x30x96	1		RDSO/SPEC C-K201 X2CrNi12	0.11																																																															
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AAE15086				▽ ROUGH MACHINED		(9) ROUGH CLEANED		REVISIONS																																																																									
				▽▽ FINISH MACHINED		(10) BURRS REMOVED		ALT.		ZONE		DESCRIPTION		APPROVED & DATE																																																																			
				▽▽▽ FINE FINISH MACHINED		(18) CHAMFERED																																																																											
<div>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 EN ISO 2553. WEIGHT GIVEN IN DRAWING IS FOR INDICATIVE PURPOSE ONLY</div> <div></div>																																																																																	
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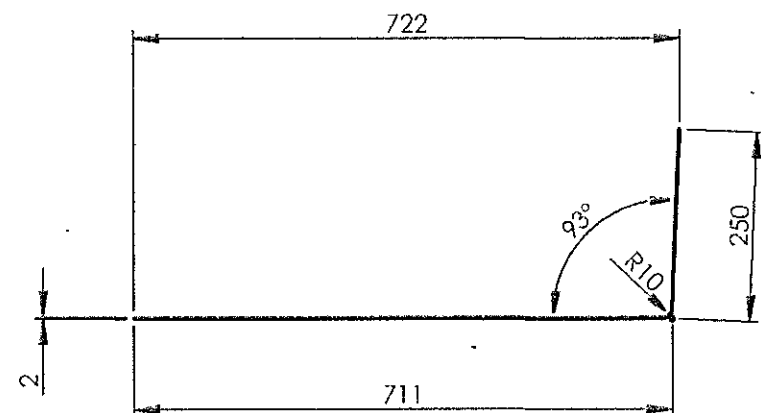
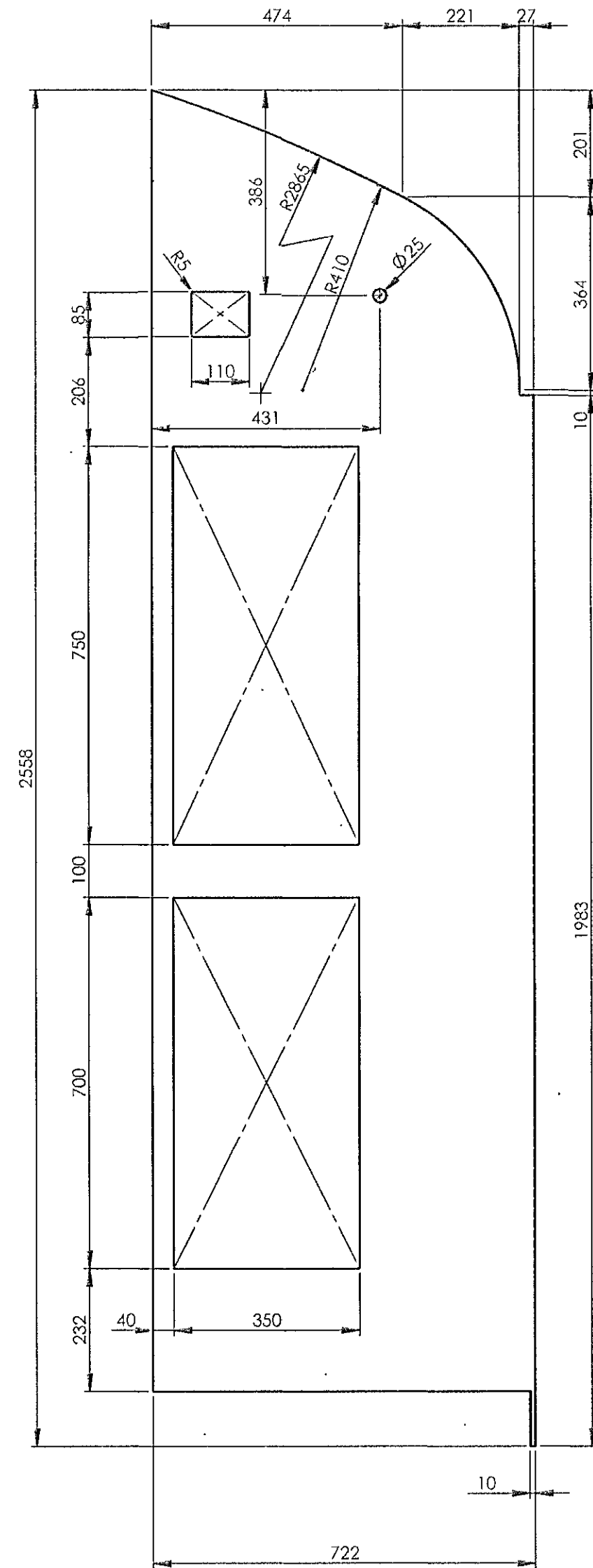
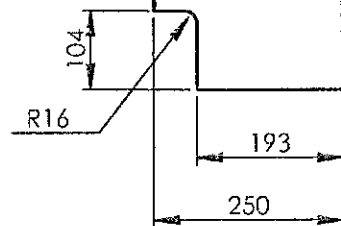
AAE15199

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

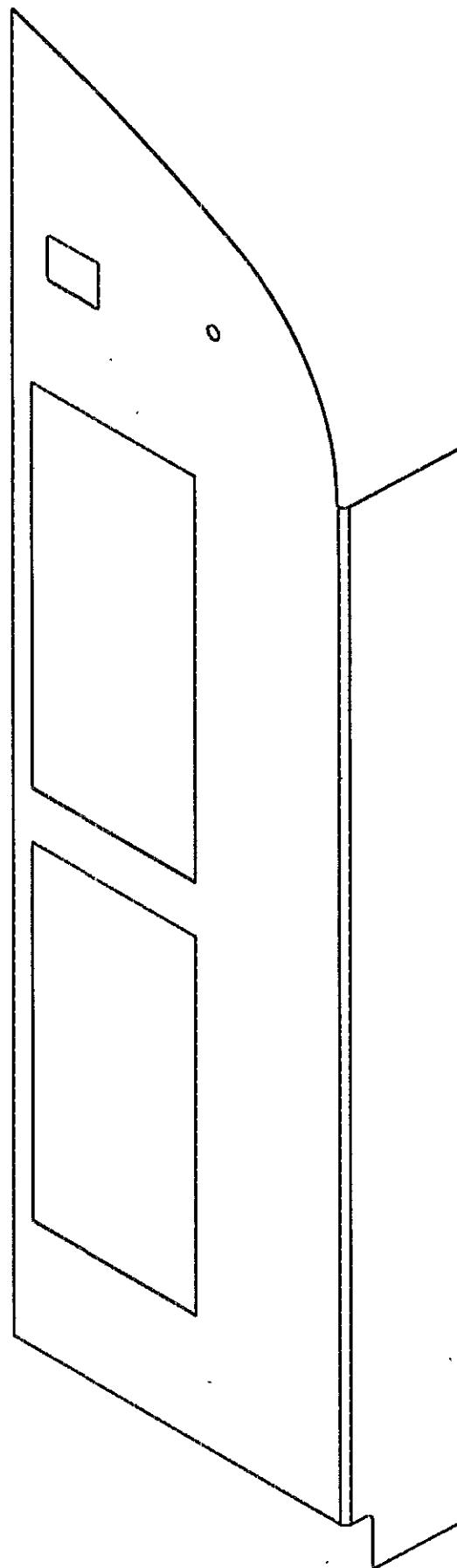
REVISIONS			
ALT.	ZONE	DESCRIPTION	APPROVED & DATE

