





DTR3022319/3 Carshell Assembly TC

Rev. V/28  
Date: 07/11/2023  
Project: PRASA  
SI.CB2210.322.V28

Car: TC1 & TC2

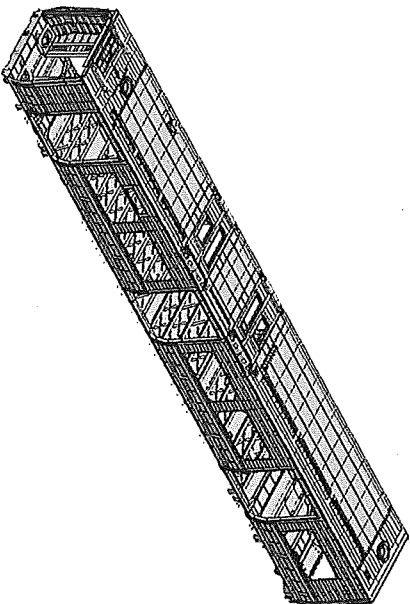
NCR:

Work station:

CB2210



Safety Related



## I - Documentation and Instruments

### I.1 - Documentation Control

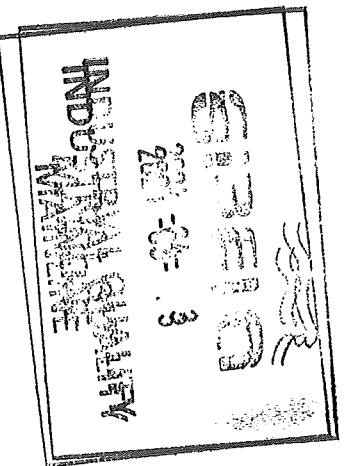
Document	Type of car				Revision	Observation	OK	KOX	Rev. y/N	Signature/Date (Manufacturing)	Signature/Date (Quality)
	TC1	M1	M2	M3	M4	TC2					
DTR3022319/3						✓				28	N/A 18/03/19 19/03/19

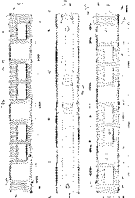
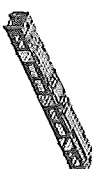
### I.2 - Instruments Control

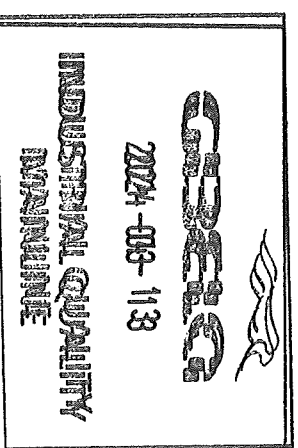
Monitoring and Measuring Instrument Control - Used for Special Process						
Instrument	Validation	Calibration or Verification Validation Date	OK	NOK	Signature/Date (Manufacturing)	Signature/Date (Quality)
(304w) IATE	CMSTP0102	18/11/24	✓		18/03/19	19/03/19
16square	82828-2	15/03/25	✓		18/03/19	19/03/19
LASER TME	125425924	08/01/25	✓		18/03/19	19/03/19


### 1.3 Consumables

Welding Consumable Control - Used for Special Process						
Filler Material	Heat Number	Welding Process	OK	KOX	Signature/Date (Manufacturing)	Signature/Date (Quality)
FE 308 U1	314018-740097	Alu	✓		18/03/19	19/03/19
FE 308 U5	299687-70382	119	✓		18/03/19	19/03/19



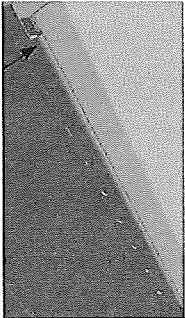
GIBELCO		Rev.		Project: PRASA		
DTR30223319/3 Carshell Assembly TC		V28	Date-	SI.CB2210.322.V28		
07/11/2023						
Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	Signature (Manufacturing)	Signature (Quality)
01	N/A	Verification of correct parts loaded (Sidewalls, Endframes, Roof and Underframe)	DT00000284980	✓	18/05/24	19/05/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality.	DTD00000210675	✓	18/05/24	19/05/24
03		Functionals dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	✓	18/05/24	19/05/24
04	REFER TO ANNEXURE A	Spot Welding Inspected and approved according procedure	IND-SAL-WMS-016 e DTD00000210675	✓	18/05/24	19/05/24
05	REFER TO ANNEXURE B	Arc Welding Inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓	18/05/24	19/05/24
06		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓	18/05/24	19/05/24
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.	As the welding procedure IND-SAL-WMS-018 and DTD00000210658	✓	18/05/24	19/05/24



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Welder traceability

Roof ring welds



LHS

Boiler maker (Name & Sign): INNO W

RHS

Boiler maker (Name & Sign): POUSE

Welder (Name & Sign): Thabang

Welder (Name & Sign): Thabang

END 1

LHS

Boiler maker (Name & Sign): INNOCENT

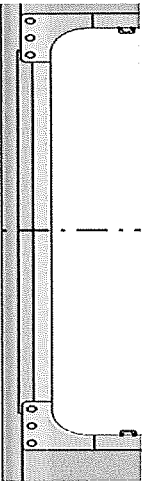
RHS

Boiler maker (Name & Sign): POUSE

Welder (Name & Sign): Thabang

Welder (Name & Sign): Thabang

END 2



LHS

Boiler maker (Name & Sign): SEAN

RHS

Boiler maker (Name & Sign): SEAN

Welder (Name & Sign): Thabang

Welder (Name & Sign): Thabang

RHS

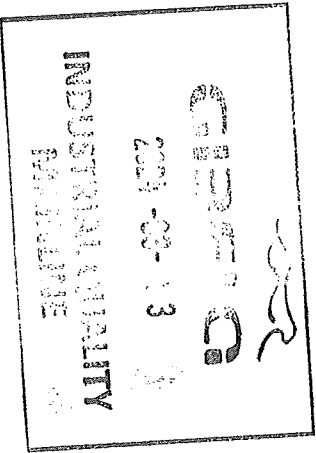
Boiler maker (Name & Sign): SEAN

RHS


Boiler maker (Name & Sign): SEAN

Welder (Name & Sign): Keith K. Nod

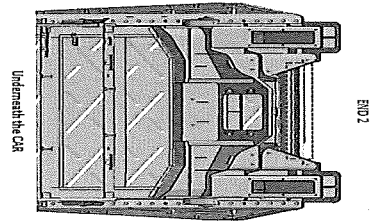
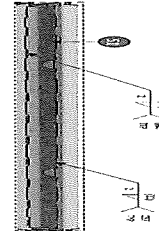
Welder (Name & Sign): Keith K. Nod





		DTR30223319/3 Carshell Assembly TC	
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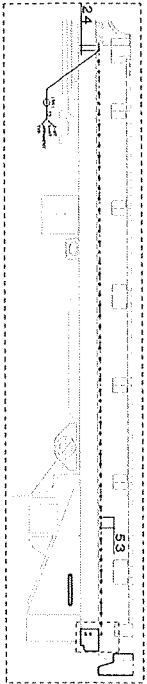
EUF Reinforcement Plates



END 2


Boiler maker (Name & Sign): Justice da

Welder (Name & Sign): Kevin Ray



FEDOU

Operator: Lawrence Mogue

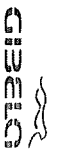


CIBELCO

2024 -03- 13

INDUSTRIAL QUALITY

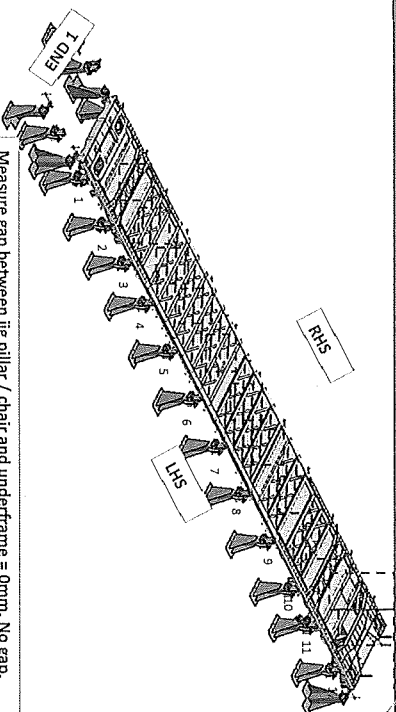
MANLINE



DTR3022319/3 Carshell Assembly TC

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07/11/2023	SI.CB2210.322.V28

Specifications of Details for CBS measurement



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

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

After Loading Underframe and Clamping.

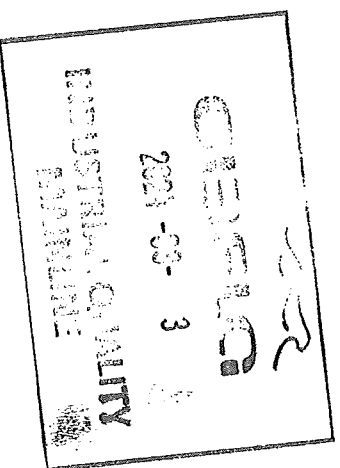
	1	2	3	4	5	6	7	8	9	10	11	12
Left Hand Side	00	00	00	00	00	00	00	00	00	00	00	00
Right Hand Side	00	00	00	00	00	00	00	00	00	00	00	00

Signature Operations: *[Signature]* Date: 19.03.24

After Welding.

	1	2	3	4	5	6	7	8	9	10	11	12
Left Hand Side	00	00	00	00	00	00	00	00	00	00	00	00
Right Hand Side	00	00	00	00	00	00	00	00	00	00	00	00

Signature Industrial Quality: *[Signature]* Date: 19/03/24





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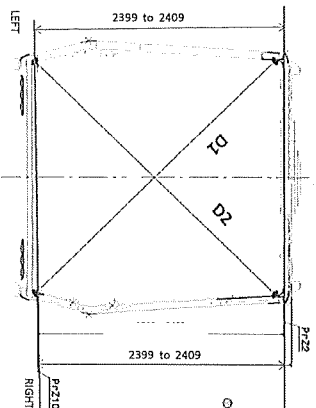
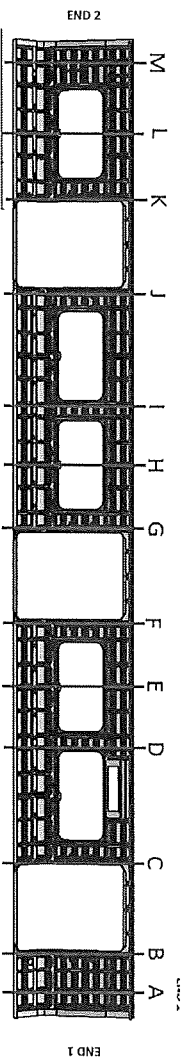
Project: PRASA

Date-

07/11/2023

SI.CB2210.322.V28

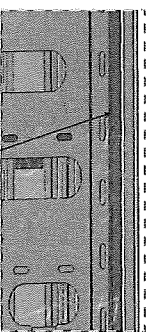
Specifications of Details for CBS measurement



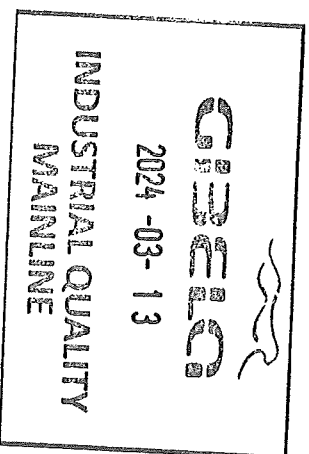
Measurement positions on roof rail and sidewall omega corner



Measurement positions on sidewall and side sill corner

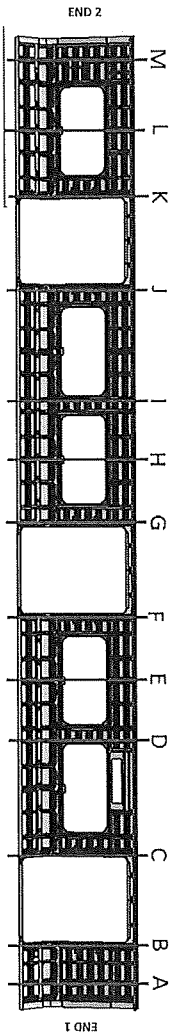


Reinforcement areas measurement positions on roof reinforcement area



**Specifications of Details for CBS measurement**



**BEFORE WELDING**



PME: The difference in Height values measured on the LHS and RHS should be ≤ 2MM on each point.

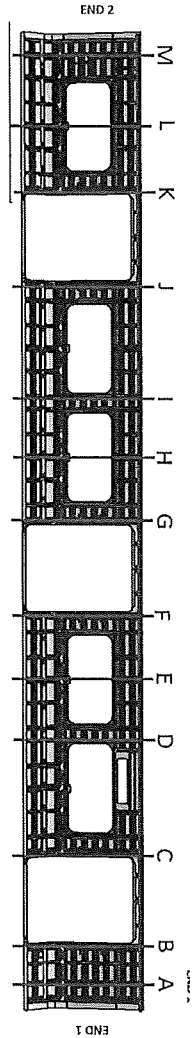
	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS ≤ 2
A	3270	3271	1	2406	2405	1
B	3268	3268	0	2405	2405	0
C	3268	3269	1	2406	2406	0
D	3271	3270	1	2405	2404	1
E	3269	3268	1	2405	2405	0
F	3268	3268	0	2406	2406	0
G	3267	3267	0	2405	2406	1
H	3269	3268	1	2407	2406	1
I	3270	3270	0	2406	2406	0
J	3268	3268	0	2405	2406	1
K	3269	3268	1	2406	2406	0
L	3266	3268	2	2405	2407	2
M	3268	3269	1	2406	2406	0

**GIBELD**  
2021-03-13  
INDUSTRIAL QUALITY  
MAINTENANCE  
9.03.24

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			07/11/2023	
Specifications of Details for CBS measurement				


Specifications of Details for CB5 measurement

AFTER WELDING



PME: The difference in Height values measured on the LHS and RHS should be ≤2MM on each point.

