

**GIBELA**

**PRASA PROJECT**

APPLICABLE FOR TRAINSET 100+ ONLY 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	M4	M1	M2	M3	TC2		
DTR3000152645	AAD0001241033	Carshell Assembly TC	CB2210	X					X	PRA.CB2210.DTR3022331 9/3.V25	YES

REV	DATE	MODIFICATION CONTENT	RESPONSIBLE	NAME	DATE
0	09/04/2018	GIBELA NEW CREATION	APPROVER	Itumeleng Modiba	09/04/2018
			CHECKER	Nosizo Pindela	09/04/2018
			COMPILER	Thanyani Mathegu	06/04/2018
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	2018/06/18	MODIFICATION CONTENT	APPROVER	Itumeleng Modiba	2018/06/18
			CHECKER	Nosizo Pindela	2018/06/18
			REVISED BY	Ramokone Motama	2018/06/18
3	2018/12/12	Additional checkpoints	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	2019/11/03	Record D1 and D2 on Self - Inspection	APPROVER	Itumeleng Modiba	2019/11/03
			CHECKER	Nosizo Pindela	2019/11/03
			REVISED BY	Nosizo Pindela	2019/11/03
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	
			REVISED BY	Bongane Masina	
20	19/04/2020	New Baseline change 10.3	APPROVER	Timothy Maimela	19/04/2020
			CHECKER	Bongane Masina	
			REVISED BY	Bongane Masina	
21	17/08/2021	ADDED DIMENSIONS BEFORE WELDING	APPROVER	Mbhombi Collins	17/08/2021
			CHECKER	Mpho Mulaudzi	
			REVISED BY	Mpho Mulaudzi	
25	21/02/2022	New Baseline change 10.3.1	APPROVER	Mbhombi Collins	21/02/2022
			CHECKER	Andani Muthelo	
			REVISED BY	Andani Muthelo	
26	14/04/2023	Addition of welding consumable traceability	APPROVER	Ntuli Vanessa	14/04/2023
			CHECKER	Mohlame Amogelang	
			REVISED BY	Mohlame Amogelang	
27	27/07/2023	Added verification of loaded parts	APPROVER	Ngobeni Tyson	27/07/2023
			CHECKER	Mathapo Kelebene	
			REVISED BY	Mohlame Amogelang	
28	07/11/2023	Addition of welding traceability	APPROVER	Ngobeni Tyson	07/11/2023
			CHECKER	Andani Muthelo	
			REVISED BY	Ntokozo Zwane	

TRAINSET	CAR	OPERATOR NAME & ALPS NUMBER	DATE	SELF INSPECTION NUMBER	PAGES
TS007	TC2	PONTSO 40591614	14/05/24	SI.CB2210.322.V28	16

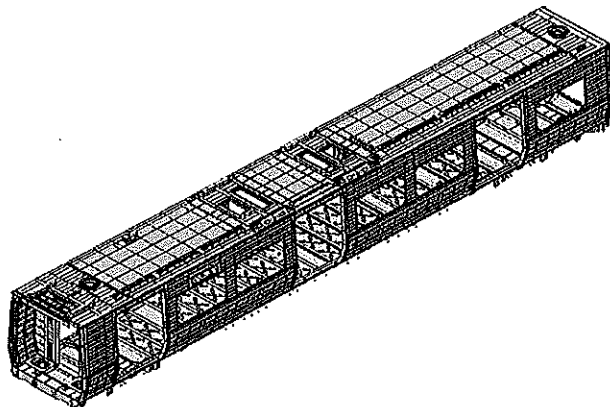
QUALITY  
MANLINE

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

Car: TC1 & TC2	NCR:	Work station: CB2210
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Safety Related



### I - Documentation and Instruments

#### I.1 - Documentation Control

Document	Type of car						Revision	Observation	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
	P	E	M	S	A	D						
DTR30223319/3						X	V28				N/A	14/05/24

#### I.2 - Instruments Control

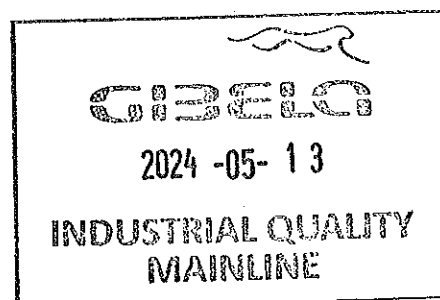
##### Monitoring and Measuring Instrument Control - Used for Special Process



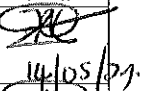

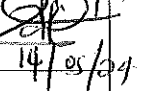
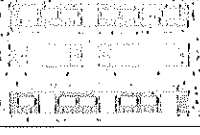

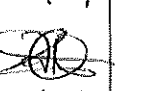
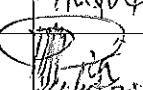
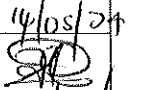
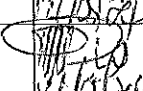
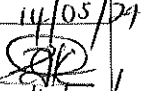
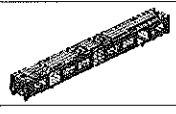

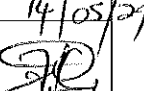

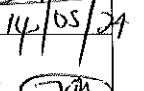
Instruments	Validation	Calibration or Verification Validation Date	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
TUBULAR	32873-2	15/03/25	✓			
LASER TAPE	105405004	08/01/25	✓			
SEM TAPE	918710108	18/11/24	✓			

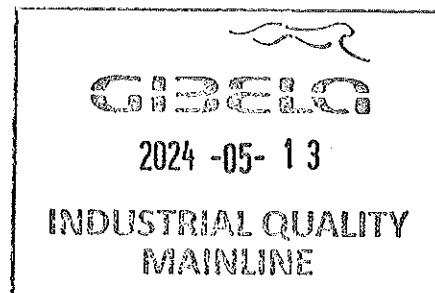
#### 1.3 Consumables

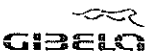
##### Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
ER308 LSI	31408-74097	MIG	✓			
ER308 L	299687-70500	TIG	✓			



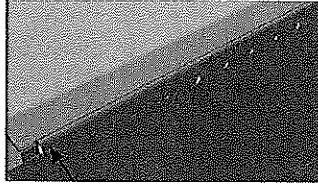
		DTR30223319/3 Carshell Assembly TC		Rev. V28	Project: PRASA		
				Date- 07/11/2023	SI.CB2210.322.V28		
Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	Not OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
01	N/A	Verification of correct parts loaded (Sidewalls, Endframes, Roof and Underframe)	DT00000284980	✓		 14/05/24	 14/05/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality.	DTD0000210675	✓		 14/05/24	 14/05/24
03		Functional dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	✓		 14/05/24	 14/05/24
04	REFER TO ANNEXURE A	Spot Welding inspected and approved according procedure	IND-SAL-WMS-016 e DTD0000210675	✓		 14/05/24	 14/05/24
05	REFER TO ANNEXURE B	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓		 14/05/24	 14/05/24
06		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓		 14/05/24	 14/05/24
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 DTD0000210658	✓		 14/05/24	 14/05/24



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		Date- 07/11/2023	

Welder traceability

Roof ring welds



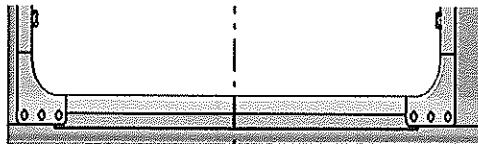
LHS

Boiler maker (Name & Sign): Innocent [Signature] Welder (Name & Sign): Thabang [Signature]

RHS

Boiler maker (Name & Sign): LAWRENCE [Signature] Welder (Name & Sign): Thabang [Signature]

Door ring welds



LHS

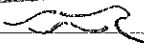
Boiler maker (Name & Sign): LAWRENCE [Signature]

Welder (Name & Sign): KERRI K. [Signature]

RHS


Boiler maker (Name & Sign): Timothy [Signature]

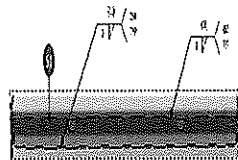
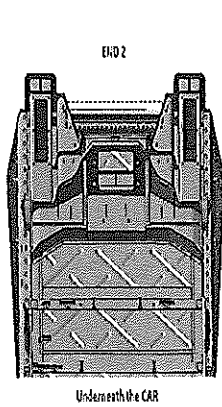
Welder (Name & Sign): KERRI K. [Signature]

  
GIBELQ

2024-05-13

INDUSTRIAL QUALITY  
MAINLINE

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



END 2

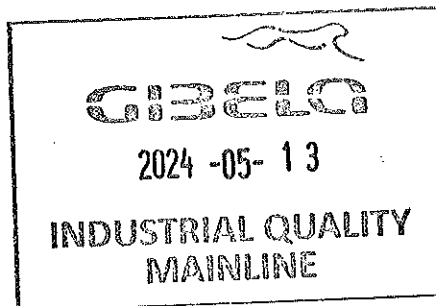
Boiler maker (Name & Sign): Timothy [Signature]

Welder (Name & Sign): Gift [Signature]

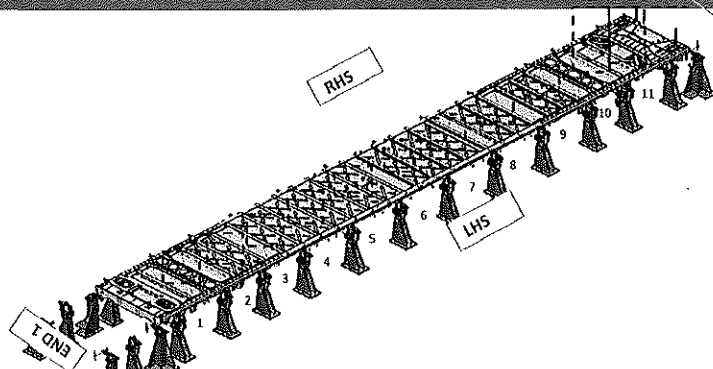


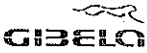
FEDOLI

Operator: Siphekozi [Signature]



#### Specifications of Details for CBS measurement



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

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

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

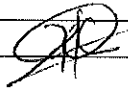
After Loading Underframe and Clamping.

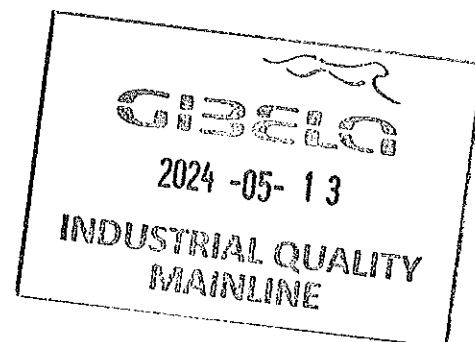
	1	2	3	4	5	6	7	8	9	10	11	12
Left Hand Side	0	0	0	0	0	0	0	0	0	0	0	0
Right Hand Side	0	0	0	0	0	0	0	0	0	0	0	0

Signature Operations:  Date: 14/05/24

After Welding.

	1	2	3	4	5	6	7	8	9	10	11	12
Left Hand Side	0	0	0	0	0	0	0	0	0	0	0	0
Right Hand Side	0	0	0	0	0	0	0	0	0	0	0	0

Signature Industrial Quality:  Date: 14/05/24





DTR30223319/3 Carshell Assembly TC

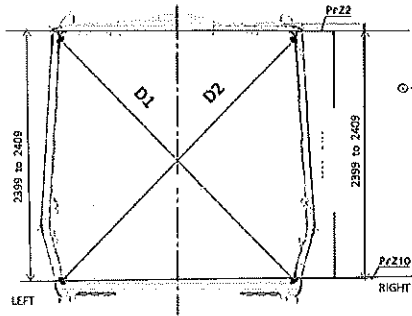
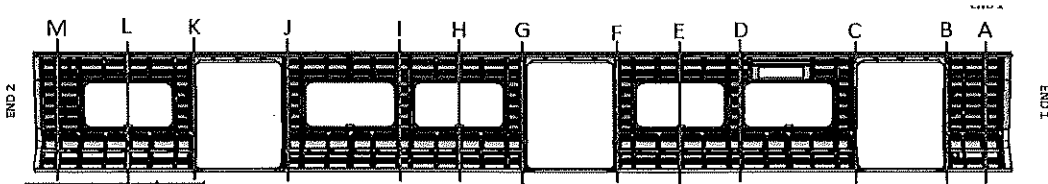
Rev.  
V28

Project: PRASA

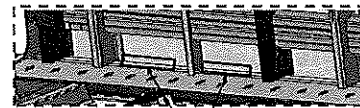
Date-  
07/11/2023

SI.CB2210.322.V28

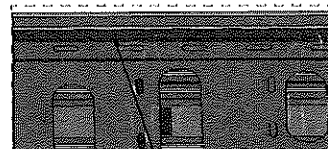
Specifications of Details for CBS measurement



Measurement positions on roof rail and sidewall omega corner.

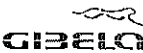


Measurement positions on sidewall and side sill corner.



