

	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2	Rev. 29	Project: PRASA SI.CB2220.250.V29	
		Date 28/10/2023		
Car: M1,M3&M4		NCR:		Work station: CB2220

Safety Related

I - Documentation and Instruments Control

1.1 - Documentation Control

Document	Type of car					Revision	Observation	OK	N/A	Signature/Date (Manufacturing)	Signature/Date (Quality)	
	D	T	M	S	C							
DTR30225487/2	X					29	28-10-2023	X		N/A	 05-06-24	 05/06/24

1.2 - Instruments Control

Monitoring and Measuring Instrument Control - Used for Special Process						
Instruments	Serial number	Calibration or Verification Validation Date	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
Tubular	32823	15/03/2024	X		 05-06-24	 05/06/24
measuring tape	6557110321	06/06/2023	X		 05-06-24	


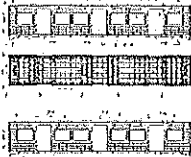


1.3 Consumables


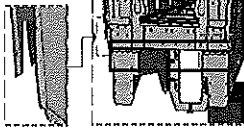
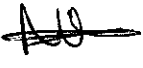
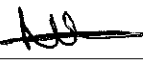
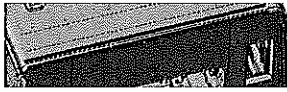
Welding Consumable Control - Used for Special Process						
Filler Material	Heat Number	Welding Process	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
308	513719	MIG	X		 05-06-24	 05/06/24

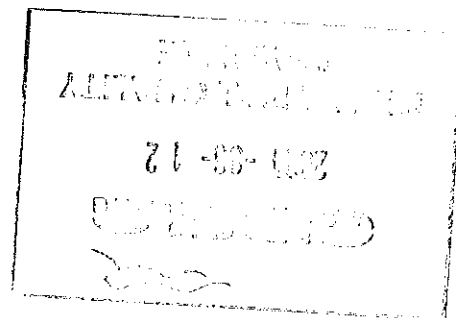
RECEIVED


21-05-2023

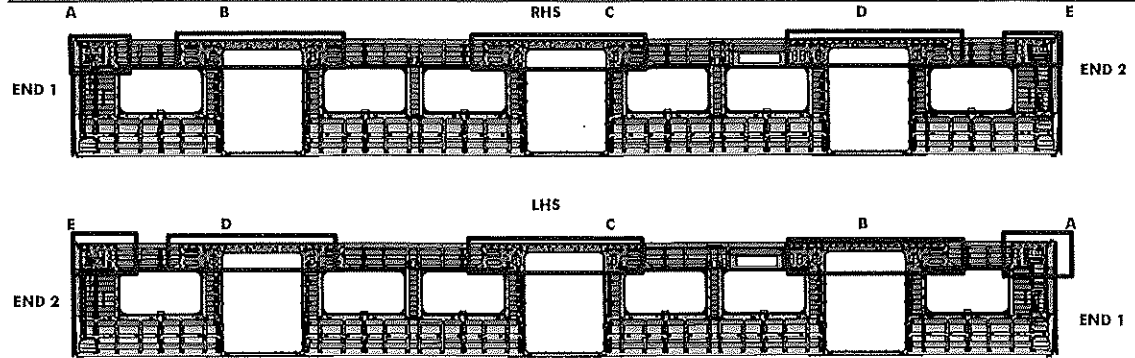
05-06-24

GIBEL		CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2		Rev. 29 Date 28/10/2023	Project: PRASA SI.CB2220.250.V29	
II - Self Inspection - Items to Check						
II.1 - Items to check						
Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
01	N/A	Assembly according to Instruction Engineering n° PRA.CB2220.DTR30225487/2 Verification of fitment for all reinforcement brackets.	PRA.CB2220.DTR30225487/2	✓	05-06-24	05/06/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	✓	05-06-24	05/06/24
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓	05-06-24	05/06/24
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓	05-06-24	05/06/24
05		Functionals dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	✓	05-06-24	05/06/24
06		Perform visual inspection of welds in 100% of the project. Run by penetrant testing in electric arc welding (weld ring) as IND-SAL-WMS-010. Run by penetrant testing welds (weld ring) and fillet sampling as described in DTD0000210658.	As the welding procedure IND-SAL-WMS-010 and DTD0000210658.	✓	05-06-24	05/06/24
07	N/A	Before application of sealant record the expiry date and make sure that the room temperature and humidity are within specified values as per Works Instructions Specified: Temperature Min - Max (I) Min-Max 10°C - 35°C Relative humidity Min - Max (I) Min-Max 25% - 80%	Sealant Batch No: 3447 Exp Date: 09/06/24 Actuals Temperature: 10 Humidity: 66	✓	05/06/24	05/06/24
08	NA	Verification of sealant application in certain regions in the drawing.	AAD0001278565	✓	05-06-24	05/06/24
09		Verification of safety welds	Approved according to DTD000210658 reference and Self inspection	✓	05-06-24	05/06/24

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		29	
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II - Self Inspection - Items to Check			
SEALANT APPLICATION			
		<div style="border: 1px solid black; padding: 5px;"> AREA 1 & 2 END 1 Operator (Name & sign): Mithakgisi  Operator (Name & sign): Mithakgisi  </div>	
			

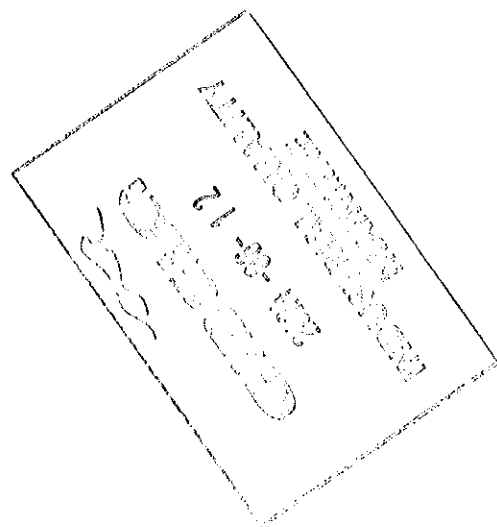



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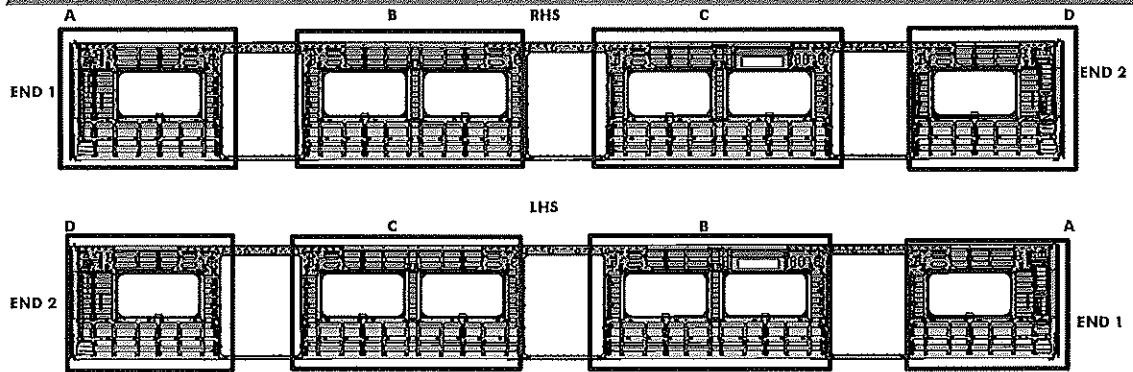
REINFORCEMENT WELDING

AREA	LHS	RHS
A	Operator (Name&sign): <u>Nkulungu Dima</u>	<u>Sibisi</u>
B	Operator (Name&sign): <u>Nkulungu</u>	<u>Sibisi</u>
C	Operator (Name&sign): <u>Manki</u>	<u>Thocani</u>
D	Operator (Name&sign): <u>Sibisi</u>	<u>Thocani</u>
E	Operator (Name&sign): <u>Sibisi</u>	<u>Thocani</u>




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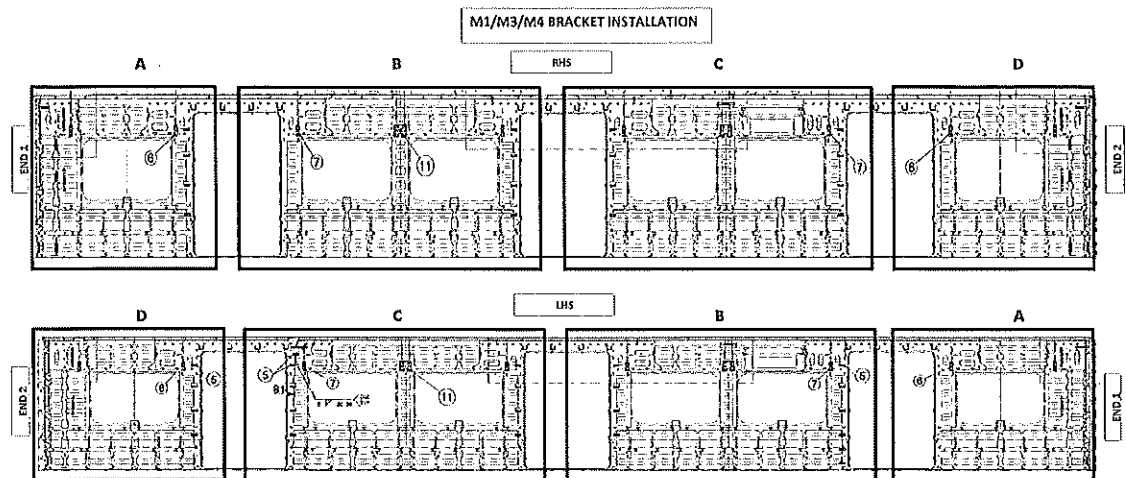
II - Self Inspection - Items to Check



BRACKETING

INSTALLATION		
C-RAILS:	Operator: <u>M. Michalos</u>	
	Operator: _____	
DOOR MECHANISMS:	Operator: <u>LINDO</u>	
	Operator: _____	
TAPPING PADS	Operator: <u>END 2</u>	
	Operator: _____	
INSTALLATION & VERIFICATION		
SEAT & LUGGAGE BRACKETS:	Operator: <u>Teled</u>	
	Operator: _____	
SEAT BRACKETS VERIFICATION:	Operator: <u>BARDA</u>	
	Operator: _____	
WELDING		
AREA	LHS	RHS
A (Seat brackets)	Operator (Name&sign): <u>LINDO</u>	Operator (Name&sign): <u>LINDO</u>
(C-rails, Luggage and earth bushes)	Operator (Name&sign): <u>LINDO</u>	Operator (Name&sign): <u>LINDO</u>
B (Seat brackets)	Operator (Name&sign): <u>LINDO</u>	Operator (Name&sign): <u>LINDO</u>
(C-rails, Luggage and earth bushes)	Operator (Name&sign): <u>LINDO</u>	Operator (Name&sign): <u>LINDO</u>
C (Seat brackets)	Operator (Name&sign): <u>[Signature]</u>	Operator (Name&sign): <u>[Signature]</u>
(C-rails, Luggage and earth bushes)	Operator (Name&sign): <u>[Signature]</u>	Operator (Name&sign): <u>[Signature]</u>
D (Seat brackets)	Operator (Name&sign): <u>[Signature]</u>	Operator (Name&sign): <u>[Signature]</u>
(C-rails, Luggage and earth bushes)	Operator (Name&sign): <u>[Signature]</u>	Operator (Name&sign): <u>[Signature]</u>
ENDS		
END 1 TAPPING PADS WELDING:	Operator (Name&sign): <u>[Signature]</u>	
END 2 TAPPING PADS WELDING:	Operator (Name&sign): <u>[Signature]</u>	

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		Date 28/10/2023	
		II - Self Inspection - Items to Check	



QUANTITIES (M3/M4)

RHS

	SECTION	QUANTITY	OK	NOK
C-RAILS	A	7		
	B	4		
	C	8		
	D	6		
SEAT BRACKETS	A	13		
	B	21		
	C	21		
	D	13		
EARTH BUSH	A	3		
	B	5		
	C	4		
	D	3		

ROOF ENDS:
 CRAILS 2 OFF EACH END
 EARTH BUSH 6 OFF EACH END

VERIFICATION BY: _____

LHS

	SECTION	QUANTITY	OK	NOK
C-RAILS	A	2		
	B	8		
	C	11		
	D	8		
SEAT BRACKETS	A	13		
	B	21		
	C	21		
	D	13		
EARTH BUSH	A	3		
	B	5		
	C	6		
	D	2		

ROOF ENDS:
 CRAILS 2 OFF EACH END
 EARTH BUSH 6 OFF EACH END

VERIFICATION BY: _____

QUANTITIES (M1)

