



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 ?	
				TCL	MA	ME	MS			TCL
☒	DT30225487/3	CARBODYSHELL W3,M4 ASSEMBLY	CB2210				☒	PRA.CB2210.DTR30225 487/3.V30	YES	
☐										
REV	DATE	MODIFICATION CONTENT						RESPONSIBLE	NAME	DATE
0	10/01/2018	GIBELA NEW CREATION						APPROVER	Itumeleng Modiba	10/01/2018
								CHECKER	Nosizo Pindela	10/01/2018
								COMPILER	Thanyani Mathagu	10/01/2018
								APPROVER	Itumeleng Modiba	2018/05/18
1	2018/05/18	Team leader and Quality Technician to sign Change final signature from PME Manager to Quality manager						CHECKER	Nosizo Pindela	2018/05/18
								REVISOR BY	Ramokone Motama	2018/05/18
								APPROVER	Itumeleng Modiba	2018/07/04
								CHECKER	Nosizo Pindela	2018/07/04
2	2018/07/04	Certain dimensional checks moved to CB1220 and CB1230						REVISOR BY	Ramokone Motama	2018/07/04
								APPROVER	Itumeleng Modiba	2018/12/12
								CHECKER	Nosizo Pindela	2018/12/12
3	2018/12/12	Added dimensional check points to CB2210						REVISOR BY	Ramokone Motama	2018/12/12
								APPROVER	Itumeleng Modiba	22/01/2019
5	22/01/2019	As per Baseline 10.2						CHECKER	Nosizo Pindela	22/01/2019
								REVISOR BY	Vanessa Ntuli	22/01/2019
								APPROVER	Itumeleng Modiba	13/03/2019
								CHECKER	Nosizo Pindela	13/03/2019
6	13/03/2019	Added D1 and D2 on Self - Inspection						REVISOR BY	Nosizo Pindela	13/03/2019
								APPROVER	Itumeleng Modiba	21/08/2019
								CHECKER	Nosizo Pindela	21/08/2019
10	21/08/2019	New Baseline 10.2.5						REVISOR BY	Nosizo Pindela	21/08/2019
								APPROVER	Timothy Maimela	
								CHECKER	Bongane Masina	06/08/2020
								REVISOR BY	Bongane Masina	
15	06/08/2020	New Baseline 10.2.6						APPROVER	Timothy Maimela	
								CHECKER	Bongane Masina	19/04/2021
20	19/04/2021	New Baseline change 10.3						REVISOR BY	Mkhombi Collins	
								APPROVER	Mpho Mulaudzi	17/08/2021
21	17/08/2021	ADDED DIMENSIONS BEFORE WELDING						CHECKER	Mpho Mulaudzi	
								REVISOR BY	Mkhombi Collins	
								APPROVER	Andani Mubhele	19/02/2022
25	19/02/2022	New Baseline change 10.3.1						CHECKER	Andani Mubhele	
								REVISOR BY	Ntuli Vanessa	
								APPROVER	Mohlampe Amogelang	14/04/2023
26	14/04/2023	Addition of welding consumable traceability						CHECKER	Mohlampe Amogelang	
								APPROVER	Ngweni Tyson	28/07/2023
30	20/07/2023	New Baseline change 10.4						CHECKER	Mohlampe Amogelang	
								REVISOR BY	Mohlampe Amogelang	
								APPROVER	Ngweni Tyson	07/11/2023
31	07/11/2023	Added traceability for welding sections						CHECKER	Mohlampe Amogelang	
								REVISOR BY	Ntloko Zwane	
TRAINSET		CAR	OPERATOR NAME& ALPS NO	DATE	SELF INSPECTION NUMBER				PAGES	
210		m3	12082833	09/02/2024	SI.CB2210.254.V30				17	



CARBODYSHELL M3,M4 ASSEMBLY DTR302254873

Rev. 31
Date 07/11/2023
Project: PRASA
SI, CB2210.254.V30

Cat: M3 & M4

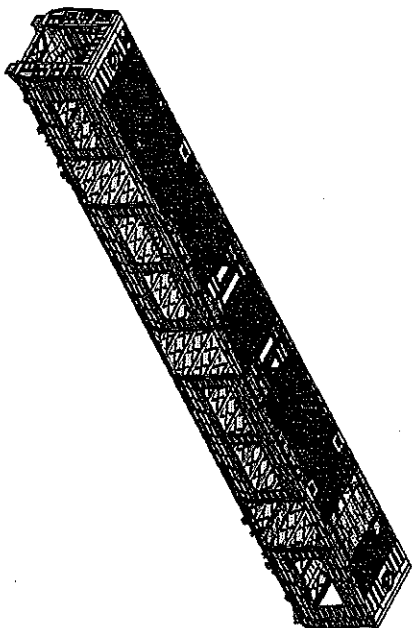
NCR:

Work action:

CB2210



Safety Related



1 - Documentation and Instruments Control

1.1 - Documentation Control

Document	Type of car					Revision	Observation	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
	TC1	M1	M2	M3	M4	TC2				
DTR302254873				X						31 Signature/Date (Quality)

1.2 - Instruments Control

Monitoring and Measuring Instrument Control - Used for Special Process

Instruments	Serial number	Calibration or Verification Validation Date	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
Inchubator	229413	29/04/23	✓	Signature/Date (Manufacturing)	Signature/Date (Quality)
30m Tape	G187P0084	31/03/23	✓	Signature/Date (Manufacturing)	Signature/Date (Quality)
Koher Tape	125425924	18/12/22	✓	Signature/Date (Manufacturing)	Signature/Date (Quality)

1.3 Consumables

Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
Hammsg 308LS1	324430-44-791	MIG	✓	Signature/Date (Manufacturing)	Signature/Date (Quality)
Hammsg 308C	299687-72322	MIG	✓	Signature/Date (Manufacturing)	Signature/Date (Quality)
Hammsg 309	318394-74-2	MIG	✓	Signature/Date (Manufacturing)	Signature/Date (Quality)

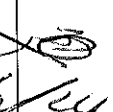
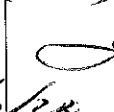
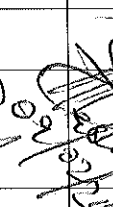
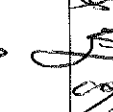
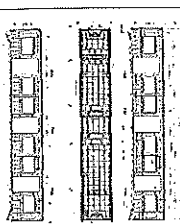
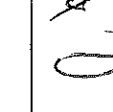


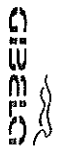
CARBODYSHELL M3, M4 ASSEMBLY DTR30225487/3

Rev. 31
Date 07/11/2023
Project: PRASA
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II - Self Inspection - Items to Check

II.1 - Items to check

Item	Planned Drawings	Description	Acceptance criteria / Record	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
01	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD00000210675	☒	 07/10/24	 07/10/24
02	REFER TO ANNEXURE A	Spot welding inspected and approved according to procedure	IND-SAL-WMS-016 e DTD00000210675	☒	 07/10/24	 07/10/24
03	REFER TO ANNEXURE B	Arc welding inspected and approved according to procedure	IND-SAL-WMS-016 REFER TO GIB - TTPDEF - ARC - 0000	☒	 07/10/24	 07/10/24
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	☒	 07/10/24	 07/10/24
05		Functional dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document	Approved according specified on pages below.	☒	 07/10/24	 07/10/24
06	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.	☒	 07/10/24	 07/10/24

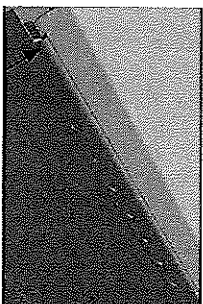


CARBOYSHELL M3,M4 ASSEMBLY DTR302254873

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Welding Traceability

Roof ring welds



Boiler maker (Name & Sign): LUNGA [Signature] ^{LHS} Welder (Name & Sign): Mison [Signature] 09/02/24

Boiler maker (Name & Sign): [Signature] [Signature] ^{RHS} Welder (Name & Sign): Mison [Signature] 09/02/24 END 1

Boiler maker (Name & Sign): LUNGA [Signature] ^{LHS} Welder (Name & Sign): Mison [Signature] 09/02/24

Boiler maker (Name & Sign): [Signature] [Signature] ^{RHS} Welder (Name & Sign): Mison [Signature] 09/02/24 END 2

Door ring welds

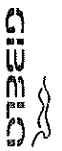


^{LHS} Boiler maker (Name & Sign): JOSILE [Signature]

Welder (Name & Sign): Thabeng [Signature]

^{RHS} Boiler maker (Name & Sign): innocent

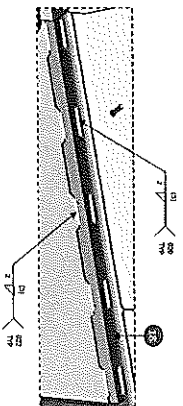
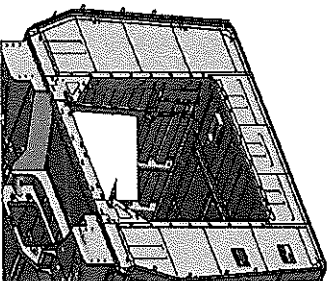
Welder (Name & Sign): Thabeng [Signature]



CARBODYSHELL M3,M4 ASSEMBLY DTR302264873

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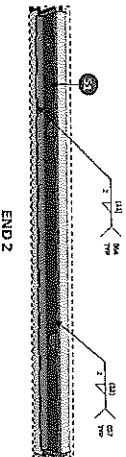
ELF Reinforcement Plates



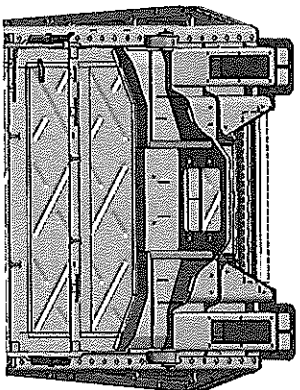
END 1

Boiler maker (Name & Sign): GERARD G. M. S. S.

Welder (Name & Sign): KEITH K. M. S.



END 2

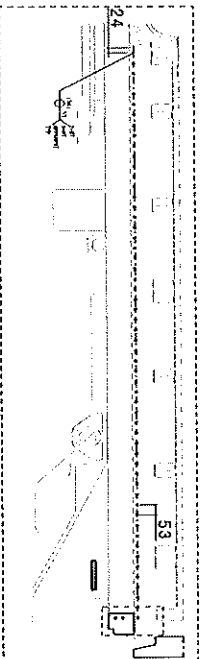


Underneath the CAR

END 2

Boiler maker (Name & Sign): JESSE M.