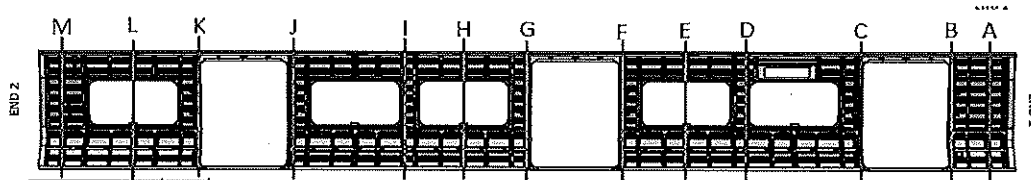
Reinforcement area measurement positions on roof reinforcement area.



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

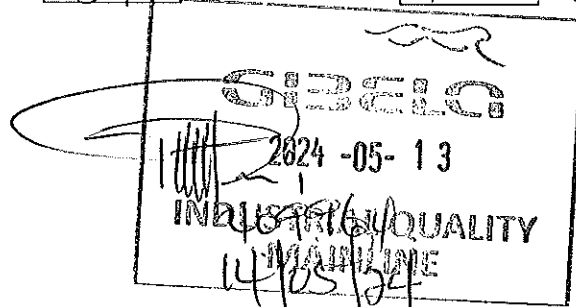
Specifications of Details for CBS measurement

BEFORE WELDING




PME: The difference in Height values measured on the LHS and RHS should be  $\leq 2\text{MM}$  on each point.

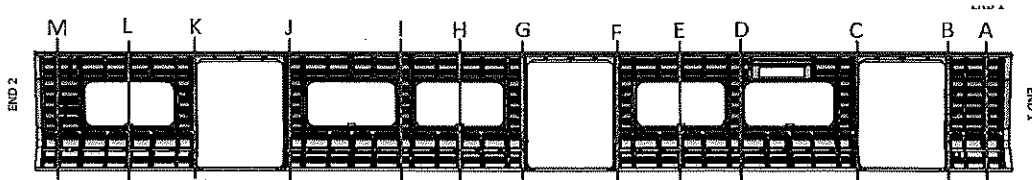
	Record D1 values	Record D2 values	D1-D2 $\leq 5\text{mm}$	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS $\leq 2$
A	3269	3268	1	2402p	2402p	0
B	3268	3268	0	2402p	2405	1
C	3268	3266	2	2406	2404p	2
D	3269	3267	2	2405	2406	1
E	3271	3270	1	2404	2404p	0
F	3269	3269	0	2406	2402p	2
G	3268	3270	2	2405	2404	1
H	3271	3271	0	2404p	2404p	0
I	3266	3267	1	2404	2403	1
J	3268	3266	2	2404p	2406	2
K	3268	3269	1	2405	2402p	1
L	3269	3268	1	2404p	2404p	0
M	3270	3271	1	2406	2404	2





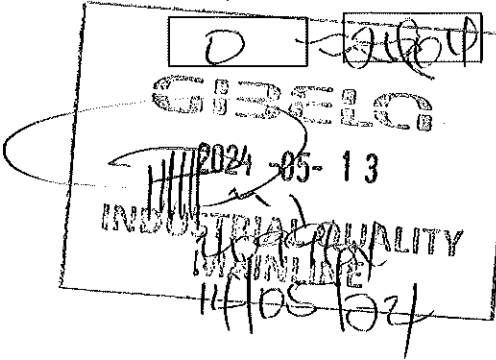
	DTR30223319/3 Carshell Assembly TC	Rev. V28	Project: PRASA SI.CB2210.322.V28
		Date- 07/11/2023	
Specifications of Details for CBS measurement			


AFTER WELDING



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

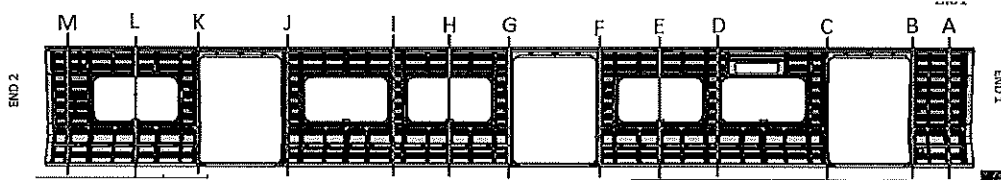
	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS ≤ 2
A	3269	3268	1	2404	2406	2
B	3296	3296	0	2405	2404	1
C	3298	3296	2	2400	2400	0
D	3269	3268	1	2404	2403	1
E	3268	3267	1	2404	2406	2
F	3298	3298	0	2405	2404	1
G	3296	3297	1	2406	2404	2
H	3271	3270	1	2401	2404	0
I	3270	3270	0	2404	2405	1
J	3296	3298	2	2406	2404	2
K	3297	3297	2	2404	2404	0
L	3268	3266	2	2405	2406	1
M	3296	3296	0	2404	2403	1



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

CBS measurement

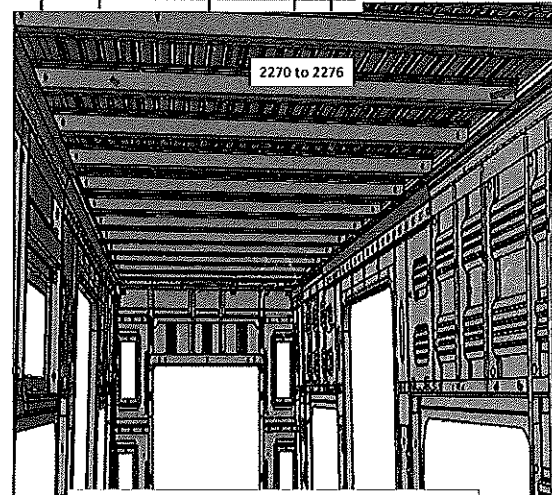
BEFORE WELDING



2270 to 2276

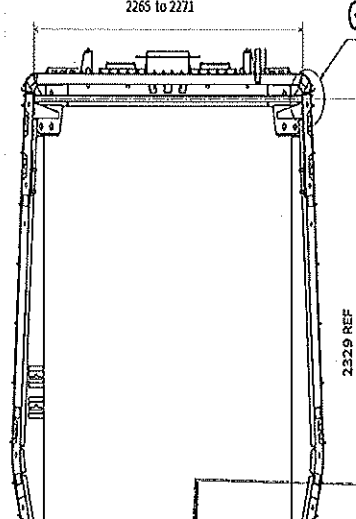
2268 a 2274

A	2275
B	2276
C	2272
D	2276
E	2278
F	2271
G	2273
H	2278
I	2276
J	2278
K	2273
L	2270
M	2272

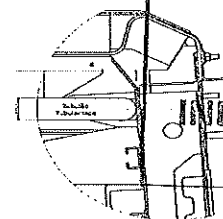


Do not consider reinforcement ( Take measurements top area of zee profile

2265 to 2271



2265 to 2271



Detail 0  
Consider in the reinforcement of the

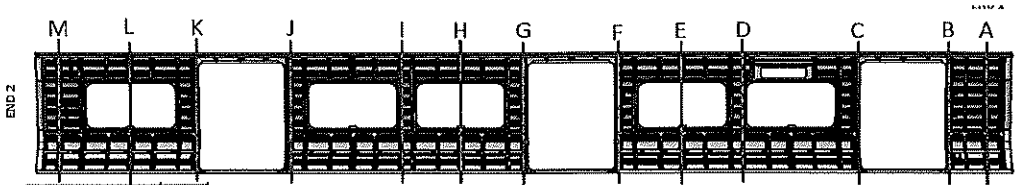
GIBELC

2024 -05- 13

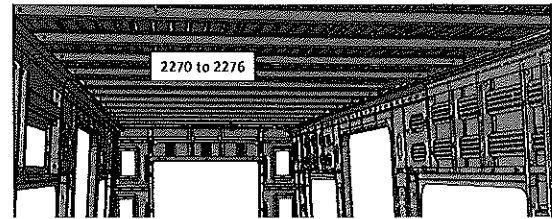
INDUSTRIAL QUALITY  
MAINLINE

Handwritten signature and date: 14/05/24

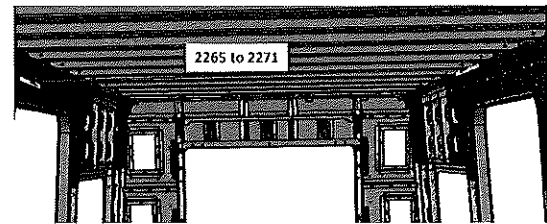
**AFTER WELDING**



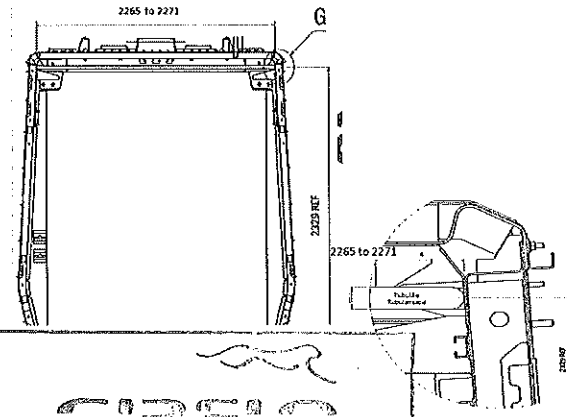
	2265 to 2271	2270 to 2276
A	<input checked="" type="checkbox"/>	2274
B	2269	<input checked="" type="checkbox"/>
C	2270	<input checked="" type="checkbox"/>
D	<input checked="" type="checkbox"/>	2276
E	<input checked="" type="checkbox"/>	2275
F	2265	<input checked="" type="checkbox"/>
G	2268	<input checked="" type="checkbox"/>
H	<input checked="" type="checkbox"/>	2274
I	<input checked="" type="checkbox"/>	2276
J	2266	<input checked="" type="checkbox"/>
K	2268	<input checked="" type="checkbox"/>
L	<input checked="" type="checkbox"/>	2274
M	2269	<input checked="" type="checkbox"/>

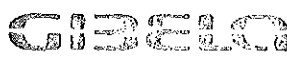



Do not consider reinforcement ( Take measurements top area of zee profile



Take measurement close to radius ( considering reinforcement)



  
2024 -05- 13  
**INDUSTRIAL QUALITY  
MAINLINE**

  
2409964  
14/05/24



DTR30223319/3 Carshell Assembly TC

Rev.

V28

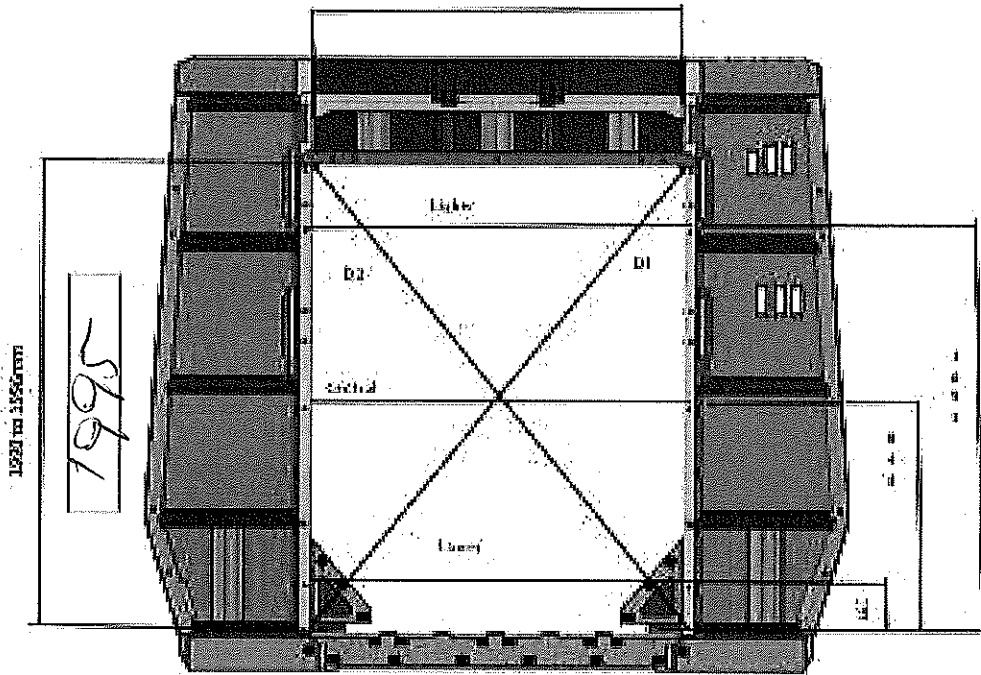
Project: PRASA

Date-  
07/11/2023

SI.CB2210.322.V28

Specifications of Details for CBS measurement

Endframe 2



11882, 11882 mm

DIAGONAL DIFFERENCE D1-D2 = 3mm

Upper Dimension

1381

D1

2416

Central Dimension

1382

D2

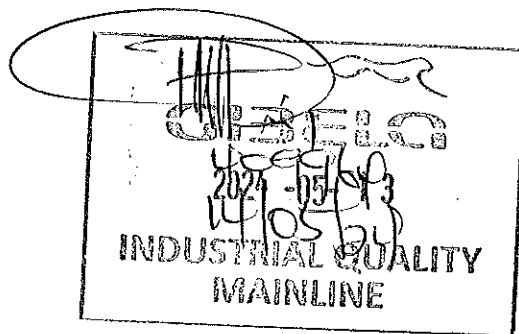
2415

Lower Dimension

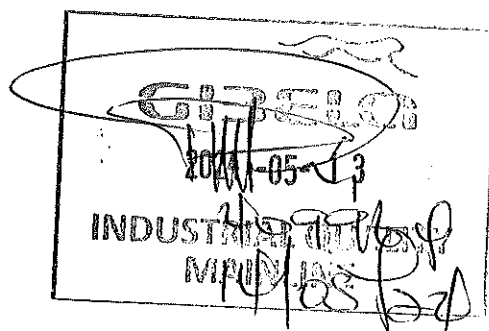
1382

D1-D2

1




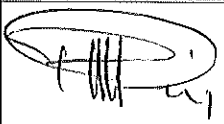
		RIGHT SIDE	
SPECIFICATION SIZE		ACTUAL SIZE	
1A	18870 $\begin{matrix} +0.5 \\ -4.5 \end{matrix}$	18871	