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS ≤ 2
A	3270	3270	0	2405	2405	0
B	3298	3298	0	2406	2406	0
C	3297	3297	0	2406	2405	1
D	3271	3270	1	2406	2407	1
E	3267	3269	2	2406	2406	0
F	3296	3296	0	2407	2406	1
G	3297	3297	1	2406	2406	0
H	3268	3269	1	2407	2406	1
I	3270	3271	1	2405	2406	1
J	3298	3297	1	2406	2407	1
K	3296	3296	0	2406	2406	0
L	3267	3265	2	2406	2406	0
M	3298	3298	0	2405	2406	1



2024-03-13

INDUSTRIAL QUALITY  
MAINLINE

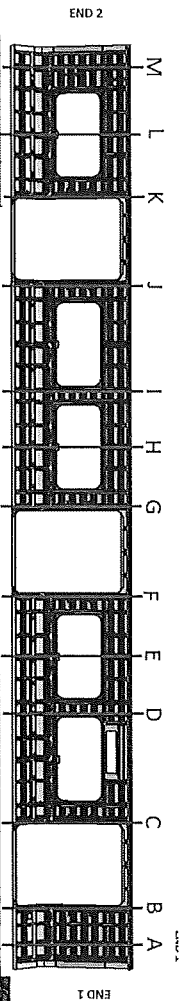
19.03.24



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GBS measurement



2270 to 2276

2268 & 2274

2275

2274

2272

2271

2273

2270

2271

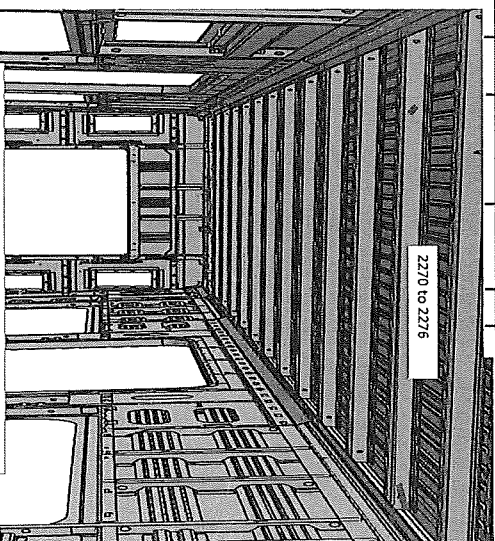
2272

2276

2272

2271

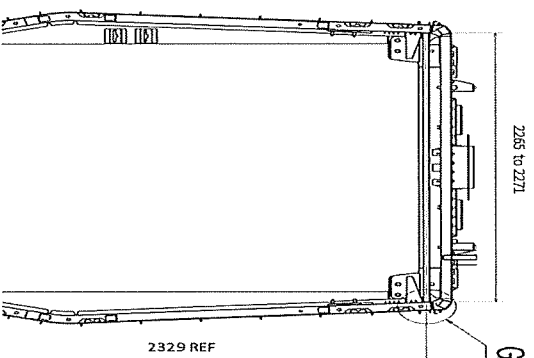
2271



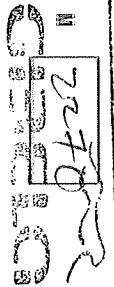
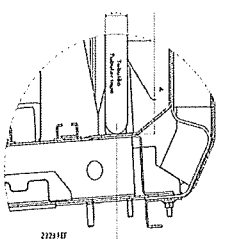
2270 to 2276

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

2265 to 2271



2265 to 2271



2024-03-13

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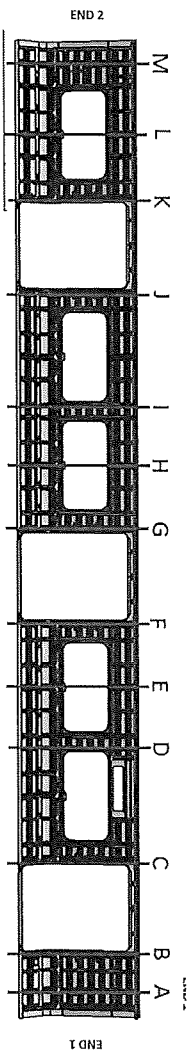


DTR3023319/3 Carshell Assembly TC

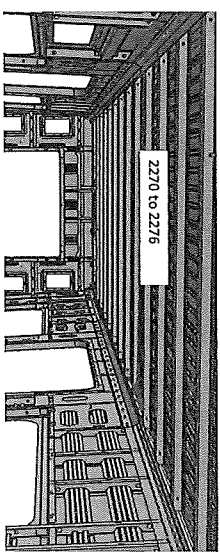
Rev. V/28	Project: PRASA
Date- 07/11/2023	SI.CB2210.322.V28

Specifications of Details for CBS measurement

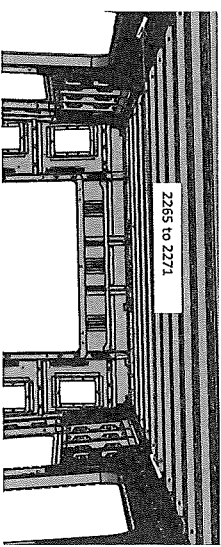
AFTER WELDING



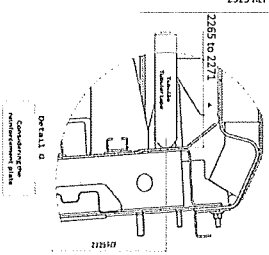
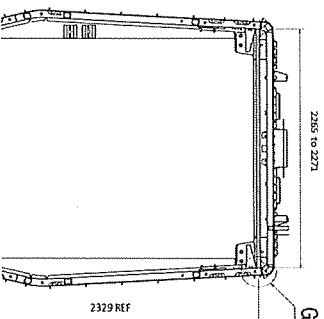
	2265 to 2271	2270 to 2276
A	N/A	2275
B	2268	N/A
C	2267	N/A
D	N/A	2274
E	N/A	2272
F	2269	N/A
G	2268	N/A
H	N/A	2276
I	N/A	2275
J	2268	N/A
K	2267	N/A
L	N/A	2273
M	2268	N/A



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



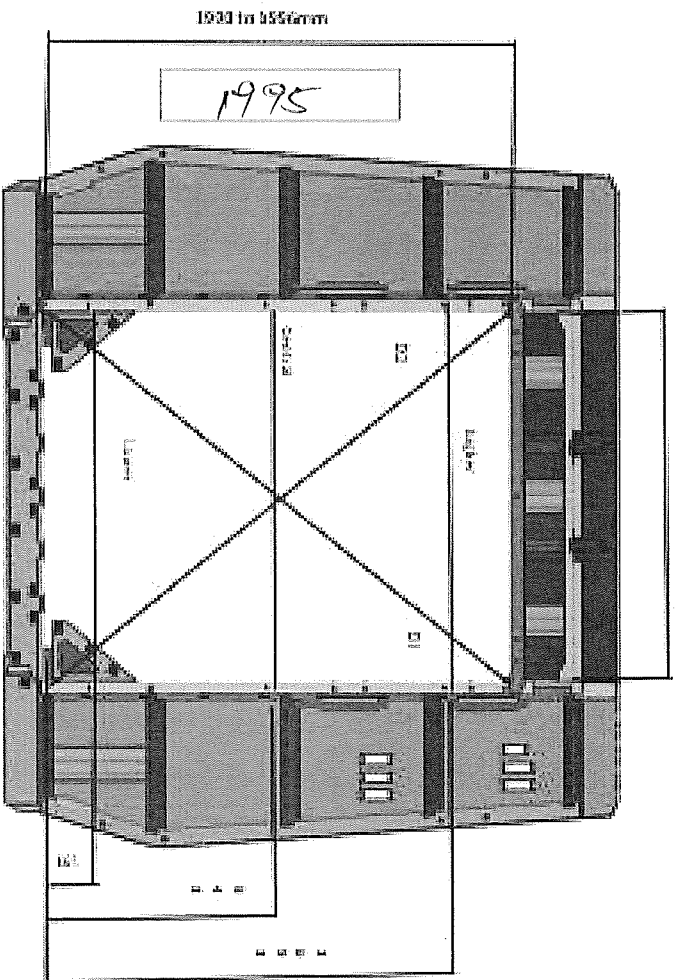
Take measurement close to radius ( considering reinforcement)



**GIBBELCO**  
2024-03-13  
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### Specifications of Details for CBS measurement

Endframe 2



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# DEBORA DUFFIELD

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202-66-3

# INDUSTRIAL QUALITY MANAGEMENT





DTR3022319/3 Carshell Assembly TC

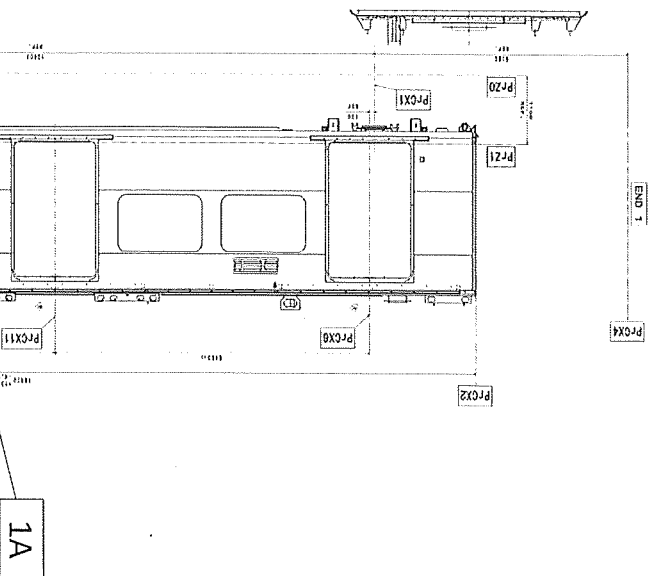
Rev.  
V28  
Date-  
07/11/2023

Project: PRASA  
SI, CB2210.322, V28

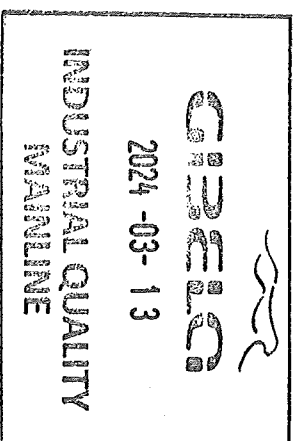
Specifications of Details for GBS measurement

LEFT SIDE	
SPECIFICATION SIZE	ACTUAL SIZE
1A 18870 $+10.5$ $-4.5$	18873

RIGHT SIDE	
SPECIFICATION SIZE	ACTUAL SIZE
1A 18870 $+10.5$ $-4.5$	18871



19.03.24



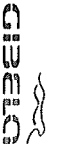
Dye penetrant test

Dye-penetration test to be performed by quality personnel

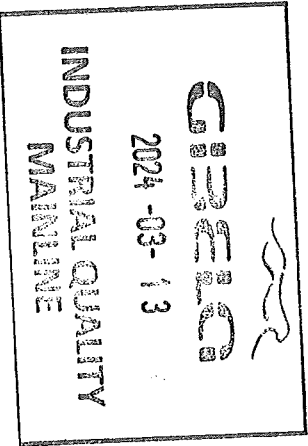
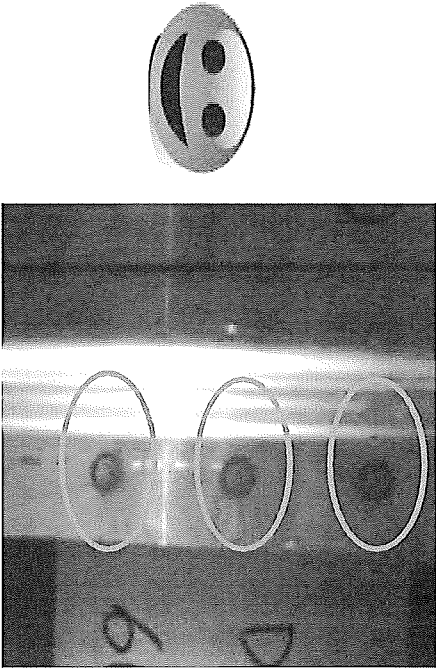
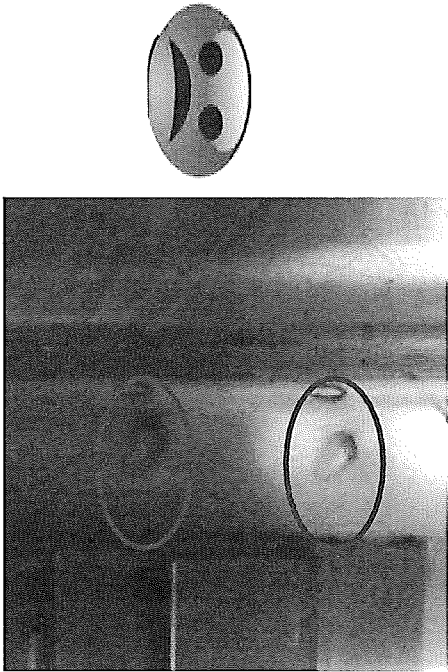