RHS

	SECTION	QUANTITY	OK	NOK
C-RAILS	A	7		
	B	8		
	C	8		
	D	8		
SEAT BRACKETS	A	13		
	B	21		
	C	21		
	D	13		
EARTH BUSH	A	2		
	B	4		
	C	5		
	D	3		

ROOF ENDS:
 CRAILS 2 OFF EACH END
 EARTH BUSH 6 OFF EACH END

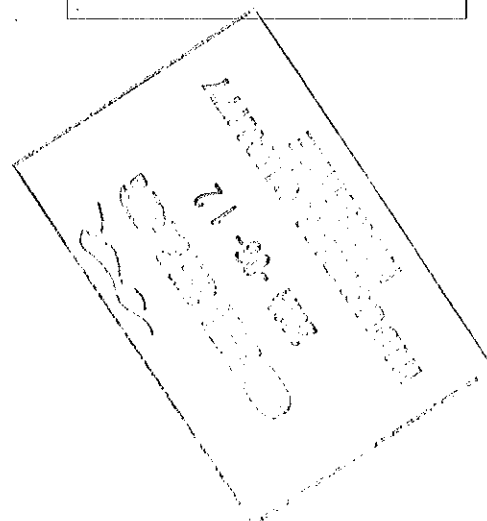
VERIFICATION BY: Asif Ali [Signature]

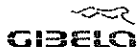
LHS

	SECTION	QUANTITY	OK	NOK
C-RAILS	A	2		
	B	10		
	C	11		
	D	6		
SEAT BRACKETS	A	13		
	B	21		
	C	21		
	D	13		
EARTH BUSH	A	3		
	B	7		
	C	6		
	D	2		

ROOF ENDS:
 CRAILS 2 OFF EACH END
 EARTH BUSH 6 OFF EACH END

VERIFICATION BY: Asif Ali [Signature]



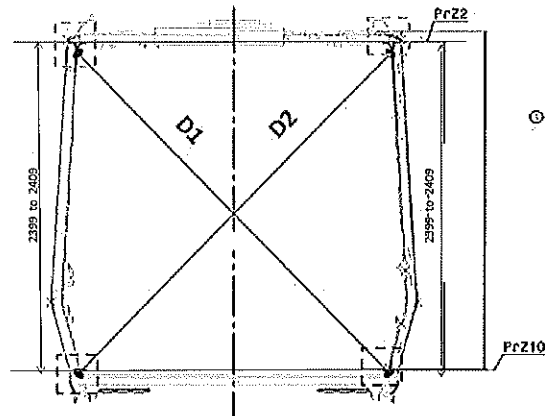


CARBODYSHELL M1,M3,M4 ASSEMBLY
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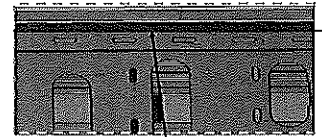
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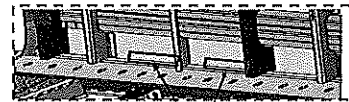
Specifications of Details for CBS measurement



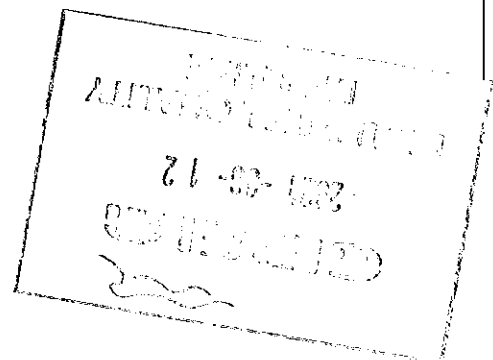
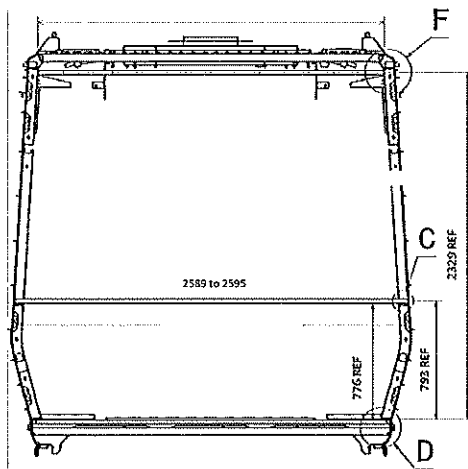
Measurement positions on roof rail and sidewall omega corner.



Reinforcement area measurement positions on roof reinforcement area.



Measurement positions on sidewall and side sill corner.





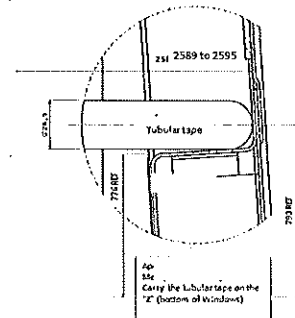
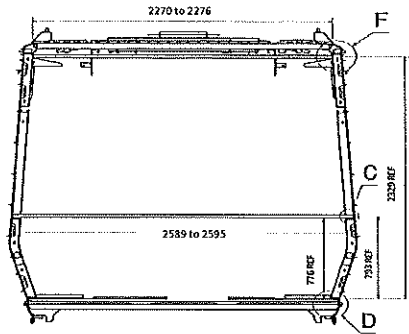
CARBODYSHELL M1,M3,M4 ASSEMBLY
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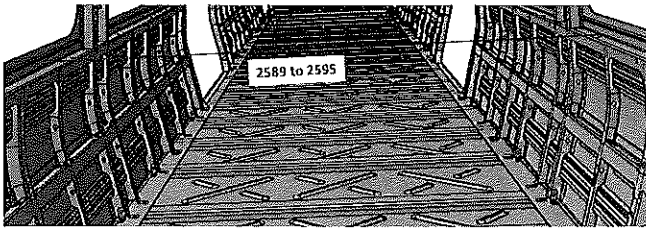
Project: PRASA

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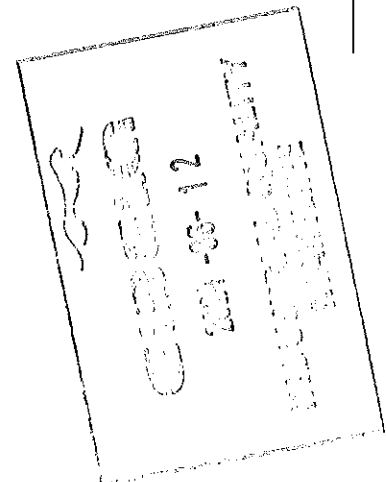
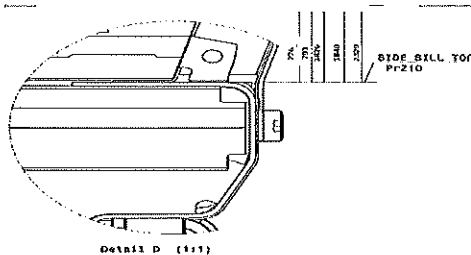
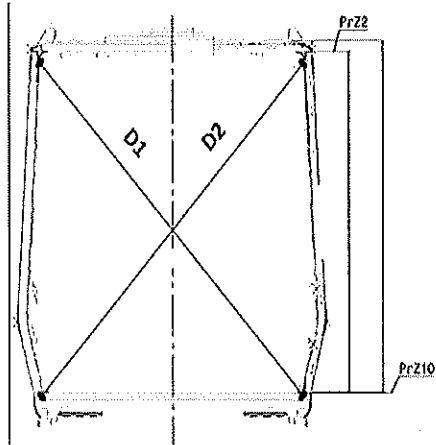
CBS measurement




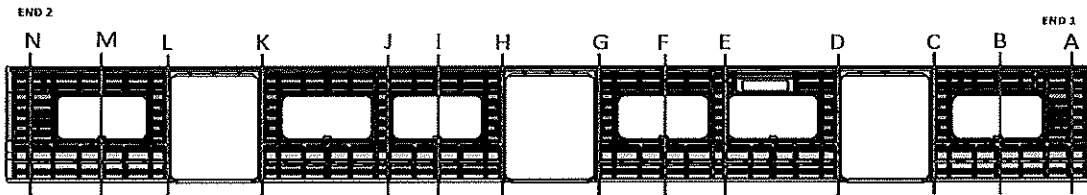
Detail C



Take measurement close to
radius



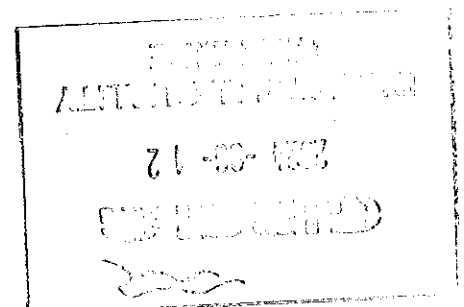
	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30226487/2	Rev.	Project: PRASA
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CBS measurement			




BEFORE WELDING

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3296	3291	5	-
B	3264	3268	4	-
C	3290	3293	3	-
D	3292	3293	1	-
E	3263	3265	2	-
F	3263	3265	2	-
G	3293	3295	2	-
H	3295	3290	5	-
I	3263	3265	2	-
J	3264	3265	1	-
K	3291	3295	4	-
L	3294	3295	1	-
M	3264	3266	2	-
N	3296	3295	1	-

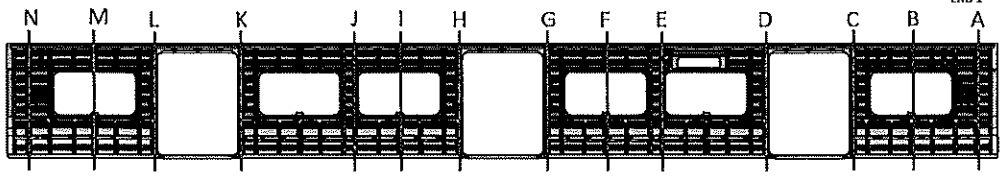
05-06-24



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CBS measurement


END 2





END 1

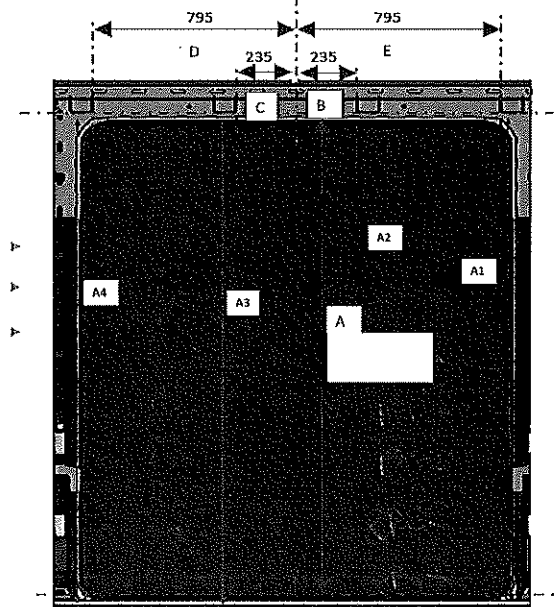
AFTER WELDING

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3299	3294	5	2595
B	3270	3260	10	2589
C	3290	3297	7	2589
D	3297	3294	3	2595
E	3265	3270	5	2595
F	3268	3264	4	2590
G	3293	3297	4	2590
H	3294	3292	2	2594
I	3269	3262	7	2574
J	3269	3264	5	2595
K	3294	3299	5	2589
L	3295	3290	1	2589
M	3260	3269	9	2589
N	3296	3300	2	2594

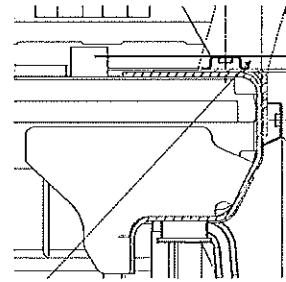
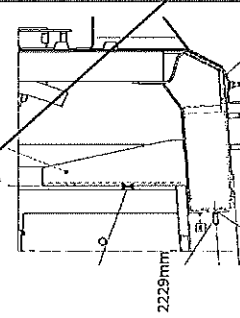

05-06-24


2023-08-12


Specifications of Details for CBS measurement CB1220



Brackets Carbodyshe
U Type Supports



Brackets Carbodyshe
Channel Assy

DOOR 1 - LHS

	VALUE	ACTUAL
A1	2230 to 2232	2232
A2	2230 to 2232	2231
A3	2230 to 2232	2231
A4	2230 to 2232	2232
B	234 to 236	235
C	234 to 236	235
D	794 to 796	796
E	794 to 796	794

DOOR 2 - LHS

	VALUE	ACTUAL
A1	2230 to 2232	2232
A2	2230 to 2232	2232
A3	2230 to 2232	2231
A4	2230 to 2232	2231
B	234 to 236	235
C	234 to 236	235
D	794 to 796	794
E	794 to 796	794