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

1



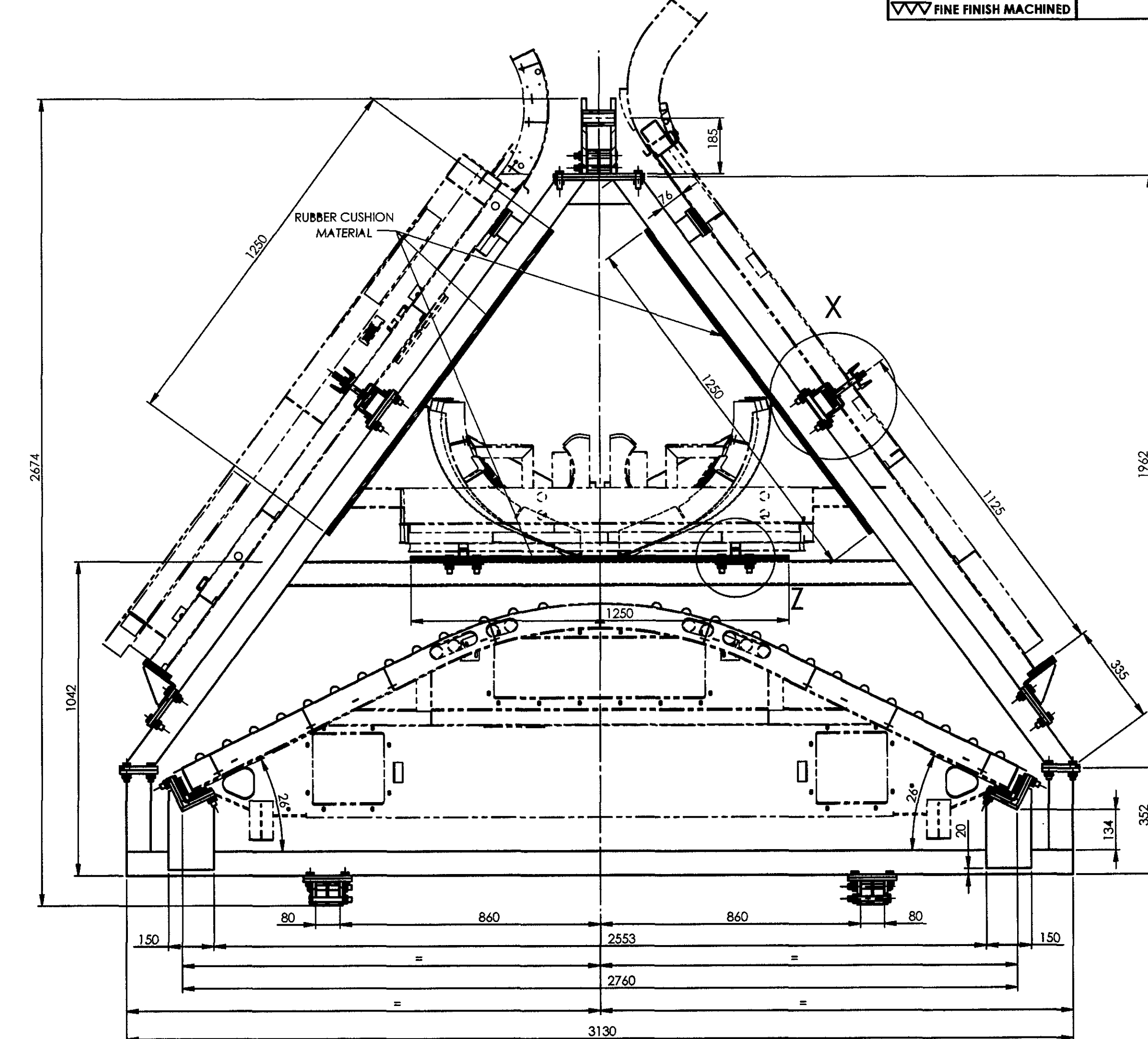
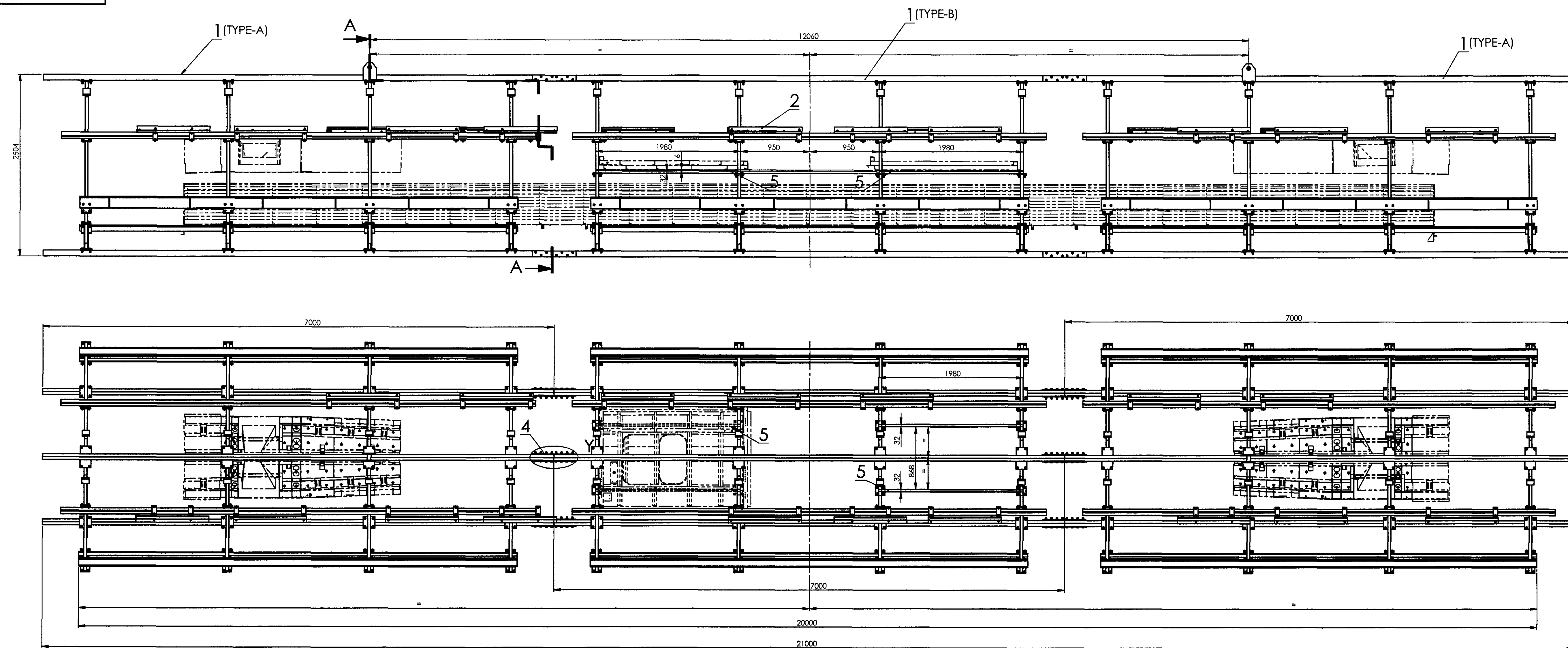
REF.DRG.NO.



ISOMETRIC VIEW

1	ENDWALL SHEET	2 x 955 x 2558	1		RDSO/SPEC C-K201 X2CrNi12	25.371	
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF. DRGS	MATL.SPEC.	WT/UNIT IN KGS	REMARKS
GROUP: 1-5 END CONSTRUCTION				SURFACE AREA IN Sq.m.:		WT/ASSY IN Kgs:	
ENDWALL SHEET (R.H)					SCALE 1:10	SSE/D	
						CHD	
					ALT	ALTD	
						DRN	Maresh
INDIAN RAILWAY STANDARDS					SHEET 1 OF 1		
INTEGRAL COACH FACTORY, CHENNAI - 600038					AAE15199		
					A2		