Welder (Name & Sign): GIPK B.

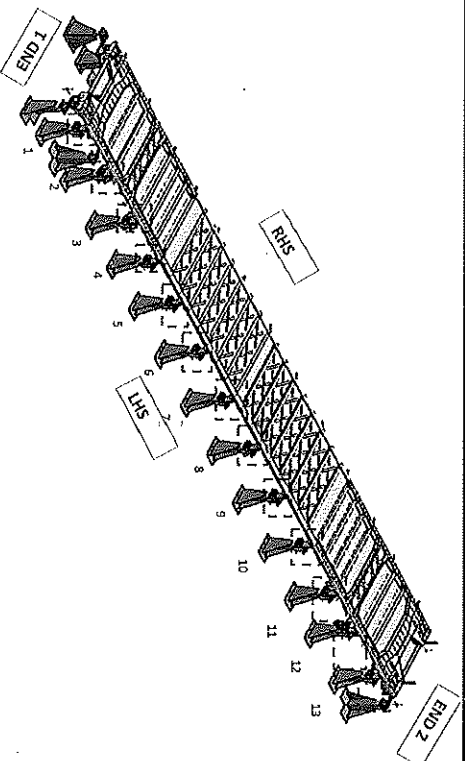


FEDOLI

Operator:

LAWRENCE JULYANO

Specifications of Details for CBS measurement



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

After loading and clamping

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

	1	2	3	4	5	6	7	8	9	10	11	12	13
Left Hand Side													
Right Hand Side													

Signature Operator: *[Signature]* Date: *01/01/24*

After Welding.

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

	1	2	3	4	5	6	7	8	9	10	11	12	13
Left Hand Side													
Right Hand Side													

Signature Industrial Quality:

Date:

[Signature]

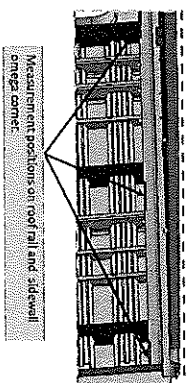
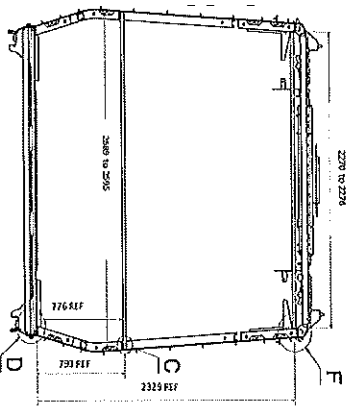
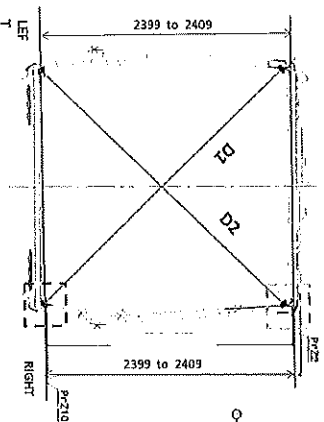
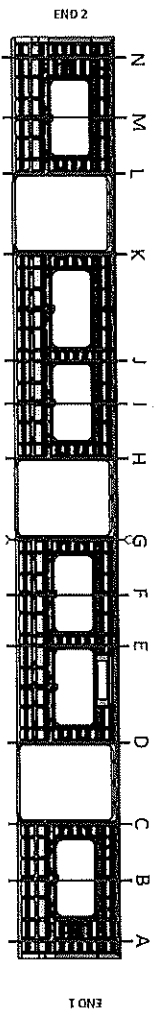


CARBODYSHELL M3, M4 ASSEMBLY DTR3025487/3

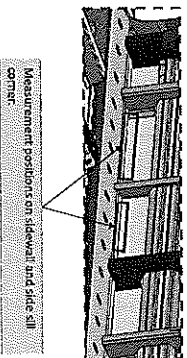
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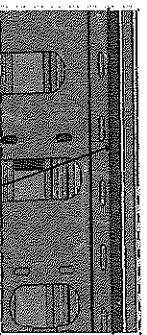
Specifications of Details for CFS measurement



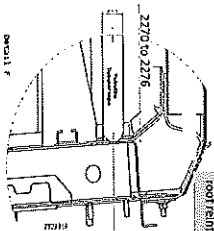
Measurement positions on roof rail and sidewall corner corner.



Measurement positions on sidewall and side sill corner.

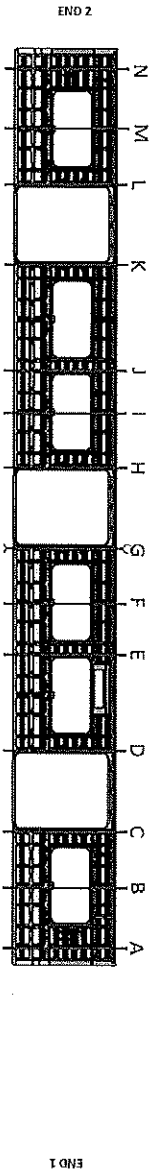


Measurement positions on roof rail and sidewall corner.



Detail F

Specifications of Details for CBS measurement



PVE Column LHS - RHS should be
≤ 2MM on each point.

BEFORE WELDING

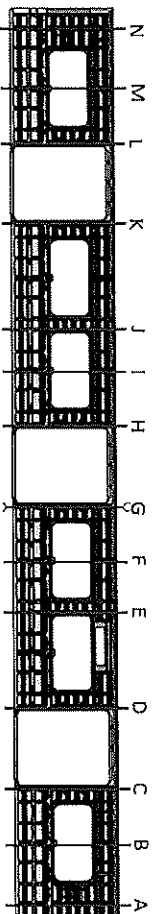
Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS ≤ 2
A 3264	3267	3	2403	2405	2
B 3265	3267	2	2403	2404	1
C 3266	3265	1	2404	2405	1
D 3263	3265	2	2406	2404	2
E 3267	3269	2	2406	2405	1
F 3266	3265	2	2403	2404	1
G 3265	3266	1	2406	2405	1
H 3266	3266	0	2403	2405	2
I 3263	3265	2	2406	2407	1
J 3266	3267	1	2404	2405	1
K 3266	3267	1	2404	2404	0
L 3263	3265	2	2405	2404	1
M 3265	3266	3	2406	2405	1
N 3267	3269	2	2407	2405	2



CARBODYSHELL M3,M4 ASSEMBLY DTR3025487/3

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Specifications of Details for CBS measurement

PME Column LHS - RHS should be
≤2MM/ on each point.

AFTER WELDING

Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS ≤ 2
A 3296	3297	1	2404	2405	1
B 3267	3268	1	2403	2402	1
C 3295	3297	2	2403	2402	0
D 3294	3296	2	2404	2405	1
E 3265	3266	1	2405	2406	1
F 3268	3267	1	2405	2405	0
G 3298	3296	2	2404	2404	0
H 3296	3296	0	2404	2403	1
I 3263	3265	2	2405	2403	2
J 3265	3266	1	2404	2403	1
K 3296	3295	1	2406	2405	1
L 3297	3296	1	2404	2406	2
M 3268	3269	1	2407	2405	2
N 3298	3299	1	2405	2404	1

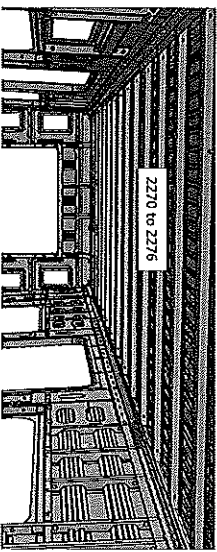
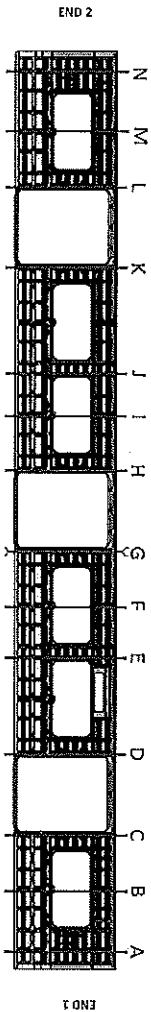


CARBODYSHELL M3,M4 ASSEMBLY DTR3022548/3

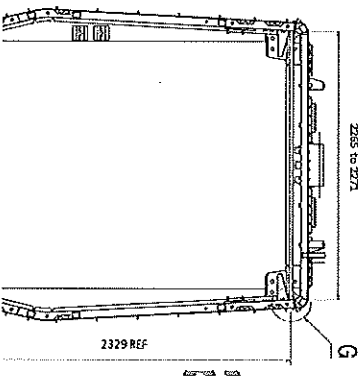
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CBS measurement

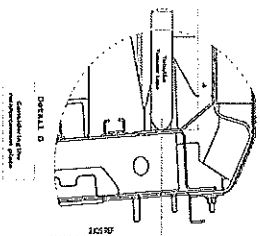
BEFORE WELDING



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



2265 to 2271





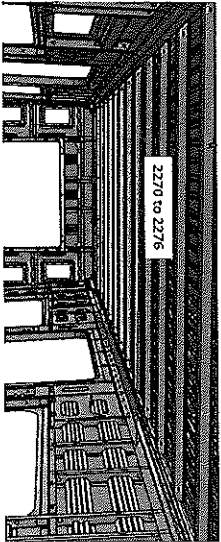
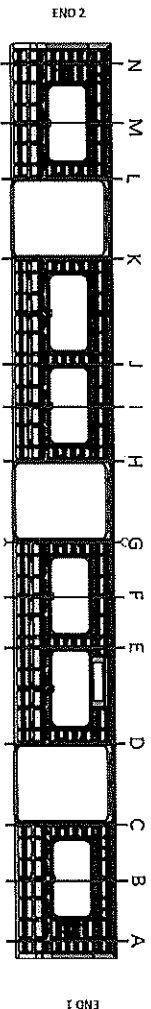
CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3

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CBS measurement

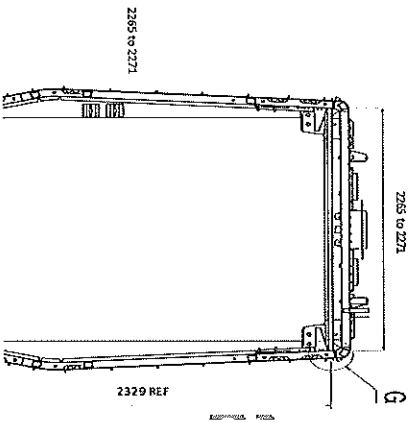
AFTER WELDING



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

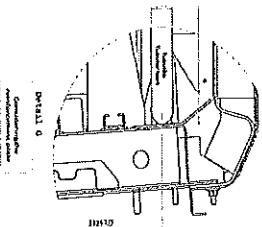


Take measurement close to radius (considering reinforcement)