DOOR 2 - RHS

	VALUE	ACTUAL
A1	2230 to 2232	2232
A2	2230 to 2232	2231
A3	2230 to 2232	2231
A4	2230 to 2232	2230
B	234 to 236	235
C	234 to 236	234
D	794 to 796	794
E	794 to 796	794

DOOR 1 - RHS

	VALUE	ACTUAL
A1	2230 to 2232	2231
A2	2230 to 2232	2232
A3	2230 to 2232	2232
A4	2230 to 2232	2231
B	234 to 236	231
C	234 to 236	231
D	794 to 796	794
E	794 to 796	795

DOOR 2 - RHS

	VALUE	ACTUAL
A1	2230 to 2232	2232
A2	2230 to 2232	2231
A3	2230 to 2232	2231
A4	2230 to 2232	2231
B	234 to 236	235
C	234 to 236	235
D	794 to 796	794
E	794 to 796	794

DOOR 3 - RHS

	VALUE	ACTUAL
A1	2230 to 2232	2231
A2	2230 to 2232	2231
A3	2230 to 2232	2232
A4	2230 to 2232	2231
B	234 to 236	234
C	234 to 236	235
D	794 to 796	794
E	794 to 796	794

05-06-24

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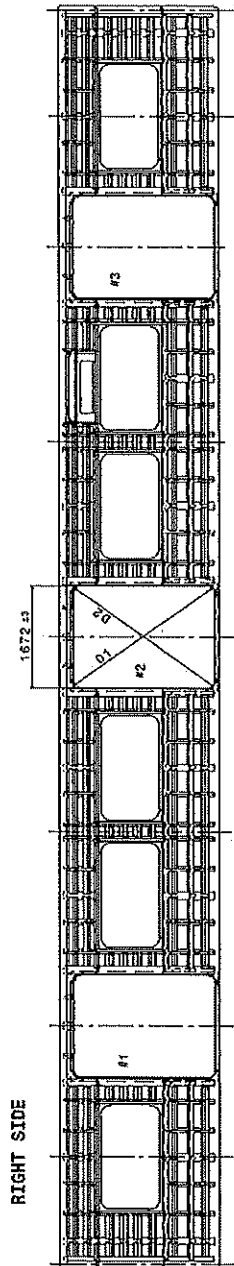
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Specifications of Details for CBS measurement CB1220

End #2



End #1

Doors diagonal D1-D2 maximum difference ≤4mm

	#1	#2	#3
D1	2748	2765	2742
D2	2746	2746	2794
D1-D2	2	1	

HIGHER DIMENSION

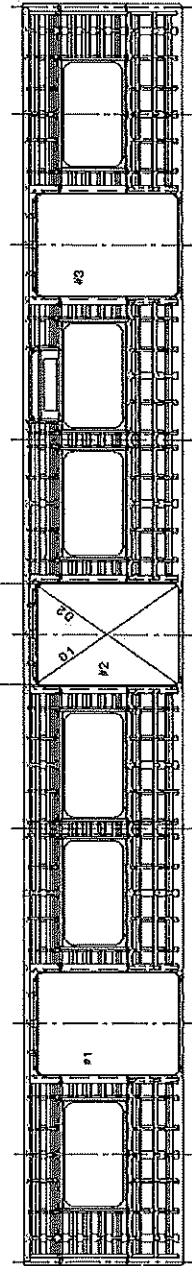
CENTRAL DIMENSION

LOWER DIMENSION

	#1	#2	#3
HIGHER DIMENSION	1672	1674	1673
CENTRAL DIMENSION	1671	1673	1672
LOWER DIMENSION	1671	1671	1672

Doors length = 1672 ±3mm

End #1



End #2

Doors diagonal D1-D2 maximum difference ≤4mm

	#1	#2	#3
D1	2746	2744	2744
D2	2745	2747	2746
D1-D2	1	3	3

HIGHER DIMENSION


CENTRAL DIMENSION


LOWER DIMENSION

	#1	#2	#3
HIGHER DIMENSION	1673	1674	1672
CENTRAL DIMENSION	1672	1672	1672
LOWER DIMENSION	1671	1672	1670

Doors length = 1672 ±3mm

2023-08-12


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		Date			
		28/10/2023			

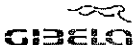
CBS measurement (Manufacturing)				
Dye penetrant test				
Dye penetration test to be performed by quality personnel				
				

Item	Description of the Issue	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)

II.2 - Check List REX

Check List Items						
Item	Picture/Drawing	Description	Criteria/Record	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
01	N/A	To complete REX	Refer to REX. New defects must be added on the REX			

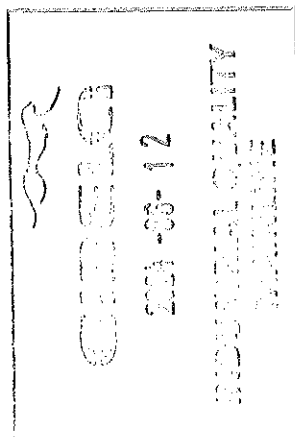
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21-08-23
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	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2	Rev.	Project: PRASA SI.CB2220.250.V29
		29	
		Date	
		28/10/2023	
Self Inspection - Final Result			

Is the car good to advance to the next workstation/process? (Approval of Operations Manager and Industrial Quality)			DATE	NAME	SIGNATURE
HOLD POINT	GO	(if activities are not complete, the missing activities must not impact the next stage)	05/06/24	Operations	
		Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party	05/06/24	Industrial Quality	
		There are activities pending that impact/stop the activities of the next process Obs: (To describe problems below)		Operations	
		There are non-conformities impact the quality of the product and there is no corrective action defined yet)		Industrial Quality	
In case of "NO GO", describe blocking problems					
In case of "NO GO", the operations manager must define below action plan to ensure "GO":					
Item	Description		Responsible	Due date	Status

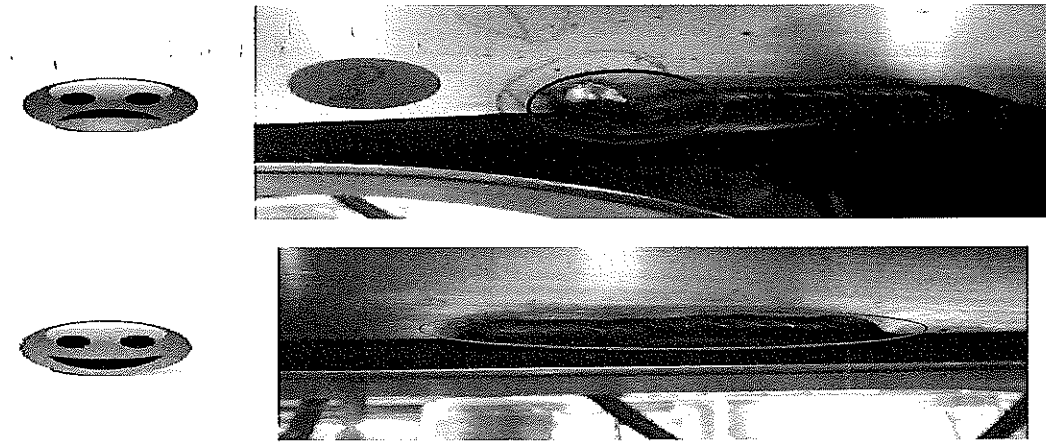
Operations

Quality

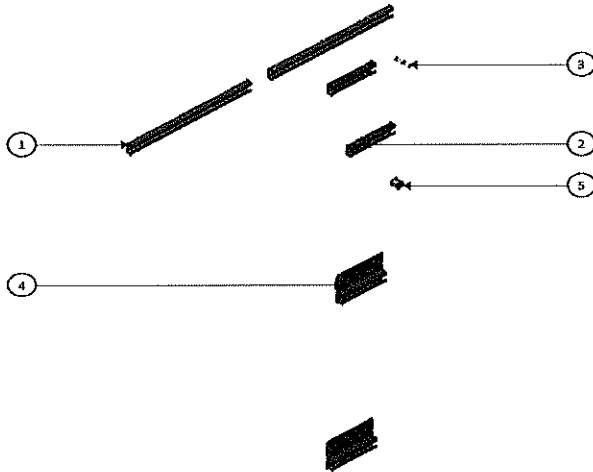


	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2	Rev.	Project: PRASA SI.CB2220.250.V29
		29	
		Date	
		28/10/2023	

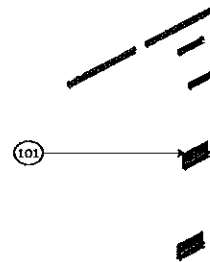
ANNEXURE A: Arc Welding Quality Acceptance Standard



Station: CB1220-004- U108 & U107



PART NO.	ITEM NO.	QTY	DESCRIPTION	MASS (kg)
DTF0020074023	5	6	EARTH STUD 6	0.036
AAC0001201843	4	6	ASSEMBLY SUPPORT	0.271
DTF0000343305	3	12	WELD/43 STUD ISO13916 PT - E55X20 - SST	0.007
AAC0001160424	2	12	ASSEMBLY SUPPORT	0.593
AAC0001184412	1	14	ASSEMBLY SUPPORT	0.522
AAC0001161080	101	6	CARBODYSHELL BRACKET/5 CARBODYSHELL M1/M3/M4 CAR SIDE FRAME MODULE END - OPP	12.132



GIBELA

PRASA PROJECT

APPLICABLE FROM TRAINSET 100+ AS PER BASELINE 10.3.1


SELF INSPECTION SHEET

CONFIDENTIAL INFORMATION

This document and the information contemplated therein have to be considered as Confidential Information pursuant to the provisions of Clause 25 of the MSA, and treated as such.

APPLICATION REFERENCE

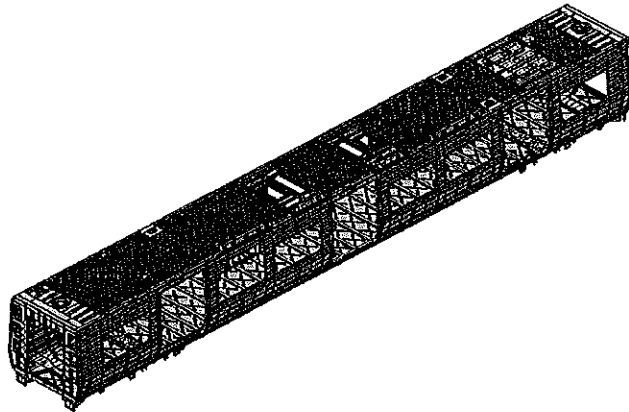
MOUNTING	DRAWING	DESCRIPTION	STATION	CAR TYPE							WORK INSTRUCTION	SAFETY ?
				TC1	MA	M1	M2	M3	TC2			
<input type="checkbox"/>	DTR000152640	AAD0001278586	CARBODYSHELL M1 ASSEMBLY	CB2210			X				PRA.CB2210.DTR30225 487/3.V25	YES
<input type="checkbox"/>												
REV	DATE	MODIFICATION CONTENT	RESPONSIBLE	NAME	DATE							
0	10/01/2018	GIBELA NEW CREATION	APPROVER	Itumeleng Modiba	10/01/2018							
			CHECKER	Nosizo Pindela	10/01/2018							
			COMPILER	Thanyani Mathegu	10/01/2018							
1	2018/05/18	Team leader and Quality Technician to sign Change final signature from PME Manager to Quality manager	APPROVER	Itumeleng Modiba	2018/05/18							
			CHECKER	Nosizo Pindela	2018/05/18							
			REVISED BY	Ramokone Motama	2018/05/18							
2	2018/07/04	Certain dimensional checks moved to CB1220 and CB1230	APPROVER	Itumeleng Modiba	2018/07/04							
			CHECKER	Nosizo Pindela	2018/07/04							
			REVISED BY	Ramokone Motama	2018/07/04							
3	2018/12/12	Added dimensional check points to CB2210	APPROVER	Itumeleng Modiba	2018/12/12							
			CHECKER	Nosizo Pindela	2018/12/12							
			REVISED BY	Ramokone Motama	2018/12/12							
5	22/01/2019	As per Baseline 10.2	APPROVER	Itumeleng Modiba	22/01/2019							
			CHECKER	Nosizo Pindela	22/01/2019							
			REVISED BY	Vanessa Ntuli	22/01/2019							
6	13/03/2019	Added D1 and D2 on Self - Inspection	APPROVER	Itumeleng Modiba	13/03/2019							
			CHECKER	Nosizo Pindela	13/03/2019							
			REVISED BY	Nosizo Pindela	13/03/2019							
10	21/08/2019	New Baseline 10.2.5	APPROVER	Itumeleng Modiba	21/08/2019							
			CHECKER	Nosizo Pindela	21/08/2019							
			REVISED BY	Nosizo Pindela	21/08/2019							
15	06/08/2020	New Baseline 10.2.6	APPROVER	Timothy Maimela	06/08/2020							
			CHECKER	Bongane Masina	06/08/2020							
			REVISED BY	Bongane Masina	06/08/2020							
20	19/04/2021	New Baseline change 10.3	APPROVER	Timothy Maimela	19/04/2021							
			CHECKER	Bongane Masina	19/04/2021							
			REVISED BY	Bongane Masina	19/04/2021							
21	17/08/2021	ADDED DIMENSIONS BEFORE WELDING	APPROVER	Mbhombi collins	17/08/2021							
			CHECKER	Mpho Mulaudzi	17/08/2021							
			REVISED BY	Mpho Mulaudzi	17/08/2021							
25	19/02/2022	New Baseline change 10.3.1	APPROVER	Mbhombi collins	19/02/2022							
			CHECKER	Andani Muthelo	19/02/2022							
			REVISED BY	Andani Muthelo	19/02/2022							
26	14/04/2023	Addition of welding consumable traceability	APPROVER	Ntuli Vanessa	14/04/2023							
			CHECKER	Mohlampe Amogelang	14/04/2023							
			REVISED BY	Mohlampe Amogelang	14/04/2023							
27	27/07/2023	Added verification of loaded parts	APPROVER	Ngobeni Tyson	27/07/2023							
			CHECKER	Zwane Ntokozo	27/07/2023							
			REVISED BY	Mohlampe Amogelang	27/07/2023							
28	07/11/2023	Addition of welding traceability	APPROVER	Ngobeni Tyson	07/11/2023							
			CHECKER	Andani Muthelo	07/11/2023							
			REVISED BY	Ntokozo Zwane	07/11/2023							
TRAINSET	CAR	OPERATOR NAME & ALPS NO	DATE	SELF INSPECTION NUMBER	PAGES							
231	M01	LAWRENCE 482994	04/06/24	SI.CB2210.254.V28	17							