**Dye-penetration test to be performed by quality personnel**

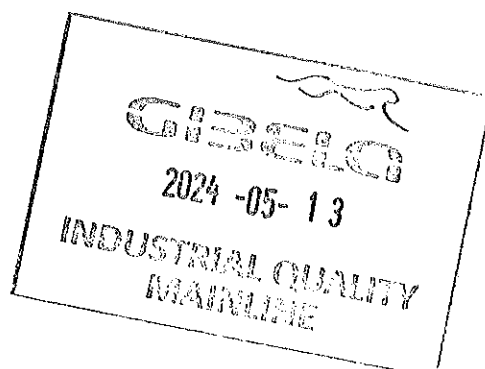





		DTR30223319/3 Carshell Assembly TC		Rev. V28	Project: PRASA	
				Date- 07/11/2023	SI.CB2210.322.V28	
<b>Self Inspection - Final Result</b>						
Is the car good to advance to the next workstation/process? (Approval of Operations and Industrial Quality)				DATE	NAME	SIGNATURE
HOLD POINT	GO	If activities are not complete, the missing activities must not impact the next stage!	14/05/24	Antonio Pso		
		Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	14/05/24	Anno		
	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	Action	Responsible	Due date	Status	

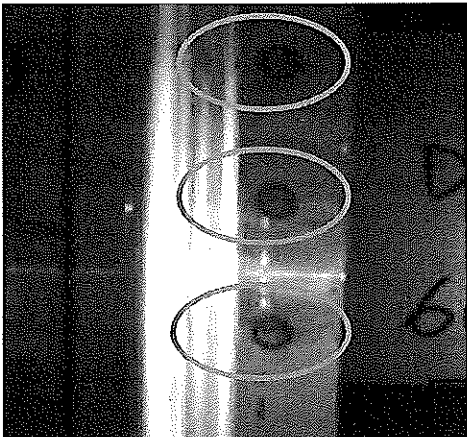
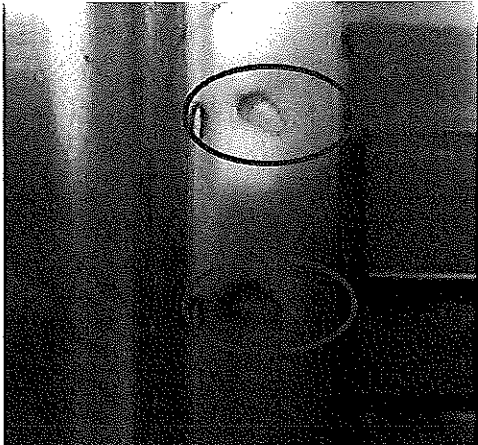
Operations

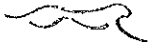
Quality



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

ANNEXURE A: Spot Welding Quality Acceptance Standard






**GIBELG**

2024 -05- 13

INDUSTRIAL QUALITY  
MAINLINE



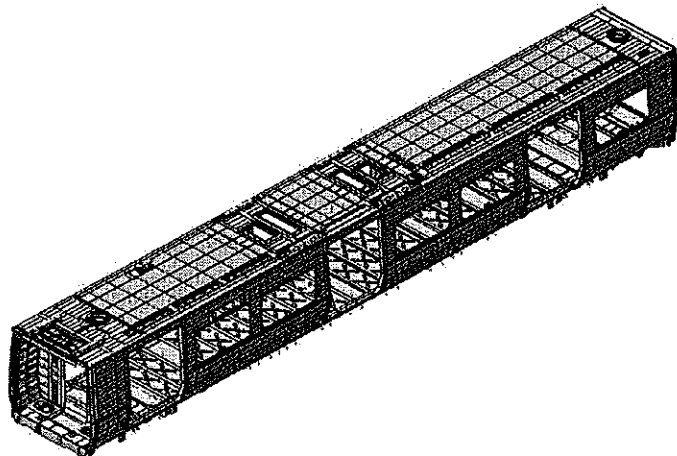


	DTR30223319/2 Carshell Assembly TC	Rev. 29	Project: PRASA SI.CB2220.323.V29
		Date- 28/10/2023	

Carro Car: TC1, TC2	NCR:	Work station: CB2220
------------------------	------	----------------------



Safety Related



### I - Documentation and Instruments

#### I.1 - Documentation Control

Document	Type of car						Revision	Observation	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
	TC1	W1	A2	A3	A4	TC2						
DTR30223319/2						✓	29	15/05/24	✓	N/A	15/05/24	15/05/24

#### I.2 - Instruments Control

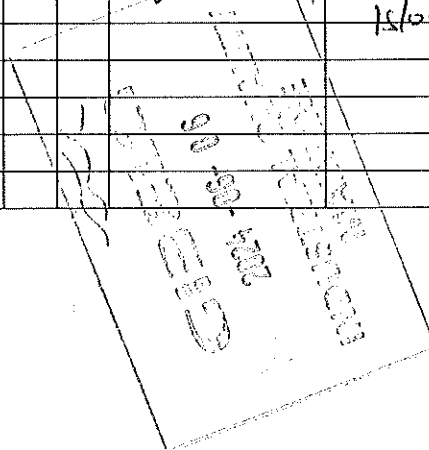
##### Monitoring and Measuring Instrument Control - Used for Special Process


Instruments	Validation	Calibration or Verification Validation Date	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
Turbular	32823-2	15/03/25	✓		15/03/24	15/03/24
Measuring Tape	GIRTA0395	12/04/25	✓		15/03/24	15/03/24

#### 1.3 Consumables

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


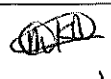

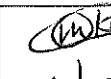

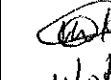

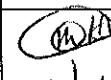
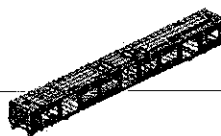





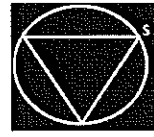




Filler Material	Heat Number	Welding Process	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
Welding wire	E2310b1	MIG	✓		15/05/24	15/05/24


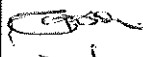

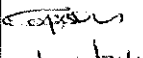



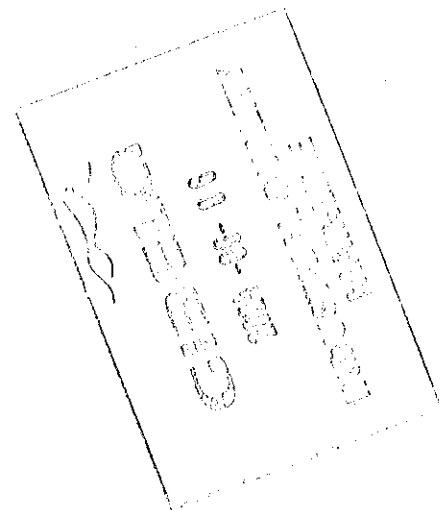
	DTR30223319/2 Carshell Assembly TC	Rev. 29	Project: PRASA SI.CB2220.323.V29
		Date-	
		28/10/2023	

II - Control Activities of Production

II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK			Signature/Data (Manufacturing)	Signature/Data (Quality)						
01	N/A	Assembly according to Instruction Engineering n° PRA.CB2220.DTR30225487/2 Verification of fitment for all reinforcement brackets.	DTR30223319/2	✓			 15/05/24	 15/05/24						
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality.	DTD0000210675	✓			 15/05/24	 15/05/24						
03	REFER TO ANNEXURE A	Spot Welding inspected and approved according procedure	IND-SAL-WMS-016 e DTD0000210675	✓			 15/05/24	 15/05/24						
04	REFER TO ANNEXURE B	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓			 15/05/24	 15/05/24						
05		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓			 15/05/24	 15/05/24						
				✓			 15/05/24							
06	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.	✓			 15/05/24	 15/05/24						
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	✓			 15/05/24	 15/05/24						
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 Specified: <table><tr><td>Temperature Min - Max (°)</td><td>Min-Max</td><td>10°C - 35°C</td></tr><tr><td>Relative humidity Min - Max (%)</td><td>Min-Max</td><td>25% - 85%</td></tr></table>	Temperature Min - Max (°)	Min-Max	10°C - 35°C	Relative humidity Min - Max (%)	Min-Max	25% - 85%	Sealant Batch No: <u>ISR 700</u> Exp Date: <u>01/08/25</u>  Actuals Temperature: <u>29°C</u> Humidity: <u>40%</u>	✓			 15/05/24	 15/05/24
Temperature Min - Max (°)	Min-Max	10°C - 35°C												
Relative humidity Min - Max (%)	Min-Max	25% - 85%												

		DTR30223319/2 Carshell Assembly TC		Rev. 29	Project: PRASA			
				Date- 28/10/2023	SI.CB2220.323.V29			
09	NA	Verification of sealant application in certain regions in the drawing.	AAD0001241033	✓			 15/05/24	 16/05/24
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>	✓			 15/05/24	 16/05/24





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Rev.

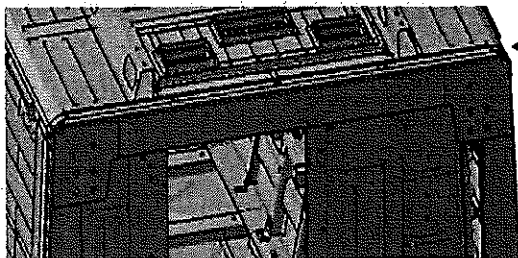
29

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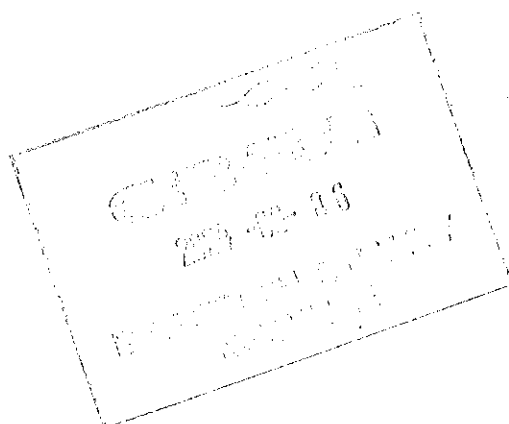
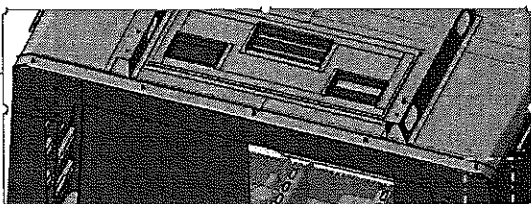
END 1  
SEALANT


OPERATOR  
(Name & sign):

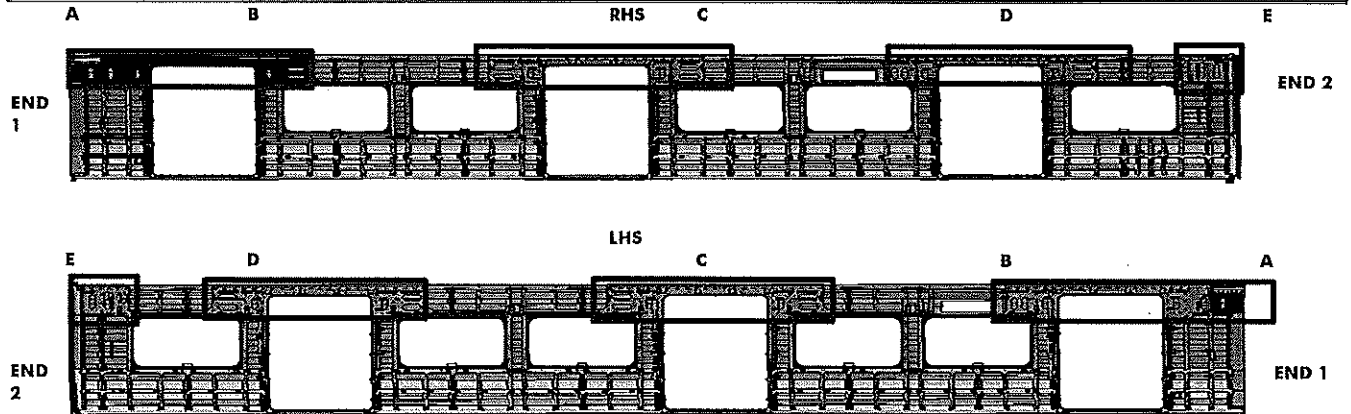
Priscilla [Signature]