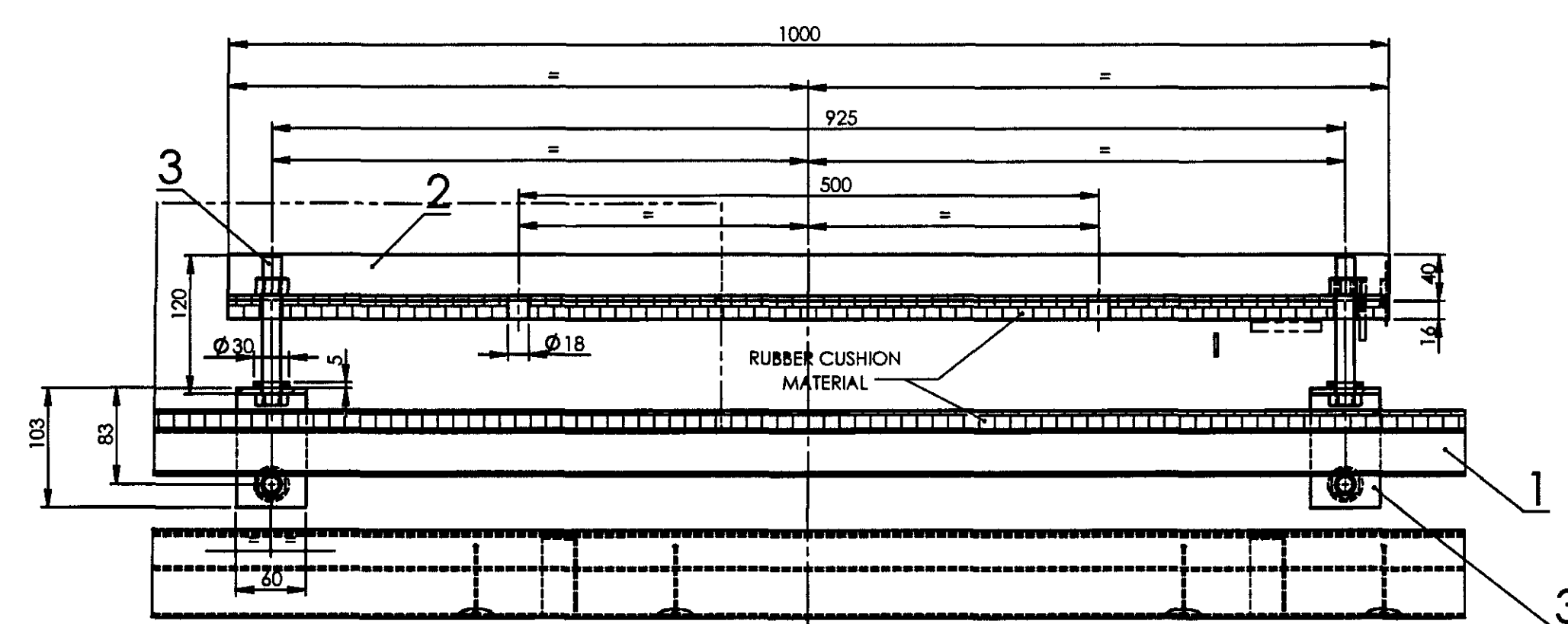
DATE OF LATEST ALT	16-02-2026	AME/SME
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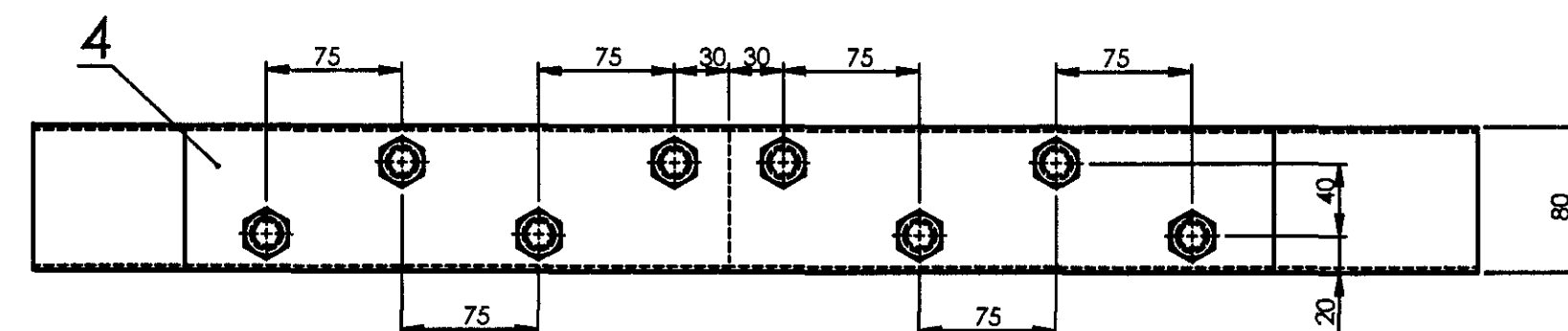
SECTION A-A

NOTE:

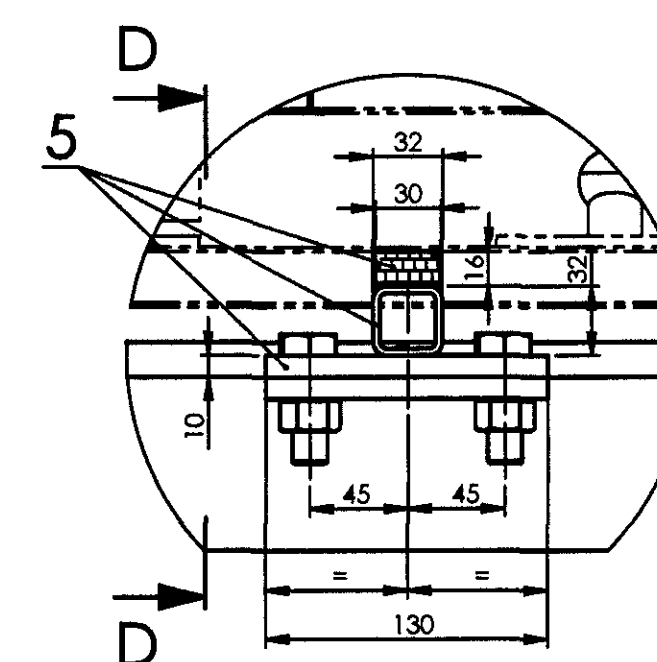
1. ALL THE THREE A-FRAME COMPLETE MODULES SHOULD BE BOLTED AS SHOWN AND COMPLETE ASSEMBLY SHALL BE OF ADEQUATE STRENGTH FOR TRANSPORTING AND LIFTING, MUST BE SUITABLE FOR HANDLING WITH CRANE.
2. PACKING SHALL BE SUCH THAT ROOF, SIDE WALL, LAY, SIDE WALL AND FINAL ROOF ELEMENT SHALL NOT GET DAMAGED WHILE TRANSPORTING AND LIFTING.
3. WOODEN PACKING MUST BE PROVIDED SUITABLY TO ARREST THE MOVEMENT OF SIDE WALL, ROOF AND OTHER ELEMENTS.
4. ROOF ASSEMBLY SHOULD BE CLAMPED BY USING TIGHTENING BANDS (MIN. 6 NOS.) AND RUBBER PACKING AT THE CONTACT SURFACES.
5. FINAL ROOF ELEMENT COMPLETE ASSEMBLY AND LAY, SIDE WALL ASSEMBLY SHOULD BE CLAMPED BY USING TIGHTENING BANDS AND RUBBER PACKING SUITABLY BONDED WITH THE FRAME AT THE CONTACT SURFACES AS SHOWN IN SECTION AA, TO AVOID CONTACT BETWEEN A-FRAME COMPLETE MODULES AND COMPONENTS.
6. SIDE WALL OF LHB & DPRS SHOULD BE CLAMPED WITH RUBBERISED CUSHION MATERIAL TO ITS FULL LENGTH AS SHOWN IN DETAIL X AND EXTRA CLAMPING ARRGT. WITH RUBBERISED CUSHION MATERIAL CAN BE USED FOR SAFETY.
7. FOR SIDE WALL WITHOUT WINDOW OPENINGS, SUITABLE NYLON OR METAL WITH RUBBERISED CUSHION MATERIAL SHALL BE USED FOR CLAMPING AND SHOULD HAVE ADEQUATE STRENGTH.
8. ALL THREADED HOLES IN ROOF AND SIDE WALL SHOULD BE PLUGGED WITH PLASTIC DUMMY SCREWS TO AVOID DAMAGE OF THREADED HOLES.
9. RUBBER BEADING TO BE PROVIDED FOR ENTIRE LENGTH OF RAIN WATER GUTTER IN SIDE WALL SHEET.
10. A-FRAME COMPLETE MODULE ASSEMBLY SHOULD BE PAINTED PERIODICALLY ONCE IN A YEAR.
11. DATE OF PAINTING & DUE DATE FOR PAINTING SHOULD BE INDICATED IN THE FRAME.
12. ALL THE FASTENERS SHOULD BE RECHECKED AND REPLACED, IF THERE ARE ANY DAMAGES, BEFORE EVERY TRANSPORTATION.
13. DETAILED NAME PLATE INDICATING SUPPLIER NAME, MONTH & YEAR OF MANUFACTURE, TO BE FIXED ON THE FRAME.
14. RELEVANT PACKING CONDITION MAY BE REFERRED IN ICF/MOD/SPEC-485 MASTER LIST OF PACKING CONDITION FOR BOUGHT OUT ITEMS.