	CARBODYSHELL M1 ASSEMBLY DTR30225487/3	Rev. 28	Project: PRASA SI.CB2210.254.V28
		Date 07/11/2023	

Car: M1	NCR:	Work station: CB2210
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Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	Type of car						Revision	Observation	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
	TCT	MI	SI	SE	SA	TS					
DTR30225487/3	✓						V28		✓	Signature 04/06/21	Signature 04/06/21

I.2 - Instruments Control

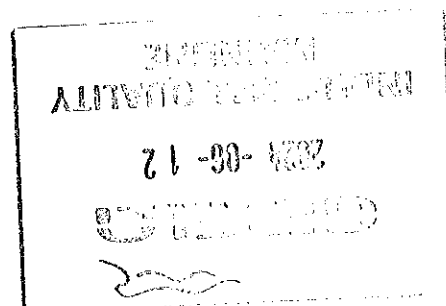
Monitoring and Measuring Instrument Control - Used for Special Process

Instruments	Serial number	Calibration or Verification Validation Date	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
LAZER TAPE	125425921	01/03/2024	L	Signature 04/06/21	Signature 04/06/21
30 IN TAPE	611BTP0049	24/11/2023	L	Signature 04/06/21	Signature 04/06/21
TUBULAR	22316	07/03/2024	L	Signature 04/06/21	Signature 04/06/21

1.3 Consumables

Welding Consumable Control - Used for Special Process


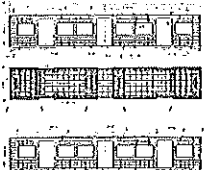

Filler Material	Heat Number	Welding Process	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
ER 308 LSI	314018-74097	MIG	L	Signature 04/06/21	Signature 04/06/21
ER 308 L	299687-70322	TIG	L	Signature 04/06/21	Signature 04/06/21
ER 309 LSI	316283-73957	MIG	L	Signature 04/06/21	Signature 04/06/21

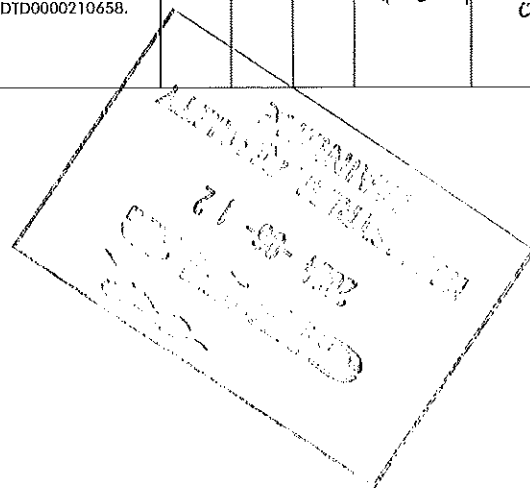



	CARBODYSHELL M1 ASSEMBLY DTR30225487/3	Rev. 28	Project: PRA5A SI.CB2210.254.V28
		Date 07/11/2023	

II - Self Inspection - Items to Check

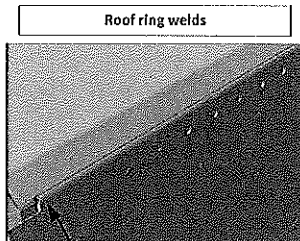
II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	Not OK	Review	Signature/Date (Manufacturing)	Signature/Date (Quality)
01	N/A	Verification of correct parts loaded (Sidewalls, Endframes, Roof and Underframe)	DT00000311225	✓			<i>Illigore</i> 04/06/24	<i>WTD</i> 04/06/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	✓			<i>Illigore</i> 04/06/24	<i>WTD</i> 04/06/24
03	REFER TO ANNEXURE A	Spot welding inspected and approved according to procedure	IND-SAL-WMS-016 e DTD00000210675	✓			<i>Illigore</i> 04/06/24	<i>WTD</i> 04/06/24
04	REFER TO ANNEXURE B	Arc welding inspected and approved according to procedure	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓			<i>Illigore</i> 04/06/24	<i>WTD</i> 04/06/24
05		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓			<i>Illigore</i> 04/06/24	<i>WTD</i> 04/06/24
06		Functional dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document	Approved according specified on pages below.	✓			<i>Illigore</i> 04/06/24	<i>WTD</i> 04/06/24
07 	N/A	Perform visual inspection of welds in 100% of the project. Run by penetrant testing in electric arc welding (weld ring) as IND-SAL-WMS-018. Run by penetrant testing welds (weld ring) and fillet sampling as described in DTD0000210658.	As the welding procedure IND-SAL-WMS-018 and DTD00000210658.	✓			<i>Illigore</i> 04/06/24	<i>WTD</i> 04/06/24

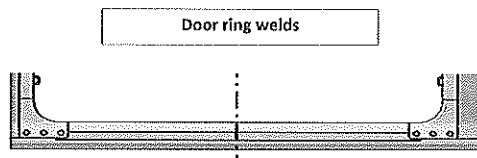


	CARBODYSHELL M1 ASSEMBLY DTR30226487/3	Rev. 28	Project: PRASA SI.CB2210.254.V28
		Date 07/11/2023	

Welder Traceability



<div style="text-align: center; margin-bottom: 10px;"><u>LHS</u></div> Boiler maker (Name & Sign): <u>Timothy</u>	<div style="text-align: center; margin-bottom: 10px;"><u>LHS</u></div> Welder (Name & Sign): <u>Barbara Adams</u>
<div style="text-align: center; margin-bottom: 10px;"><u>RHS</u></div> Boiler maker (Name & Sign): <u>Timothy</u>	<div style="text-align: center; margin-bottom: 10px;"><u>RHS</u></div> Welder (Name & Sign): <u>Barbara Adams</u>



LHS

Boiler maker (Name & Sign): Justice

LHS

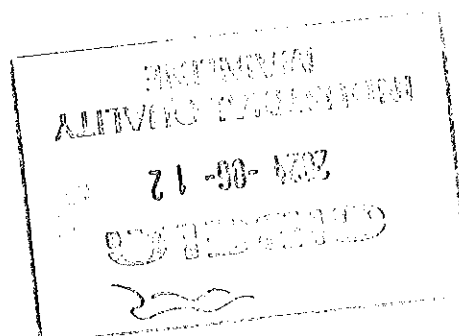
Welder (Name & Sign): Keitu Kneib


RHS

Boiler maker (Name & Sign): Justice

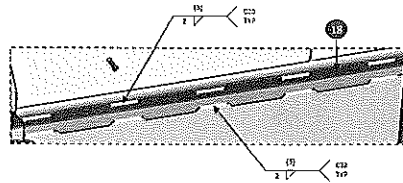
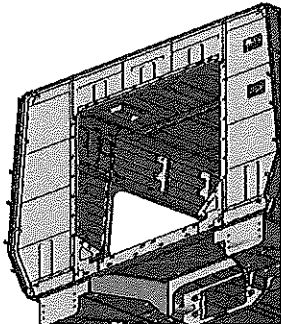
RHS

Welder (Name & Sign): Keitu Kneib



	CARBODYSHELL M1 ASSEMBLY DTR30225487/3	Rev. 28	Project: PRA5A SI.CB2210.254.V28
		Date 07/11/2023	

EUF Reinforcement Plates

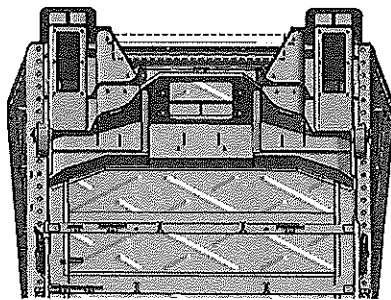


END 1

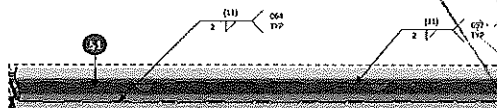
Boiler maker (Name & Sign): Gerald Mub

Welder (Name & Sign): KEITU K. Nand

END 2



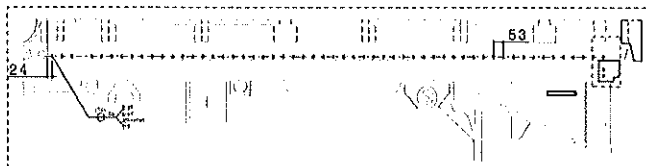
Underneath the CAR



END 2


Boiler maker (Name & Sign): Tebogo Mstake

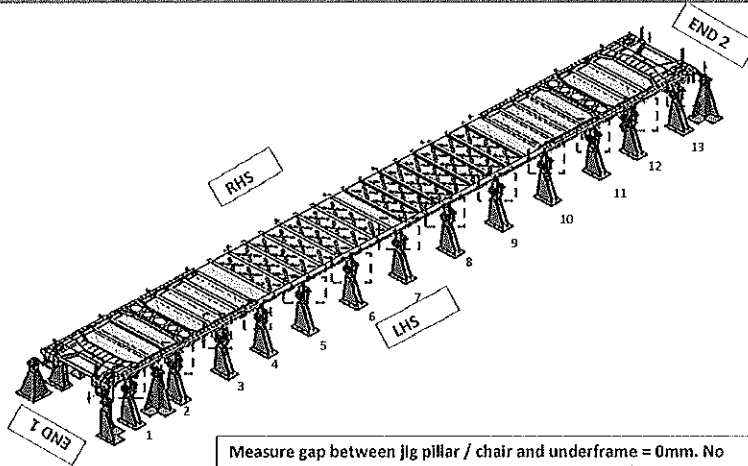
Welder (Name & Sign): KEITU K. Nand



FEDOLI

Operator: Nonthanwar (Anji)

	CARBODYSHELL M1 ASSEMBLY DTR30225487/3	Rev. 28	Project: PRASA SI.CB2210.254.V28
		Date 07/11/2023	
Specifications of Details for CBS measurement			



Measure gap between jig pillar / chair and underframe = 0mm. No

After loading and clamping

Fill in the gap found on each jig pillars / chair and underframe should be 0mm.

	1	2	3	4	5	6	7	8	9	10	11	12	13
Left Hand Side	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right Hand Side	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature Operations:

[Signature]

Date:

After Welding.

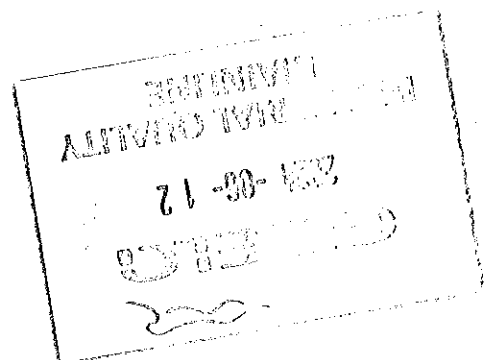
Fill in the gap found on each jig pillars / chair and underframe should be 0mm.