OPERATOR  
(Name & sign):

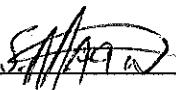

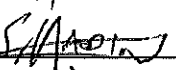

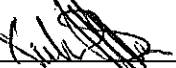


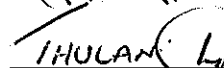
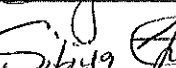
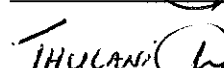
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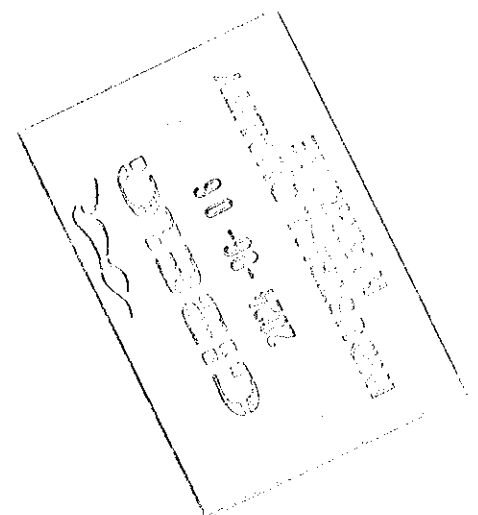



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		Date-	
		28/10/2023	

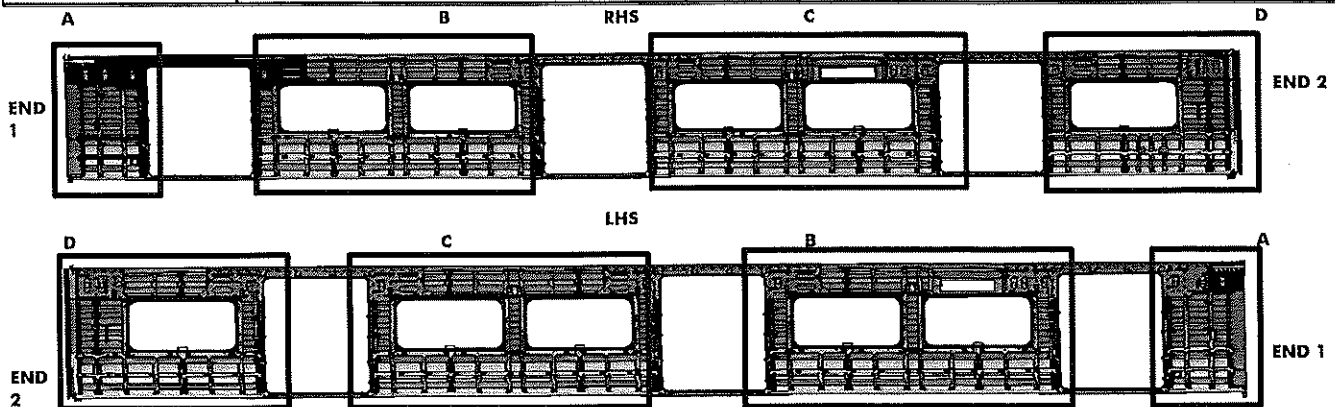


**REINFORCEMENT WELDING**

AREA	LHS	RHS
A	Operator (Name&sign): 	
B	Operator (Name&sign): 	
C	Operator (Name&sign): 	
D	Operator (Name&sign): 	
E	Operator (Name&sign): 	



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

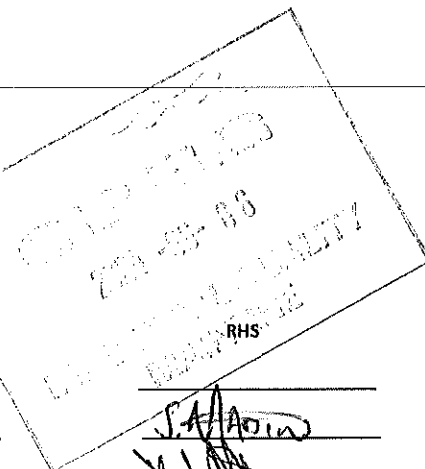


### BRACKETING


**C-RAILS:** Operator: INSTALLATION  
**DOOR MECHANISMS:** Operator: MT hokho  
**TAPPING PADS:** Operator: Leni

**SEAT & LUGGAGE BRACKETS:** Operator: Priscilla  
**SEAT BRACKETS VERIFICATION:** Operator: Priscilla

**WELDING**  
**AREA**      **LHS**  
**A** (Seat brackets) : Operator (Name&sign): S. A. A. A.  
(C-rails, Luggage and earth bushes) : Operator (Name&sign): S. A. A. A.  
**B** (Seat brackets) : Operator (Name&sign): X. A. A. A.  
(C-rails, Luggage and earth bushes) : Operator (Name&sign): X. A. A. A.  
**C** (Seat brackets) : Operator (Name&sign): S. A. A. A.  
(C-rails, Luggage and earth bushes) : Operator (Name&sign): THULANI  
**D** (Seat brackets) : Operator (Name&sign): S. A. A. A.  
(C-rails, Luggage and earth bushes) : Operator (Name&sign): S. A. A. A.



S. A. A. A.  
X. A. A. A.  
X. A. A. A.  
THULANI  
THULANI  
THULANI  
THULANI

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

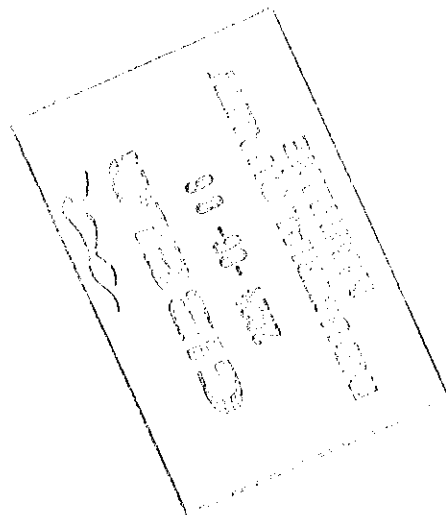
ENDS

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


NIA

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

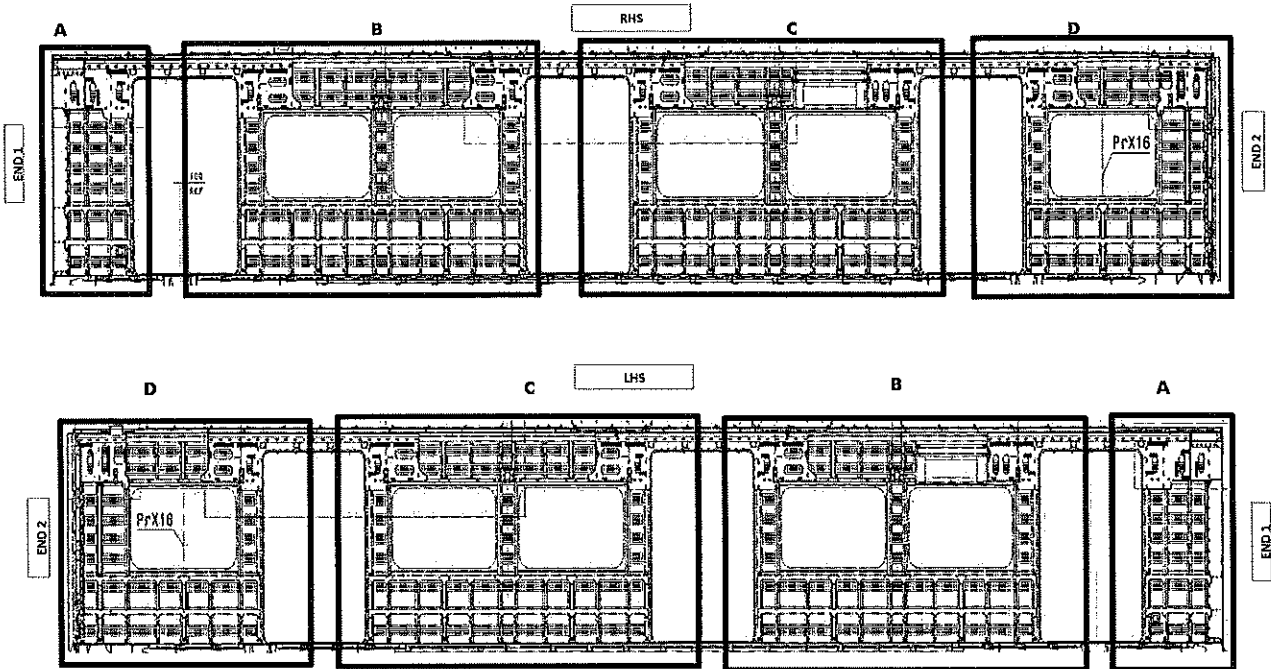
THULANI W





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

TC BRACKET INSTALLATION



QUANTITIES (TC)

RHS				
	SECTION	QUANTITY	OK	NOK
C-RAILS	A	4	✓	
	B	4	✓	
	C	8	✓	
	D	12	✓	
SEAT BRACKETS	A	0	✓	
	B	21	✓	
	C	21	✓	
	D	13	✓	
EARTH BUSH	A	1	✓	
	B	4	✓	
	C	5	✓	
	D	4	✓	

ROOF ENDS:  
 CRAILS 2 OFF END 2  
 EARTH BUSH 4 OFF END 2

VERIFICATION BY: Tetelo  
TS

LHS				
	SECTION	QUANTITY	OK	NOK
C-RAILS	A	4	✓	
	B	8	✓	
	C	4	✓	
	D	6	✓	
SEAT BRACKETS	A	0	✓	
	B	21	✓	
	C	21	✓	
	D	13	✓	
EARTH BUSH	A	1	✓	
	B	4	✓	
	C	4	✓	
	D	2	✓	

ROOF ENDS:  
 CRAILS 2 OFF ENO 2  
 EARTH BUSH 4 OFF END 2

VERIFICATION BY: Tetelo  
TS

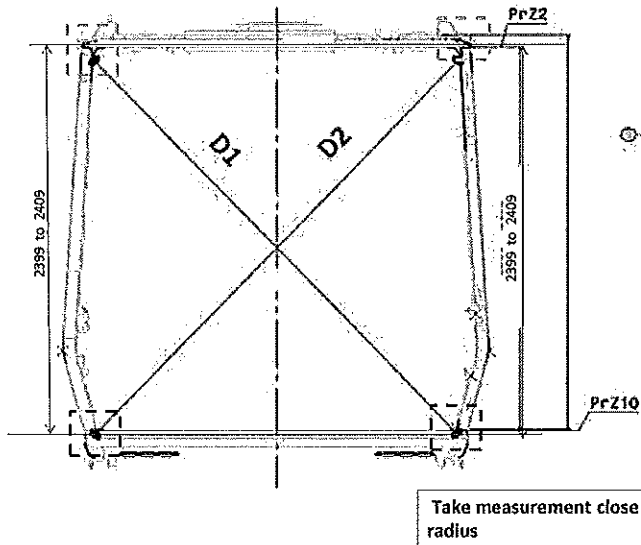
28-10-23  
 23-10-23  
 23-10-23  
 23-10-23



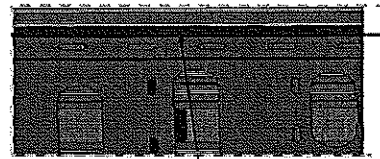
DTR30223319/2 Carshell Assembly TC

Rev.  
29  
Date-  
28/10/2023

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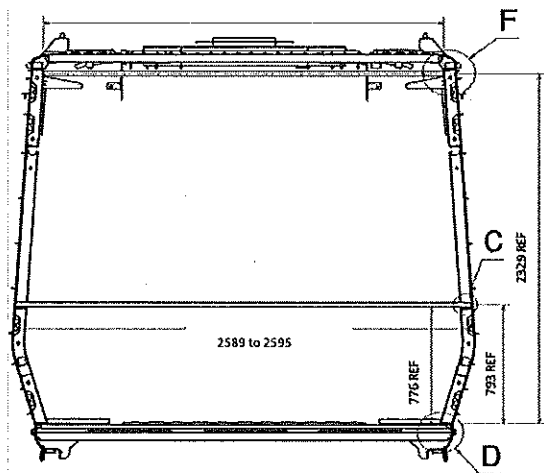
Measurement positions on roof rail and sidewall omega corner.



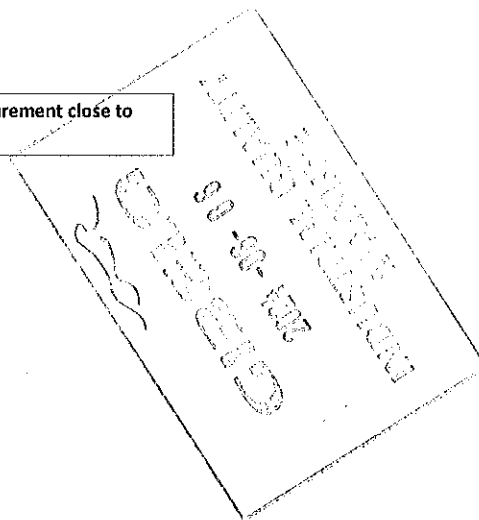
Reinforcement area measurement positions on roof reinforcement area.