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

2265 to 2271





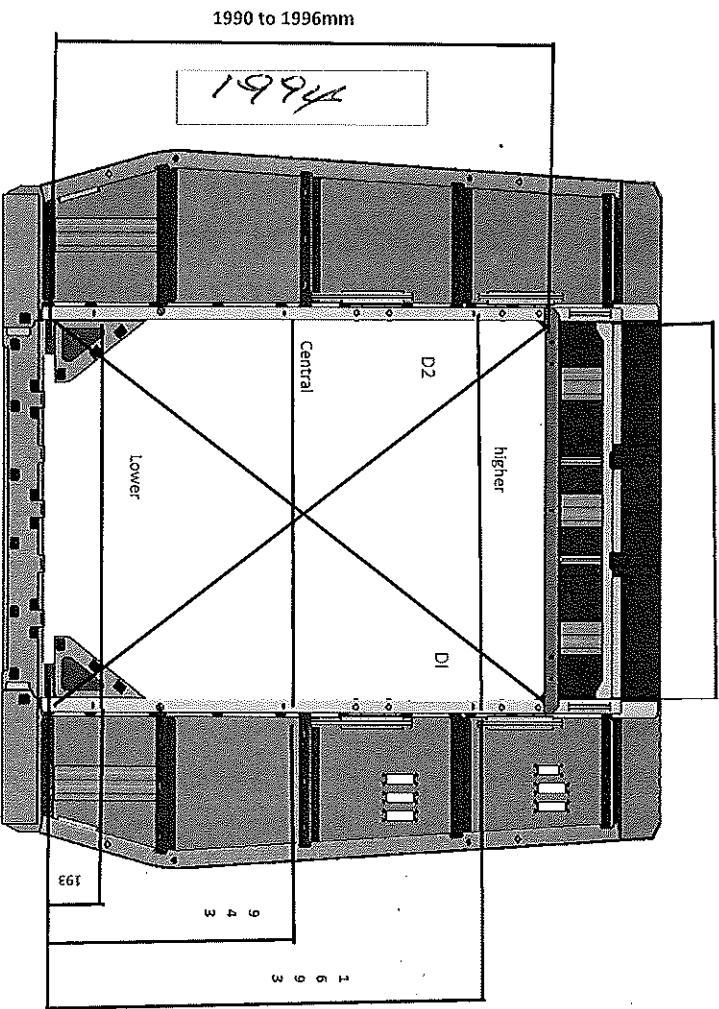
CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3

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Date 07/11/2023

Specifications of Details for GBS measurement

End frame 1



Higher Dimension

1381

D1

2416

Central Dimension

1381

D2

2414

Lower Dimension

1381

D1-D2

2



CARBODYSHELL M3, M4 ASSEMBLY DTR30225487/3

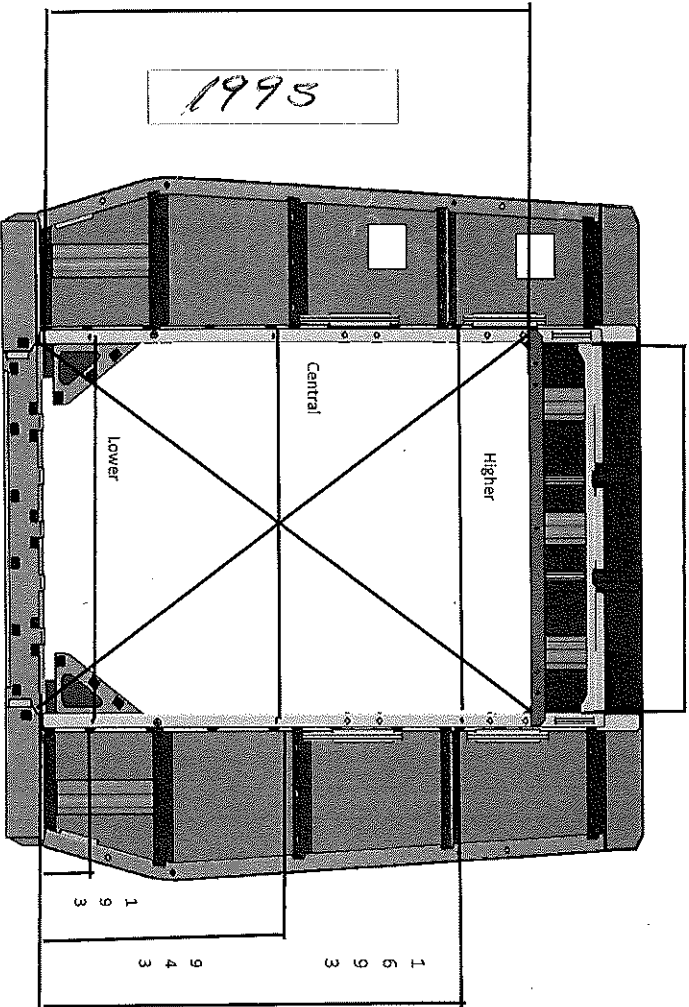
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07/11/2023	

Specifications of Details for GBS measurement

Endframe 2

1380 to 1382 mm

1990 to 1996mm



1380 to 1382 mm

DIAGONAL DIFFERENCE D1-D2 ≤ 3mm

HIGHER DIMENSION

1381

D1 2413

CENTRAL DIMENSION

1380

D2 2416

LOWER DIMENSION

1380

D1-D2

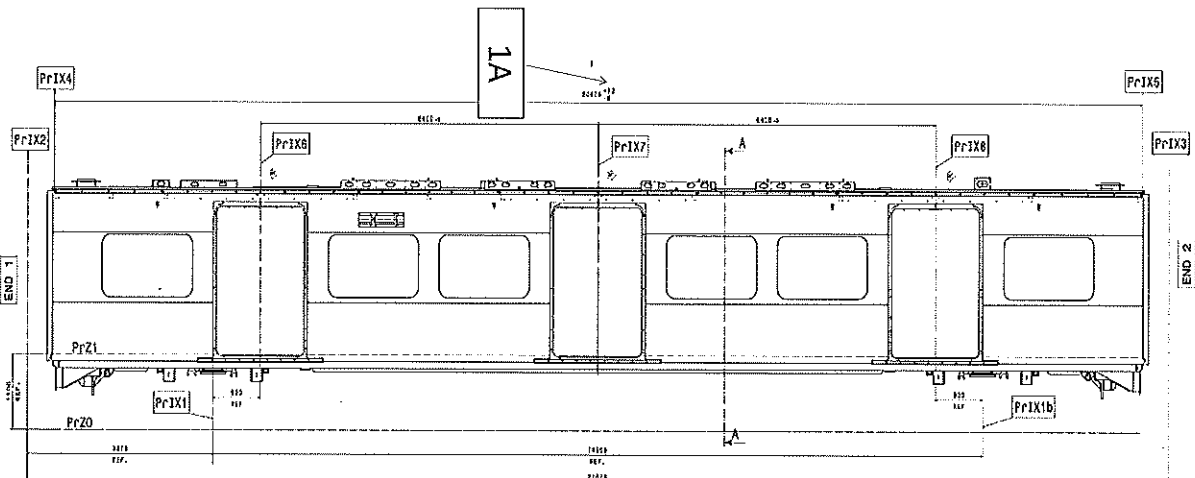
3



CARBODYSHELL M3,M4 ASSEMBLY DTR3025487/3

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Date	
07/11/2023	

Specifications of Details for CBS measurement

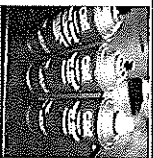


LEFT SIDE	
SPECIFICATION SIZE	ACTUAL SIZE
1A	20632 - 20614
	20628

RIGHT SIDE	
SPECIFICATION SIZE	ACTUAL SIZE
1A	20632 - 20614
	20628

Dye penetrant test

Dye-penetration test to be performed by quality personnel



[illegible]



CARBODYSHELL M3, M4 ASSEMBLY DTR30225487/3

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Self Inspection - Final Result

		DATE	NAME	SIGNATURE
HOLD POINT	GO	04/07/24	Operations	
		04/07/24	Industrial Quality	
			Operations	
	NO GO		Industrial Quality	
In case of "NO GO", describe blocking problems				

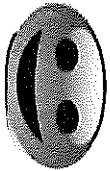
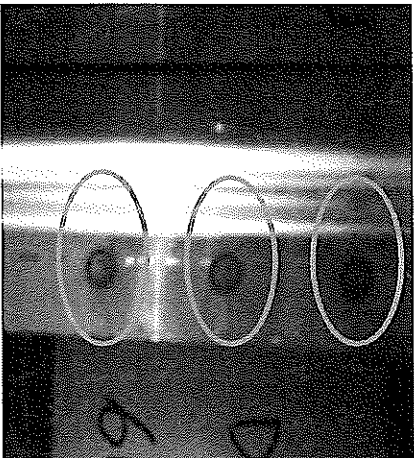
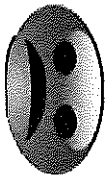
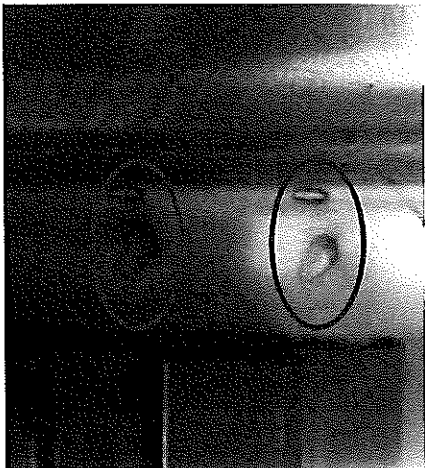
In case of "NO GO", the operations manager must define below action plan to ensure "GO":				
Item	Description	Responsible	Due date	Status