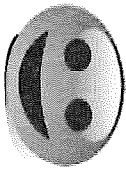
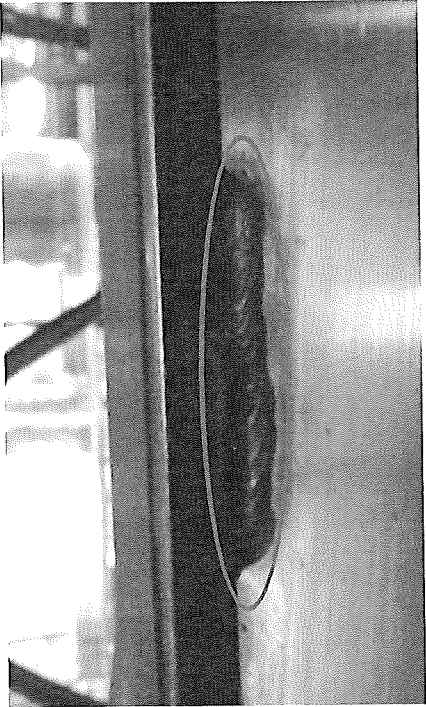
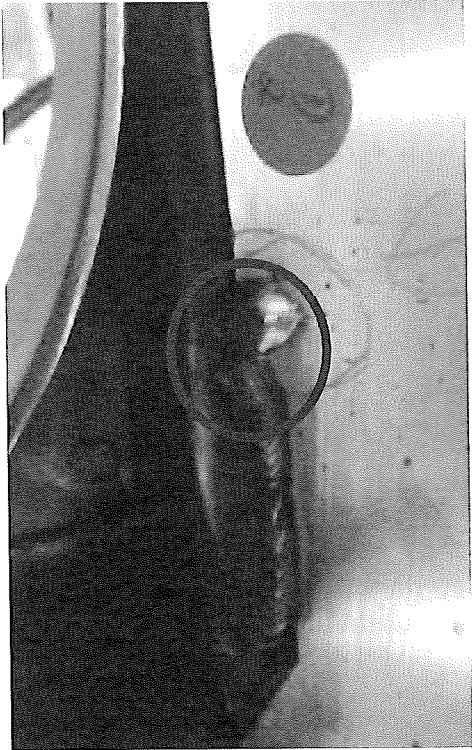
	DTR20223319/3 Carshell Assembly TC	Rev. V28 Date- 07/11/2023	Project: PRASA SI.CB2210.322.V28


ANNEXURE A: Spot Welding Quality Acceptance Standard



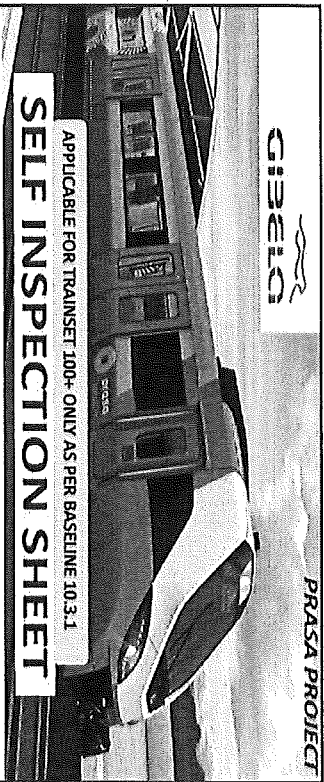
	DTR30223319/3 Carshell Assembly TC		Rev.	Project: PRASA
			V28	
			Date-	
	07/11/2023		51.CB2210.322.V28	

ANNEXURE B: Arc Welding Quality Acceptance Standard



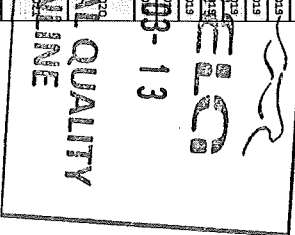


**GIBBEL**  
2024-03-13  
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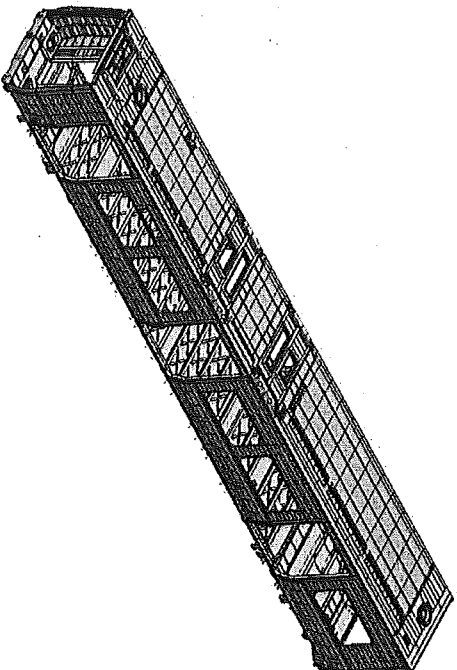


CONFIDENTIAL INFORMATION  
This document and the information contemplated therein have to be considered as Confidential information pursuant to the provisions of Clause 25 of the MSA, and treated as such.

APPLICATION REFERENCE									
MOUNTING	DRAWING	DESCRIPTION	SECTION	QUANTITY				UNIT INSTRUCTION	SAFETY ?
				YES	NO	YES	NO		
<input type="checkbox"/>	DT00033302	As per Assembly TC	CB1230	X				PR4,CB2220,DT03022 3319,2,120	YES
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
<input type="checkbox"/>									
REV	DATE	MODIFICATION CONTENT		RESPONSIBLE		NAME		DATE	
0	09/04/2018	GIBELA NEW CREATION		APPROVER		Iumeteng Mudeba		09/04/2018	
				CHECKER		Ntsoa Pindela		09/04/2018	
				COMPLER		Thapeng Mathibane		09/04/2018	
1	29/05/2018	Team leader and Quality Technician to sign final signature from PME Manager to Quality manager		APPROVER		Iumeteng Mudeba		29/05/2018	
				CHECKER		Ntsoa Pindela		29/05/2018	
2	05/07/2018	Certain dimensional checks added and others moved to CB1210 and CB1230		APPROVER		Ramoetshe Moshama		05/07/2018	
				CHECKER		Ntsoa Pindela		05/07/2018	
3	2018/06/12	Certain dimensional checks added and others moved to CB1210 and CB1230		APPROVER		Iumeteng Mudeba		2018/06/12	
				CHECKER		Ntsoa Pindela		2018/06/12	
				COMPLER		Ramoetshe Moshama		2018/06/12	
5	24/03/2019	As per Baseline 10.2		APPROVER		Iumeteng Mudeba		24/03/2019	
				CHECKER		Ntsoa Pindela		24/03/2019	
				COMPLER		Vaneza Ntuli		24/03/2019	
6	13/03/2019	Added D1 and D2 on Self-Inspection length measurements		APPROVER		Iumeteng Mudeba		13/03/2019	
				CHECKER		Ntsoa Pindela		13/03/2019	
				COMPLER		Ntsoa Pindela		13/03/2019	
7	20/05/2019	Removed roof width		APPROVER		Iumeteng Mudeba		20/05/2019	
				CHECKER		Ntsoa Pindela		20/05/2019	
				COMPLER		Ntsoa Pindela		20/05/2019	
10	22/05/2019	New Baseline 10.2.5		APPROVER		Iumeteng Mudeba		22/05/2019	
				CHECKER		Ntsoa Pindela		22/05/2019	
				COMPLER		Ntsoa Pindela		22/05/2019	
15	06/08/2020	New Baseline 10.2.5		APPROVER		Iumeteng Mudeba		06/08/2020	
				CHECKER		Ntsoa Pindela		06/08/2020	
				COMPLER		Ntsoa Pindela		06/08/2020	
20	19/04/2021	New Baseline 10.2.5		APPROVER		Iumeteng Mudeba		19/04/2021	
				CHECKER		Ntsoa Pindela		19/04/2021	
				COMPLER		Ntsoa Pindela		19/04/2021	
21	17/08/2021	ADOPTED DIMENSIONS BEFORE WELDING		APPROVER		Iumeteng Mudeba		17/08/2021	
				CHECKER		Ntsoa Pindela		17/08/2021	
				COMPLER		Ntsoa Pindela		17/08/2021	
25	20/02/2022	New Baseline 10.2.5		APPROVER		Iumeteng Mudeba		20/02/2022	
				CHECKER		Ntsoa Pindela		20/02/2022	
				COMPLER		Ntsoa Pindela		20/02/2022	
26	14/08/2022	Update minimum temperature requirement for sealant application		APPROVER		Iumeteng Mudeba		14/08/2022	
				CHECKER		Ntsoa Pindela		14/08/2022	
				COMPLER		Ntsoa Pindela		14/08/2022	
27	19/10/2022	Addition of traceability for sealant application and welding		APPROVER		Iumeteng Mudeba		19/10/2022	
				CHECKER		Ntsoa Pindela		19/10/2022	
				COMPLER		Ntsoa Pindela		19/10/2022	
28	14/04/2023	Added sealant batch number & welding consumables traceability		APPROVER		Iumeteng Mudeba		14/04/2023	
				CHECKER		Ntsoa Pindela		14/04/2023	
				COMPLER		Ntsoa Pindela		14/04/2023	
TRAINSET	CAR	OPERATOR NAME & ALPS NUMBER	DATE	SELF INSPECTION NUMBER		PAGES			
219	TC2	Richard Groot	20/03/24	SLCB2220.323.V28		17			



CB2220


**Safety Related**

## I - Documentation and Instruments

### 1.1 - Documentation Control

## 1.2 - Instruments Control

**Monitoring and Measuring Instrument Control - Used for Special Process**

Instruments	Validation	Calibration or Verification Validation Date	OK	Signature/Date (Manufacturing)		Signature/Date (Quality)	
Messuring tape			✓		3/20/25		3/20/25
Thermometer	3/28/25-3	15/03/2025	✓		3/28/25		3/28/25


### 1.3 Consumables

**Welding Consumable Control - Used for Special Process**

[illegible]









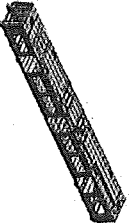





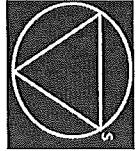





  
 NATIONAL BUREAU OF STANDARDS

# INDUSTRIAL QUALITY






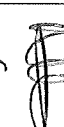

	DTR30223319/2 Carshell Assembly TC		
	Rev. 29	Project: PRASA	
	Date-		
	28/10/2023	SI.CB2220.323.V29	

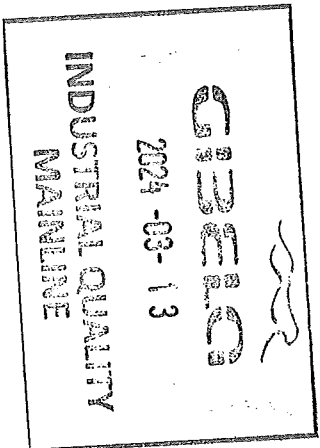
II - Control Activities of Production

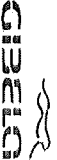
II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	NO	Not checked	Signature/Date (Manufacturing)	Signature/Date (Quality)
01	N/A	Assembly according to Instruction Engineering n° PRA_CB2220.DTR30225487/2 Verification of flament for all reinforcement brackets.	DTR30223319/2	✓			 20/03/24	 20/03/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality.	DTD0000210675	✓			 20/03/24	 20/03/24
03	REFER TO ANNEXURE A	Spot Welding inspected and approved according procedure	IND-SAL-WMS-016 e DTD0000210675	✓			 20/03/24	 20/03/24
04	REFER TO ANNEXURE B	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓			 20/03/24	 20/03/24
05		Cleaning of all Stainless Steel Surface	According to GIB-MEL - PROC-0002				 20/03/24	 20/03/24
06	N/A	Functional dimensions approved according to approved complementary document approved by Astion engineering and registered in this document.	IND-SAL-WMS-016 e 2024-03-13 INDUSTRIAL QUALITY	 20/03/24			 20/03/24	
07		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	✓			 20/03/24	 20/03/24
08	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	Sealant Batch No: <u>10007</u> Exp Date: <u>03/24</u>  Actuals Temperature: <u>25</u> Humidity: <u>60</u>	✓			 20/03/24	 20/03/24



 <b>CIBELCO</b>		Project: PRASA SLCB2220.323.V29			Rev.	
					29	Date-
DTR3022319/2 Carshell Assembly TC					28/10/2023	
09	NA	Verification of sealant application in certain regions in the drawing.	AAD0001 241 033		 20/03/24	 20/03/24
10	NA	Verification of sealant application on the roof and sidewall finishers	Sealant must be: -Applied straight and even (1.5mm) -Free of gaps,cracks,damage and debris (flashes, dirt, dust) <b>Refer to Annexure B</b>		 20/03/24	 20/03/24



	Rev.	Project: PRASA	
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	28/10/2023		



END 1  
SEALANT


OPERATOR  
(Name & sign):

*Netlonosi* *HL*

OPERATOR  
(Name & sign):

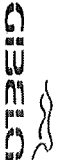
*Netlonosi* *HL*

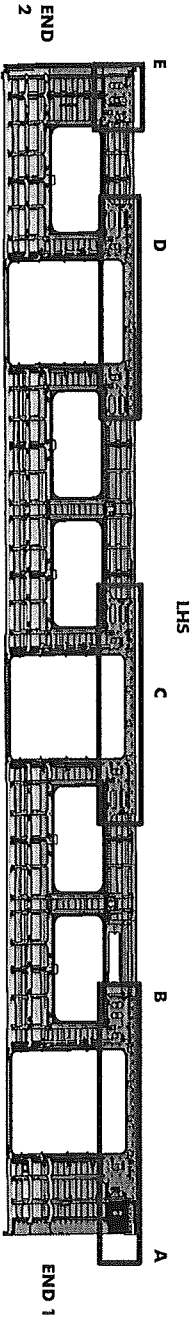
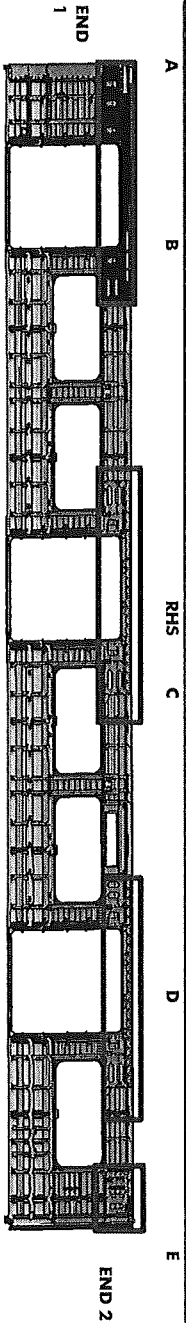