	1	2	3	4	5	6	7	8	9	10	11	12	13
Left Hand Side	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right Hand Side	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

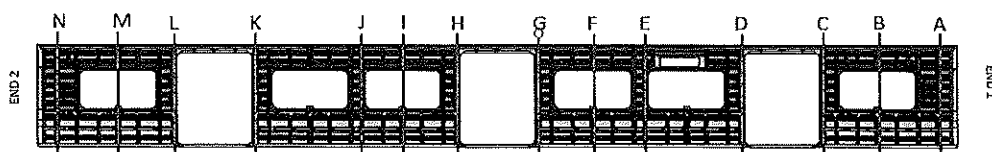
Signature Industrial Quality:

[Signature]

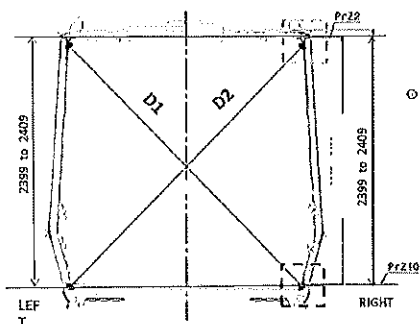
Date:



Specifications of Details for CBS measurement



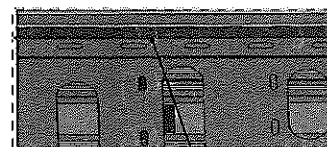
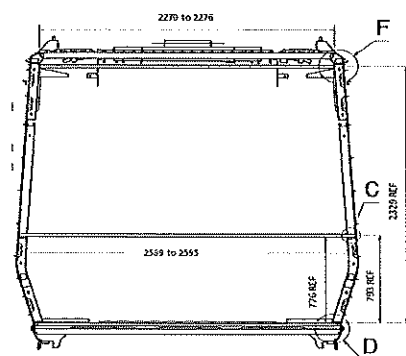
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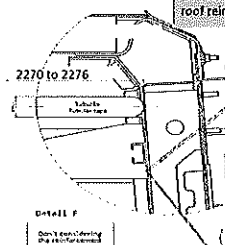
Measurement positions on roof rail and sidewall omega corner.



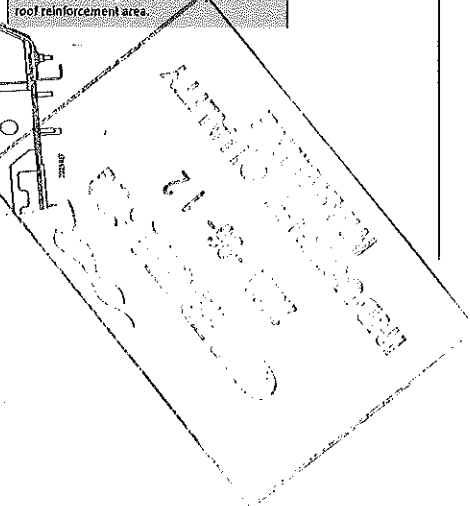
Measurement positions on sidewall and side sill corner.



Reinforcement area measurement positions on roof reinforcement area.



Detail F
Don't forget checking the reinforcement





CARBODYSHELL M1 ASSEMBLY DTR30225487/3

Rev.

28

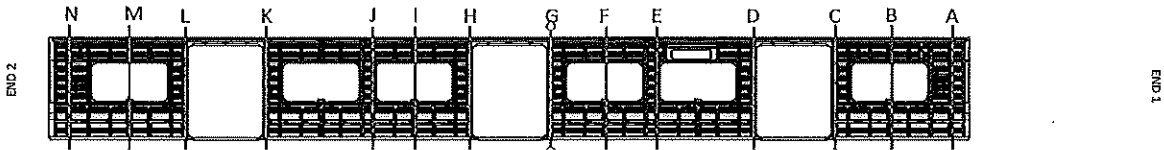
Date

07/11/2023

Project: PRASA

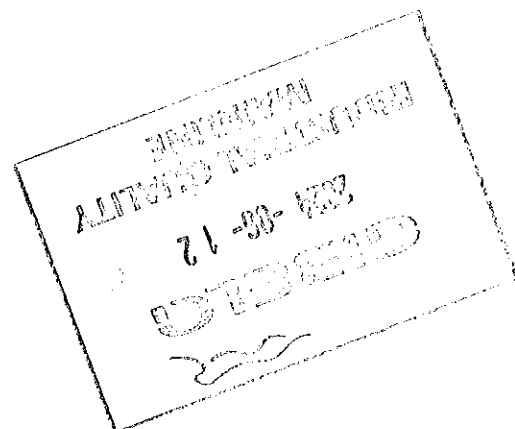
SI.CB2210.254.V28

Specifications of Details for CBS measurement

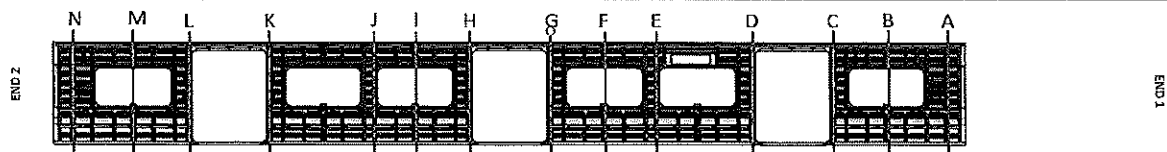
PME Column LHS - RHS should be $\leq 2\text{MM}$ on each point.

BEFORE WELDING

	Record D1 values	Record D2 values	D1-D2 $\leq 5\text{mm}$	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS ≤ 2
A	3267	3267	0	2404	2405	1
B	3266	3266	0	2405	2404	1
C	3268	3267	1	2404	2404	0
D	3267	3267	0	2405	2405	0
E	3265	3266	1	2405	2405	0
F	3267	3267	0	2404	2404	0
G	3266	3266	0	2404	2405	1
H	3267	3267	0	2405	2405	0
I	3266	3266	0	2404	2404	0
J	3267	3267	0	2404	2404	0
K	3266	3266	0	2404	2405	1
L	3265	3266	1	2405	2405	0
M	3266	3266	0	2404	2406	2
N	3267	3267	0	2404	2404	0

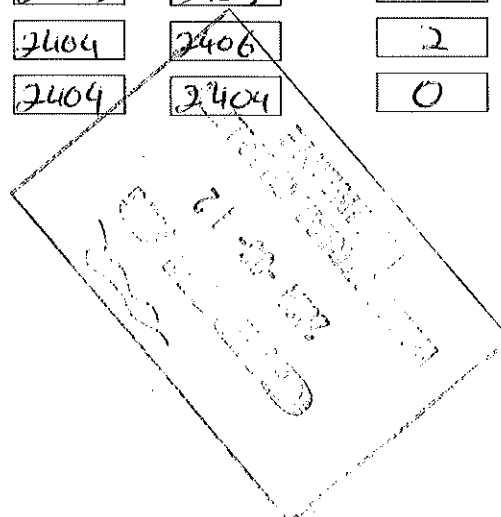



Specifications of Details for CBS measurement


PME Column LHS - RHS should be $\leq 2\text{MM}$ on each point.

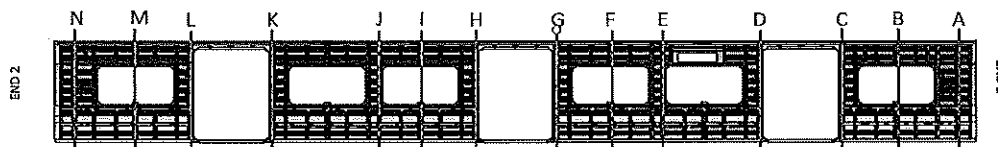
AFTER WELDING

	Record D1 values	Record D2 values	D1-D2 $\leq 5\text{mm}$	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS ≤ 2
A	3294	3294	0	2405	2405	0
B	3266	3266	0	2405	2404	1
C	3293	3293	0	2404	2404	0
D	3294	3293	1	2405	2404	1
E	3265	3266	1	2405	2405	0
F	3267	3267	0	2404	2404	0
G	3294	3294	0	2404	2405	1
H	3293	3294	1	2405	2405	0
I	3266	3266	0	2404	2404	0
J	3267	3267	0	2404	2404	0
K	3292	3294	2	2404	2405	1
L	3295	3296	1	2405	2405	0
M	3266	3266	0	2404	2406	2
N	3294	3293	1	2404	2404	0



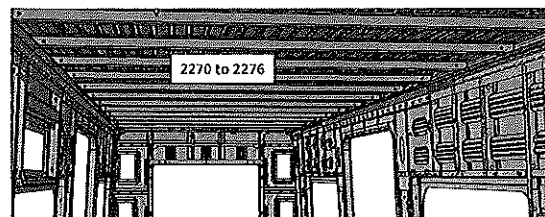
	CARBODYSHELL M1 ASSEMBLY DTR30226487/3	Rev. 28	Project: PRASA SI.CB2210.254.V28
		Date 07/11/2023	
CBS measurement			

BEFORE WELDING

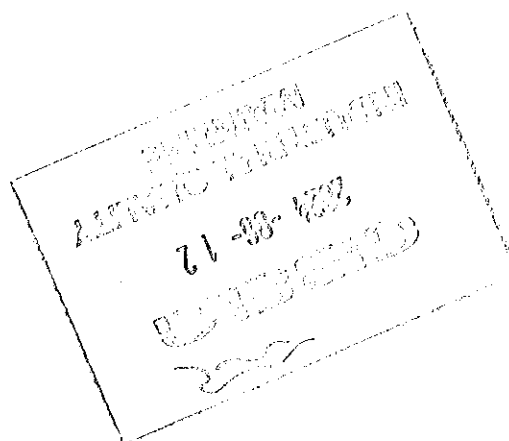
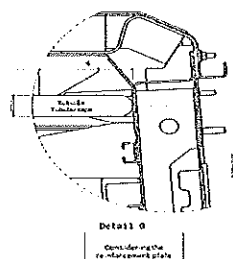
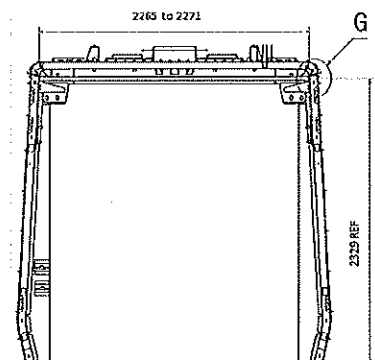


	2270 to 2276
A	2272
B	2274
C	2273
D	2272
E	2274
F	2270
G	2273
H	2276
I	2274
J	2273
K	2272
L	2274
M	2273
N	2274

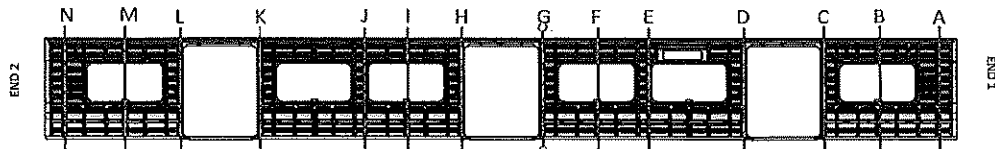
1990 to



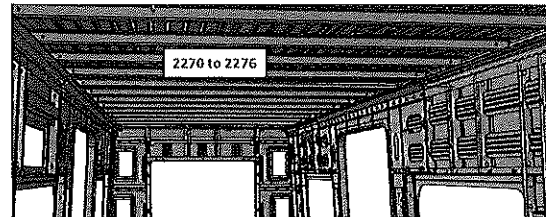
Do not consider reinforcement (Take measurements top area of zee profile



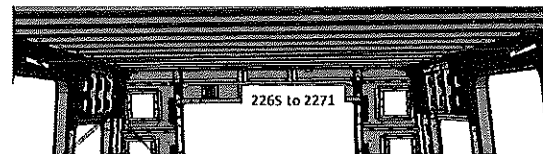
AFTER WELDING



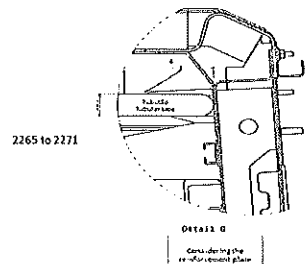
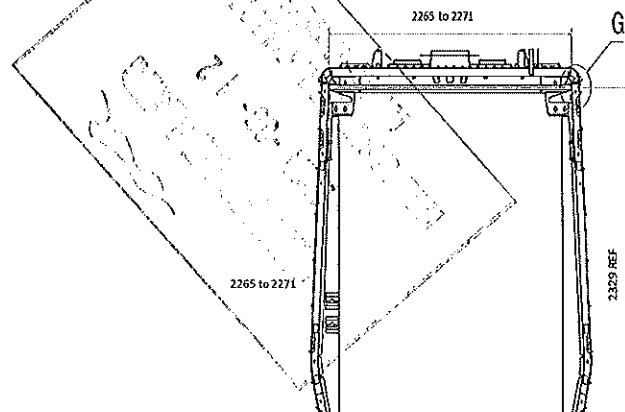
	2265 to 2271	2270 to 2276
A	2268	N/A
B	N/A	2274
C	2269	N/A
D	2268	N/A
E	N/A	2274
F	N/A	2270
G	2269	N/A
H	2270	N/A
I	2274	N/A
J	2273	N/A
K	2268	N/A
L	2270	N/A
M	N/A	2273
N	2270	N/A