Operations

Quality

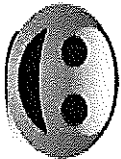
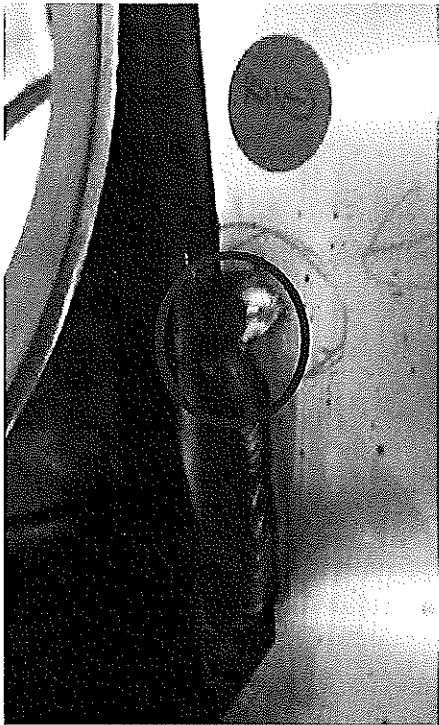
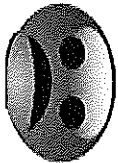
		CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3		Rev. 31	Project: PRASA SI,CB2210.254.V30
				Date 07/11/2023	

ANNEXURE A: Spot Welding Quality Acceptance Standard



		CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3		Rev. 31 Date 07/11/2023	Project: PRASA SI, CB2210.254, V30
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ANNEXURE B: Arc Welding Quality Acceptance Standard








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									
DRAWING	DRAWING	DISPOSITION	STATION	CARTYPE				WORK INSTRUCTION	SAFETY 1
				TC1	FM	PG	MS	TD	
☐	0702025-4872	CARBODYSHELL M1,M2,M4,ASSEMBLY	Q2228		X	X		X	
☐								PRC/CB2220.UT9022548 7/2/2021	YES
☐									
☐									
☐									
☐									
☐									
REV	DATE	MODIFICATION CONTENT				RESPONSIBLE		NAME	DATE
0	01/02/2018	GIBELA NEW CREATION				APPROVER		Humeleng Modiba	01/02/2018
						CHECKER		Nosozo Pholela	02/02/2018
						COMPLER		Tharyani Mathaga	01/02/2018
1	18/05/2018	Team leader and Quality Technician to sign Change final signature from PWE Manager to Quality manager				APPROVER		Humeleng Modiba	18/05/2018
						CHECKER		Nosozo Pholela	18/05/2018
						REVISED BY		Ramokone Motema	18/05/2018
2	2018/07/05	Certain dimensional checks added and others moved to CB2210				APPROVER		Humeleng Modiba	2018/07/05
						CHECKER		Nosozo Pholela	2018/07/05
						REVISED BY		Ramokone Motema	2018/07/05
3	2018/05/12	Width tolerance as per DT000138600				APPROVER		Humeleng Modiba	2018/05/12
						CHECKER		Nosozo Pholela	2018/05/12
						REVISED BY		Nosozo Pholela	2018/06/12
5	24/01/2019	As per Baseline 10.2				APPROVER		Humeleng Modiba	24/01/2019
						CHECKER		Nosozo Pholela	24/01/2019
						REVISED BY		Vanessa Nduli	24/01/2019
6	19/03/2019	Added D1 and D2 on Self - Inspection Remove length measurements				APPROVER		Humeleng Modiba	19/03/2019
						CHECKER		Nosozo Pholela	19/03/2019
						REVISED BY		Nosozo Pholela	19/03/2019
10	22/08/2019	New Baseline 10.2.5				APPROVER		Humeleng Modiba	22/08/2019
						CHECKER		Nosozo Pholela	22/08/2019
						REVISED BY		Nosozo Pholela	22/08/2019
15	06/08/2020	New Baseline 10.2.6				APPROVER		Humeleng Modiba	06/08/2020
						CHECKER		Bongane Masina	06/08/2020
						REVISED BY		Bongane Masina	06/08/2020
20	19/04/2021	New Baseline change 10.3				APPROVER		Timothy Maimela	19/04/2021
						CHECKER		Bongane Masina	19/04/2021
						REVISED BY		Bongane Masina	19/04/2021
21	17/08/2021	ADDED DIMENSIONS BEFORE WELDINGS				APPROVER		Mphahlele Collins	17/08/2021
						CHECKER		Mphahlele Collins	17/08/2021
						REVISED BY		Mphahlele Collins	17/08/2021
25	20/02/2022	New Baseline change 10.3.1				APPROVER		Collins Mphahlele	19/02/2022
						CHECKER		Ardeni Muthelo	19/02/2022
						REVISED BY		Ardeni Muthelo	19/02/2022
26	14/06/2022	Update minimum temperature requirement for sealant application				APPROVER		Collins Mphahlele	14/06/2022
						CHECKER		Ardeni Muthelo	14/06/2022
						REVISED BY		Ardeni Muthelo	14/06/2022
27	19/10/2022	Addition of traceability for sealant application & welding				APPROVER		Collins Mphahlele	19/10/2022
						CHECKER		Nosozo Zwane	19/10/2022
						REVISED BY		Vanessa Nduli	19/10/2022
28	14/04/2023	Added sealant batch number & welding consumables traceability				APPROVER		Vanessa Nduli	14/04/2023
						CHECKER		Nosozo Zwane	14/04/2023
						REVISED BY		Nosozo Zwane	14/04/2023
29	28/10/2023	Addition of bracket quantity				APPROVER		Nosozo Zwane	28/10/2023
						CHECKER		Nosozo Zwane	28/10/2023
						REVISED BY		Ardeni Muthelo	28/10/2023
TRAINSET	CAR	OPERATOR NAME/ALPS NO	DATE	SELF INSPECTION NUMBER				PAGES	
210	MC3	tebele 1/17/281	12/02/24	SI/CB2220.250.V29				13	



CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30225487/2

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29
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28/10/2023
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Car: M1,M3,M4

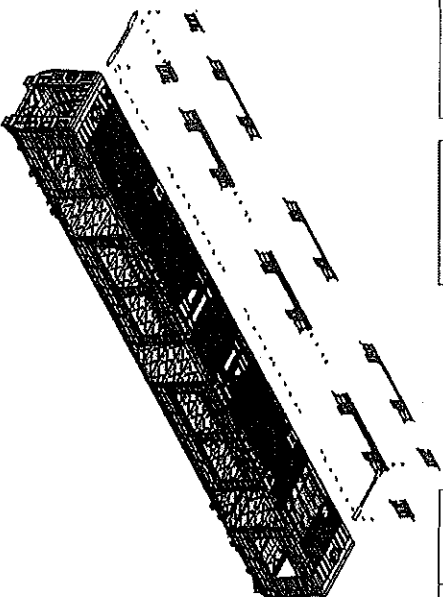
NCR

Work station

CB2220



Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

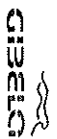
Document	Type of car					Revision	Observation	OK	Signature Date (Manufacturing)	Signature Date (Quality)
	101	111	121	131	141					
DTR30225487/2						29	12/02/24	V	N/A	12/02/24

I.2 - Instruments Control

Monitoring and Measuring Instrument Control - Used for Special Process					
Instruments	Serial number	Calibration or Verification Validation Date	OK	Signature Date (Manufacturing)	Signature Date (Quality)
Tubular tape	22173	03/08/2023	V	12/02/24	12/02/24
Measuring tape	173332	03/07/2024	V	12/02/24	12/02/24

I.3 Consumables

Welding Consumable Control - Used for Special Process					
Welding Material	Heat Number	Welding Process	OK	Signature Date (Manufacturing)	Signature Date (Quality)
Welding wire	77430	MIG - welding	V	12/02/24	12/02/24

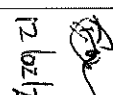
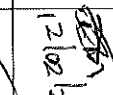
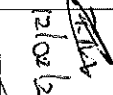
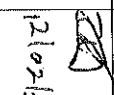
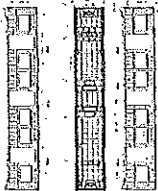
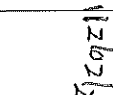
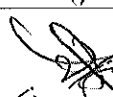
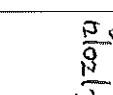
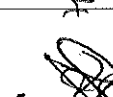
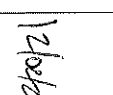
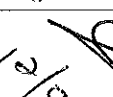
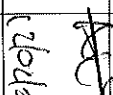
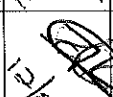
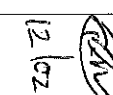


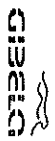
CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR3022487/2

Rev. 29 Project: PRASA
Date 28/10/2023 SI.CB2220.250.V29

II - Self Inspection - Items to Check

II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
01	N/A	Assembly according to Instruction Engineering n° PRA.CB2220.DTR3022487/2 Verification of fitment for all reinforcement brackets.	PRA.CB2220.DTR3022487/2	☒	 12/02/24	 12/02/24
02	N/A	Cutshell free of significant flaws which compromise the appearance or functionality	DTD00002106793	☒	 12/02/24	 12/02/24
03	REFER TO ANNEXURE A	Arc welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TTPDEF - ARC - 0000	☒	 12/02/24	 13/03/24
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	☒	 12/02/24	 12/02/24
05		Functional dimension approved according drawing or complementary document approved by Alcom engineering and registered in this document.	Approved according specified on page below.	☒	 12/02/24	 12/02/24
06		Perform visual inspection of welds in 10% of the project. Run by percent testing in electric arc welding (weld mg) as IND-SAL-WMS-016. Run by percent testing welds (weld mg) and fillet sampling as described in DTD0000210659.	As the welding procedure IND-SAL-WMS-016 and DTD0000210658.	☒	 12/02/24	 12/02/24
07	N/A	Before application of sealant record the expiry date and make sure that the room temperature and humidity are within specified values as per Work Instructions Specified: Temperature Min - Max (T) 24-30°C Relative humidity Min - Max (T) 25%-65%	Soudage Buttd No: <u>2-03</u> Exp Date: <u>1/02/24</u> Actuals Temperature: <u>24</u> Humidity: <u>55</u>	☒	 12/02/24	 12/02/24
08	N/A	Verification of sealant application in certain regions in the drawing.	AAD0001279566	☒	 12/02/24	 12/02/24
09		Verification of safety welds	Approved according to DTD0000210658 reference and Self inspection	☒	 12/02/24	 12/02/24



CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30225487/2

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28/10/2023	SI.CB2220.250.V29

II - Self Inspection - Items to check

SEALANT APPLICATION

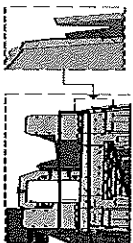
AREA 1 & 2 END 1

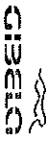
Operator (Name & sign):