2024 -03- 13


INDUSTRIAL QUALITY  
MAINTENANCE

		DTR30223319/2 Carshell Assembly TC		Rev. 29 Date- 28/10/2023	Project: PRASA SLCB22220.323.V29
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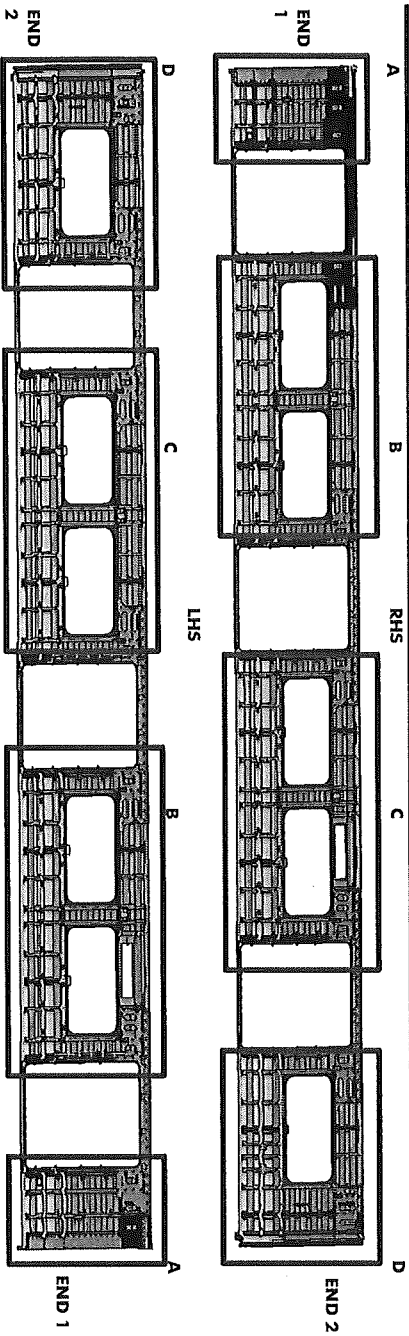
REINFORCEMENT WELDING

AREA	LHS	RHS
A	Operator (Name&sign): <u>LINDA [Signature]</u>	<u>LINDA [Signature]</u>
B	Operator (Name&sign): <u>LINDA [Signature]</u>	<u>SAHAR [Signature]</u>
C	Operator (Name&sign): <u>[Signature]</u>	<u>[Signature]</u>
D	Operator (Name&sign): <u>Sibiga [Signature]</u>	<u>THULAB [Signature]</u>
E	Operator (Name&sign): <u>Nkulungwa [Signature]</u>	<u>Nkulungwa [Signature]</u>



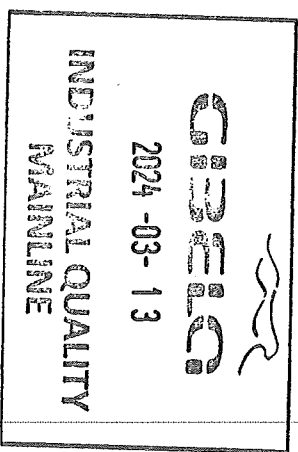
**GIBELCO**  
2024-03-13  
INDUSTRIAL QUALITY  
WARRANTY

	DTR30223319/2 Carshell Assembly TC	Rev.	Project: PRASA
		29	
		Date-	51.CB2220.323.V29
		28/10/2023	

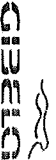


BRACKETING

C-RAILS:	Operator:	INSTALLATION
	Operator:	THICKOSI
DOOR MECHANISMS:	Operator:	IT
	Operator:	
TAPPING PADS	Operator:	THICKOSI
	Operator:	
SEAT & LUGGAGE BRACKETS:	Operator:	INSTALLATION & VERIFICATION
	Operator:	ASADH
SEAT BRACKETS VERIFICATION:	Operator:	HSR
	Operator:	




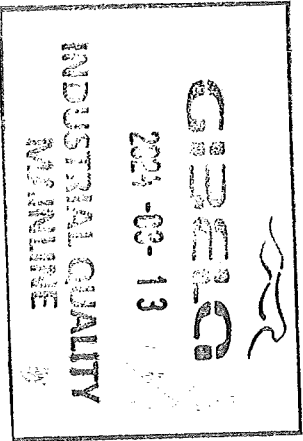
AREA	LHS	WELDING	RHS
END 1			
A (Seat brackets)	: Operator (Name&sign):	LINDO	
(C-rails, Luggage and earth bushes)	: Operator (Name&sign):	SAHARU	
B (Seat brackets)	: Operator (Name&sign):	SAHARU	
(C-rails, Luggage and earth bushes)	: Operator (Name&sign):	SAHARU	
C (Seat brackets)	: Operator (Name&sign):	SAHARU	
(C-rails, Luggage and earth bushes)	: Operator (Name&sign):	SAHARU	
D (Seat brackets)	: Operator (Name&sign):	SAHARU	
(C-rails, Luggage and earth bushes)	: Operator (Name&sign):	SAHARU	

 <b>GIBELQ</b>	DTR3022319/2 Carshell Assembly TC	Rev. 29	Project: PRASA
		Date- 28/10/2023	SI.CB2220.323.V29

ENDS

END 1 TAPPING PADS WELDING: Operator (Name&sign): N/A

END 2 TAPPING PADS WELDING: Operator (Name&sign): Sibig 





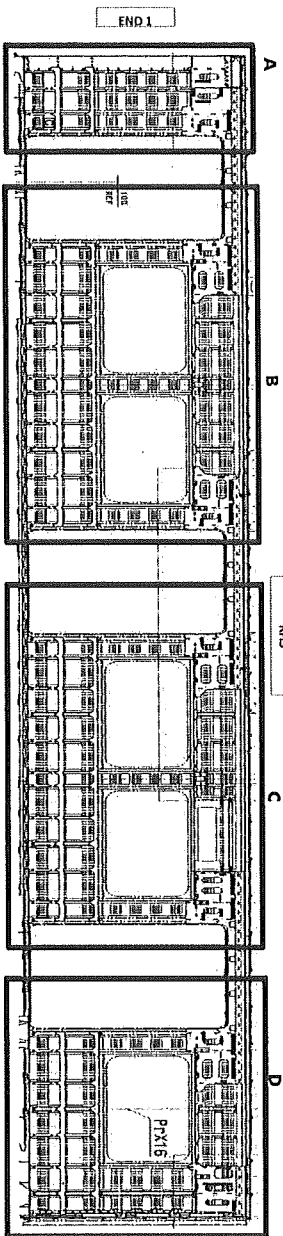
DTR3022319/2 Carshell Assembly TC

Rev.  
29  
Date-  
28/10/2023

Project: PRASA  
SI.CB2220.323.V29

TC BRACKET INSTALLATION

RHS



D

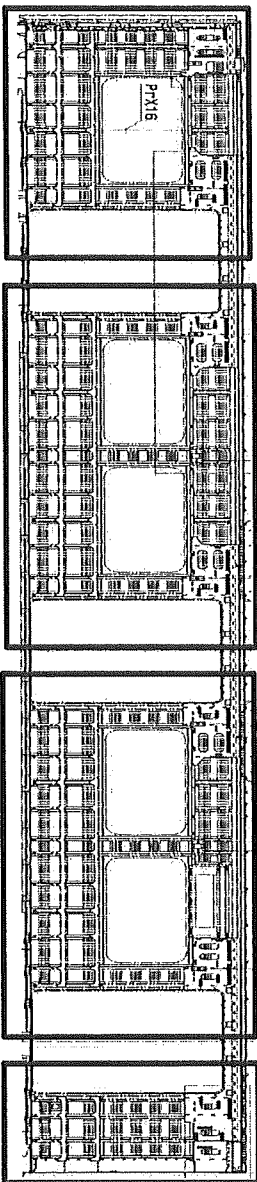
C

LHS

B

A

END 2



END 1

QUANTITIES (TC)

RHS

SECTION	QUANTITY	OK	NOK
A	4	✓	
B	4	✓	
C	8	✓	
D	12	✓	
A	0	✓	
B	21	✓	
C	21	✓	
D	13	✓	
A	1	✓	
B	4	✓	
C	5	✓	
D	4	✓	

ROOF ENDS:

CRAILS 2 OFF END 2  
EARTH BUSH 4 OFF END 2

VERIFICATION BY: *Michael*

LHS

SECTION	QUANTITY	OK	NOK
A	4	✓	
B	8	✓	
C	4	✓	
D	6	✓	
A	0	✓	
B	21	✓	
C	21	✓	
D	13	✓	
A	1	✓	
B	4	✓	
C	4	✓	
D	2	✓	

ROOF ENDS:

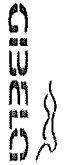
CRAILS 2 OFF END 2  
EARTH BUSH 4 OFF END 2

VERIFICATION BY: *Michael*



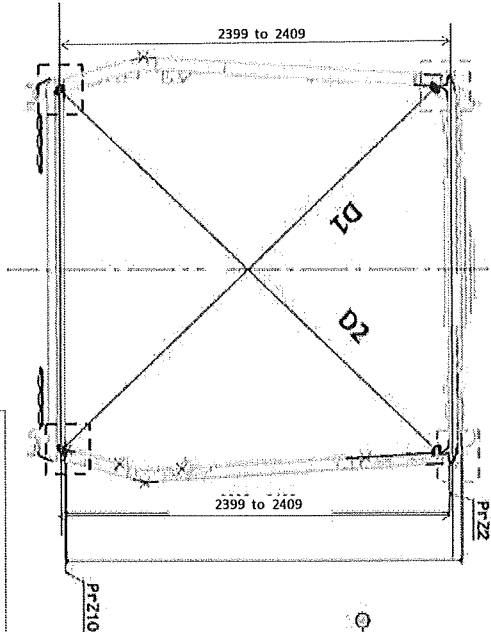
2024-03-13

INDUSTRIAL QUALITY  
MAINLINE

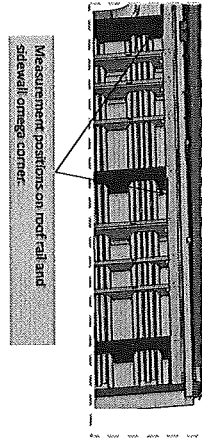


DTR302231912 Carshell Assembly TC

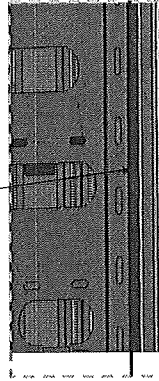
Rev.	Project: PRASA
29	
Date-	
28/10/2023	SI.CB2220.323.V29



Take measurement close to radius



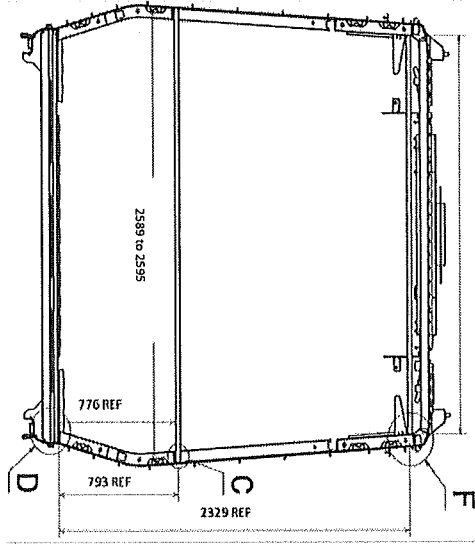
Measurement positions on roof rail and sidewall omega corner



Reinforcement area measurement positions on roof reinforcement area




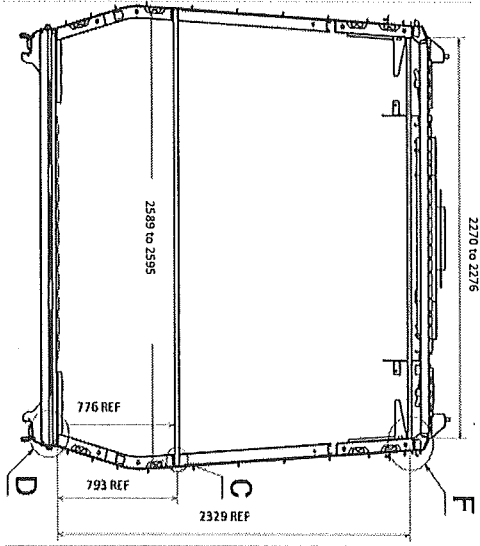
Measurement positions on sidewall and side sill corner