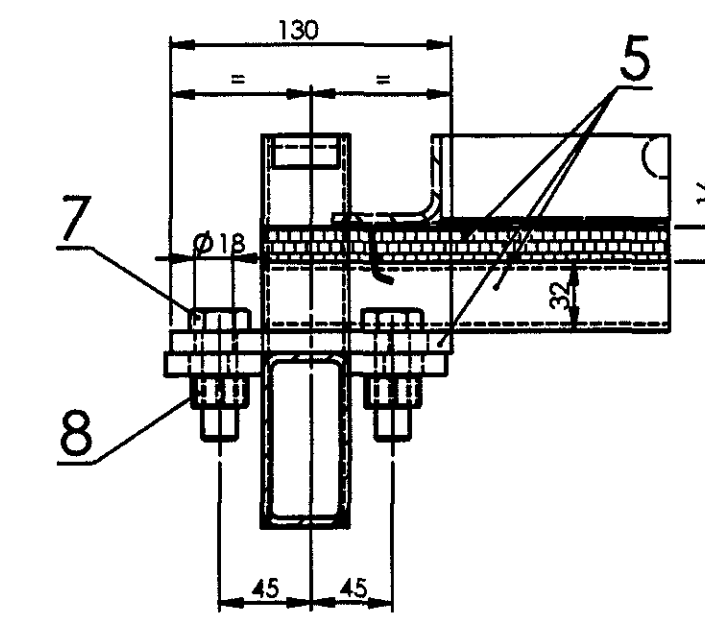
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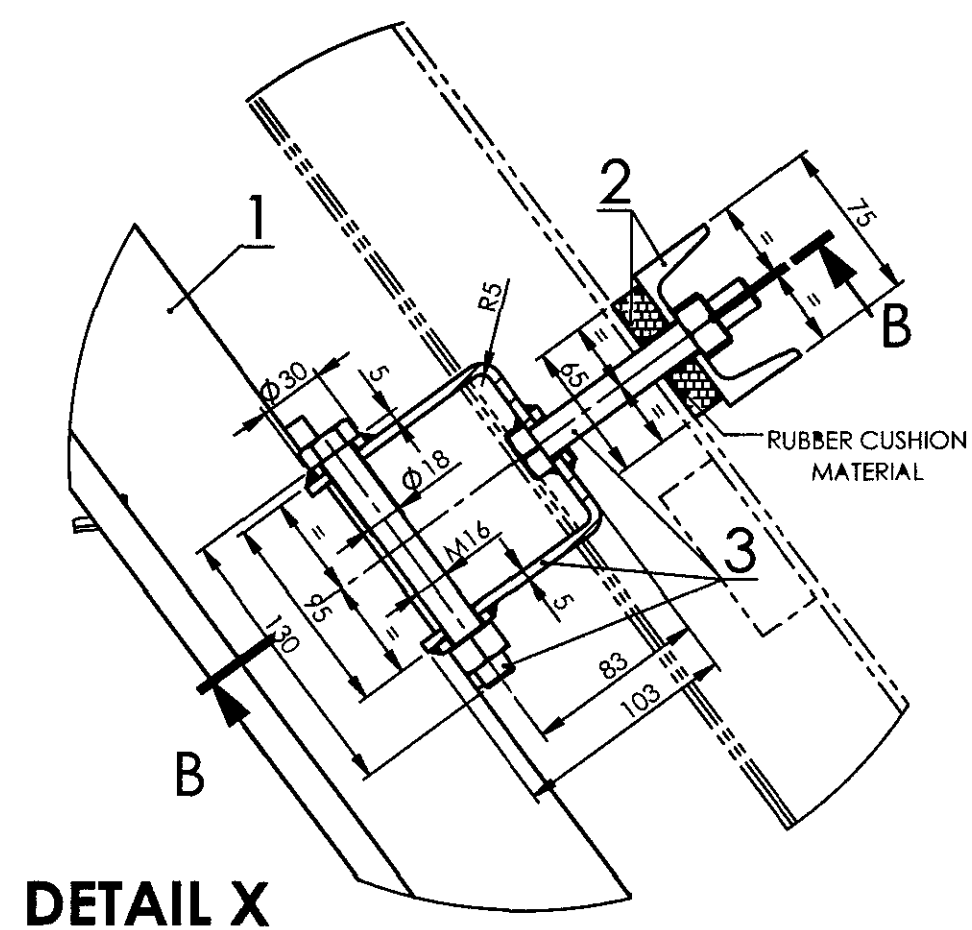
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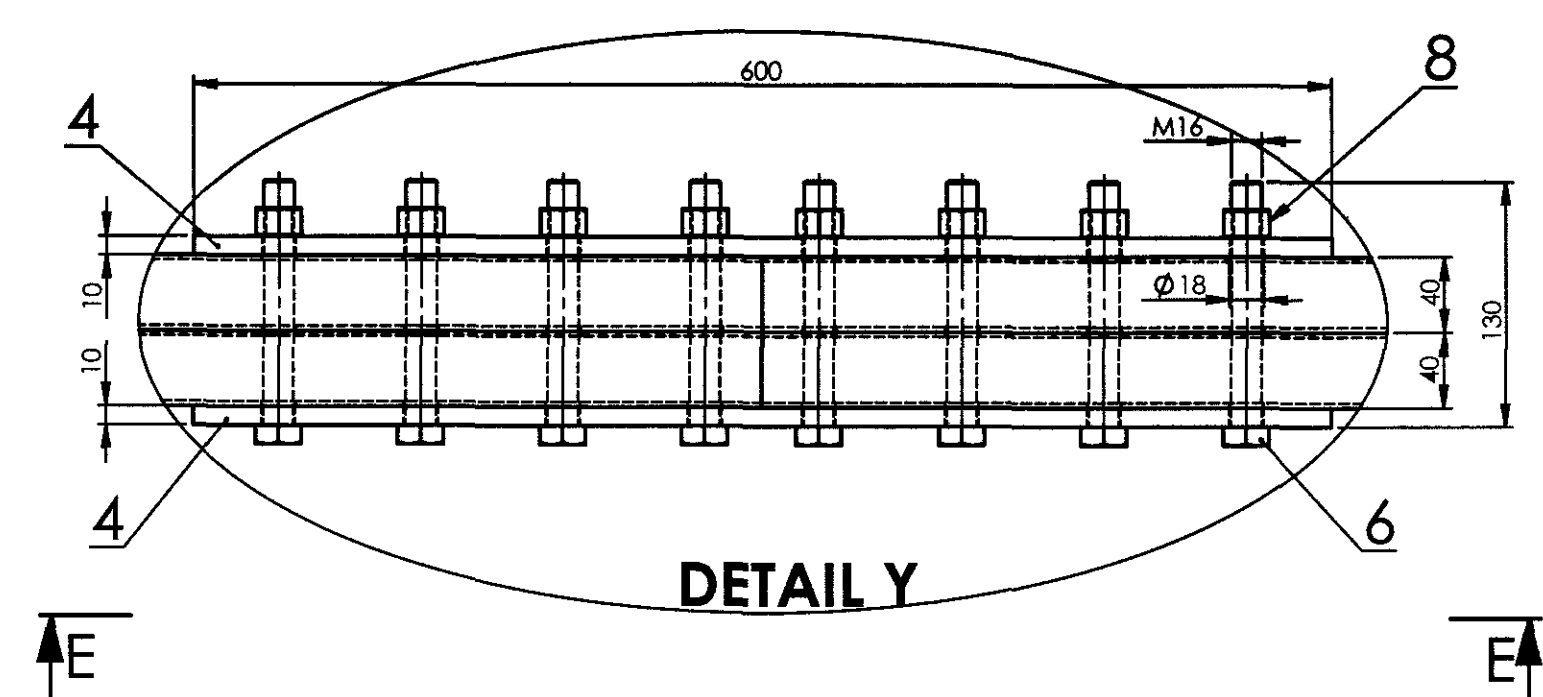
DETAIL Z