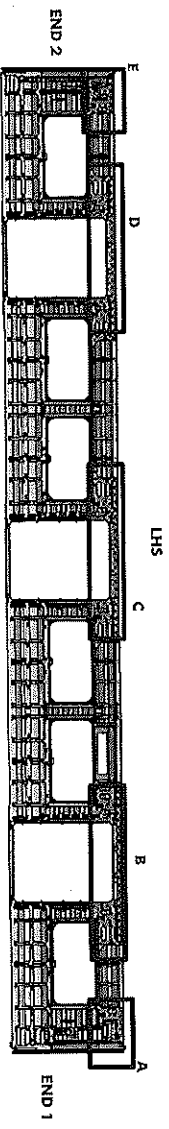
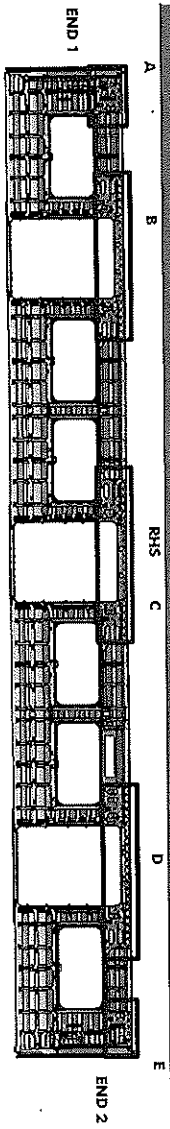
Mthelozzi: 

Operator (Name & sign):

Mthelozzi: 



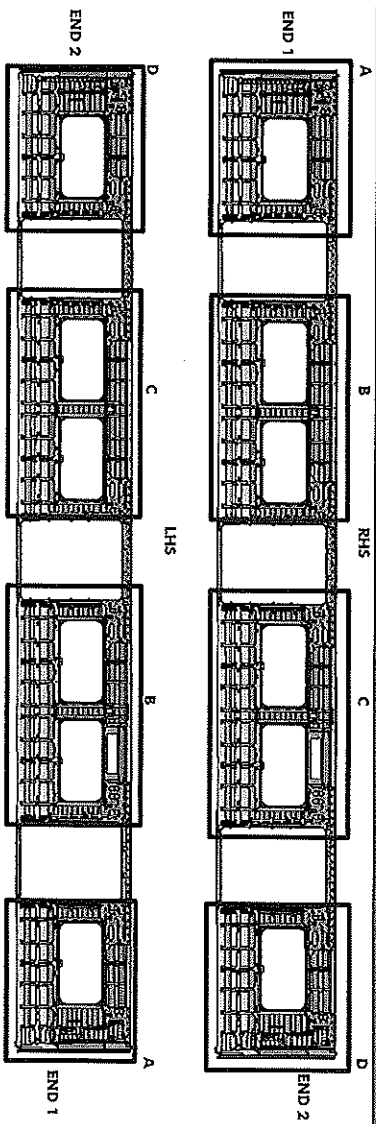
	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2		Rev. 29	Project: PRASA
	II - Self Inspection - Items to Check		Date 28/02/2023	SI.CB2220.250.V29



REINFORCEMENT WELDING

AREA	LHS	RHS
A	Operator (Name&sign): <u>THULANI D</u>	Operator (Name&sign): <u>THULANI D</u>
B	Operator (Name&sign): <u>[Signature]</u>	Operator (Name&sign): <u>[Signature]</u>
C	Operator (Name&sign): <u>Moshadi Mosepele</u>	Operator (Name&sign): <u>Mosebela Mear</u>
D	Operator (Name&sign): <u>Sibisi [Signature]</u>	Operator (Name&sign): <u>KEU MOET [Signature]</u>
E	Operator (Name&sign): <u>THULANI D</u>	Operator (Name&sign): <u>THULANI D</u>

II - Self Inspection - Items to Check



BRACKETING

INSTALLATION

Operator: F. Sola

Operator: M. No. 1111

Operator: M. No. 1111

Operator: M. No. 1111

Operator: M. No. 1111

Operator: M. No. 1111

INSTALLATION & VERIFICATION

Operator: M. No. 1111

Operator: M. No. 1111

Operator: M. No. 1111

Operator: M. No. 1111

WELDING

AREA

LHS

A (Seat brackets)

Operator (Name&sign): S. No. 1111

(C-rails, Luggage and earth bushes) : Operator (Name&sign): S. No. 1111

B (Seat brackets)

Operator (Name&sign): M. No. 1111

(C-rails, Luggage and earth bushes) : Operator (Name&sign): M. No. 1111

C (Seat brackets)

Operator (Name&sign): S. No. 1111

(C-rails, Luggage and earth bushes) : Operator (Name&sign): S. No. 1111

D (Seat brackets)

Operator (Name&sign): S. No. 1111

(C-rails, Luggage and earth bushes) : Operator (Name&sign): S. No. 1111

ENDS

END 1 TAPPING PADS WELDING: Operator (Name&sign): M. No. 1111

END 2 TAPPING PADS WELDING: Operator (Name&sign): M. No. 1111

RHS

Operator (Name&sign): S. No. 1111

(C-rails, Luggage and earth bushes) : Operator (Name&sign): S. No. 1111

Operator (Name&sign): M. No. 1111

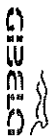
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Operator (Name&sign): S. No. 1111

(C-rails, Luggage and earth bushes) : Operator (Name&sign): S. No. 1111

Operator (Name&sign): S. No. 1111

(C-rails, Luggage and earth bushes) : Operator (Name&sign): S. No. 1111



CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR3022348712

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SI_CB2220.250.V29

II - Self Inspection - Items to Check

M1/M3/M4 BRACKET INSTALLATION

A

B

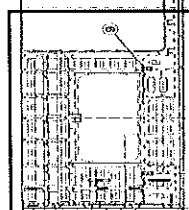
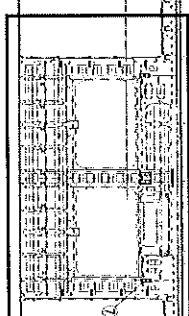
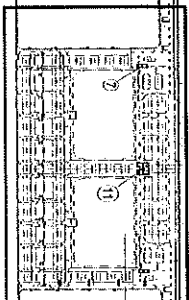
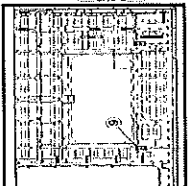
RIS

C

D

END 1

END 2



D

C

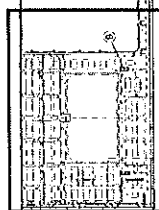
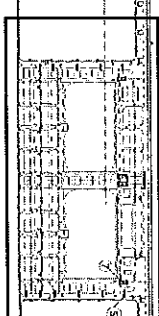
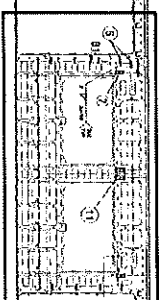
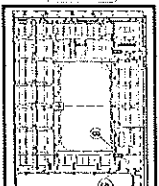
LHS

B

A

END 2

END 1



QUANTITIES (M3/M4)

MHS

SECTION	QUANTITY	OK	NOK
C-RAILS			
A	7	>	
B	4	>	
C	8	>	
D	9	>	
SEAT BRACKETS			
A	13	>	
B	21	>	
C	21	>	
D	13	>	
EARTH BUSH			
A	3	>	
B	5	>	
C	4	>	
D	3	>	

ROOF ENDS:

CRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY:

LHS

SECTION	QUANTITY	OK	NOK
C-RAILS			
A	2	>	
B	10	>	
C	11	>	
D	6	>	
SEAT BRACKETS			
A	13	>	
B	21	>	
C	21	>	
D	13	>	
EARTH BUSH			
A	3	>	
B	5	>	
C	4	>	
D	3	>	

ROOF ENDS:

CRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY:

QUANTITIES (M1)

MHS

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

ROOF ENDS:

CRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY:

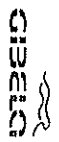
LHS

SECTION	QUANTITY	OK	NOK
C-RAILS			
A	2		
B	10		
C	11		
D	6		
SEAT BRACKETS			
A	13		
B	21		
C	21		
D	13		
EARTH BUSH			
A	3		
B	7		
C	4		
D	2		

ROOF ENDS:

CRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY:



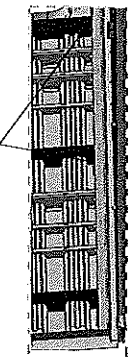
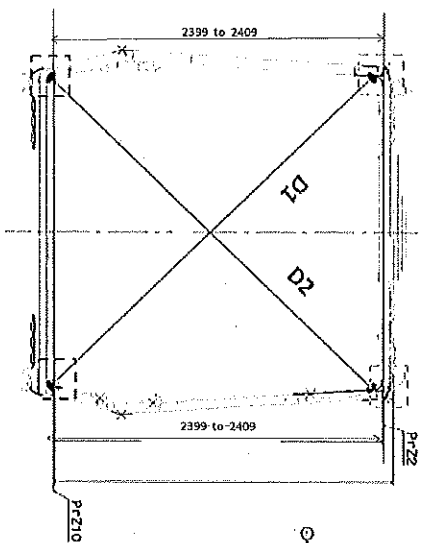
CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30228487/2

Rev.
29
Date
28/10/2023

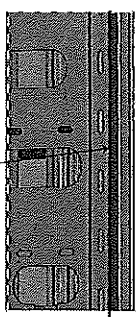
Project: PRASA

SI.CB22220.250.V29

Specifications of Details for CBS measurement



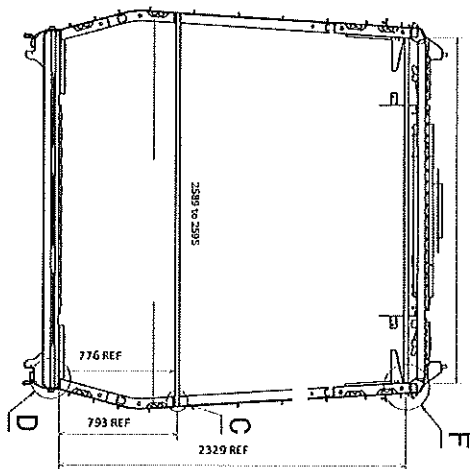
Measurement positions on roof rail and sidewall overgo corner.

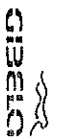


Reinforcement area measurement positions on roof reinforcement area.



Measurement positions on sidewall and side sill corner.