Measurement positions on sidewall and side sill corner.



Take measurement close to radius





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Rev.

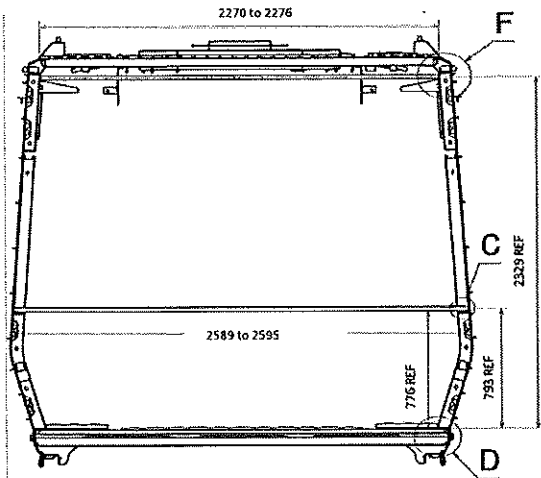
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Project: PRA5A

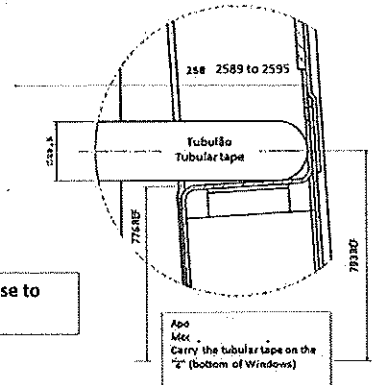
Date-

28/10/2023

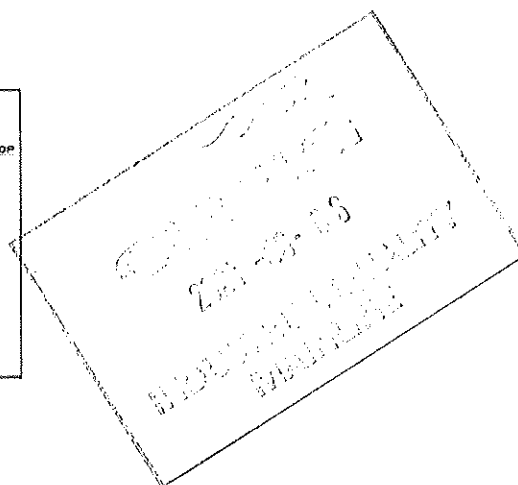
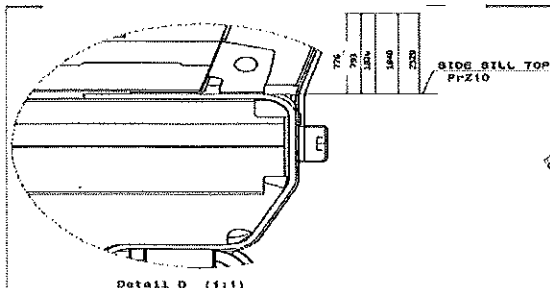
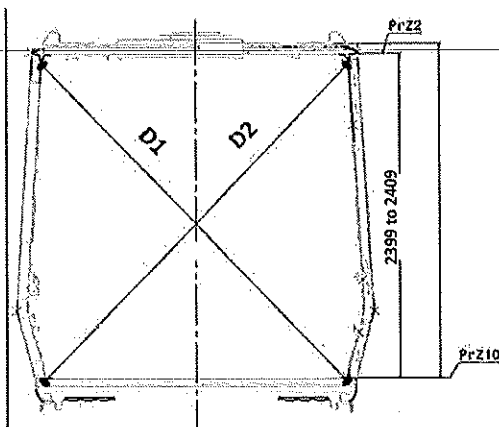
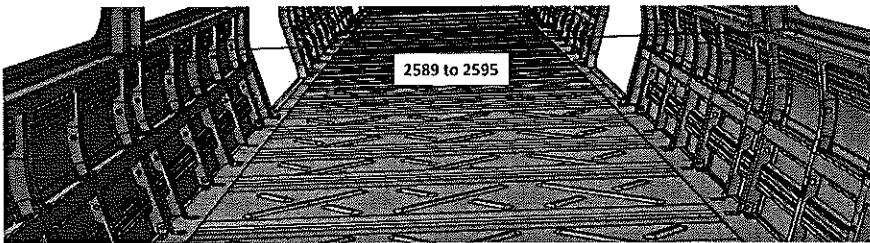
SI.CB2220.323.V29



Take measurement close to radius



Detail C

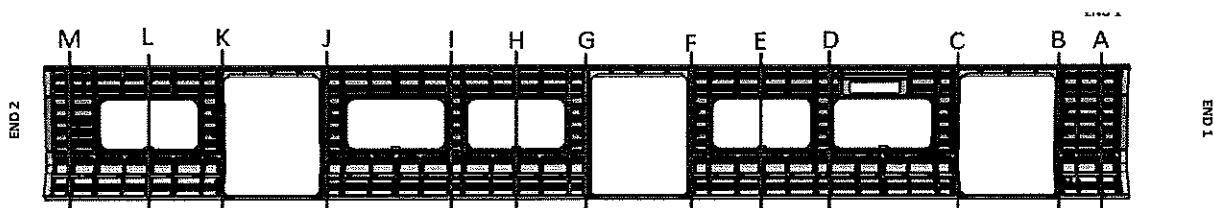




DTR30223319/2 Carshell Assembly TC

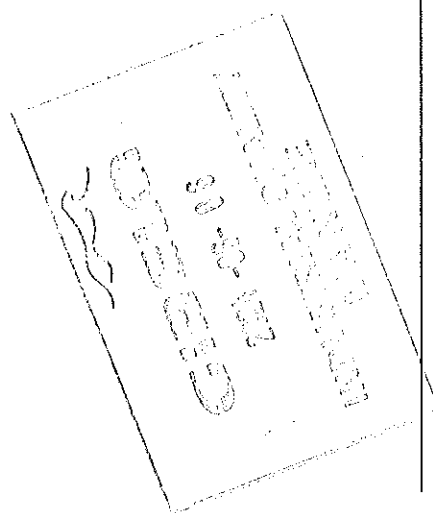
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Date-  
28/10/2023

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SI.CB2220.323.V29



**BEFORE WELDING**

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3265	3267	2	—
B	3297	3299	2	—
C	3298	3296	2	—
D	3267	3269	2	—
E	3268	3269	1	—
F	3300	3298	2	—
G	3299	3297	2	—
H	3268	3266	2	—
I	3266	3267	1	—
J	3299	3297	2	—
K	3200	3299	1	—
L	3265	3268	3	—
M	3299	3300	1	—





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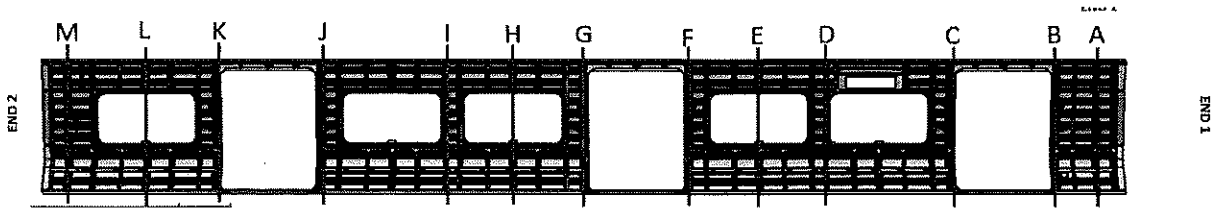
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Project: PRASA

Date-

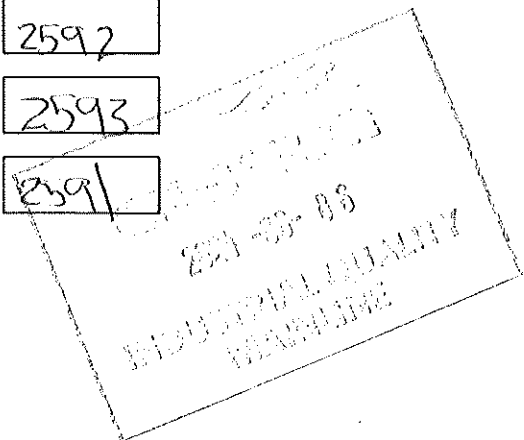
28/10/2023


SI.CB2220.323.V29



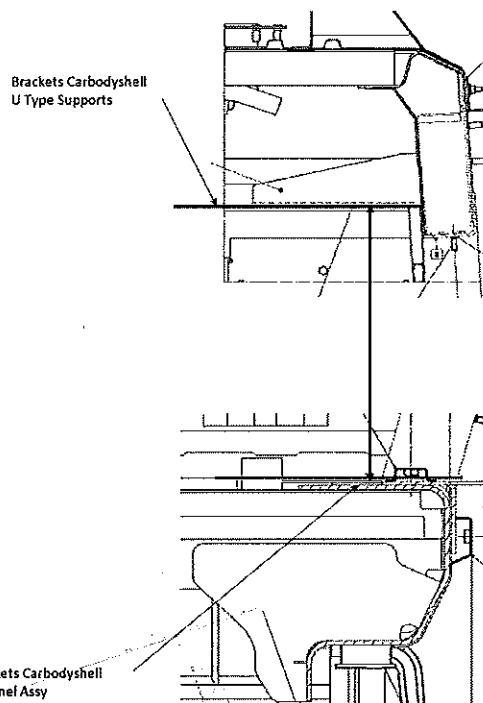
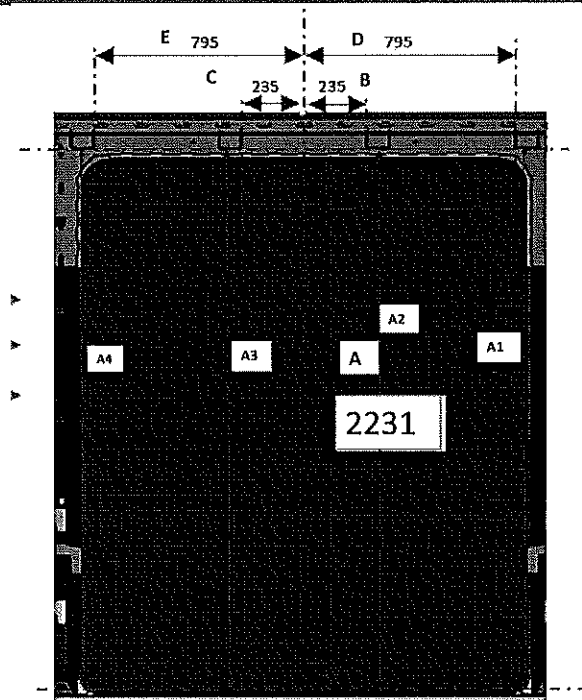
**AFTER WELDING**

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3267	3268	1	2590
B	3300	3298	2	2592
C	3299	3298	1	2593
D	3265	3267	2	2591
E	3268	3269	1	2592
F	3300	3299	1	2593
G	3298	3300	2	2591
H	3265	3268	3	2592
I	3265	3267	2	2593
J	3299	3300	1	2591
K	3298	3299	1	2592
L	3265	3267	2	2593
M	3299	3300	1	2591



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		28/10/2023	

### Specifications of Details for CBS measurement



DOOR 1 - LHS	
VALUE	ACTUAL
A1 2230 to 2232	2231
A2 2230 to 2232	2230
A3 2230 to 2232	2232
A4 2230 to 2232	2232
B 234 to 236	235
C 234 to 236	235
D 794 to 796	795
E 794 to 796	794

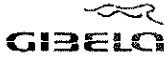
DOOR 2 - LHS	
VALUE	ACTUAL
A1 2230 to 2232	2231
A2 2230 to 2232	2231
A3 2230 to 2232	2230
A4 2230 to 2232	2230
B 234 to 236	235
C 234 to 236	235
D 794 to 796	795
E 794 to 796	795

DOOR 3 - LHS	
VALUE	ACTUAL
A1 2230 to 2232	2231
A2 2230 to 2232	2230
A3 2230 to 2232	2231
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	2230
A2 2230 to 2232	2231
A3 2230 to 2232	2231
A4 2230 to 2232	2230
B 234 to 236	235
C 234 to 236	235
D 794 to 796	795
E 794 to 796	795

DOOR 2 - RHS	
VALUE	ACTUAL
A1 2230 to 2232	2231
A2 2230 to 2232	2230
A3 2230 to 2232	2232
A4 2230 to 2232	2231
B 234 to 236	235
C 234 to 236	235
D 794 to 796	795
E 794 to 796	795

DOOR 3 - RHS	
VALUE	ACTUAL
A1 2230 to 2232	2230
A2 2230 to 2232	2232
A3 2230 to 2232	2232
A4 2230 to 2232	2231
B 234 to 236	235
C 234 to 236	235
D 794 to 796	795
E 794 to 796	794