SECTION D-D



DETAIL X




DETAIL Y

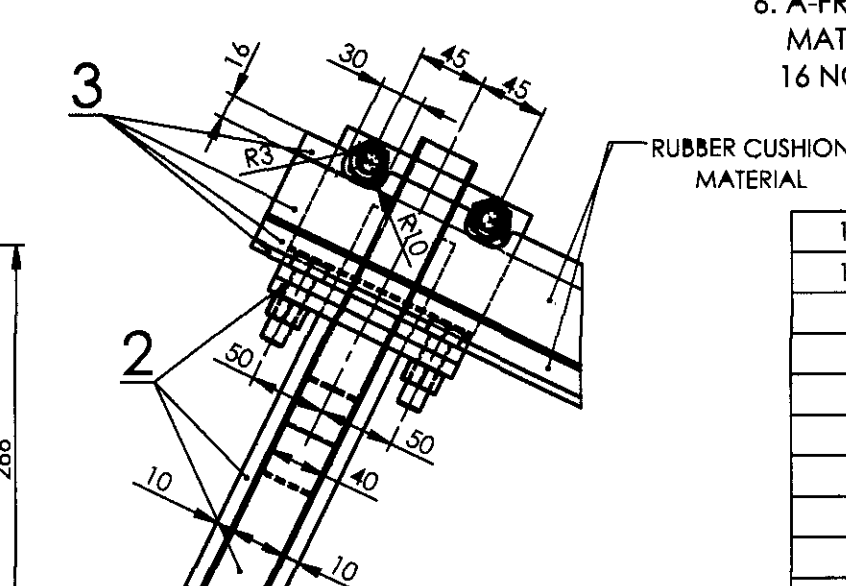
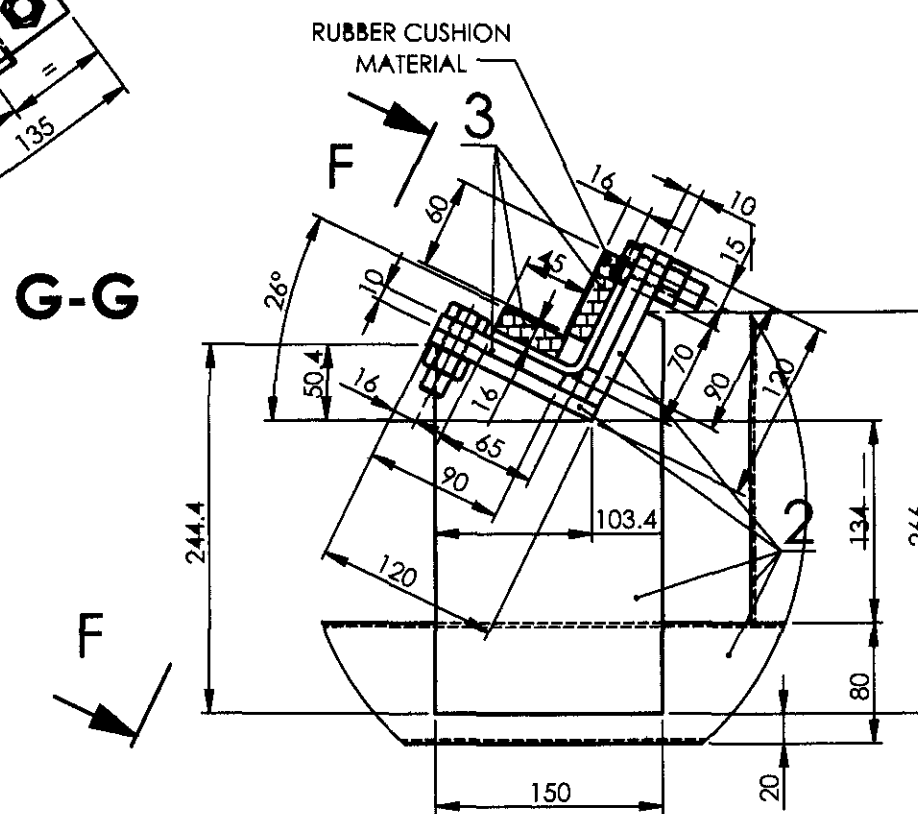
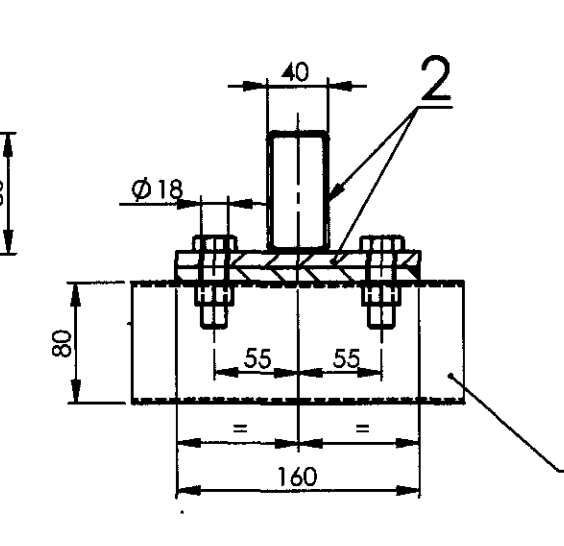
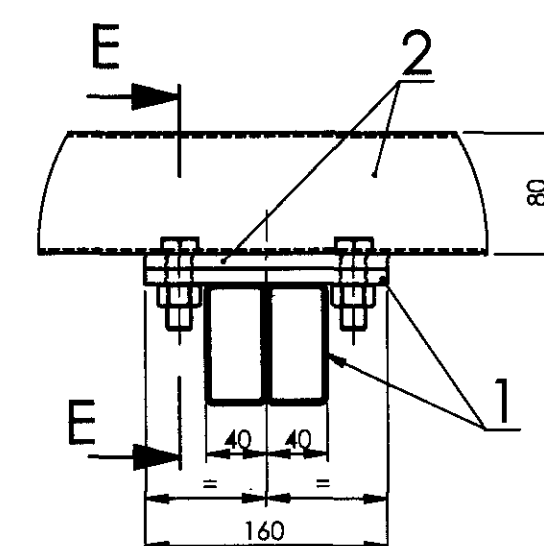
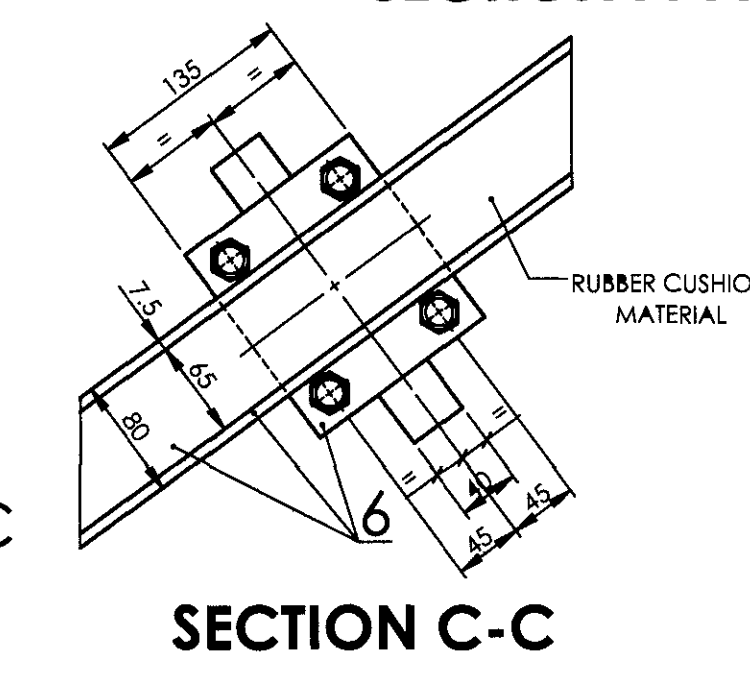
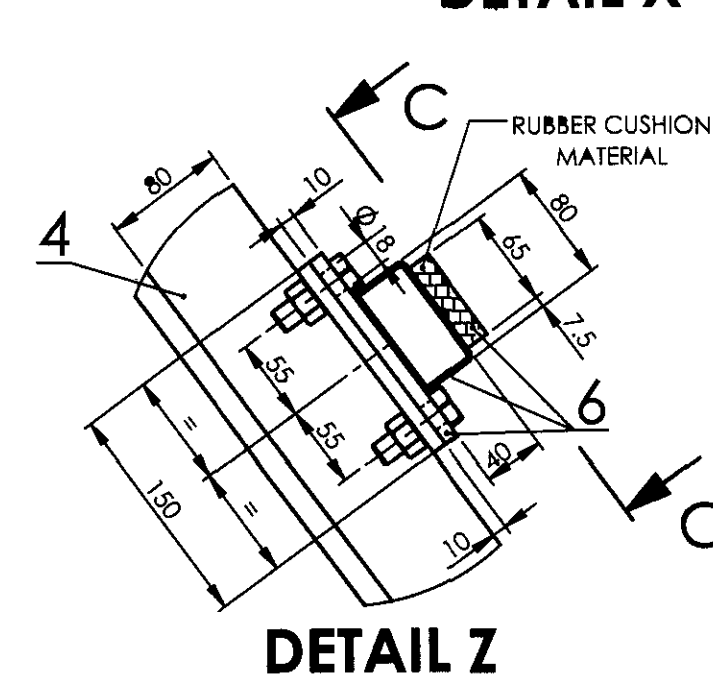