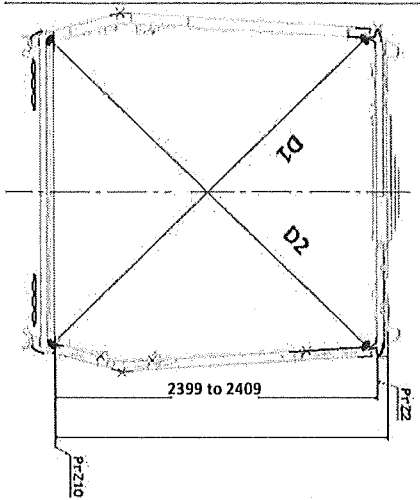
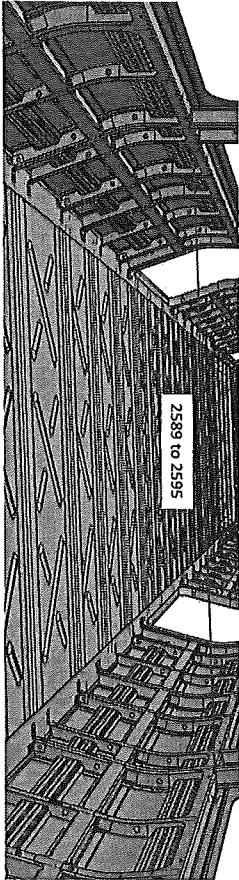
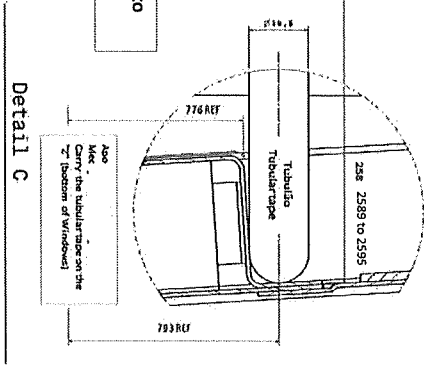
Take measurement close to radius


**GIBBELCO**  
2024-03-13  
**INDUSTRIAL QUALITY**  
**MAINTENANCE**

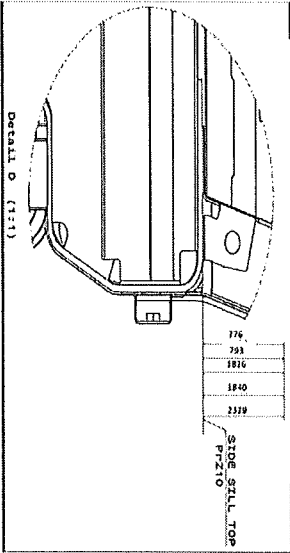
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	28/10/2023		Date-	SI.CB2220.323.V79



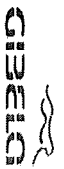
Take measurement close to radius




  
2024-03-13
  
INDUSTRIAL QUALITY
  
MAINLINE

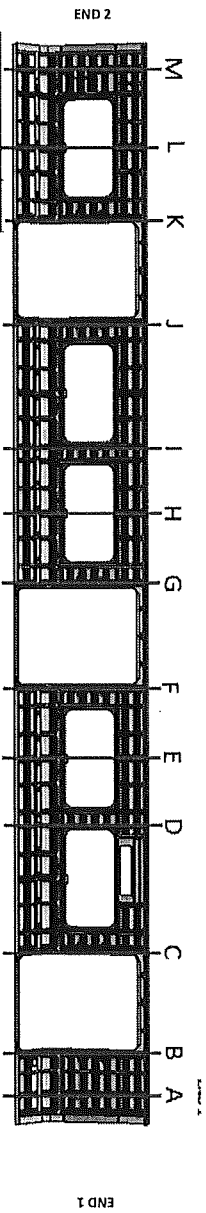






DTR302231912 Carshell Assembly TC

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29	
Date-	SI.CB2220.323.V29
28/10/2023	



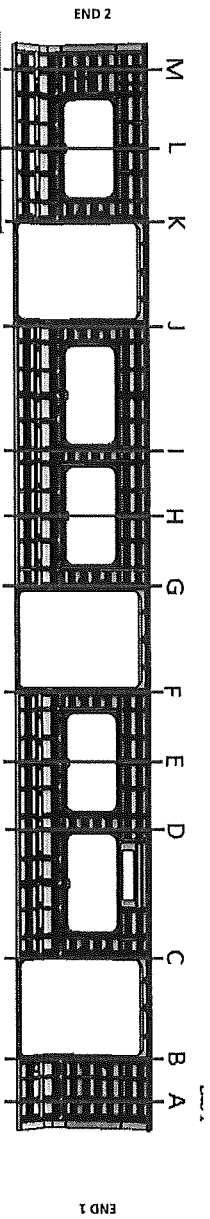
BEFORE WELDING

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3265	3210	5	✓
B	3287	3293	7	—
C	3294	3300	6	—
D	3262	3269	7	—
E	3260	3265	5	—
F	3290	3295	5	—
G	3292	3292	0	—
H	3260	3264	4	—
I	3262	3268	6	—
J	3298	3298	0	—
K	3294	3292	2	—
L	3264	3261	3	—
M	3296	3300	4	—




2024-03-13

INDUSTRIAL QUALITY  
MARINE



**AFTER WELDING**

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3299	3293	6	2593
B	3294	3297	3	2594
C	3294	3299	5	2592
D	3267	3262	5	2590
E	3264	3262	2	2591
F	3295	3292	3	2591
G	3294	3291	3	2591
H	3265	3261	4	2593
I	3267	3263	4	2589
J	3299	3297	2	2591
K	3293	3296	3	2593
L	3263	3265	2	2590
M	3298	3294	4	



2593

2590 2024-03-13

**INDUSTRIAL QUALITY**  
FINISH



DTR3022331912 Carshell Assembly TC

Rev.  
29  
Date-  
28/10/2023

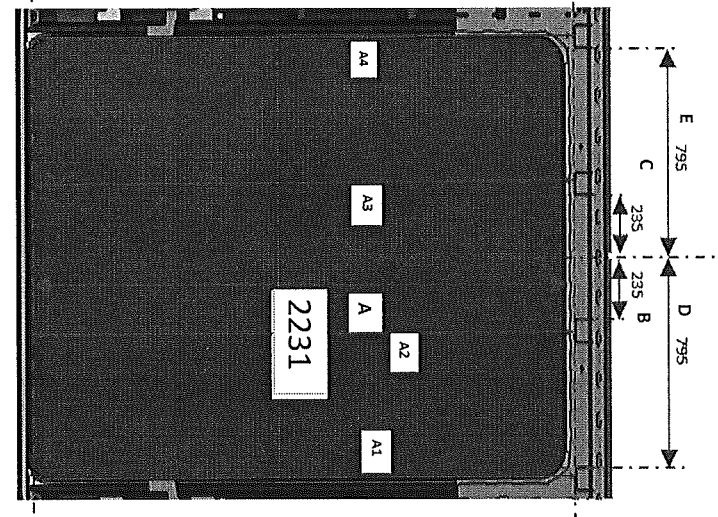
Project: PRASA  
SI.CB2220.323.V29



DTR3022319/2 Carshell Assembly TC

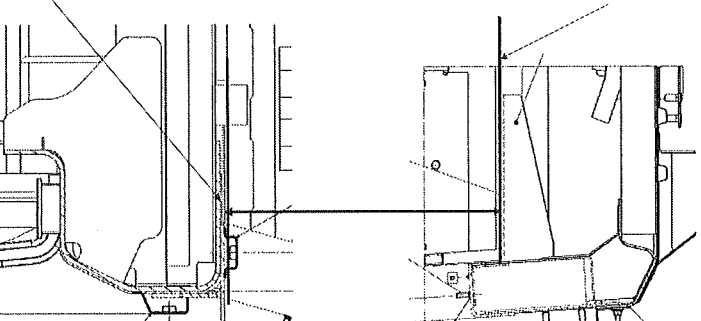
Rev.	29	Project: PRASA
Date-	28/10/2023	SI:CB2220.323.V29

Specifications of Details for Q85 measurement



Brackets Carbodyshell  
U Type Supports

Brackets Carbodyshell  
Channel Assy



DOOR 1 - LHS

VALUE	ACTUAL
A1 2230 to 2232	2233
A2 2230 to 2232	2232
A3 2230 to 2232	2232
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	2233
A2 2230 to 2232	2232
A3 2230 to 2232	2232
A4 2230 to 2232	2233
B 234 to 236	235
C 234 to 236	236
D 794 to 796	795
E 794 to 796	796

DOOR 3 - LHS

VALUE	ACTUAL
A1 2230 to 2232	2232
A2 2230 to 2232	2232
A3 2230 to 2232	2232
A4 2230 to 2232	2232
B 234 to 236	235
C 234 to 236	236
D 794 to 796	795
E 794 to 796	795

DOOR 1 - RHS

VALUE	ACTUAL
A1 2230 to 2232	2233
A2 2230 to 2232	2231
A3 2230 to 2232	2232
A4 2230 to 2232	2232
B 234 to 236	235
C 234 to 236	236
D 794 to 796	795
E 794 to 796	796

DOOR 2 - RHS

VALUE	ACTUAL
A1 2230 to 2232	2232
A2 2230 to 2232	2232
A3 2230 to 2232	2232
A4 2230 to 2232	2232
B 234 to 236	235
C 234 to 236	235
D 794 to 796	796
E 794 to 796	795

DOOR 3 - RHS

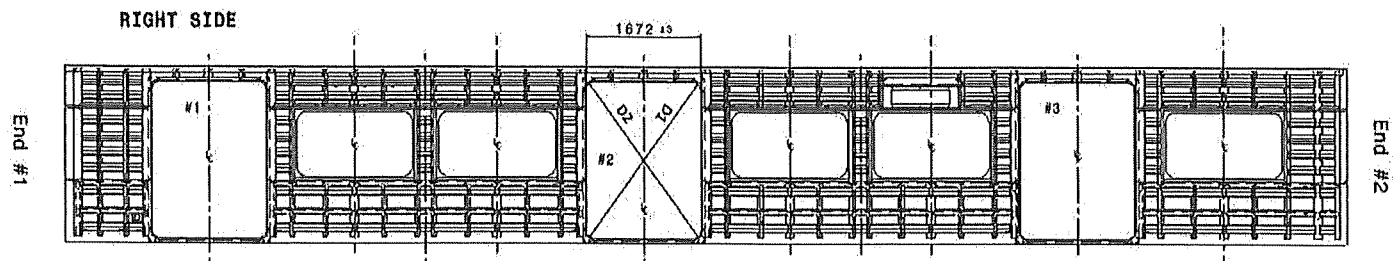
VALUE	ACTUAL
A1 2230 to 2232	2232
A2 2230 to 2232	2231
A3 2230 to 2232	2232
A4 2230 to 2232	2232
B 234 to 236	235
C 234 to 236	236
D 794 to 796	794
E 794 to 796	795



2024-03-13

INDUSTRIAL QUALITY  
MANUFA

Specifications of Details for GBS measurement

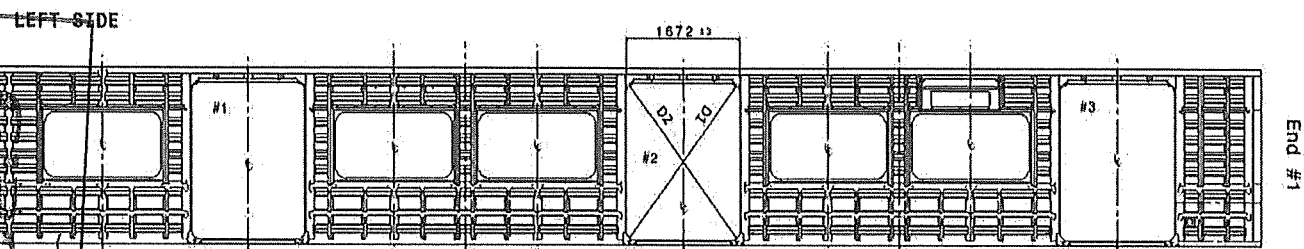


Doors length - 1672 ±3mm

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

Doors diagonal D1-D2 maximum difference ≤ 4 mm

	#1	#2	#3
D1	2748	2747	2749
D2	2748	2750	2750
D1-D2	0	3	1



Vão de Portas - 1672 ±3mm  
Doors length - 1672 ±3mm


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

Diagonal de portas - diferença D1-D2 < 4 mm

	#1	#2	#3
D1	2749	2747	2747
D2	2751	2749	2748
D1-D2	2	2	1

INDUSTRIAL QUALITY  
MARINE

2024-03-13

 <b>GIBELCO</b>	DTR3022331912 Carshell Assembly TC	Rev. 29	Project: PRASA	
		Date- 28/10/2023	SI.CB2220.323.V29	

Specifications of Details for GB5 measurement

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)
01	N/A	To complete REX	Refer to REX. New defects must be added on the REX		

  
**GIBELCO**

2024-03-13

**INDUSTRIAL QUALITY**  
MANLINE

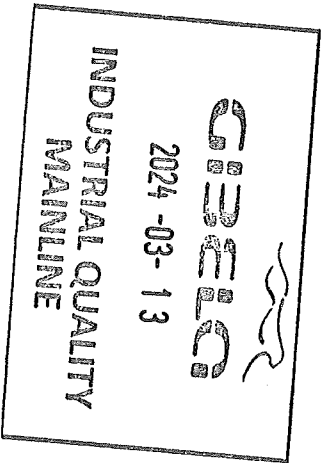
	DTR302231912 Carshell Assembly TC	Rev. 29	Project: PRASA SI.CB2220.323.V29
		Date- 28/10/2023	


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	GO	20/03/2024	Operations Moshuch	Moshuch	
	NO GO	20/03/2024	Industrial Quality Andoni	Andoni	
				Operations	
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	Action	Responsible	Due date	Status