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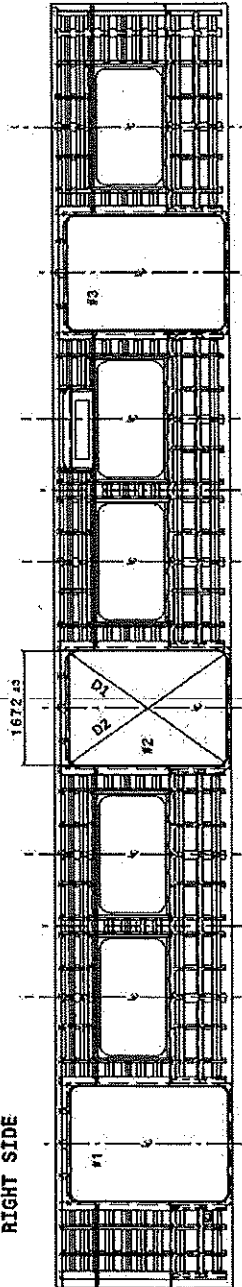
Date-

28/10/2023

SI.CB2220.323.V29

## Specifications of Details for CBS measurement

End #2



End #1

Doors diagonal D1-D2 maximum difference  $\leq 4$  mm

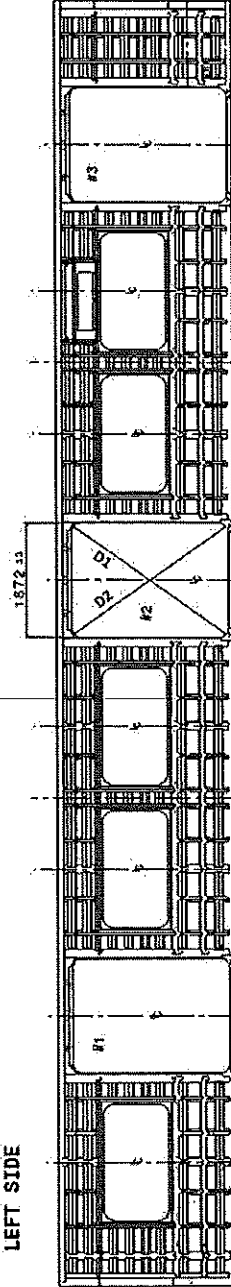
	#1	#2	#3
D1	2751	2752	2750
D2	2749	2750	2751
D1-D2	2	2	1

Doors Length - 1672.33mm

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

LEFT SIDE

End #1



End #2


Diagonal difference - difference D1-D2  $\leq 4$  mm

	#1	#2	#3
D1	2750	2752	2749
D2	2751	2750	2751
D1-D2	1	1	1

Vão de Portas - 1672.33mm

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

28/10/23  
QUALITY  
MANLINE

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

Specifications of Details for CBS measurement

Dye penetrant test

Dye-penetration test to be performed by quality personnel

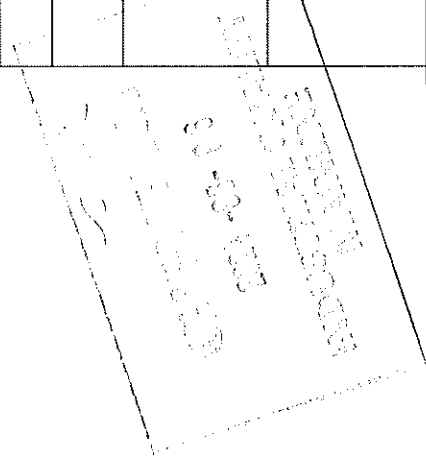


Item	Description of the issue	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)





II.2 - Check List REX

Check List Items

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

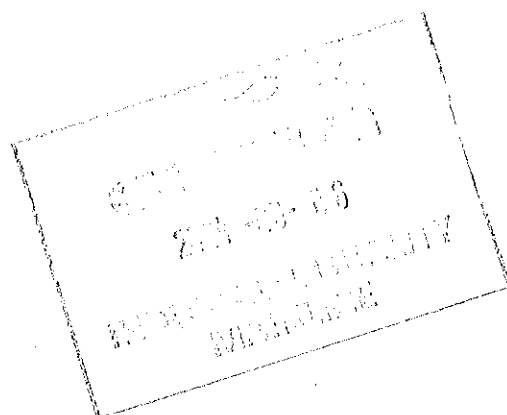





	DTR30223319/2 Carshell Assembly TC	Rev. 29	Project: PRASA SI.CB2220.323.V29			
		Date-				
		28/10/2023				
Self Inspection - Final Result						
Is the car good to advance to the next workstation/process? (Approval of Operations and Industrial Quality)		DATE	NAME	SIGNATURE		
HOLD POINT		GO	If activities are not complete, the missing activities must not impact the next stage!	15/05/24	Tetelo Operations	
			Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	15/05/24	Kelebone Industrial Quality	
			There are activities pendings 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	Action	Responsible	Due date	Status	

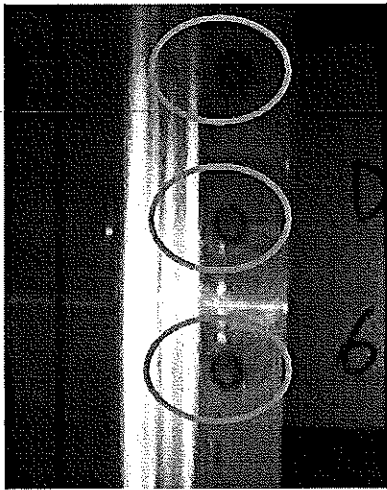
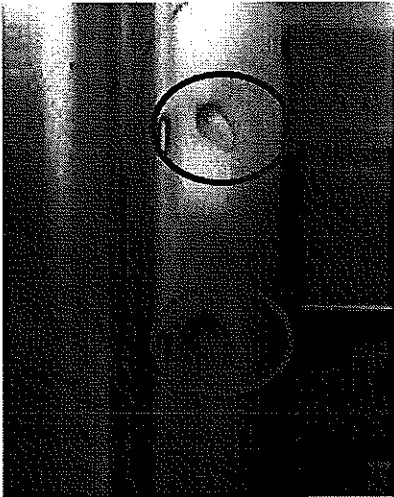
Operations

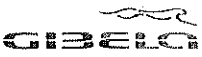
Quality




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

**ANNEXURE A: Spot Welding Quality Acceptance Standard**





**PRASA PROJECT**



APPLICABLE FOR TRAINSET 100+ ONLY 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.

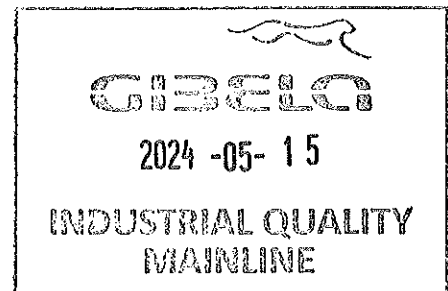
APPLICATION REFERENCE												
MOUNTING	DRAWING	DESCRIPTION	STATION	CAR TYPE						WORK INSTRUCTION	SAFETY ?	
				TC1	M4	M1	M2	M3	TC2			
<input type="checkbox"/> DTR000152655	AAD000123553	DT0000223319 Carshell Assembly TC	CB1230	X						X	PRA.CB2230.DT0000012 23319.V20	YES
<input type="checkbox"/>												

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	Thanyani Mathagu	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 Motama	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	Nosizo Pindela	17/09/2019
10	20/09/2019	New Baseline 10.2.5	APPROVER	Itumeleng Modiba	20/09/2019
			CHECKER	Nosizo Pindela	20/09/2019
			COMPILER	Nosizo Pindela	20/09/2019
15	28/01/2021	New Baseline 10.2.6	APPROVER	Timothy Maimela	28/01/2021
			CHECKER	Bongane Masina	28/01/2021
			COMPILER	Bongane Masina	28/01/2021
20	19/04/2021	New Baseline change 10.3	APPROVER	Timothy Maimela	19/04/2021
			CHECKER	Bongane Masina	19/04/2021
			COMPILER	Bongane Masina	19/04/2021
25	20/04/2022	New Baseline change 10.3.1	APPROVER	Collins Mhombhisi	20/02/2022
			CHECKER	Andani Muthelo	20/02/2022
			COMPILER	Andani Muthelo	20/02/2022
26	14/06/2022	Update minimum temperature requirement for sealant application	APPROVER	Collins Mhombhisi	14/06/2022
			CHECKER	Andani Muthelo	
			COMPILER	Andani Muthelo	
27	27/07/2022	Threshold measurements addition	APPROVER	Collins Mhombhisi	26/07/2022
			CHECKER	Andani Muthelo	
			COMPILER	Andani Muthelo	
28	19/10/2022	Addition of traceability for sealant application	APPROVER	Collins Mhombhisi	19/10/2022
			CHECKER	Ntokozo Zwane	
			COMPILER	Amogelang Mohlampa	
29	14/04/2023	Added sealant batch number & welding consumables traceability	APPROVER	Vanessa Ntuli	14/04/2023
			CHECKER	Ntokozo Zwane	
			COMPILER	Amogelang Mohlampa	
30	06/11/2023	Added threshold traceability for boiler makers and welders	APPROVER	Tyson Ngobeni	05/11/2023
			CHECKER	Andani Muthelo	
			COMPILER	Ntokozo Zwane	

TRAINSET	CAR	OPERATOR NAME & ALPS NUMBER	DATE	SELF INSPECTION NUMBER	PAGES
227	TC2	Zanele 432174	16/06/24	SI.CB2230.324.V29	12





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06/11/2023

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Carro  
Car:

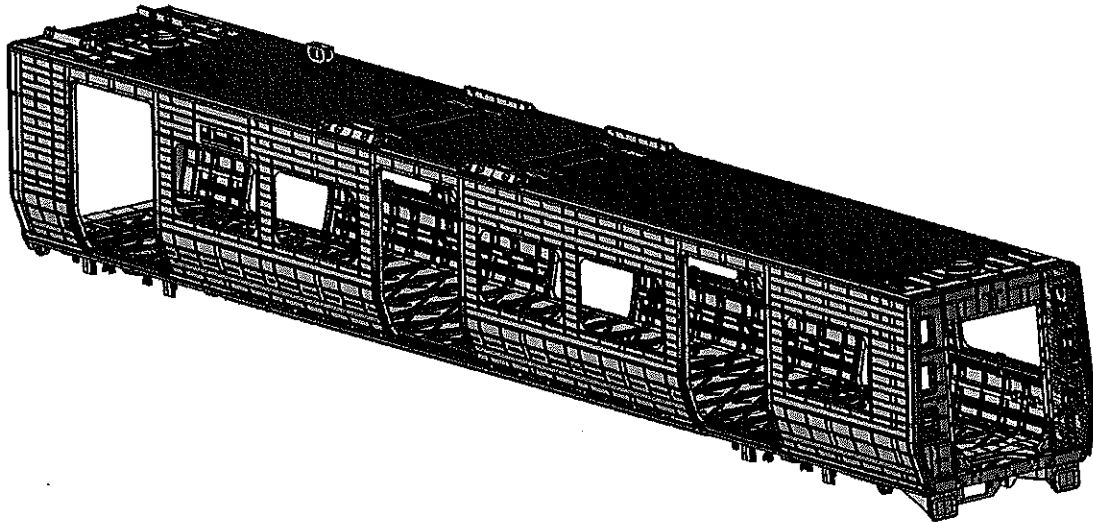
NCR:

Work station:

CB2230



Safety Related



## I - Documentation and Instruments

## I.1 - Documentation Control

Document	Type of car						Revision	Observation	OK	NOK	rework	Signature/Date (Operations)	Signature/Date (Quality)
	TC1	M1	M2	M3	M4	TC2							
DT00000223319							30		X		N/A	16/05/24	16/05/24

## I.2 - Instruments Control

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

Instruments	Validation	Calibration or Verification Validation Date	OK	NOK	Signature/Date (Operations)	Signature/Date (Quality)
TCU car	22713	26/05/24	X		16/05/24	16/05/24
Tape measurement	G1B0794	25/04/20	X		16/05/24	16/05/24
Combination square	G1B0072	27/07/24	X		16/05/24	16/05/24

## 1.3 Consumables

## Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK	NOK	Signature/Date (Manufacturing)	Signature/Date (Quality)
308 CSI	3137719	MIG	X		16/05/24	16/05/24
ER 308L	15R432	Tig	X		16/05/24	16/05/24
<div> 2024-05-15 INDUSTRIAL QUALITY MAINLINE</div>						



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## II - Control Activities of Production

## II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	NOK	Reserve	Signature/Date (Operations)	Signature/Date (Quality)						
01	N/A	Assembly according to Instruction Engineering nº DT00000223319	DT00000223319	X			16/06/24	16/05/29						
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality.	DTD0000210675	X			16/06/24	16/05/29						
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 DTD0000210675	X			16/06/24	16/05/29						
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.	X			16/06/24	16/05/29						
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 DTD0000210658.	As the welding procedure IND-SAL-WMS-018 and DTD0000210658	X			16/06/24	16/05/29						
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: <table><tr><td>Temperature Min - Max (1)</td><td>Min-Max</td><td>10°C - 35°C</td></tr><tr><td>Relative humidity Min - Max (1)</td><td>Min-Max</td><td>25% - 80%</td></tr></table>	Temperature Min - Max (1)	Min-Max	10°C - 35°C	Relative humidity Min - Max (1)	Min-Max	25% - 80%	Sealant Batch No: B34297-605324 Exp Date: 06/24 Actuals Temperature: 18°C Humidity: 37%	X			16/06/24	16/05/29
Temperature Min - Max (1)	Min-Max	10°C - 35°C												
Relative humidity Min - Max (1)	Min-Max	25% - 80%												
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	X			16/06/24	16/05/29						