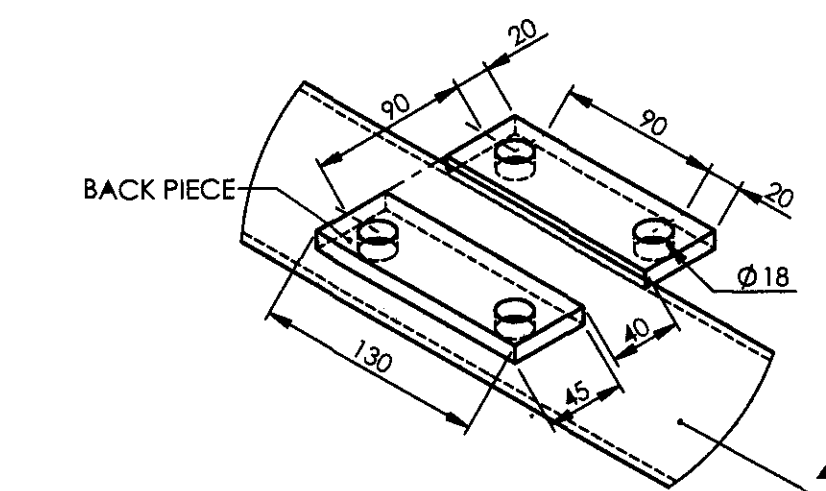
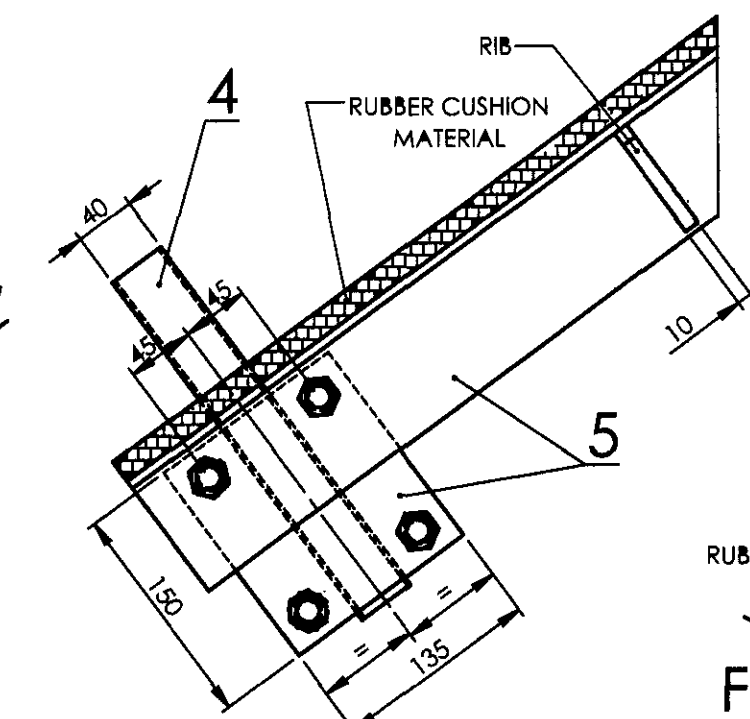
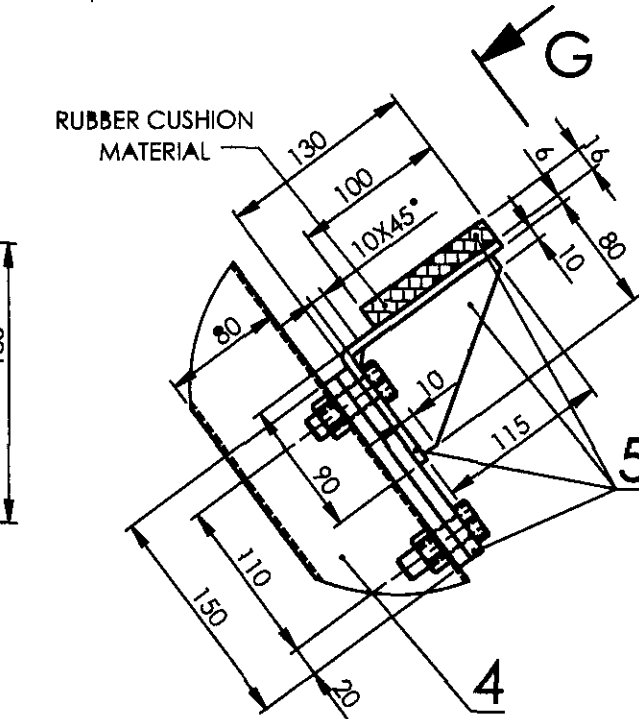
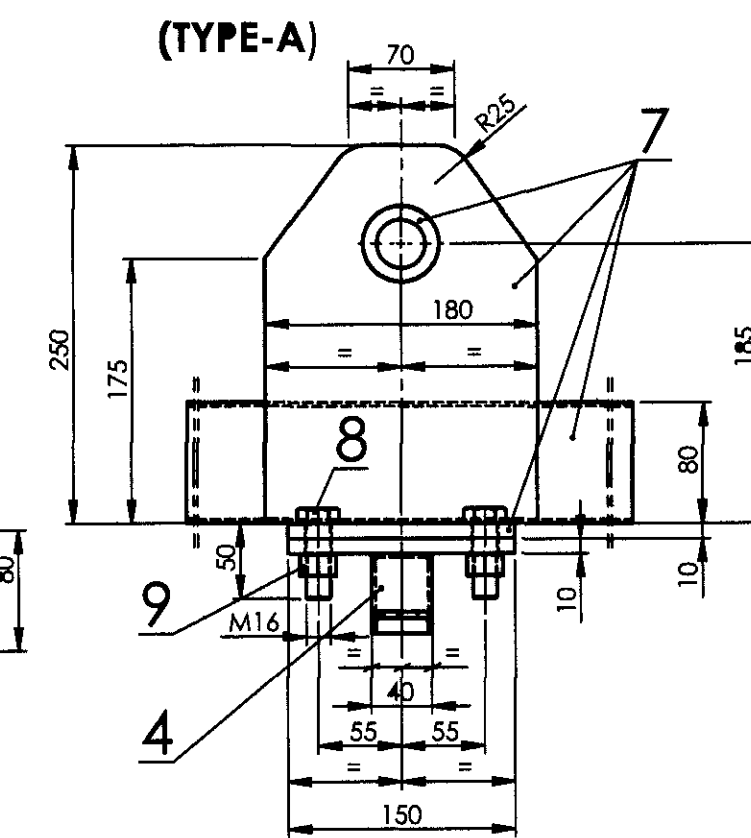
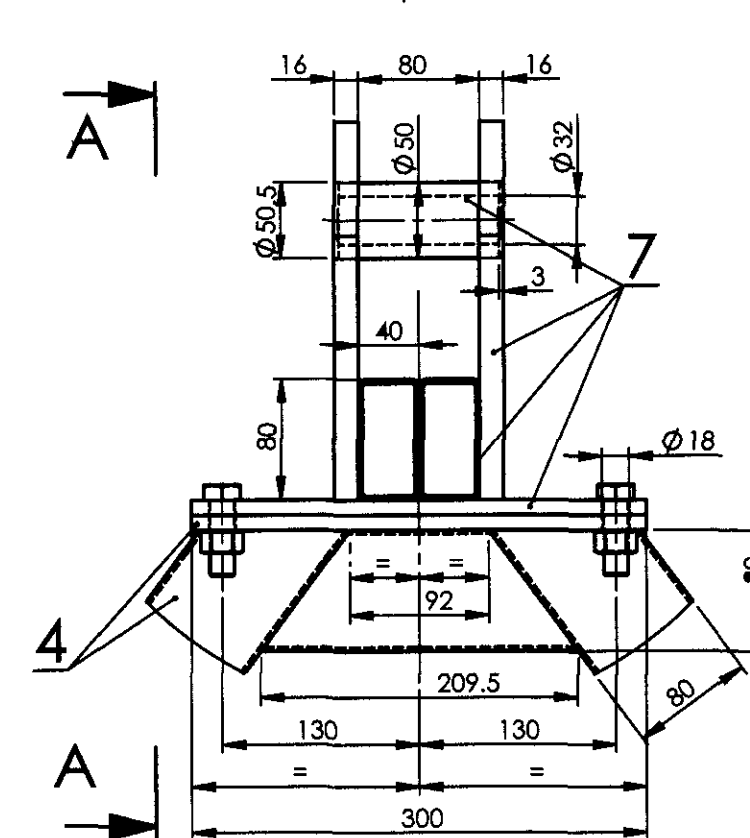
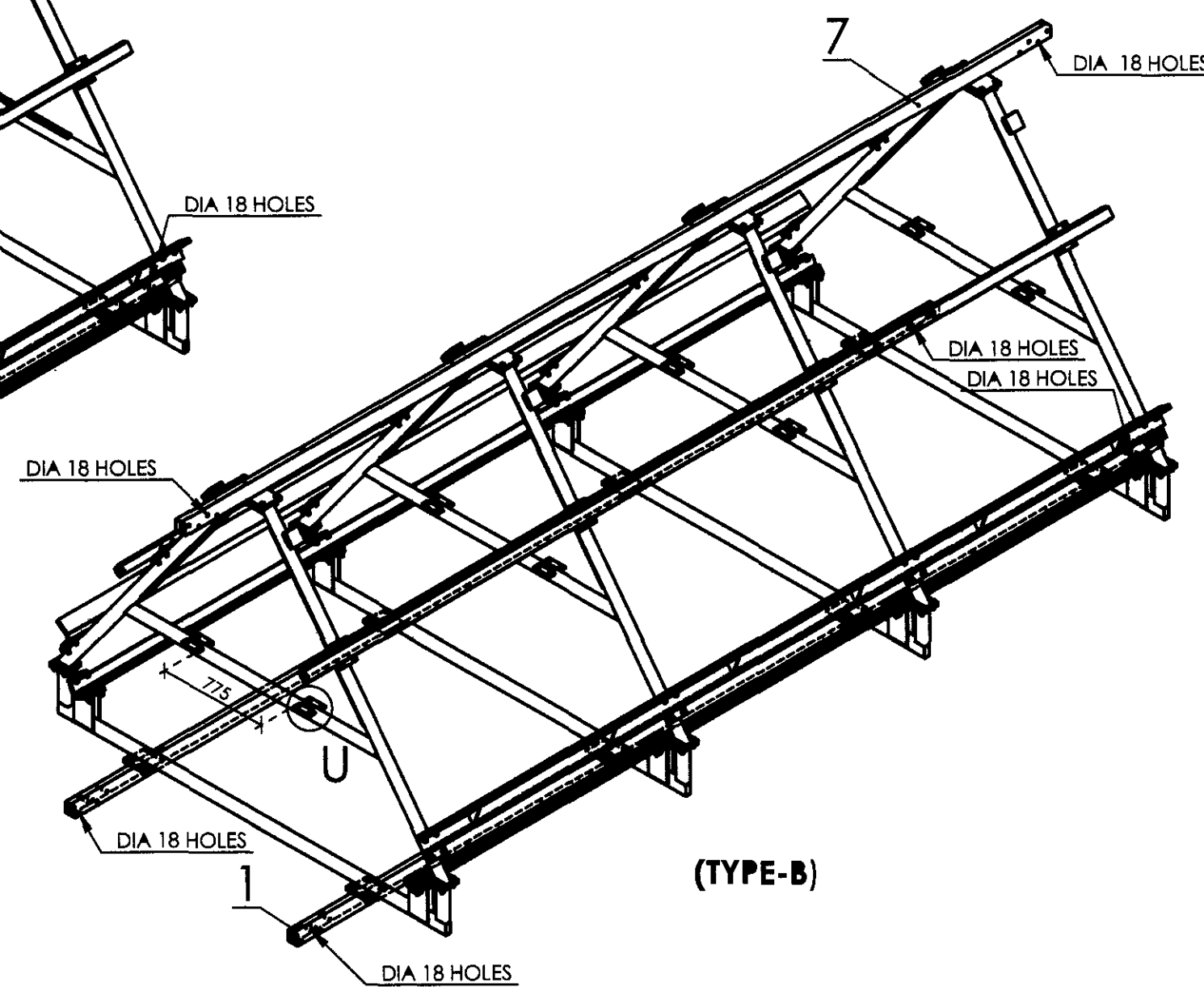
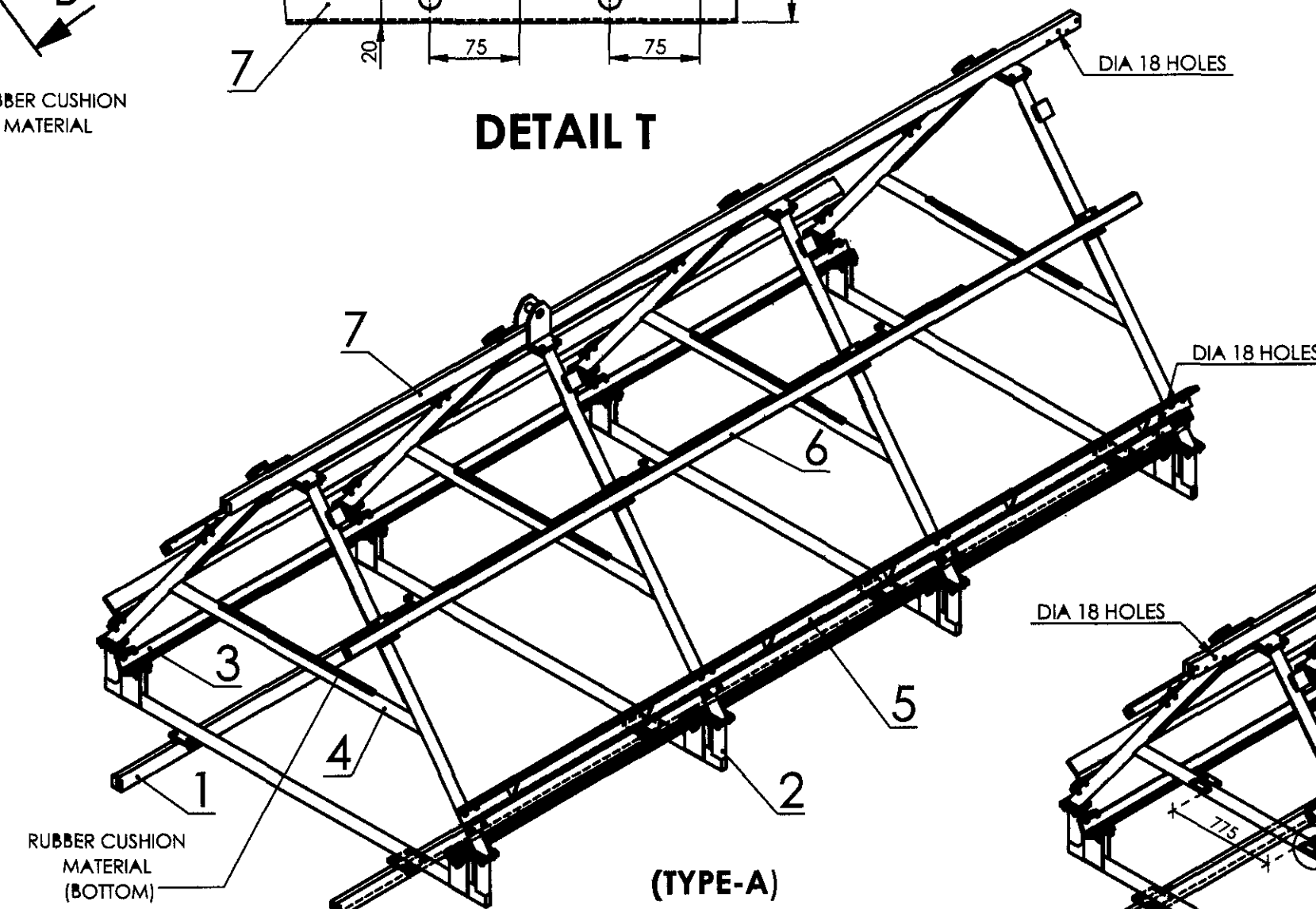