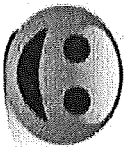
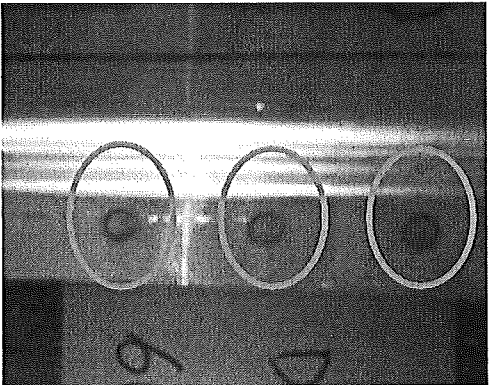
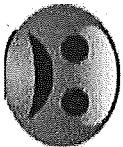
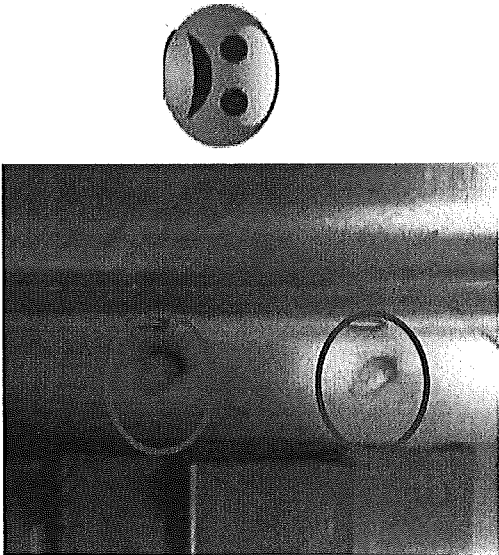
Operations

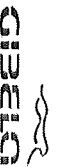
Quality



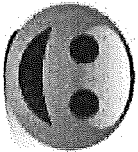
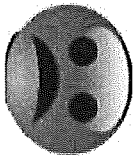
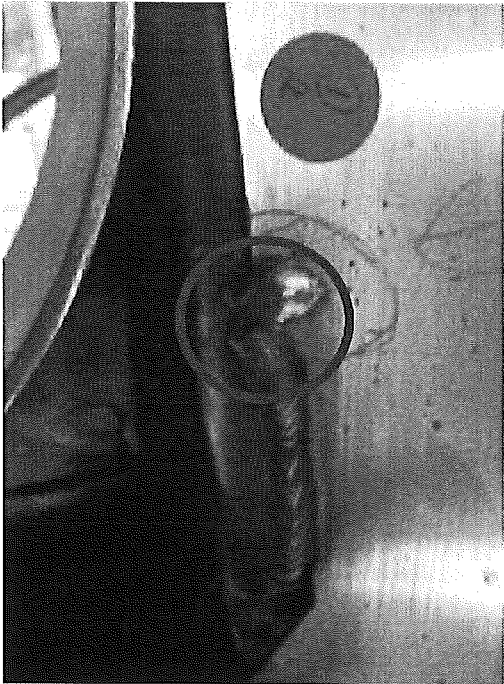
	DTR30223319/2 Carshell Assembly TC		Rev.	Project: PRASA
			29	
			Date-	
			28/10/2023	
SI.CB2220.323.V29				

ANNEXURE A: Spot Welding Quality Acceptance Standard

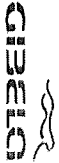


	DTR3022331912 Carshell Assembly TC		Rev. 29	Project: PRASA SI.CB2220.323.V29
			Date- 28/10/2023	

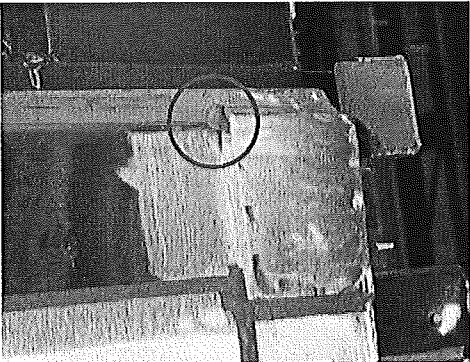
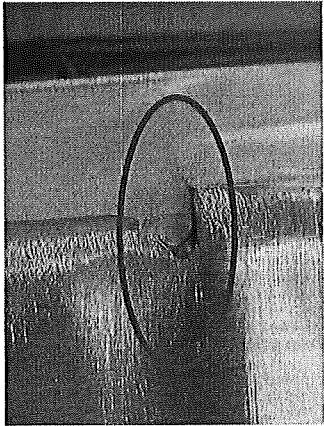
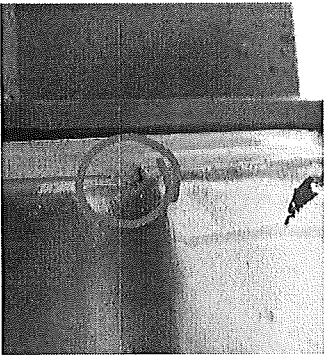
**ANNEXURE B: Arc Welding Quality Acceptance Standard**

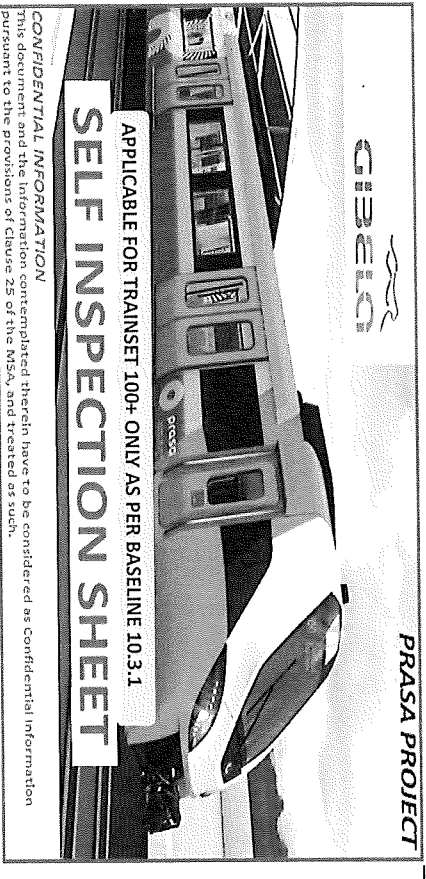




	DTR30223319/2 Carshell Assembly TC		Rev. 29	Project: PRASA SI.CB2220.323.V29
			Date- 28/10/2023	

ANNEXURE B: Sealant






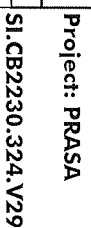
CONFIDENTIAL INFORMATION  
This document and the information contemplated therein have to be considered as Confidential information pursuant to the provisions of Clause 25 of the MSA, and treated as such.

APPLICATION REFERENCE														
DRAWING		STATION		CAR TYPE							WORK INSTRUCTION		SAFETY ?	
NUMBERING				TC	MA	INT	WC	MA	TC					
07000023313	A4000138983	07000023313 Cab and Assembly TC	CB230	X						X		PRA.CB2230.DT0000012	23313.V20	YES
REV	DATE	MODIFICATION CONTENT								RESPONSIBLE	NAME	DATE		
0	06/04/2018	GIBELA NEW CREATION								APPROVER	Itumeleng Modiba	09/04/2018		
										CHECKER	Nosizo Pindela	09/04/2018		
										COMPILER	Tharyani Mathengu	06/04/2018		
1	30/5/2018	Team leader and Quality Technician to sign Change final signature from PME Manager to Quality manager								APPROVER	Itumeleng Modiba	30/5/2018		
										CHECKER	Nosizo Pindela	30/5/2018		
										REVISED BY	Nosizo Pindela	30/5/2018		
2	05/07/2018	Certain dimensional checks moved to CB1220								APPROVER	Itumeleng Modiba	05/07/2018		
										CHECKER	Nosizo Pindela	05/07/2018		
										COMPILER	Ramokone Mosema	05/07/2018		
5	24/01/2019	As per Baseline 10.2								APPROVER	Itumeleng 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	Itumeleng Modiba	13/03/2019		
										CHECKER	Nosizo Pindela	13/03/2019		
										COMPILER	Nosizo Pindela	13/03/2019		
7	17/09/2019	Added Cab Fire Barrier Flatness Measurements								APPROVER	Itumeleng Modiba	17/09/2019		
										CHECKER	Nosizo Pindela	17/09/2019		
										COMPILER	Itumeleng Modiba	20/09/2019		
10	20/09/2019	New Baseline 10.2.5								CHECKER	Nosizo Pindela	20/09/2019		
										COMPILER	Nosizo Pindela	20/09/2019		
15	28/01/2021	New Baseline 10.2.6								APPROVER	Timothy Mainela	28/01/2021		
										CHECKER	Bongane Masina	28/01/2021		
										COMPILER	Bongane Masina	28/01/2021		
										APPROVER	Timothy Mainela	13/04/2021		
20	19/04/2021	New Baseline change 10.3								CHECKER	Bongane Masina	13/04/2021		
										COMPILER	Bongane Masina	13/04/2021		
25	20/04/2022	New Baseline change 10.3.1								APPROVER	Colinus Mkhombhi	20/02/2022		
										CHECKER	Andani Mudzelo	20/02/2022		
										COMPILER	Andani Mudzelo	20/02/2022		
26	14/06/2022	Update minimum temperature requirement for sealant application								APPROVER	Colinus Mkhombhi	14/06/2022		
										CHECKER	Andani Mudzelo	14/06/2022		
										COMPILER	Andani Mudzelo	14/06/2022		
27	27/07/2022	Threshold measurements addition								APPROVER	Colinus Mkhombhi	26/07/2022		
										CHECKER	Andani Mudzelo	26/07/2022		
										COMPILER	Andani Mudzelo	26/07/2022		
28	19/10/2022	Addition of traceability for sealant application								APPROVER	Colinus Mkhombhi	19/10/2022		
										CHECKER	Nosiko Zwane	19/10/2022		
										COMPILER	Amogelang Mofhampe	19/10/2022		
29	14/04/2023	Added sealant batch number & welding consumables traceability								APPROVER	Vanessa Ntuli	14/04/2023		
										CHECKER	Nosiko Zwane	14/04/2023		
										COMPILER	Amogelang Mofhampe	14/04/2023		
30	06/11/2023	Added threshold traceability for boiler makers and welders								APPROVER	Tyson Ngweni	06/11/2023		
										CHECKER	Andani Mudzelo	06/11/2023		
										COMPILER	Nosiko Zwane	06/11/2023		
TRAINSET	CAR	OPERATOR NAME & ALPS NUMBER		DATE	SELF INSPECTION NUMBER				PAGES					
319	TC2	Keroso Sthlwa		21/03/24	SI.CB2230.324.V29				12					

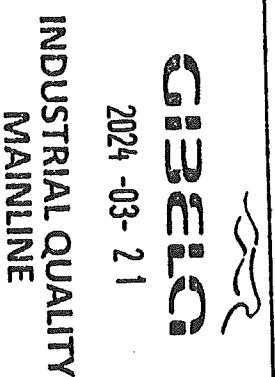
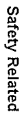
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2024 -03- 21  
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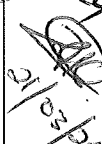



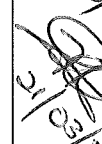
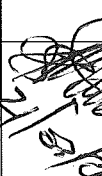

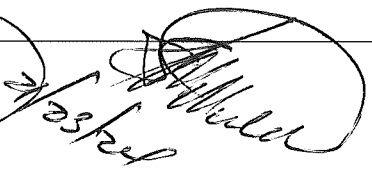
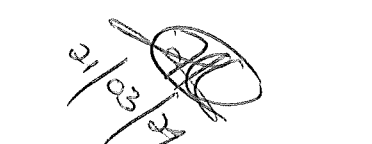
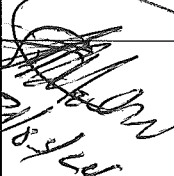

CB2230


[illegible]

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		Date- 06/11/2023	
		SI.CB2230.324.V29	

II - Control Activities of Production

II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	NOK	Rework	Signature/Date (Operations)	Signature/Date (Quality)
01	N/A	Assembly according to Instruction Engineering nº DT00000223319	DT00000223319	✓			 21/03/24	 21/03/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality.	DTD00000210675	✓			 21/03/24	 21/03/24
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 DTD00000210675	✓			 21/03/24	 21/03/24
04	N/A	Functionals dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	✓			 21/03/24	 21/03/24
05	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 DTD00000210658.	As the welding procedure IND-SAL-WMS-018 and DTD00000210658	✓			 21/03/24	 21/03/24
06	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 (1) Min-Max 10°C - 35°C Relative humidity Min - Max (1) 25% - 80%	Actuals Exp Date: 2024/03/24 Sealant Batch No: 154FR 22817152 Temperature: 15°C Humidity: 62%	✓			 21/03/24	 21/03/24
07	N/A	Verification of sealant application in regions of roof and sideframe finishers.	Sealant must be: -Applied straight and even (1.5mm) -Free of gaps, cracks, damage and debris (flashes, dirt, dust)  Refer to Annexure B	✓			 21/03/24	 21/03/24



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 2024-03-21  
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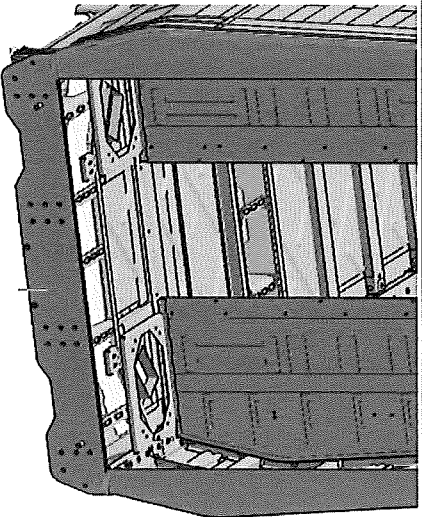