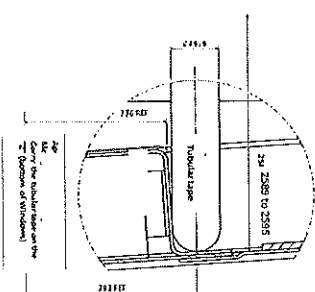
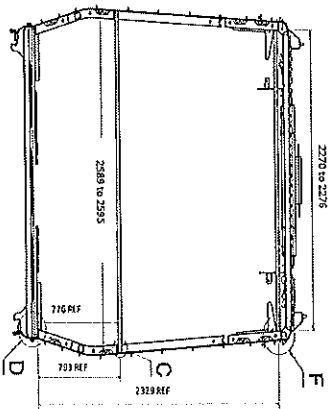


CARBOYSHELL M1 M3 M4 ASSEMBLY
DTR3022566712

Rev.
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Date
28/10/2023

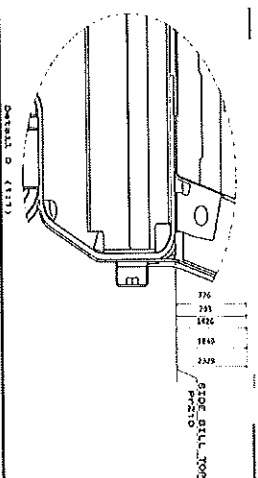
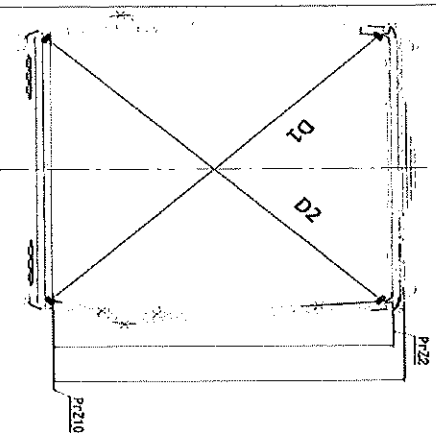
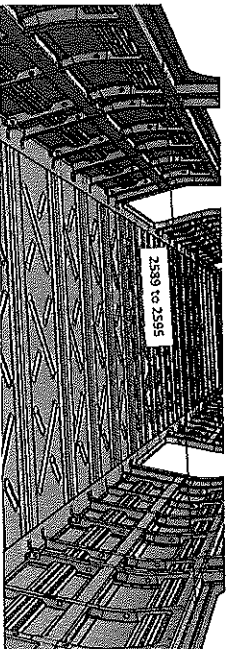
Project: PRASA
SI CB2220.250.V29

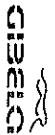
CBS measurement



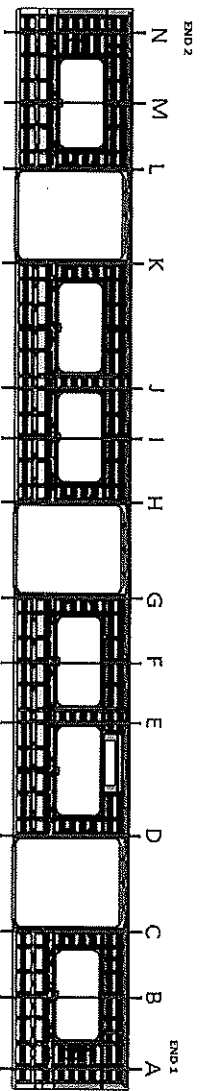
Detail C

Take measurement close to
radius



	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2		Rev. 29	Project: PRASA
			Date 28/10/2023	SI.CB22220.250.V29

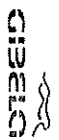
CSF measurement



BEFORE WELDING

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3295	3300	5	
B	3265	3267	2	
C	3294	3297	3	
D	3295	3295	0	
E	3265	3265	0	
F	3265	3265	0	
G	3296	3296	1	
H	3295	3296	1	
I	3264	3265	1	
J	3265	3266	1	
K	3295	3297	2	
L	3294	3297	3	
M	3266	3268	3	
N	3295	3299	4	

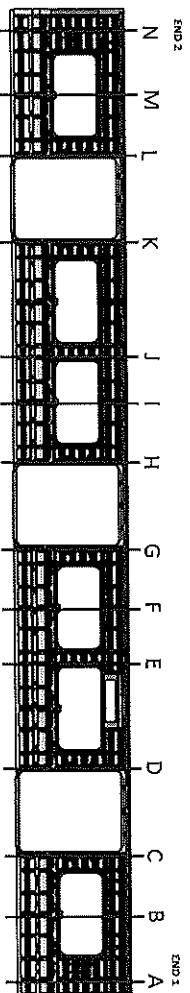
N/A



CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR302254872

Rev.	29	Project: PRASA
Date	29/10/2023	SI.CB2220.250.V29

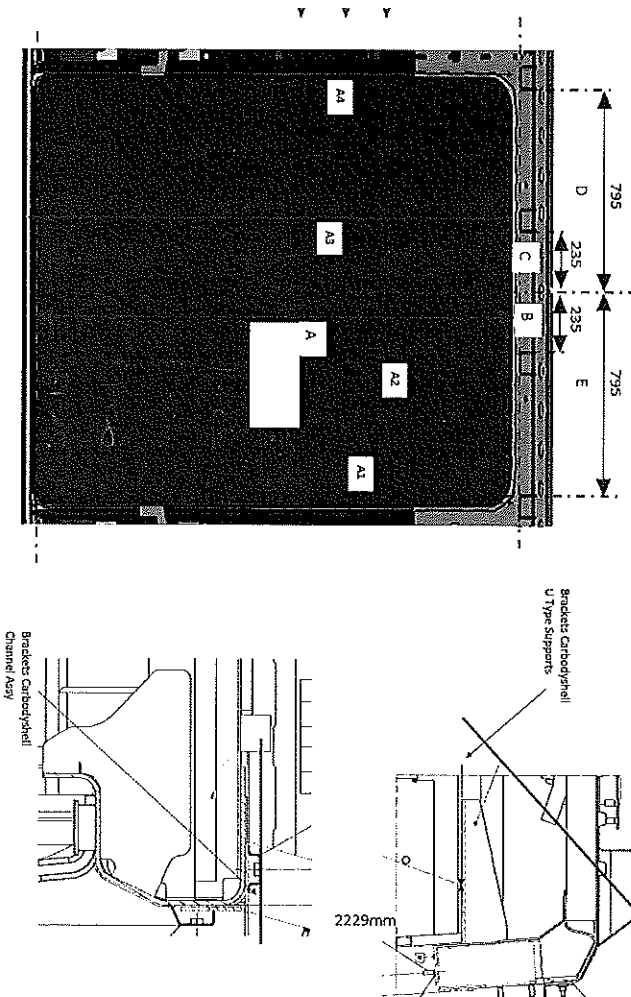
GBS measurement



AFTER WELDING

Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A 3300	3297	3	2595
B 3267	3263	4	2589
C 3297	3293	4	2589
D 3293	3296	3	2592
E 3263	3267	4	2592
F 3268	3265	3	2591
G 3295	3296	1	2593
H 3295	3295	0	2591
I 3266	3266	0	2592
J 3266	3265	1	2592
K 3295	3298	3	2593
L 3294	3297	3	2590
M 3267	3265	2	2589
N 3298	3295	3	2590

Specifications of Details for CBS measurement CB1/220



DOOR 1 - LHS

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

DOOR 2 - LHS

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

DOOR 2 - RHS

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

DOOR 1 - RHS

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

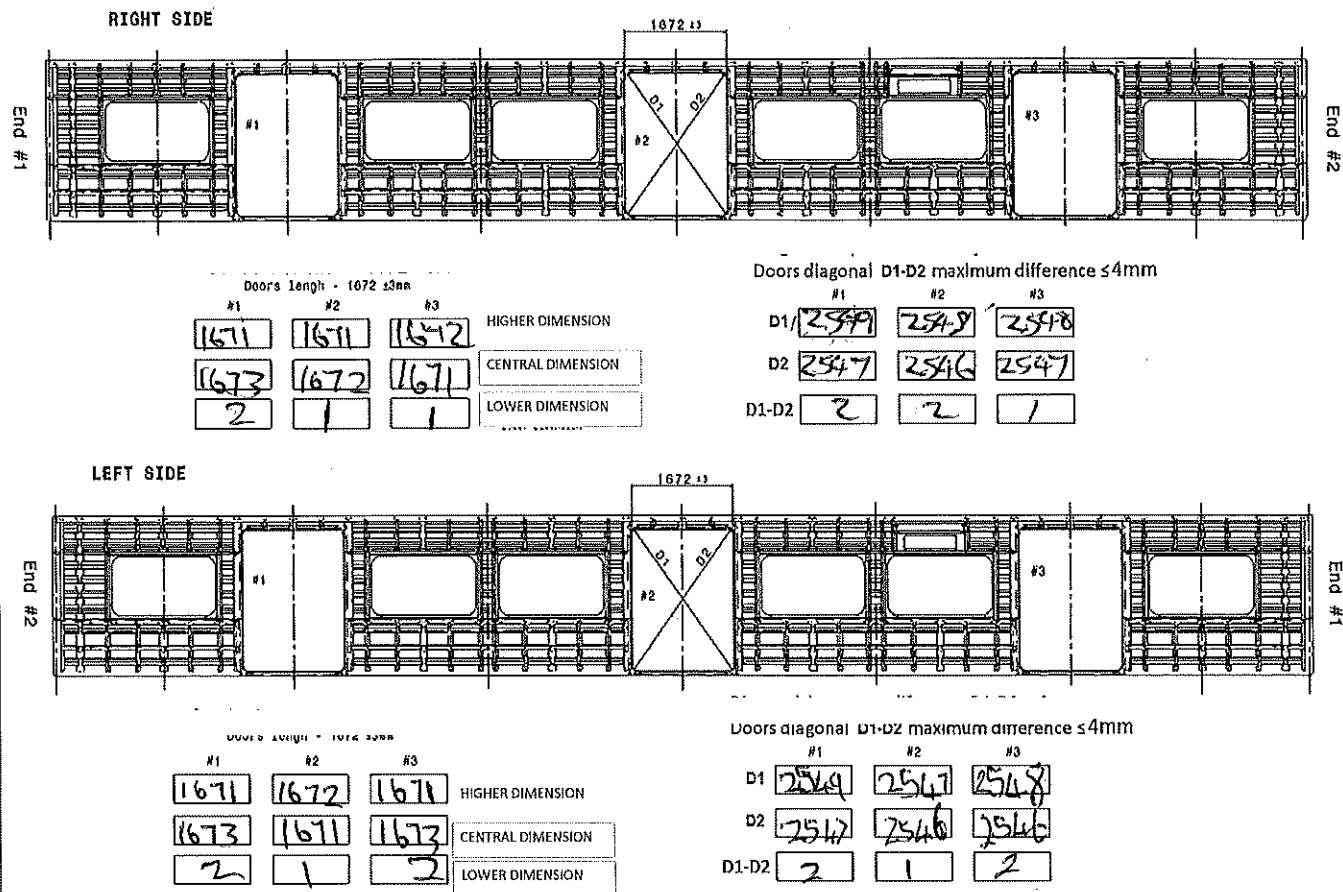
DOOR 2 - RHS

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

DOOR 3 - RHS

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

Specifications of Details for CBS measurement CB1220

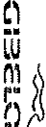


CBS measurement (Manufacturing)