GIBELQ

2024-05-15

INDUSTRIAL QUALITY  
MAINLINE



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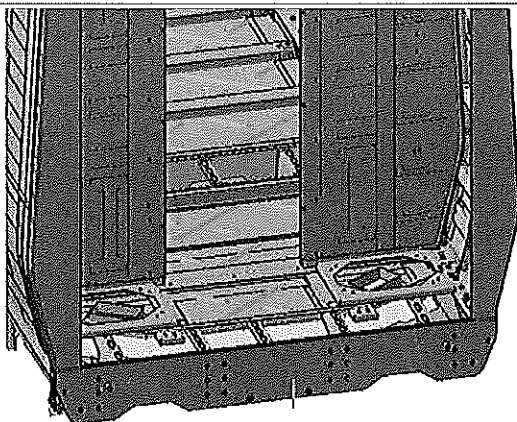
Date-

06/11/2023

Project: PRASA

SI.CB2230.324.V29

VIEW A

**END 1  
SEALANT**OPERATOR  
(Name & sign):

Simie

OPERATOR  
(Name & sign):

Tshenolo

**END 2 SEALANT  
(VIEW C)**OPERATOR  
(Name & sign):

Leroy

OPERATOR  
(Name & sign):

Leroy

OPERATOR  
(Name & sign):

Leroy

G

D

E

H

I

F

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

LHS

RHS

Operator(Name &amp; sign): D,E,G,H,I (Top)

D,E,F,G,H,I

Operator (Name &amp; sign):

LERATO

Tshenolo

Operator (Name &amp; sign):

Bokumelo

Leroy

Operator (Name &amp; sign):

Bunle

Simie

Operator (Name &amp; sign):

I (Bottom) BF

Operator (Name &amp; sign):

Simie

Tshenolo

2024-05-15

INDUSTRIAL QUALITY  
MAINLINE

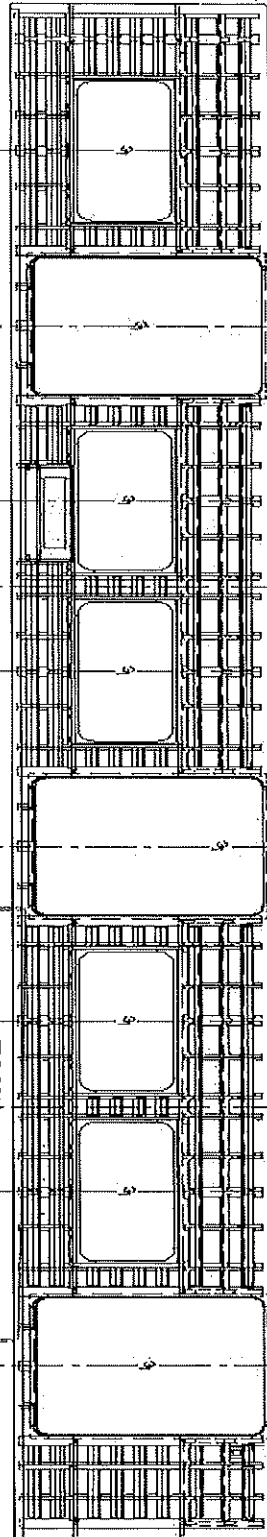
## Specifications of Details for CBS measurement CB2230

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

2024 -05- 15

INDUSTRIAL QUALITY  
MAINTENANCE

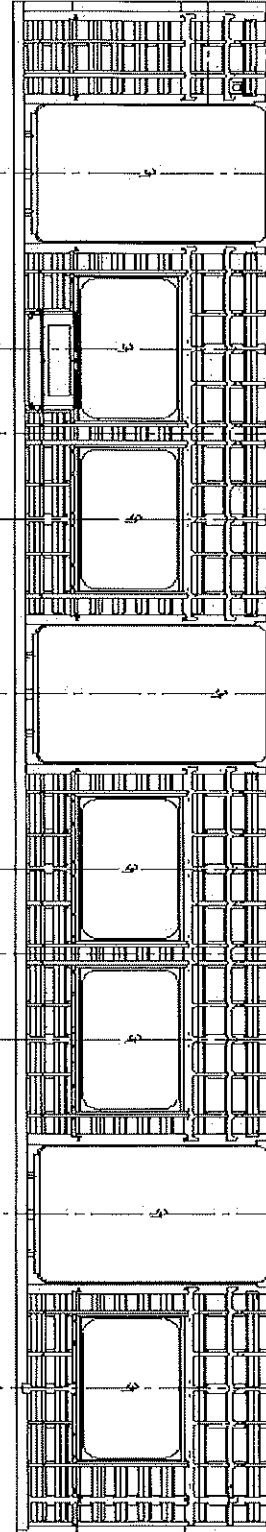
RIGHT SIDE



END #1

MAXIMUM	2.0
MINIMUM	1.8

LEFT SIDE



END #2

MAXIMUM	2.0
MINIMUM	1.8



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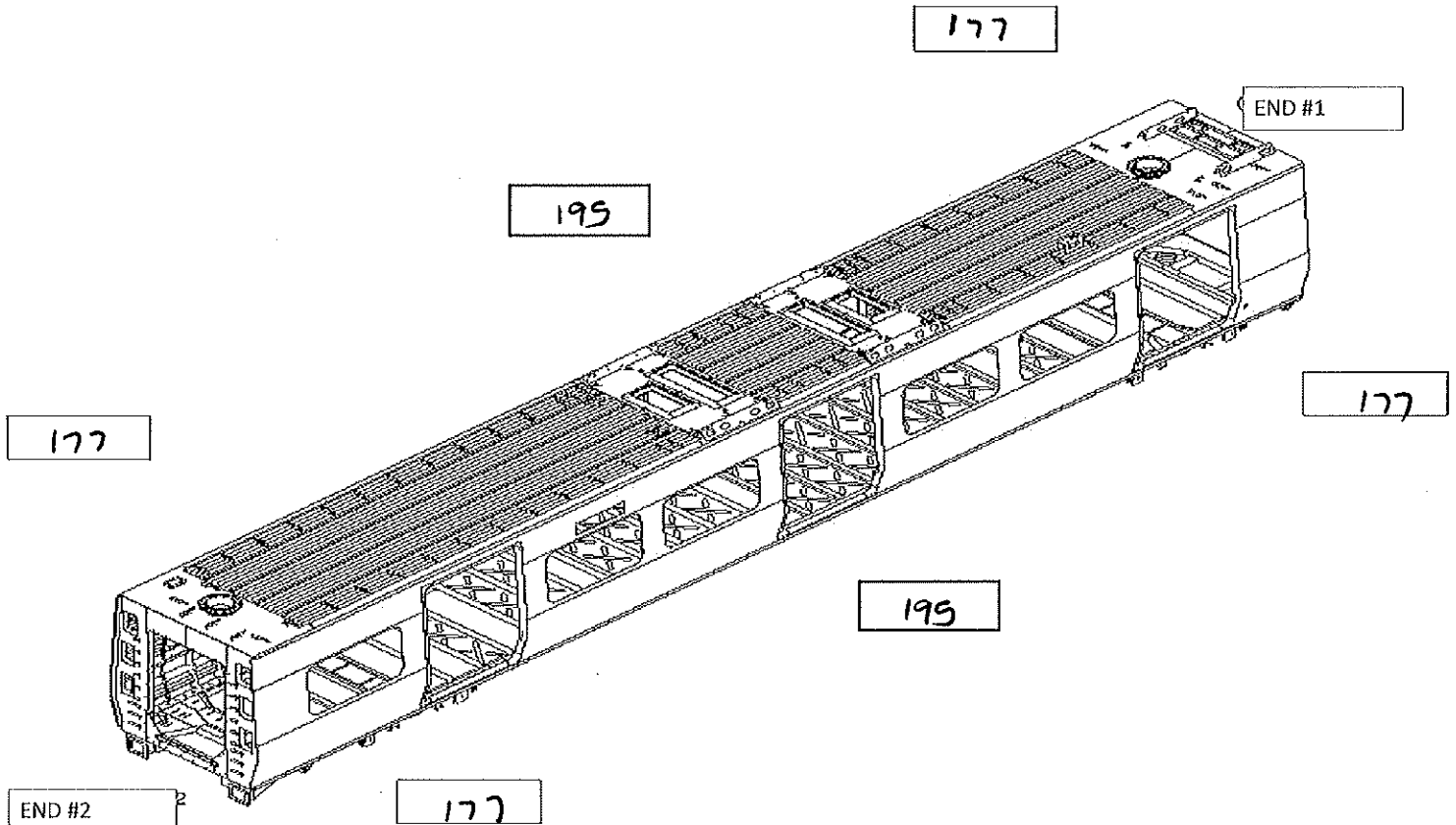
Date-  
06/11/2023

Project: PRASA

SI.CB2230.324.V29

### Specifications of Details for CBS measurement CB2230

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



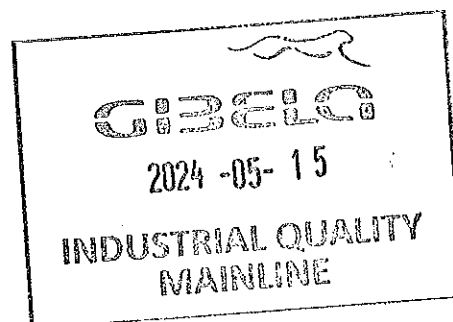
#### MEASURED CAMBER VALUES

RIGHT

18

LEFT

18







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Date-

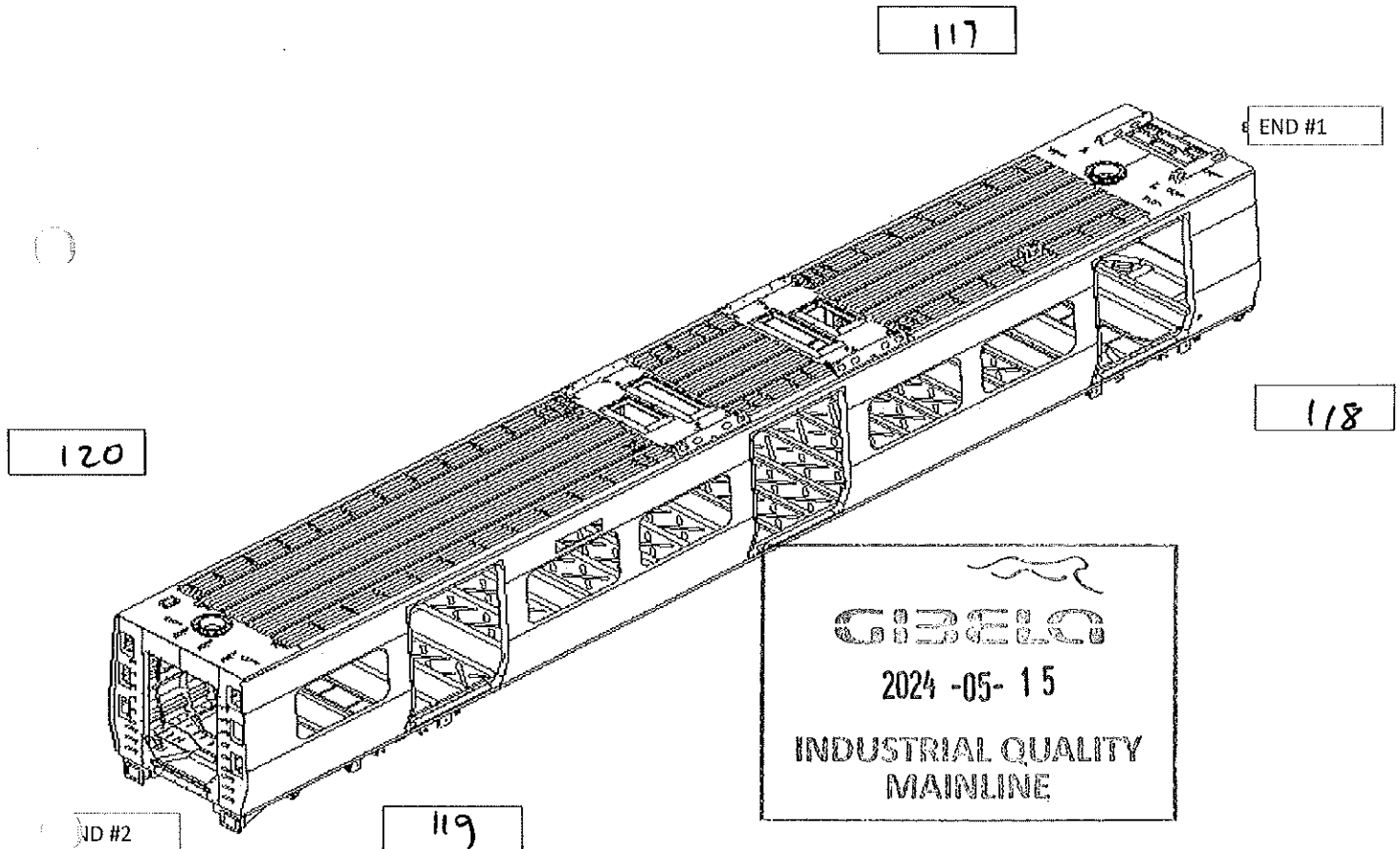
06/11/2023

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### Specifications of Details for GBS measurement GB2230

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.