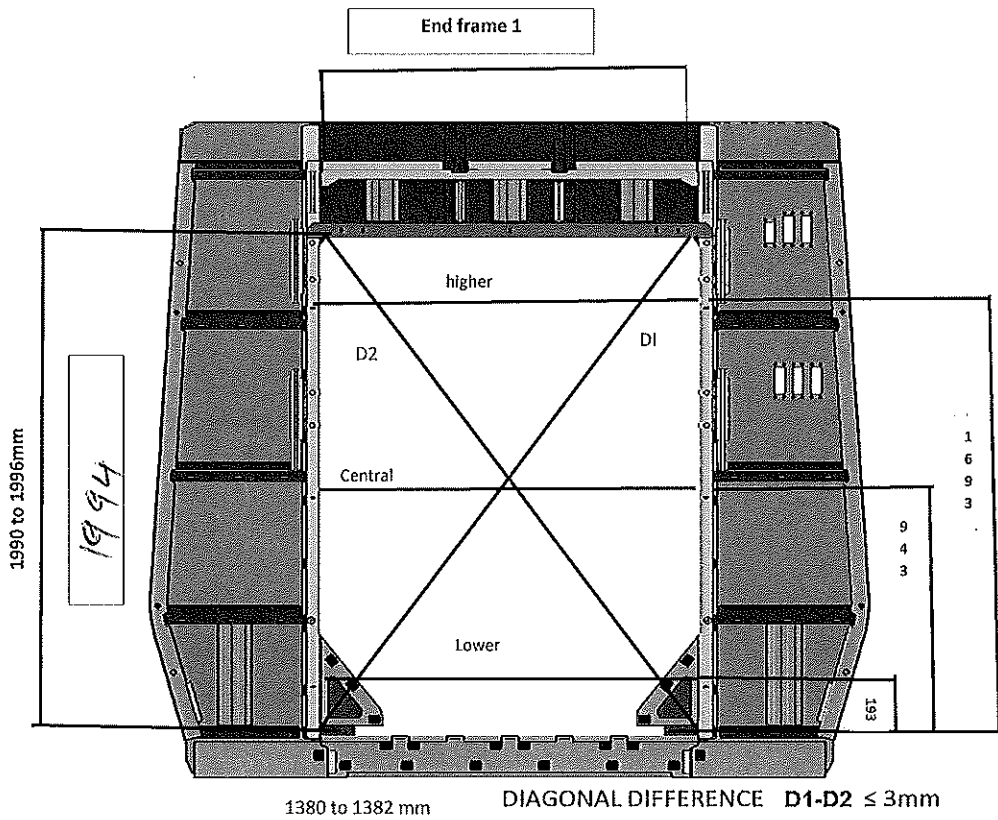
Do not consider reinforcement (Take measurements top area of zee profile



Take measurement close to radius (considering reinforcement)



Specifications of Details for CBS measurement



Higher Dimention

1380

D1

2415

Central Dimension

1380

D2

2415

Lower Dimension

1380

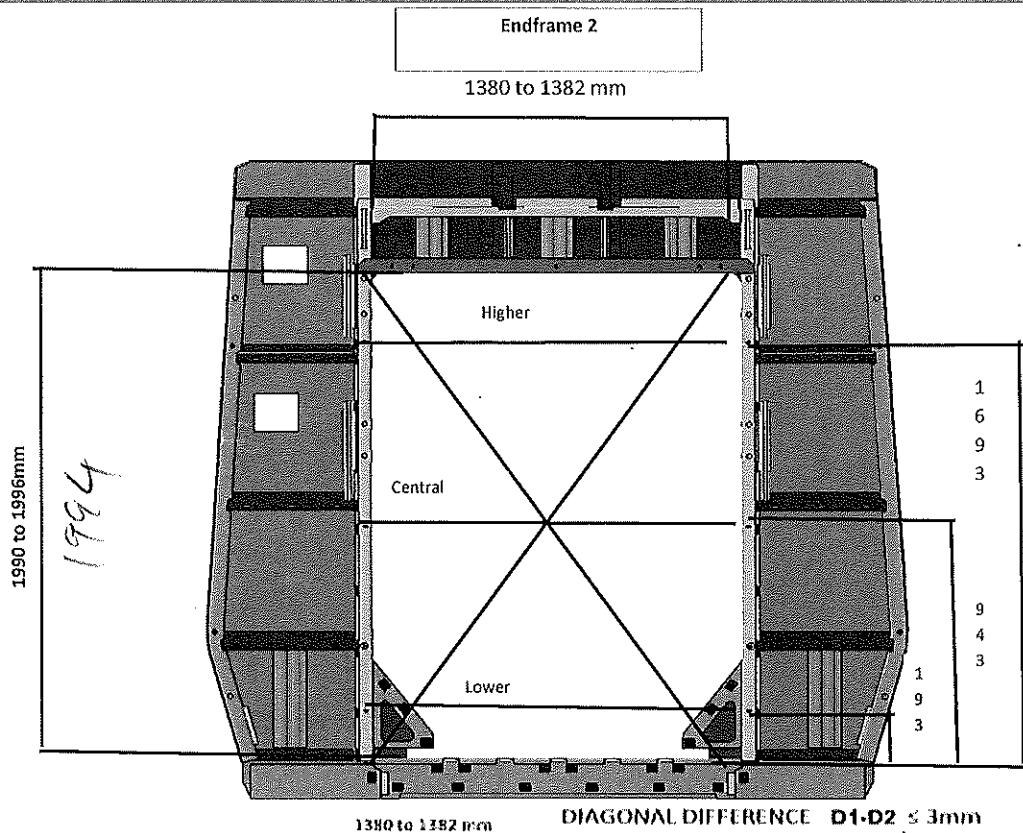
D1-D2

0

DIAGONAL DIFFERENCE $D1-D2 \leq 3mm$

RECEIVED
ALTORELLA S.p.A.
21-08-2023
GIBELQ

Specifications of Details for CBS measurement



Higher Dimension

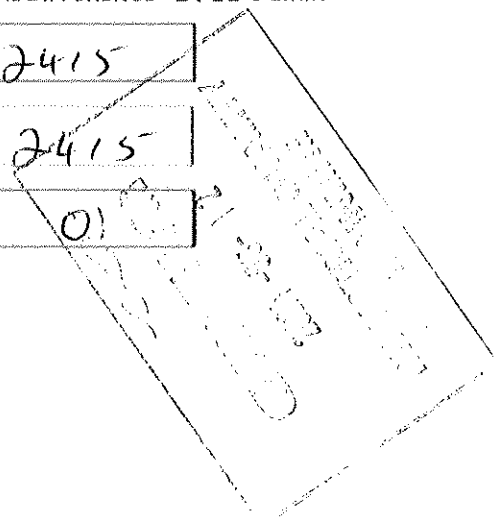
Central Dimension

Lower Dimension

D1


D2

D1-D2



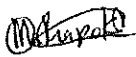


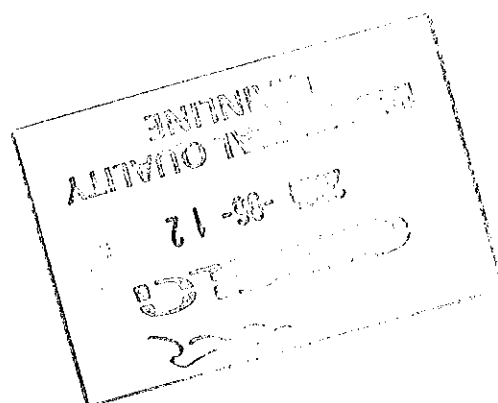
	RIGHT SIDE	
	SPECIFICATION SIZE	ACTUAL SIZE
1A	20632 - 20614	20627

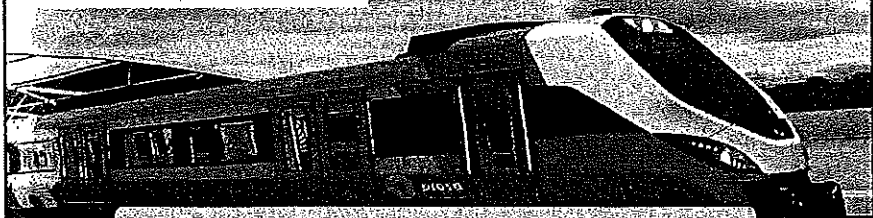
RECEIVED
 ALBERTO T. ...
 21-03-02
 0512000
 2002

	CARBODYSHELL M1 ASSEMBLY DTR30226487/3	Rev. 28	Project: PRASA SI.CB2210.254.V28				
		Date 07/11/2023					
Item	Description of the Issue	OK	Signature/Date (Manufacturing)		Signature/Date (Quality)		
II.2 - Check List REX							
Check List Items							
Item	Picture/Drawing	Description	Criteria /Record	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)	
01	N/A	To complete REX	Refer to REX. New defects must be added on the REX				

RECEIVED
07/11/2023
09:45:10
GIBELQ

		CARBODYSHELL M1 ASSEMBLY DTR30225487/3		Rev. 28	Project: PRASA SI.CB2210.254.V28	
				Date 07/11/2023		
Self Inspection - Final Result						
			DATE	NAME	SIGNATURE	
HOLD POINT		GO	(If activities are not complete, the missing activities must not impact the next stage)	04/06/24	LAWRENCE	
			Every mid inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	04/06/24	Richmond	
		NO GO	There are activities pendings that impact/stop the activities of the next process Obs: (To describe problems below)			
			There are non-conformities impact the quality of the product and there is no corrective action defined yet)			
In case of "NO GO", describe blocking problems						
In case of "NO GO", the operations manager must define below action plan to ensure "GO":						
Item	Description		Responsible	Due date	Status	
Operations			Quality			





APPLICABLE FOR TRAINSET 100+ ONLY AS PER BASELINE 10.3.1


SELF INSPECTION SHEET

CONFIDENTIAL INFORMATION

CONFIDENTIAL INFORMATION
This document and the information contemplated therein have to be considered as Confidential information pursuant to the provisions of Clause 25 of the MSA, and treated as such.