Dye penetrant test

Dye-penetration tests to be performed by quality personnel

[illegible]

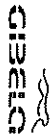
	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2	Rev.	Project: PRASA
		Date	SI.CB22220.250.V29
		28/10/2023	

Self Inspection - Final Result

Is the car good to advance to the next workstation/process? (Approval of Operations Manager and Industrial Quality)		DATE	NAME	SIGNATURE
HOLD POINT	GO	12/02/24	TeFele Operations	
		12/02/24	Amoplang Industrial Quality	
			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	Responsible	Due date	Status


Operations

Quality

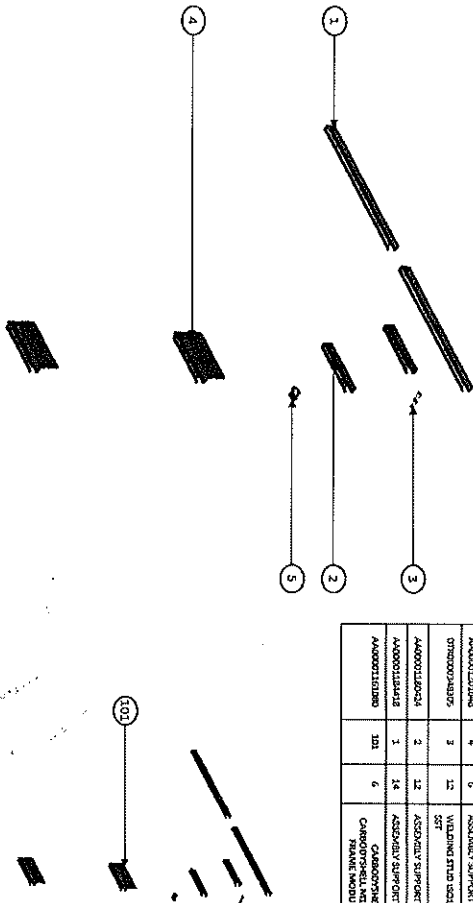
	Project: PRASA	
	Rev.	29
CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2	Date 29/10/2023	
	SI:CB2220.250.V29	

ANNEXURE A: Arc Welding Quality Acceptance Standard



Station: CB1220-004- U108 & U107

PART NO.	ITEM NO.	QTY	DESCRIPTION	AMSS (MM)
07000000000000000000	5	6	EARTH STRAP 6	0.09
AA000000000000000000	4	6	ASSOCIATE SUPPORT	0.09
07000000000000000000	3	12	WELDING STRIP 0.01018 FT - 0.0003 - 0.001	0.07
AA000000000000000000	2	12	ASSOCIATE SUPPORT	0.09
AA000000000000000000	1	14	ASSOCIATE SUPPORT	0.09
AA000000000000000000	101	6	CARBODYSHELL BEADERS CARBODYSHELL WELDING MACHINE MODEL 000-000	12.12



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	MC	ME	MS	TC2			
☐	070000223467	CARBODYSHELL M1,M2, M3 ASSEMBLY	CB2230		X	X		X	PQA.CB2230.01000002 25487.V20	YES	
☐											
☐											
☐											
REV	DATE	MODIFICATION CONTENT							RESPONSIBLE	NAME	DATE
	2018/08/02	GIBELA NEW CREATION							APPROVER	Philippe Marques	2018/08/02
									CHECKER	Nosizo Pindela	2018/08/02
									COMPILER	Nosizo Pindela	2018/08/02
									APPROVER	Izumeleng Modiba	30/5/2018
									CHECKER	Nosizo Pindela	30/5/2018
									REVISED BY	Nosizo Pindela	30/5/2018
									APPROVER	Izumeleng Modiba	2018/05/07
									CHECKER	Nosizo Pindela	2018/05/07
									REVISED BY	Ramokone Motama	2018/05/07
									APPROVER	Izumeleng Modiba	24/01/2019
									CHECKER	Nosizo Pindela	24/01/2019
									REVISED BY	Vanessa Ntuli	24/01/2019
									APPROVER	Izumeleng Modiba	13/03/2019
									CHECKER	Nosizo Pindela	13/03/2019
									REVISED BY	Nosizo Pindela	13/03/2019
									APPROVER	Izumeleng Modiba	23/08/2019
									CHECKER	Nosizo Pindela	23/08/2019
									REVISED BY	Nosizo Pindela	23/08/2019
									APPROVER	Timothy Maimela	06/08/2020
									CHECKER	Bongane Masina	06/08/2020
									REVISED BY	Bongane Masina	06/08/2020
									APPROVER	Timothy Maimela	06/08/2020
									CHECKER	Bongane Masina	06/08/2020
									REVISED BY	Bongane Masina	06/08/2020
									APPROVER	Collins Mkhombhi	19/04/2021
									CHECKER	Bongane Masina	19/04/2021
									REVISED BY	Bongane Masina	19/04/2021
									APPROVER	Collins Mkhombhi	19/04/2021
									CHECKER	Andani Muthelo	20/02/2022
									REVISED BY	Andani Muthelo	20/02/2022
									APPROVER	Collins Mkhombhi	14/06/2022
									CHECKER	Andani Muthelo	14/06/2022
									REVISED BY	Andani Muthelo	14/06/2022
									APPROVER	Collins Mkhombhi	14/06/2022
									CHECKER	Andani Muthelo	26/07/2022
									REVISED BY	Andani Muthelo	26/07/2022
									APPROVER	Collins Mkhombhi	17/10/2022
									CHECKER	Ntokoza Zwane	17/10/2022
									REVISED BY	Amogelang Mofhampe	17/10/2022
									APPROVER	Vanessa Ntuli	14/04/2023
									CHECKER	Ntokoza Zwane	14/04/2023
									REVISED BY	Amogelang Mofhampe	14/04/2023
									APPROVER	Nyobeni Tyson	08/11/2023
									CHECKER	Andani Muthelo	08/11/2023
									REVISED BY	Ntokoza Zwane	08/11/2023
TRAINSET	CAR	OPERATOR NAME	AUS NO	DATE	SELF INSPECTION NUMBER					PAGES	
20	M03	Bwile	426965	13/10/2024	SI.CB2230.256.V29					12	



CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000225487

Rev. 30
Date 06/11/2023
Project: PRASA
SI.CB2230.256.V29

Car:

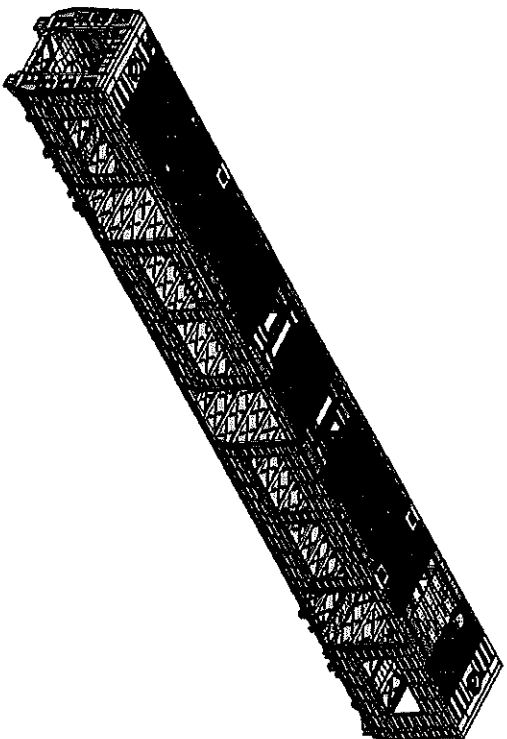
NCR:

Work station:

CB2230



Safety Related



1 - Documentation and Instruments Control

1.1 - Documentation Control

Document	Type of car				Revision	Observation	OK	NOK	Review	Signature/Date (Operations)	Signature/Date (Quality)
	M1	M2	M3	M4							
PRA.CB2230.DT00000225487		X			30		✓		N/A	13/02/24	13/02/24

1.2 - Instruments Control

Monitoring and Measuring Instrument Control - Used for Special Process

Instruments	Serial number	Calibration or Verification Validation Date	OK	NOK	Signature/Date (Operations)	Signature/Date (Quality)
Combination Square	GIBCO40	26/06/2024	✓		13/02/24	13/02/24
Tubulor	22113/1	28/11/2024	✓		13/02/24	13/02/24
Micasuring Tape	GIBCO207	23/02/2024	✓		13/02/24	13/02/24
Steel Rule	GIBCO40	14/09/2024	✓		13/02/24	13/02/24

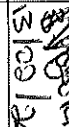
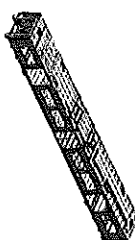
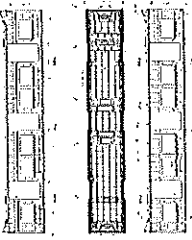
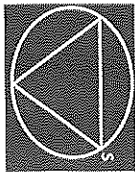
1.3 Consumables

Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK	NOK	Signature/Date (Manufacturing)	Signature/Date (Quality)
308 LSi	314018	Mig Welding	✓		13/02/24	13/02/24