MEASURED TWIST VALUES END 1

LATERAL

1

LONGITUDINAL

1

MEASURED TWIST VALUES END 2

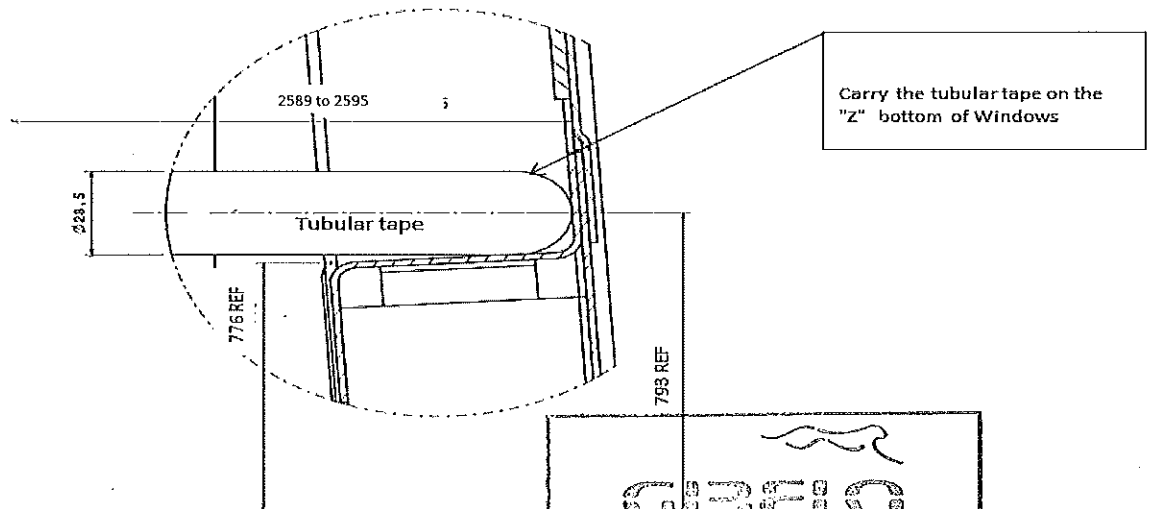
LATERAL

1

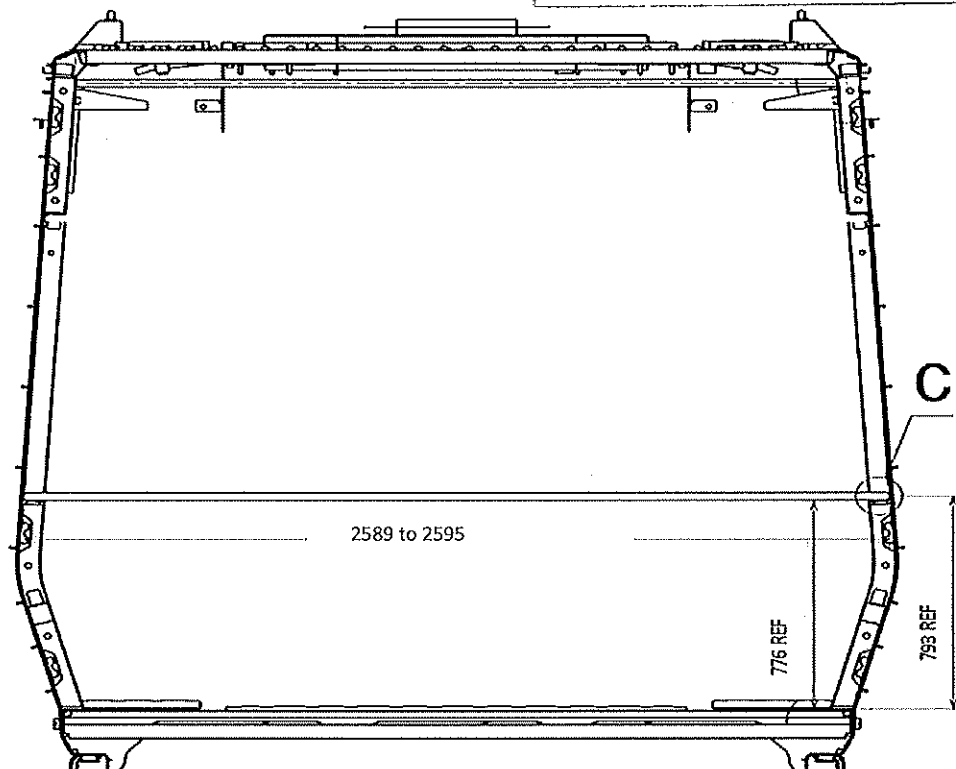
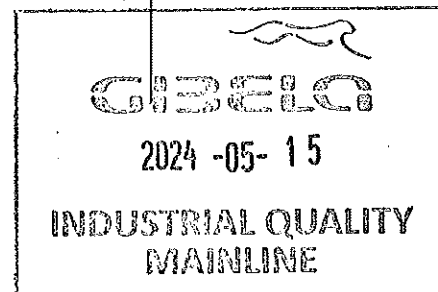
LONGITUDINAL

3

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



Detail C





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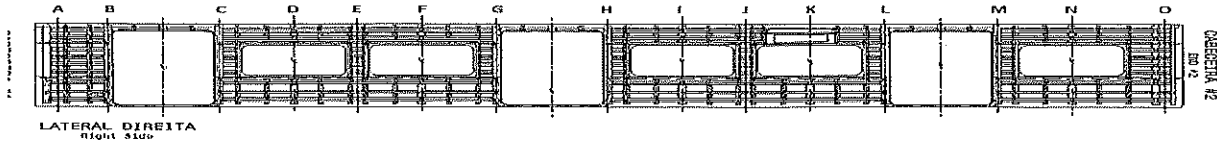
Date-

06/11/2023

Project: PRASA

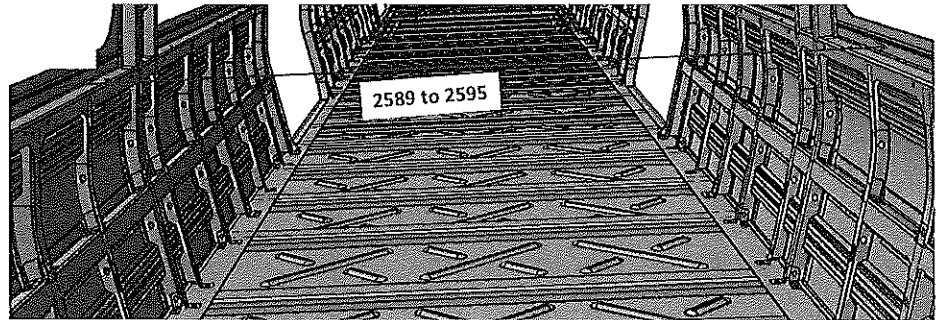
SI.CB2230.324.V29

## Specifications of Details for CBS measurement



2589 to 2595mm

A	2591
B	2593
C	2595
D	2592
E	2591
F	2590
G	2595
H	2594
I	2595
J	2594
K	2590
L	2595
M	2591
N	2594
O	2595



## Threshold verification

Nominal value :38

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

BOILER MAKER:

Emmanuel Am

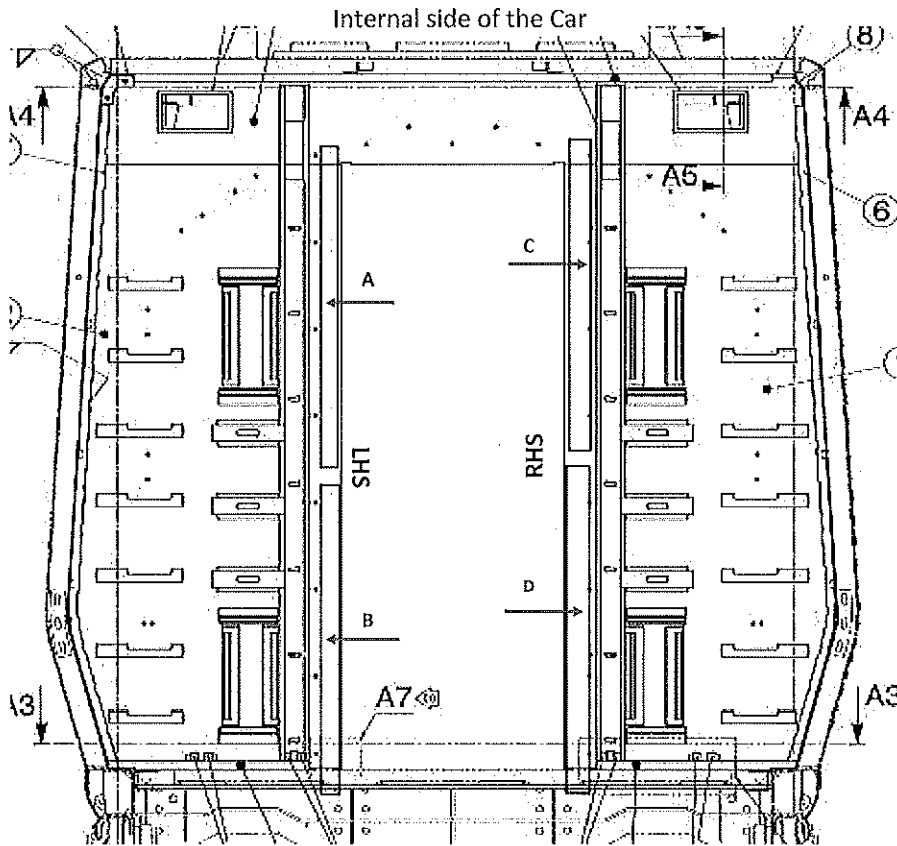
WELDER:

Zanele Am

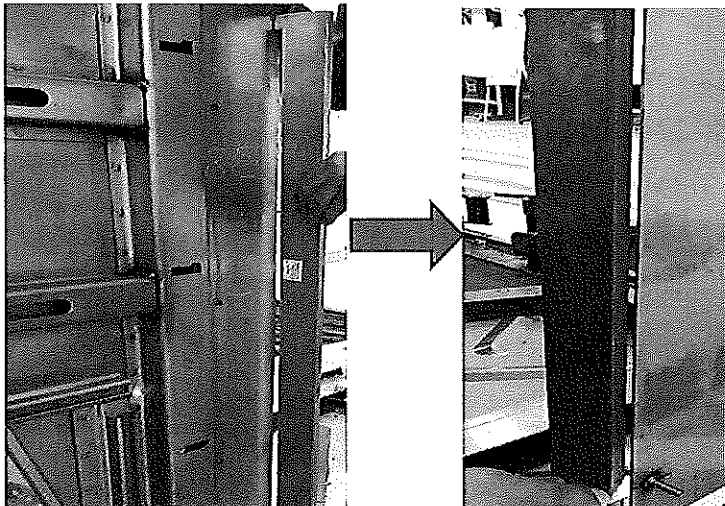
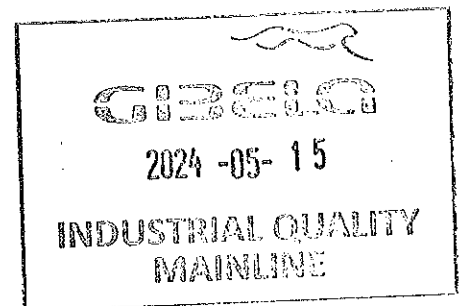
### Specifications of Details for CBS measurement

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	8.0	9.5	1.5
B	8.0	10.0	2.0
C	8.7	10.0	1.3
D	9.4	10.0	0.6





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**Dye penetrant test**

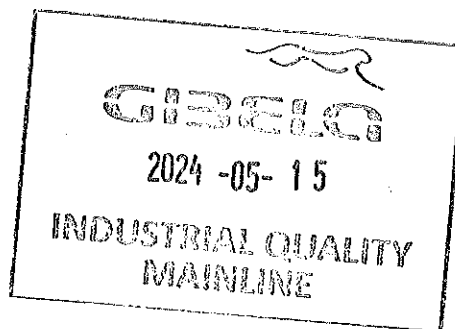
Dye-penetration test to be performed by quality personnel




Item	Description of the issue	OK	Signature/Date (Operations)	Signature/Date (Quality)

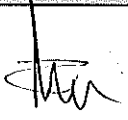

**II.2 - Check List REX****Check List Items**

Item	Picture/Drawing	Description	Criteria /Record	OK	NEW	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					



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

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!		16/05/24	Zanete	
					Operations	
	NO GO	Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	16/05/2024	Amogelang		
					Industrial Quality	
	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	Action	Responsible	Due date	Status

Operations

Quality