APPLICATION REFERENCE

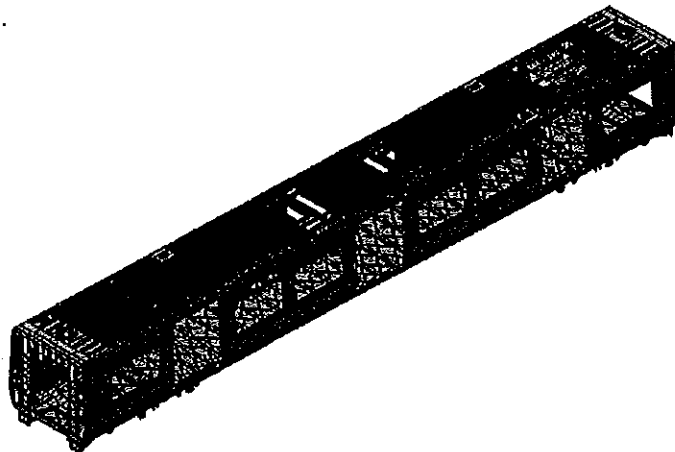
MOUNTING	DRAWING	DESCRIPTION	STATION	CAPTYPE						WORK INSTRUCTION	SAFETY	
				100	200	300	400	500	600			
<input type="checkbox"/>	DT00000235487	AAD00011774568	CARBODYSHELL H ₂ H ₂ H ₂ ASSEMBLY	C81230		X	X		X		PRA CB2230.DT000002 25487.V20	YES
<input type="checkbox"/>												
<input type="checkbox"/>												
REV	DATE	MODIFICATION CONTENT							RESPONSIBLE	NAME	DATE	
0	2018/08/02	GIBELA NEW CREATION							APPROVER	Philippe Marques	2018/08/02	
									CHECKER	Nosizo Pindela	2018/08/02	
									COMPLIER	Nosizo Pindela	2018/08/02	
1	30/5/2018	Team leader and Quality Technician to sign Change final signature from PME Manager to Quality manager							APPROVER	Humeleng Modiba	30/5/2018	
									CHECKER	Nosizo Pindela	30/5/2018	
									REVISED BY	Nosizo Pindela	30/5/2018	
2	2018/05/07	Certain dimensional checks moved to CB1220							APPROVER	Humeleng Modiba	2018/05/07	
									CHECKER	Nosizo Pindela	2018/05/07	
									REVISED BY	Ramokone Motama	2018/05/07	
5	24/01/2019	As per Baseline 10.2							APPROVER	Humeleng Modiba	24/01/2019	
									CHECKER	Nosizo Pindela	24/01/2019	
									REVISED BY	Vanessa Ntuli	24/01/2019	
6	13/03/2019	Added Twist and Door Bracket Measurements Remove Door Measurements							APPROVER	Humeleng Modiba	13/03/2019	
									CHECKER	Nosizo Pindela	13/03/2019	
									REVISED BY	Nosizo Pindela	13/03/2019	
10	23/08/2019	New Baseline 10.2.5							APPROVER	Humeleng Modiba	23/08/2019	
									CHECKER	Nosizo Pindela	23/08/2019	
									REVISED BY	Nosizo Pindela	23/08/2019	
15	06/08/2020	New Baseline 10.2.6							APPROVER	Timothy Malmela	06/08/2020	
									CHECKER	Bongane Masina		
									REVISED BY	Bongane Masina		
20	19/04/2021	New Baseline change 10.3							APPROVER	Timothy Malmela	19/04/2021	
									CHECKER	Bongane Masina		
									REVISED BY	Bongane Masina		
25	20/02/2022	New Baseline change 10.3.1							APPROVER	Collins Mhombhli	20/02/2022	
									CHECKER	Andani Muthelo		
									REVISED BY	Andani Muthelo		
26	14/06/2022	Update minimum temperature requirement for sealant application							APPROVER	Collins Mhombhli	14/06/2022	
									CHECKER	Andani Muthelo		
									REVISED BY	Andani Muthelo		
27	26/07/2022	Threshold measurements addition							APPROVER	Collins Mhombhli	26/07/2022	
									CHECKER	Andani Muthelo		
									REVISED BY	Andani Muthelo		
28	17/10/2022	Added traceability of sealant application							APPROVER	Collins Mhombhli	17/10/2022	
									CHECKER	Ntokozo Zwane		
									REVISED BY	Amogelang Mholampe		
29	14/04/2023	Added sealant batch number & welding consumables traceability							APPROVER	Vanessa Ntuli	14/04/2023	
									CHECKER	Ntokozo Zwane		
									REVISED BY	Amogelang Mholampe		
30	06/11/2023	Added threshold traceability for boiler makers and welders							APPROVER	Nqobeni Tyson	06/11/2023	
									CHECKER	Andani Muthelo		
									REVISED BY	Ntokozo Zwane		
TRAINSET	CAR	OPERATOR NAME AND NO.		DATE	SELF INSPECTION NUMBER		PAGES					
231	MOI	Mphahlanhla 427423		05/06/24	SI.CB2230.256.V29		12					

	CARBODYSHELL M1,M3,M4 ASSEMBLY DT00000226487	Rev. 30	Project: PRASA SI.CB2230.256.V29
		Date 08/11/2023	

Carte	NCR:	Work station:	CB2230
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Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	Type (C/N)	Version	Observation	✓	NO	to work	Signature/Date (Operations)	Signature/Date (Quality)
PRA.CB2230.DT00000226487		30		✓		N/A	08/11/2023	08/11/2023

I.2 - Instruments Control

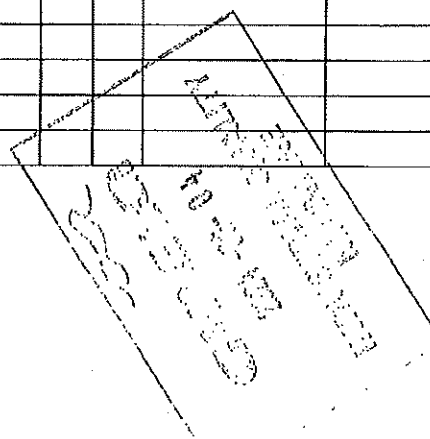
Monitoring and Measuring Instrument Control - Used for Special Process


Instrument	Serial Number	Calibration or Verification Validation Date	✓	NO	Signature/Date (Operations)	Signature/Date (Quality)
Tubular	32823	15/06/24	✓		08/11/2023	08/11/2023
Combination Square	61890397	27/01/24	✓		08/11/2023	08/11/2023
Measuring Tape	618910019	22/06/24	✓		08/11/2023	08/11/2023

I.3 Consumables

Welding Consumable Control - Used for Special Process







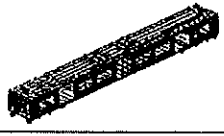


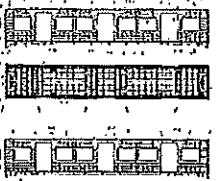











Wire/rod/flux	Lot Number	Welding Process	✓	NO	Signature/Date (Manufacturing)	Signature/Date (Quality)
308LSI	373779	MIG	✓		08/11/2023	08/11/2023




	CARBODYSHELL M1,M3,M4 ASSEMBLY DT00000226487	Rev. 30	Project: PRASA SI.CB2230.256.V29
		Date	
		08/11/2023	

II - Self Inspection - Items to Check

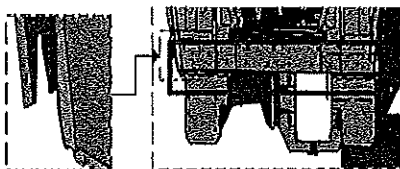
II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Standard	Y	N	OK	Signature/Date (Operations)	Signature/Date (Quality)
01	N/A	Assembly according to Instruction Engineering n° PRA.CB1230.DT00000225487 Verification of fitment for all brackets.	PRA.CB1230.DT00000225487	✓			 05/06/24	 05/06/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	✓			 05/06/24	 05/06/24
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓			 05/06/24	 05/06/24
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓			 05/06/24	 05/06/24
05		Functional dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	✓			 05/06/24	 05/06/24
06		Perform visual inspection of welds in 100% of the project. Run by penetrant testing in electric arc welding (weld ring) as IND-SAL-WMS-018. Run by penetrant testing welds (weld ring) and fillet sampling as described in DTD0000210658.	As the welding procedure IND-SAL-WMS-018 and DTD0000210658.	✓			 05/06/24	 05/06/24
07	N/A	Before application of sealant record the expiry date and make sure that the room temperature and humidity are within specified values as per Works Instructions Specified: <div style="display: flex; justify-content: space-between;"> <div> Temperature Min - Max (°C) Min - Max Relative Humidity Min - Max (%) Min - Max </div> <div> 10°C - 55°C 25% - 60% </div> </div>	Sealant Batch No: <u>53497-E0324</u> Exp Date: <u>2024/06/15</u> Actuals Temperature: <u>21°C</u> Humidity: <u>67%</u>	✓			 05/06/24	 05/06/24
08	N/A	Verification of sealant application on the roof and sidewall finishers.	Sealant must be: - Applied straight and even - Free of gaps, cracks, damage and debris (flashes, dirt, dust) Refer to Annexure B	✓			 05/06/24	 05/06/24
09	N/A	Verification of sealant application in certain regions in the drawing.	AAD0001278566	✓			 05/06/24	 05/06/24

	CARBODYSHELL M1,M3,M4 ASSEMBLY DT00000225487	Rev. 30	Project: PRASA SI.CB2230.256.V29
		Date 06/11/2023	

II - Self Inspection - Items to Check

AREA 1

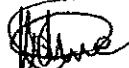


END 2 SEALANT


OPERATOR
(Name & sign):

LERDY 

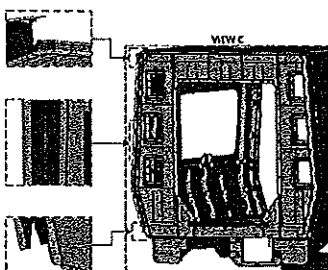
OPERATOR
(Name & sign):

LERDY 

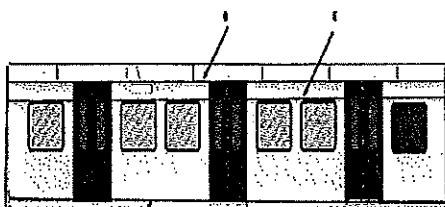
OPERATOR
(Name & sign):

LERDY 

AREA 2 (VIEW C)



H



Area D,E,F,G,H,I

Operator (Name & sign):

LHS
DEFGH,I

RHS
DEFGH,I

Operator (Name & sign):

Operator (Name & sign):

Bouly  Bouly

Operator (Name & sign):

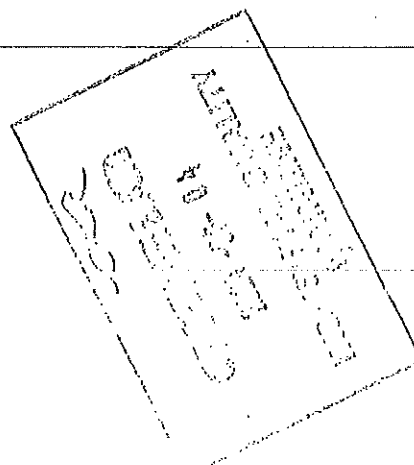
Operator (Name & sign):

Bouly

Bouly

Operator (Name & sign):

Bouly





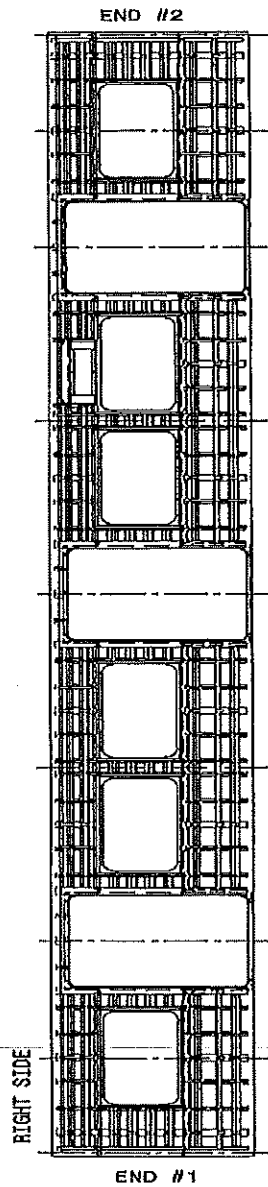
CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000226487

Rev.
30
Date
06/11/2023

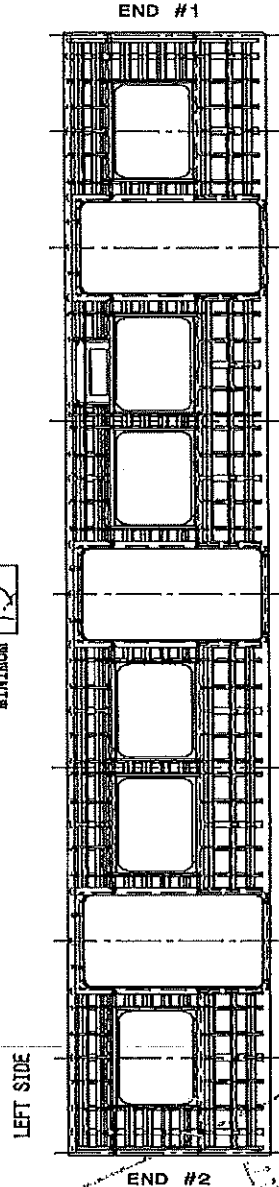
Project: PRASA
SI.CB2230.256.V29

Specifications of Details for CBS measurement CB1230

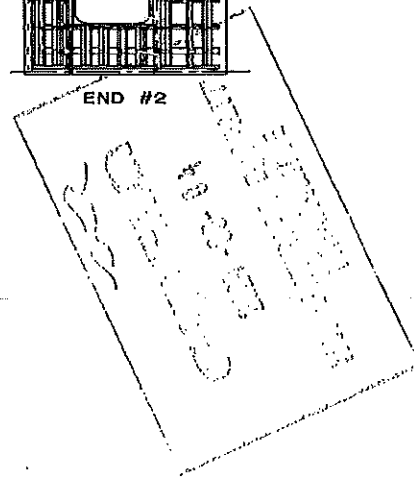
Flatness side left and right maximum of 2mm in the valley to peak measured in 900mm. Record the maximum and minimum value found and indicate the corresponding region.