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VIEW A



**END 1  
SEALANT**

OPERATOR  
(Name & sign):

Bortumeio

Bartle

OPERATOR  
(Name & sign):

Leao

**END 2 SEALANT  
(VIEW C)**

OPERATOR  
(Name & sign):

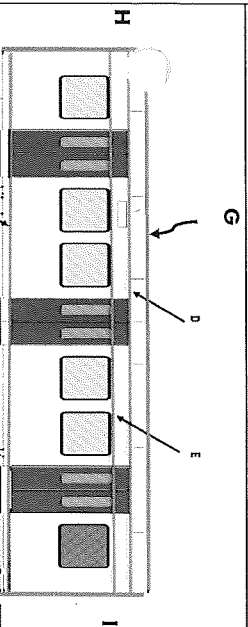
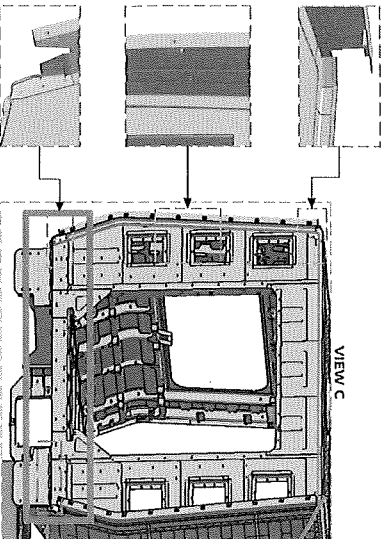
leao

OPERATOR  
(Name & sign):

leao

OPERATOR  
(Name & sign):

leao



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

Operator (Name & sign): D,E,F,G,H,I

D,E,F,G,H,I

Operator (Name & sign): Leao

Leao

Operator (Name & sign): Bartle

Bartle

Operator (Name & sign): Bortumeio

Bortumeio

Operator (Name & sign):

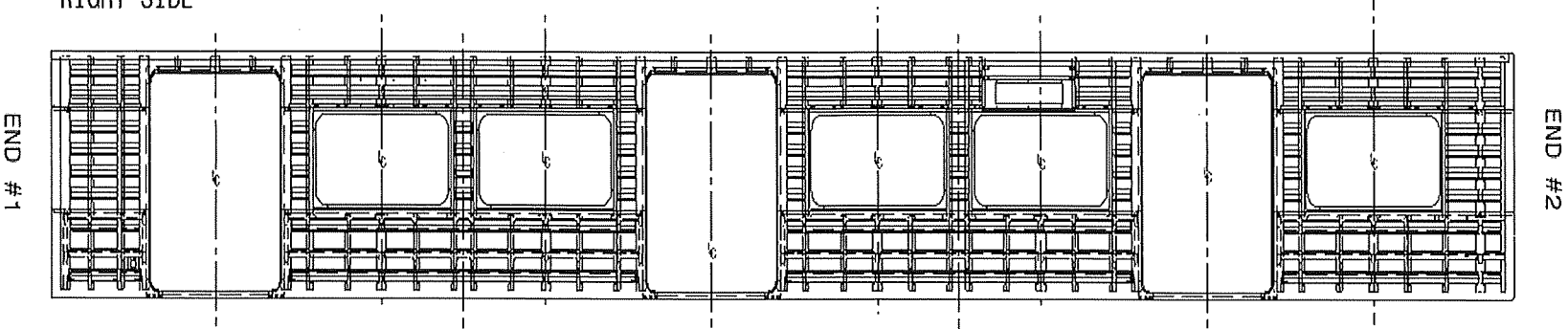
Operator (Name & sign):

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2024-03-21  
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## Specifications of Details for CBS measurement CB2230

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

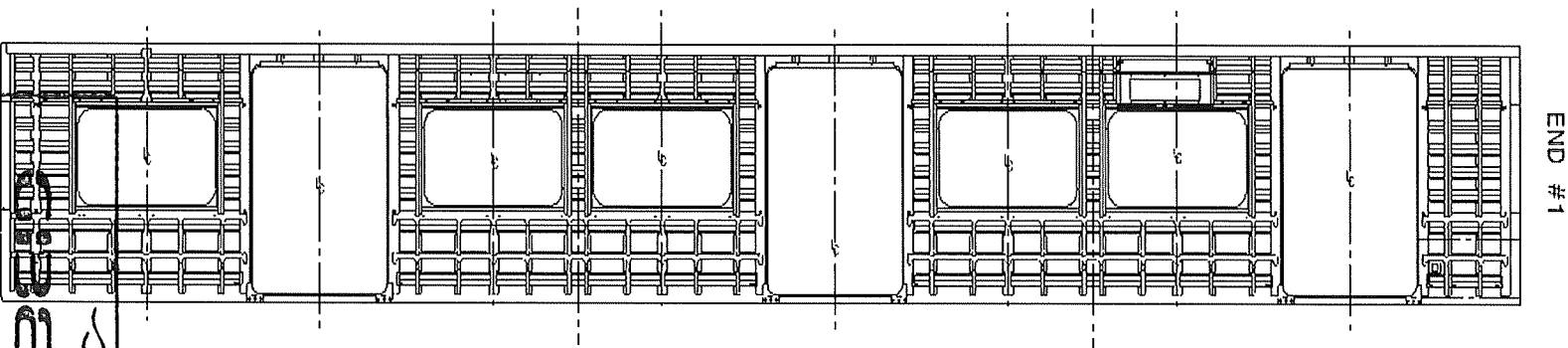
RIGHT SIDE



MAXIMUM 1.0


MINIMUM 1.0

LEFT SIDE



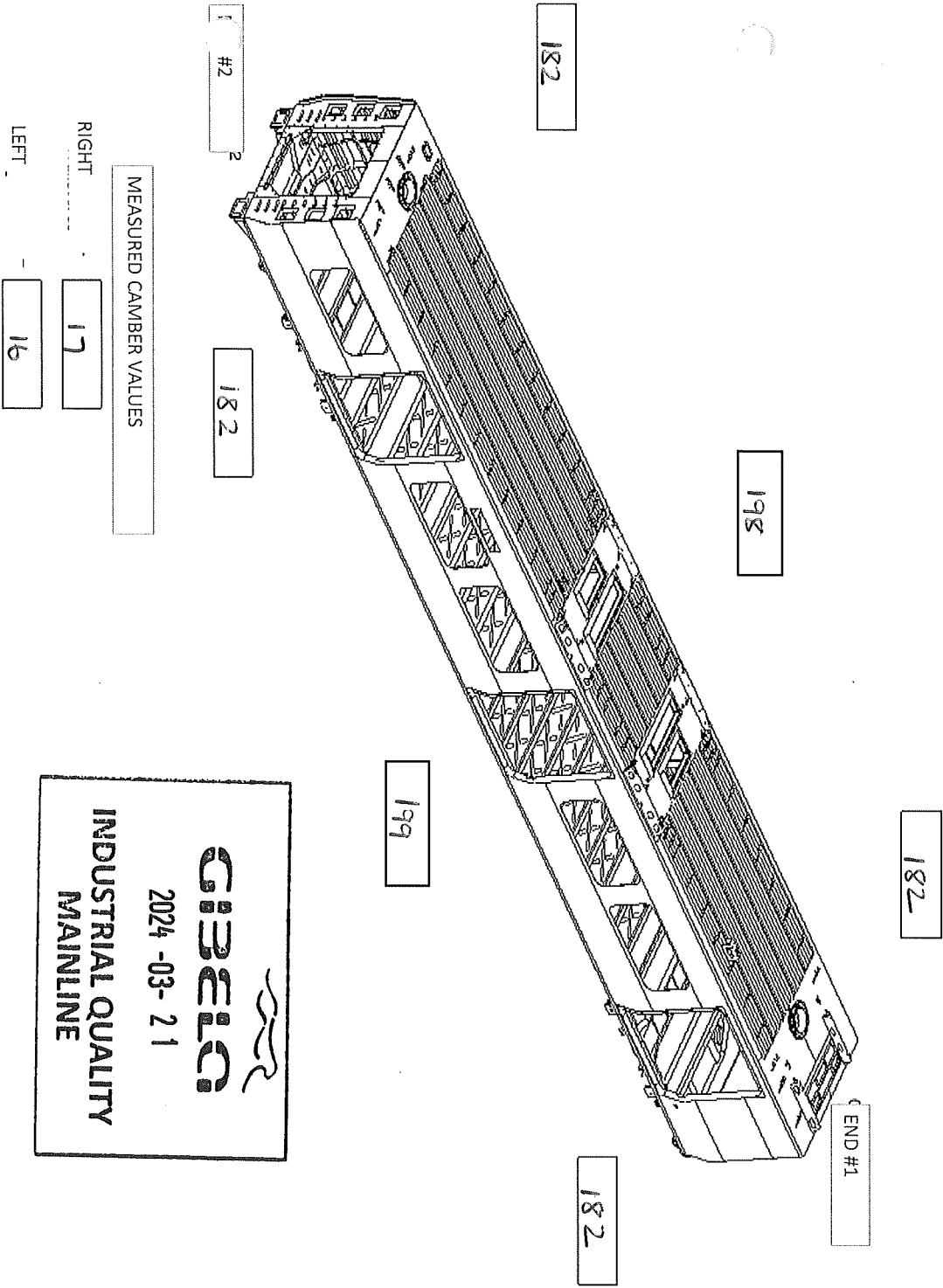
MAXIMUM 1.0


MINIMUM 1.0

	DT00000223319 Carshell Assembly TC	Rev. 30	Project: PRASA SI.CB2230.324.V29
		Date- 06/11/2023	

Specifications of Details for CBS measurement CB2230

Specified Camber for car out of jig is 16mm (-0mm + 2mm)





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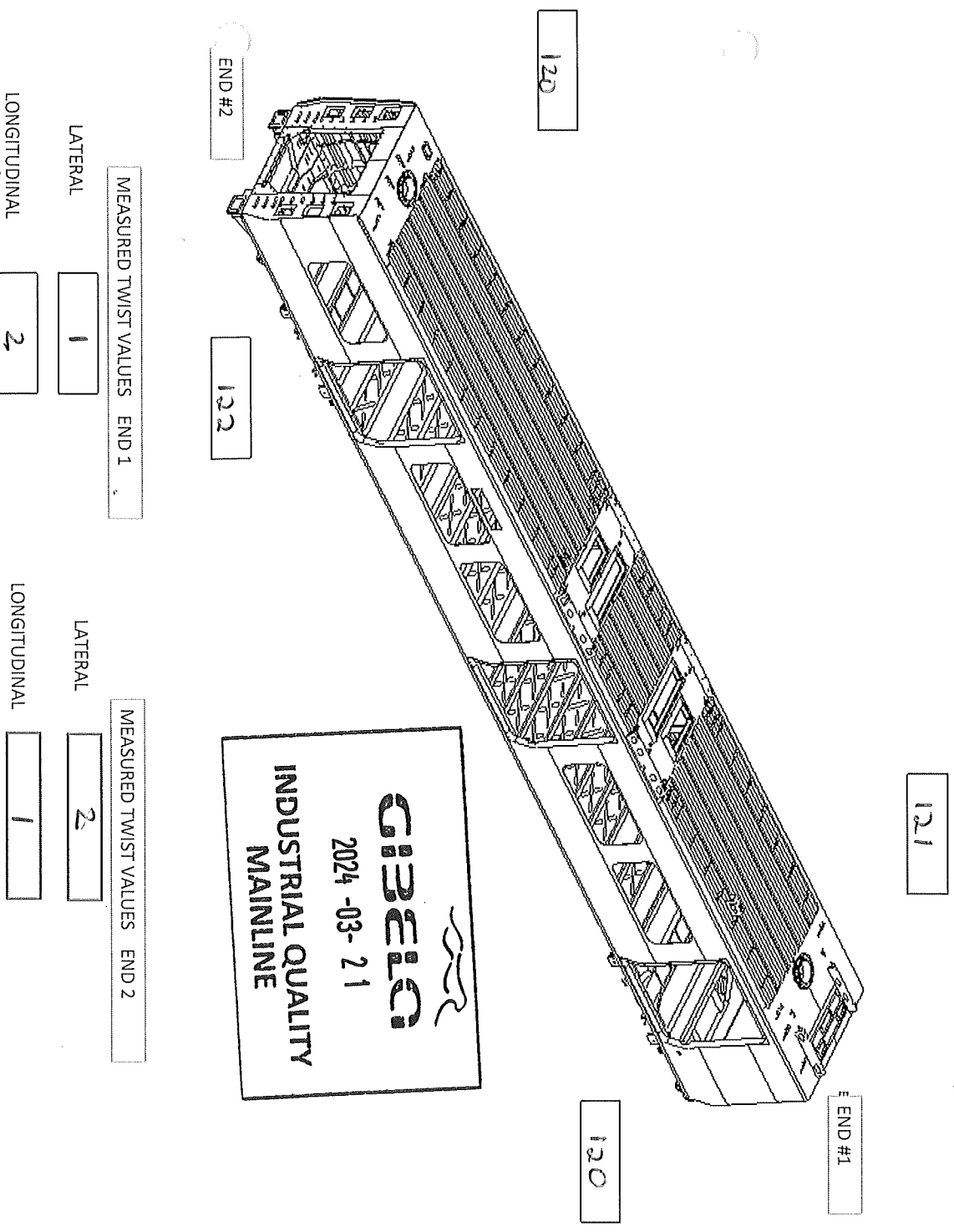
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Specifications of Details for CBS measurement CB2230

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.