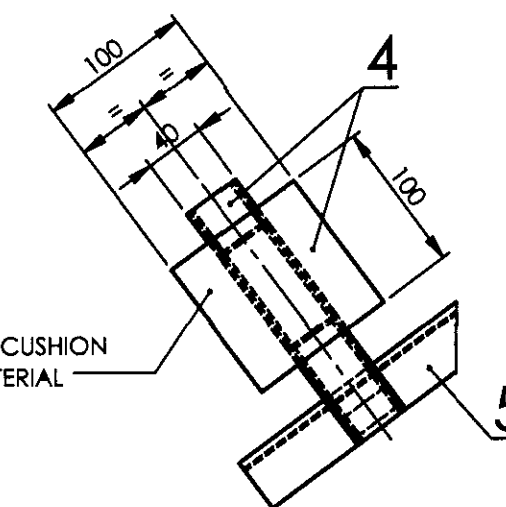
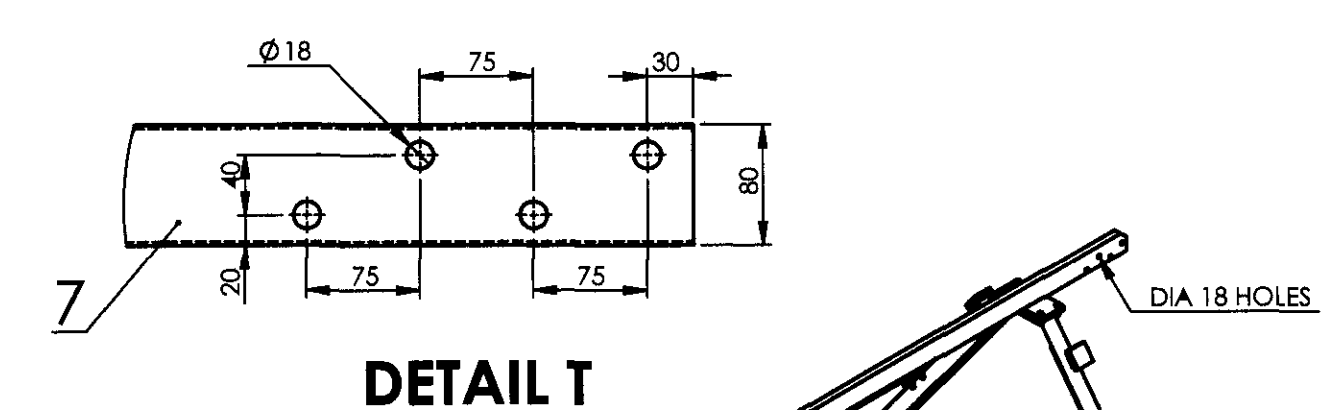
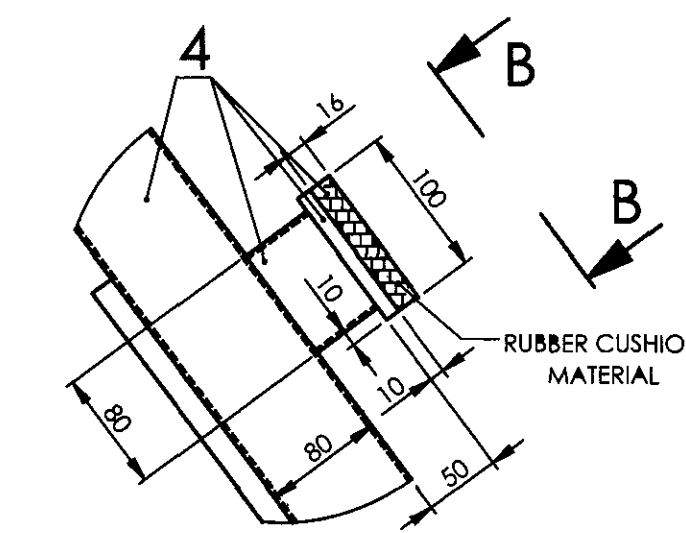
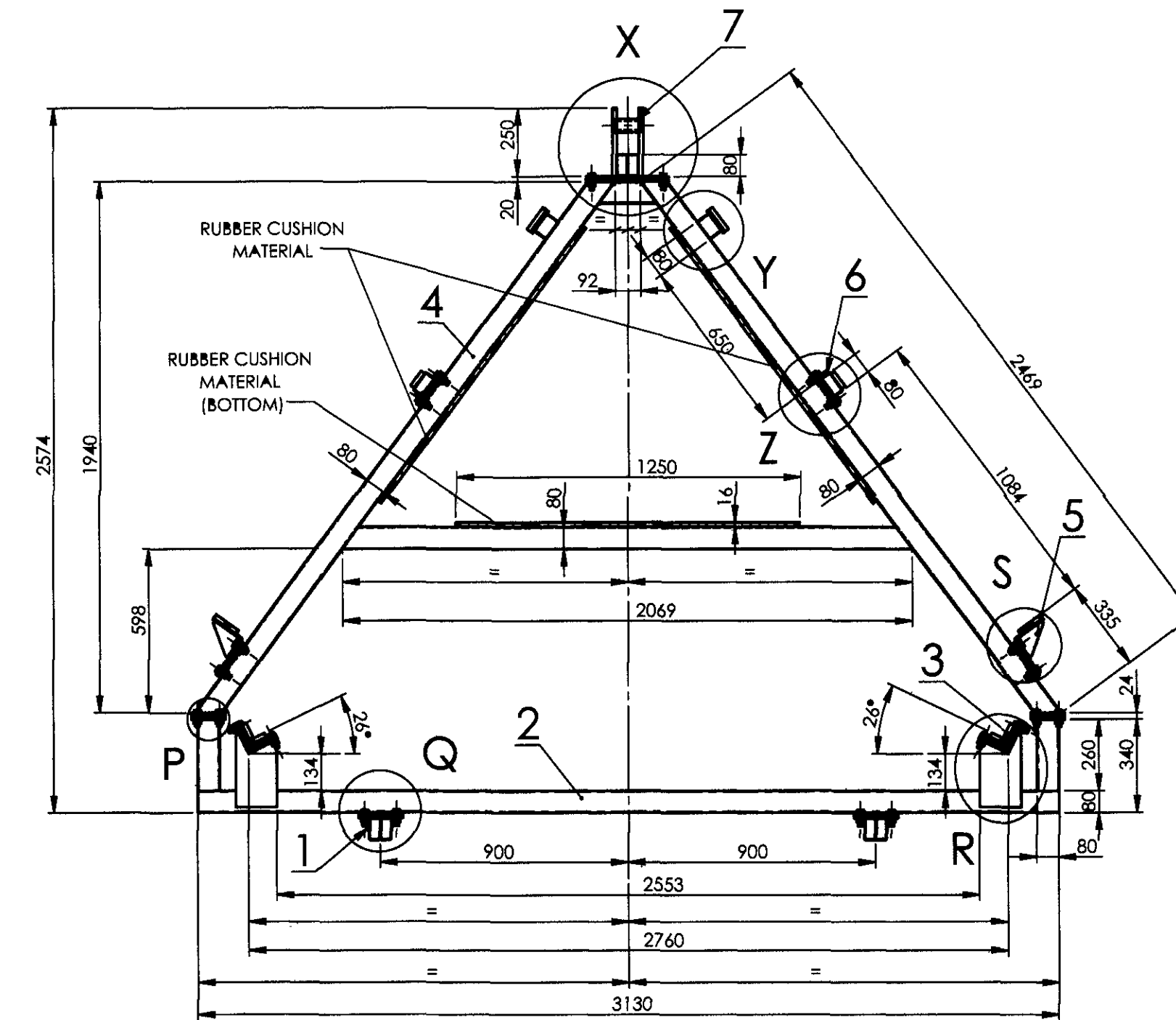
THE PACKING FRAMES/STRUCTURES ARE TO BE TAKEN BACK BY THE SUPPLIER FROM ICF PREMISES AFTER THE COMPONENTS ARE TAKEN FOR PRODUCTION