MAXIMUM 1
MINIMUM 1.2



MAXIMUM 0.5
MINIMUM 1





CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000226487

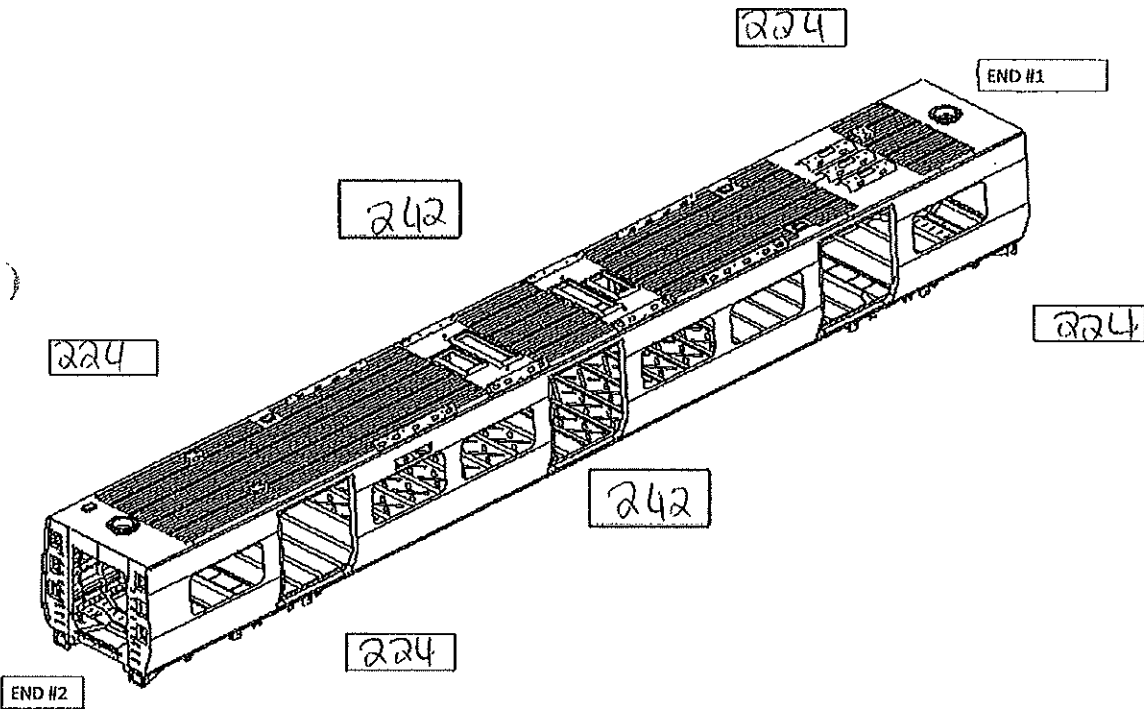
Rev.
30
Date
06/11/2023

Project: PRASA

SI.CB2230.256.V29

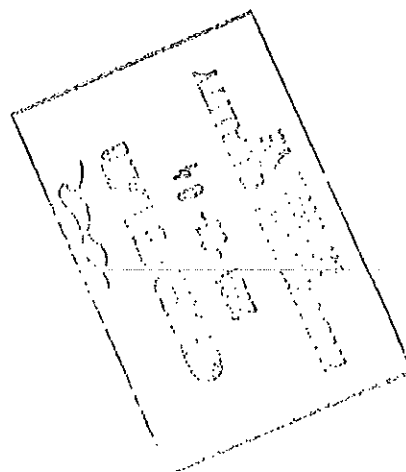
Specifications of Details for CBS measurement CB1230

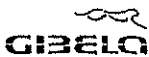
Specified Camber for car out of Jlg is 18mm(-0mm + 2mm)



MEASURED CAMBER VALUES

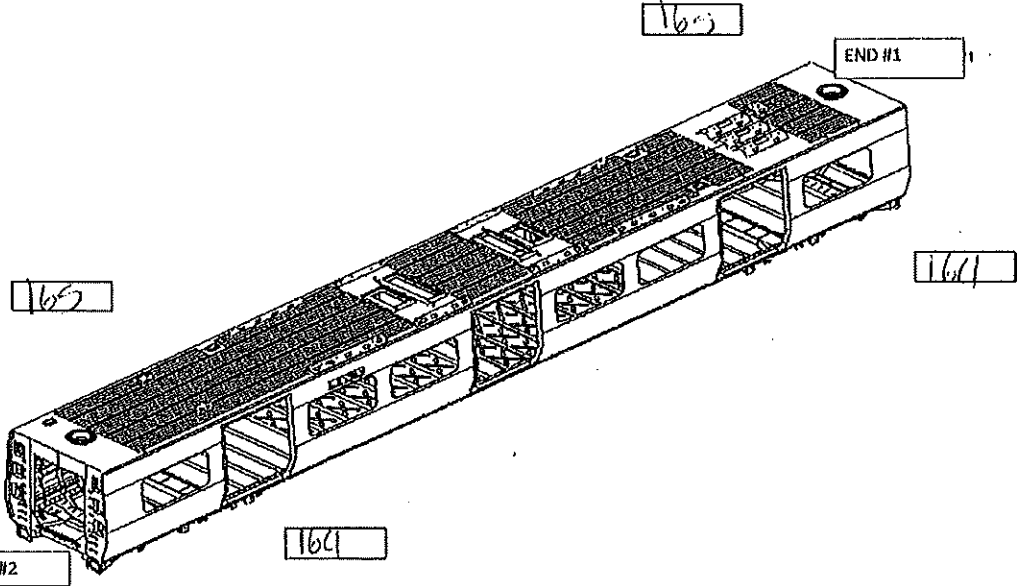
RIGHT '1 1¢
LEFT 'a1 1¢



	CARBODYSHELL M1,M3,M4 ASSEMBLY DY00000226487	Rev. 30	Project: PRASA SI.CB2230.256.V29
		Date 08/11/2023	

Specifications of Details for CBS measurement CB1230

Twist measured in transversal and longitudinal = Maximum 3mm. Measure twist on air spring plates (LHS and RHS), both End 1 and End 2 following twist measurement document.



TWIST FOUND ON END 1

TRANVERSE

LONGITUDINAL

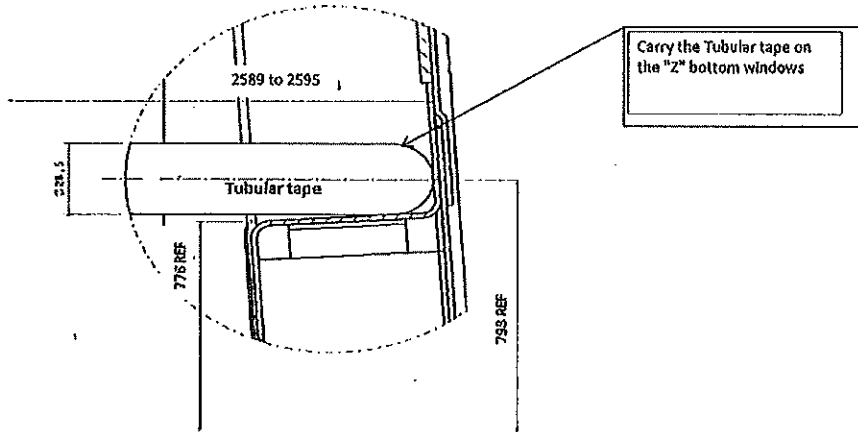
TWIST FOUND ON END 2

TRANVERSE

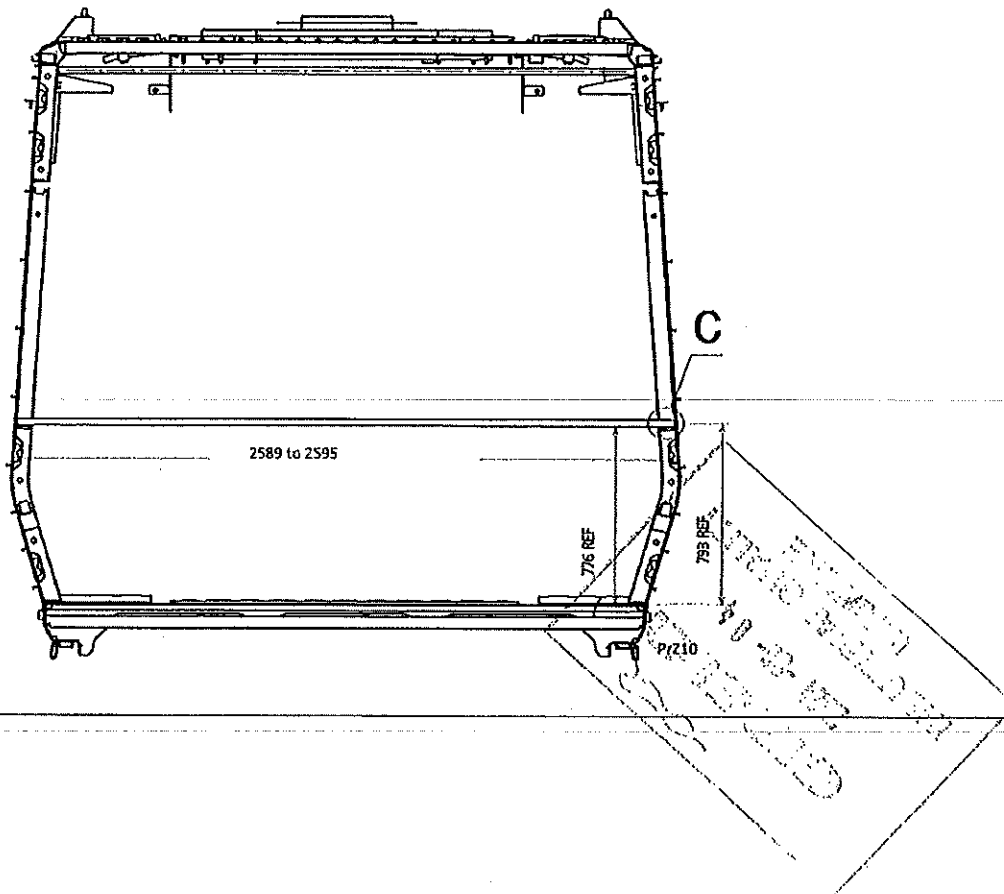
LONGITUDINAL

APPROVED FOR
 11-03-2023
 11-03-2023
 11-03-2023

Specifications of Details for CBS measurement CB1230



Detail C



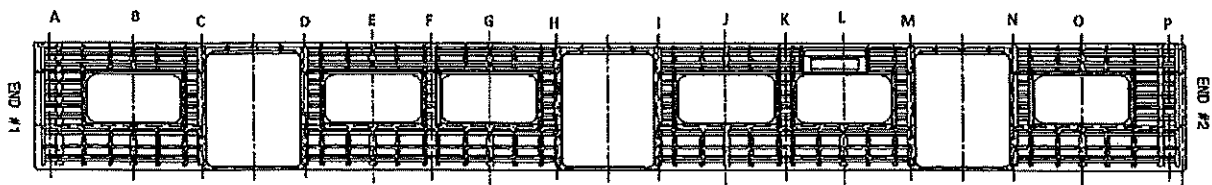


CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000225487

Rev.
30
Date
08/11/2023

Project: PRASA
SI.CB2230.256.V29

Specifications of Details for CBS measurement CB1230



2589 to 2595mm

A	2590
B	2591
C	2592
D	2590
E	2591
F	2590
G	2590
H	2594
I	2593
J	2592
K	2590
L	2591
M	2593
N	2592
O	2591
P	2590



Threshold verification

Nominal value :38

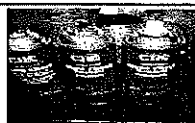
Door 1		Door 2		Door 3	
L	R	L	R	L	R
36	36	39	39	38	37
Door 4		Door 5		Door 6	
L	R	L	R	L	R
38	39	39	38	38	39


BOILER MAKER: Emmanuel E. Mofanta

WELDER: Honnlanwa

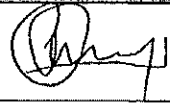

Dye penetrant test

Dye-penetration test to be performed by quality personnel



	CARBODYSHELL M1,M3,M4 ASSEMBLY DT00000226487	Rev. 30	Project: PRASA
		Date 06/11/2023	SI.CB2230.256.V29

Self Inspection - Final Result

Is the car good to advance to the next workstation/process? (Approval of Operations and Industrial Quality)		DATE	NAME	SIGNATURE
HOLD POINT	(If activities are not complete, the missing activities must not impact the next stage)	05 JUNE 2024	NONHLANHLA	
	Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party	05/06/24	Andani	
	There are activities pending that impact the activities of the next process Obs: (To describe problems below)			
	There are non-conformities impact the quality of the product and there is no corrective action defined yet			

In case of "NO GO", describe blocking problems

In case of "NO GO", the operations manager must define below action plan to ensure "GO":					
Item	Description	Responsible	Due date	Status	

Operations

Quality