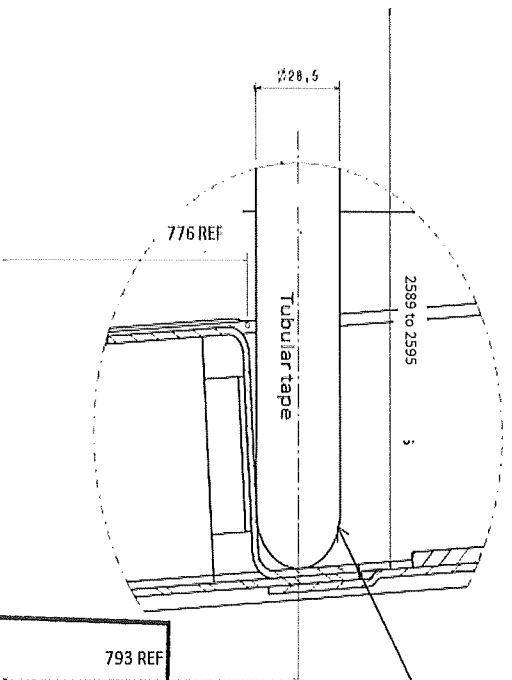


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06/11/2023

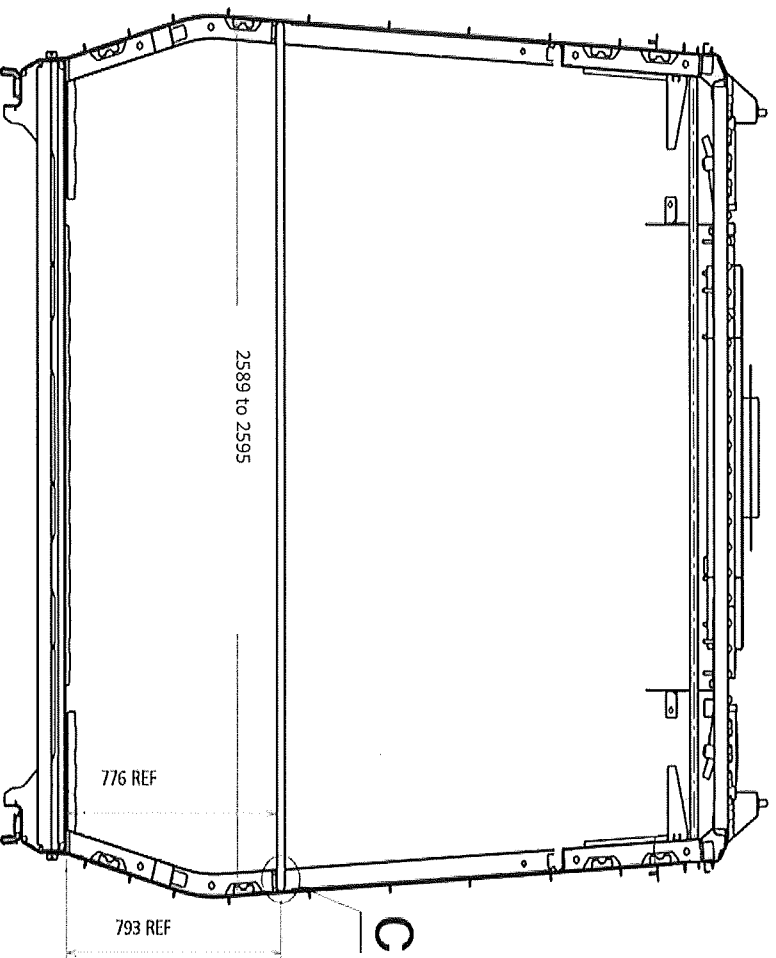
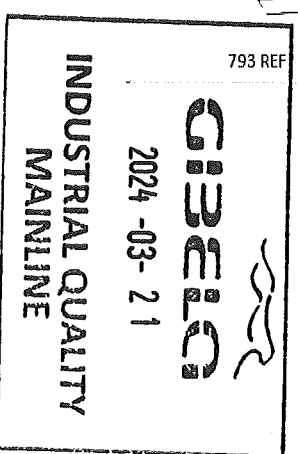
Project: PRASA  
SI.CB2230.324.V29

Details for measuring on the CB1230 stage, after completion of activities

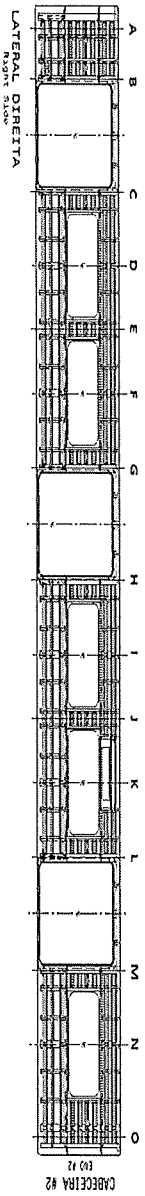


Carry the tubular tape on the  
"Z" bottom of Windows

Detail C

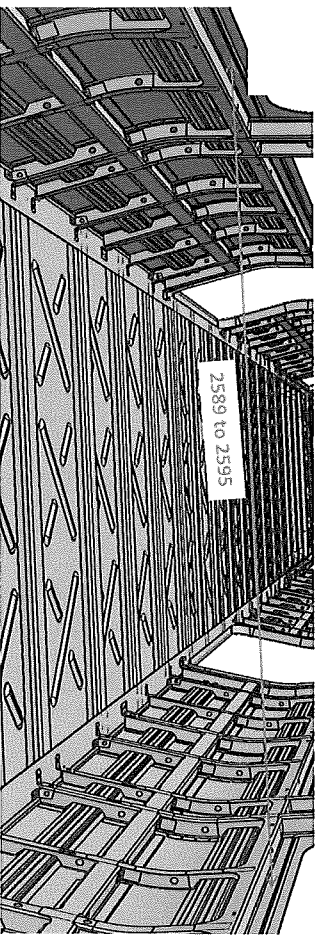


### Specifications of Details for CBS measurement



2589 to 2595mm

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



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### Threshold verification

Nominal value :38

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

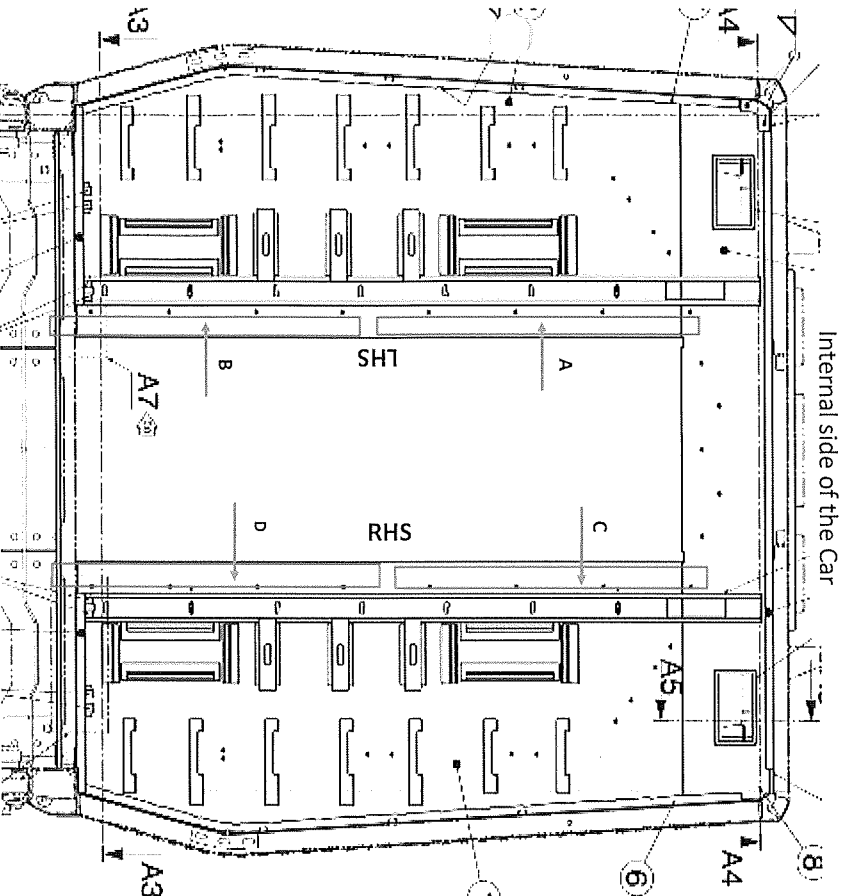
BOILER MAKER: Emmanuel

WELDER: Emmanuel

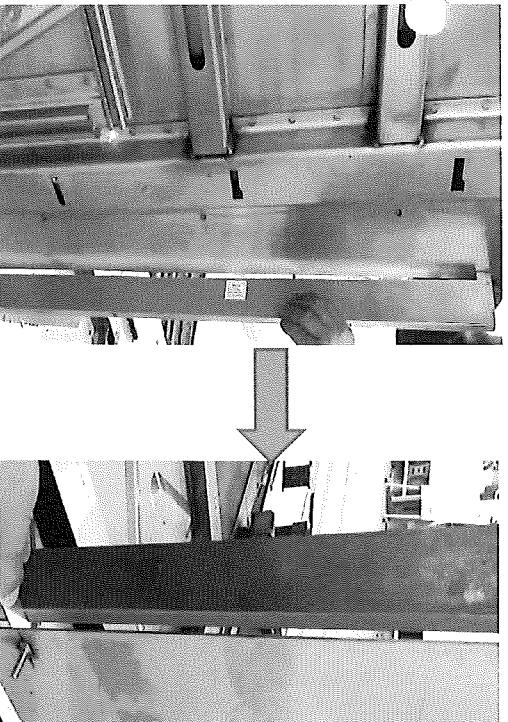
### Specifications of Details for CBS measurement


Measure the flatness on the Cab Fire Barrier after installation and welding. Measure positions A, B, C and D using 1000mm flatness ruler and taper gauge.

Specified Maximum Flatness deviation on Cab Fire Barrier = 2mm



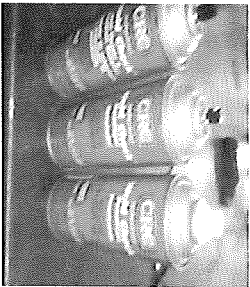
Measured Values			
	Minimum	Maximum	Deviation
A	8	9	1
B	9	9	0
C	8.5	8.5	0.3
D	11	12	1



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Dye penetrant test

Dye-penetration test to be performed by quality personnel



Item	Description of the issue				OK	Signature/Date (Operations)	Signature/Date (Quality)	
II.2 - Check List REX								
Check List Items								
Iter	Picture/Drawing	Description	Criteria /Record	OK	NOK	Rework	Signature/Date (Team Leader)	Signature/Date (Quality Technician)
01	N/A	To complete REX	Refer to REX. New defects must be added on the REX					



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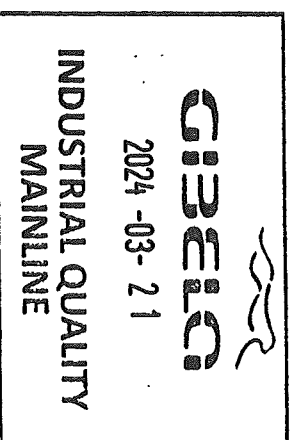
Self Inspection - Final Result


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!	21/03/24	Operations
		Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	21/03/24	Amo Industrial Quality
	NO GO	There are activities pendings that impact/stop the activities of the next process Obs: (To describe problems below)		Operations
In case of "NO GO", describe blocking problems			Industrial Quality	

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

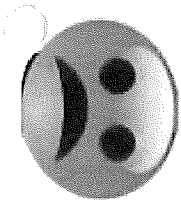
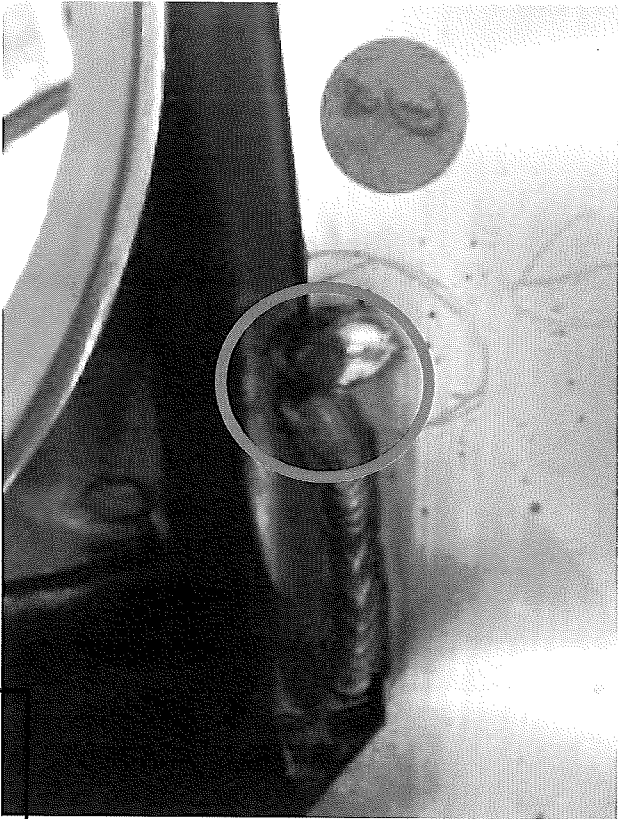
Operations


Quality



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06/11/2023			Project: PRASA
			SI.CB2230.324.V29

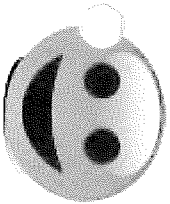
ANNEXURE A: Arc Welding Quality Acceptance Standard






2024 -03- 21

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	DT00000223319 Carshell Assembly TC		Rev. 30	Project: PRASA
	06/11/2023		Date-	SI.CB2230.324.V29

**ANNEXURE B: Sealant**