80	HEX.NUT	M16	8		IS:1364-18	PART-3
32	HEX.HD.BOLT	M16x50	7		IS:1364-18	PART-2
48	HEX.HD.BOLT	M16x130	6		IS:1364-18	PART-2
4	LA-SIDE WALL FRAME		5			
12	MODULE LOCK PLATE		4		IS: 2062-11 E250A	
	LOCKING ARRGT.		3			
	CHANNEL LOCK		2			
2	SPRAME COMPLETE MODULE		1	1CF/1M/1MISC-2201/02		
QTY.	DESCRIPTION	DIMENSIONS	ITEM NO.	REF.DWG.NO	MATL. & SPEC.	REMARKS

TRANSPORTING ARRANGEMENT FOR LHB & DPRS SIDE WALL AND ROOF (A-FRAME COMPLETE MODULE ASSEMBLY)

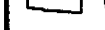
		ASSEMBLY DRAWINGS
28-03-2026	18-02-2009	<i>Anthony Culp</i>
DATE OF LATEST ALT.	DATE OF FIRST ISSUE	SMI/AME

Weight (kg)		4250 [APPROX.]
SCALE	SSE/D	C. Padma Kumar
1:5	CHD	Padmakumar C.
ALT f	ALTD	
	DRN	C.Satishkumar
		INTEGRAL COACH FACTORY CHENNAI - 600038



1. ALL FRAMES (ITEMS 1 TO 7) ARE TO BE FULLY WELDED AND SHOULD BE OF ADEQUATE STRENGTH FOR TRANSPORTING AND LIFTING.
2. ALL FRAMES ARE TO BE FABRICATED BY RECTANGULAR HOLLOW SECTION 80x40x3.2 IS-4923-97 AND PLATES OF IS-2062-11 E250A.
3. THE A-FRAME COMPLETE MODULE MUST BE SUITABLE FOR HANDLING WITH CRANE.
4. SUITABLE RUBBERISED CUSHION MATERIAL TO BE PROVIDED IN FULL LENGTH AS SHOWN AND BONDED SUITABLY, TO AVOID CONTACT BETWEEN A-FRAME COMPLETE MODULE & COMPONENTS.
5. ALL FRAMES (ITEMS 1 TO 7) ARE TO BE ASSEMBLED BY SUITABLE BOLTS AND NUTS (M16).
6. A-FRAME (TYPE-B) COMPLETE MODULE DOES NOT HAVE LIFTING HOOK ASSY. BOTTOM RUBBER CUSHION MATERIAL IN ITEM-4. DIA 18 HOLES TO BE PROVIDED ON BOTH SIDES AS SHOWN IN DETAIL T FOR ITEM-1 & 7. 16 NOS. BACK PIECE, AS SHOWN IN DETAIL U, SHOULD BE WELDED IN A-FRAME (TYPE-B) ONLY.

176	HEX.NUT	M16	9		IS:1364-18	PART-3
176	HEX.HD.BOLT	M16X50	8		IS:1364-18	PART-2
1	TOP FRAME		7			
2	SIDE SUPPORT FRAME		6			
2	SIDE REST FRAME		5			
4	A FRAME		4			
2	BOTTOM REST FRAME		3			
4	BOTTOM FRAME		2			
2	BASE FRAME		1			
QTY.	DESCRIPTION	DIMENSIONS	ITEM	REF.DRG.NO	MATL. & SPEC.	REMARKS

A-FRAME COMPLETE MODULE		Weight (kg)		992.95 (APPROX.)
		SCALE 1:5	SSE/D.	C. Padmakumar
			CHD	Padmakumar C.
		ALT -	ALTD	
			DRN	C.Satishkumar
				INTEGRAL COACH FACTORY, CHENNAI - 600038
		ICF/J&T/MISC-2201/02		