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

II - Self Inspection - Items to Check

II.1 - Items to check									
Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	NOX	Remarks	Signature/Date (Operators)	Signature/Date (Quality)	
01	N/A	Assembly according to Instruction Engineering n° PRA.CB1230.DT00000225487 Verification of fitment for all brackets.	PRA.CB1230.DT00000225487	✓			 13/02/24	 13/02/24	
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	✓			 13/02/24	 13/02/24	
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓			 13/02/24	 13/02/24	
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓			 13/02/24	 13/02/24	
05		Functional dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	✓			 13/02/24	 13/02/24	
06		Perform visual inspection of welds in 100% of the project. Run by penetrant testing in electric arc welding (weld ring) as IND-SAL-WMS-018. Run by penetrant testing welds (weld ring) and filler sampling as described in DTD0000210658.	As the welding procedure IND-SAL-WMS-018 and DTD0000210658.	✓			 13/02/24	 13/02/24	
07	N/A	Before application of sealant record the expiry date and make sure that the room temperature and humidity are within specified values as per Works Instructions Specified: Temperature Min - Max (1) Min-Max 10°C - 35°C Relative Humidity Min - Max (1) 25% - 80%	Sealant Batch No: <u>30061437</u> Exp Date: <u>15/12/24</u> Actuals Temperature: <u>30°C</u> Humidity: <u>49%</u>	✓			 13/02/24	 13/02/24	
08	N/A	Verification of sealant application on the roof and sidewall finishers.	Sealant must be: -Applied straight and even -Free of gaps, cracks, damage and debris (flashes, dirt, dust) Refer to Annexure B	✓			 13/02/24	 13/02/24	
09	N/A	Verification of sealant application in certain regions in the drawing.	AAD0001278566	✓			 13/02/24	 13/02/24	



CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000225487

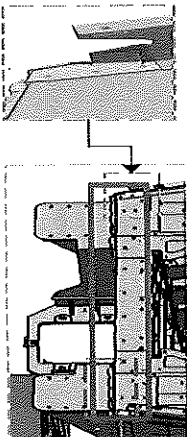
Rev.	30
Date	06/11/2023

Project: PRASA
SI.CB2230.256.V29

II - Self Inspection - Items to Check

END 2 SEALANT

AREA 1



OPERATOR
(Name & sign):

Baltunelo

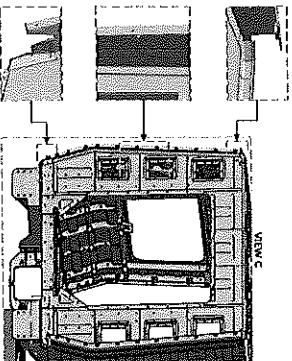
OPERATOR
(Name & sign):

Baltunelo Bloce

OPERATOR
(Name & sign):

Baltunelo Bloce

AREA 2 (VIEW G)



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

LHS
F

RHS
F

Operator (Name & sign):

Lussy

Lussy

Operator (Name & sign):

Isheeno

Isheeno

Operator (Name & sign):

D.E.G.H.I

D.E.G.H.I

Operator (Name & sign):

Leraldo

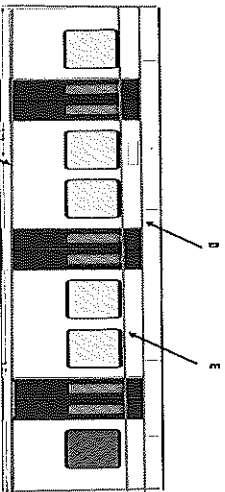
Leraldo

Operator (Name & sign):

NHlanhla

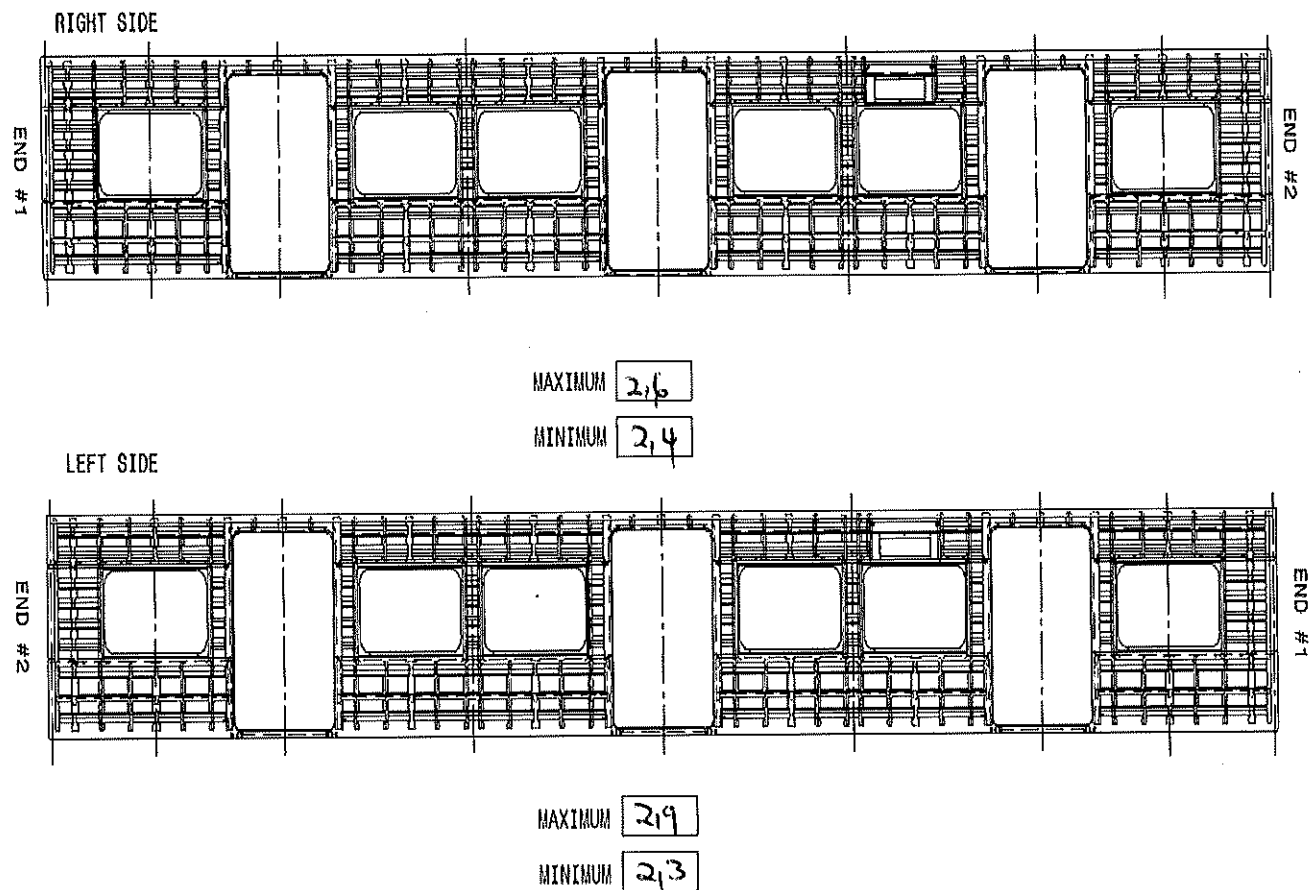
NHlanhla

H



Specifications of Details for CBS measurement CB1230

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.





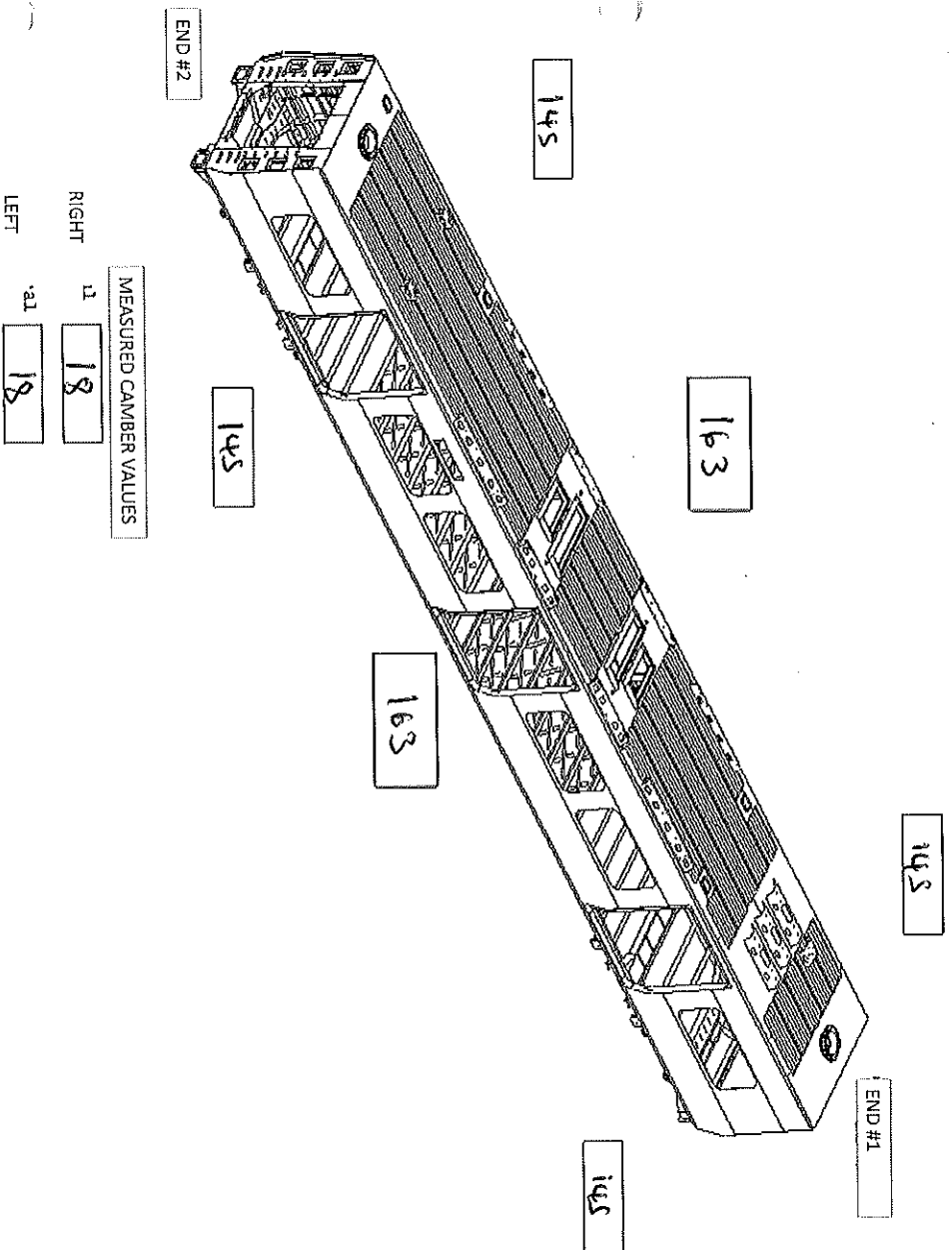
CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000225487

Rev.
30
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SI.CB2230.256.V29

Specifications of Details for CBS measurement CB1230

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





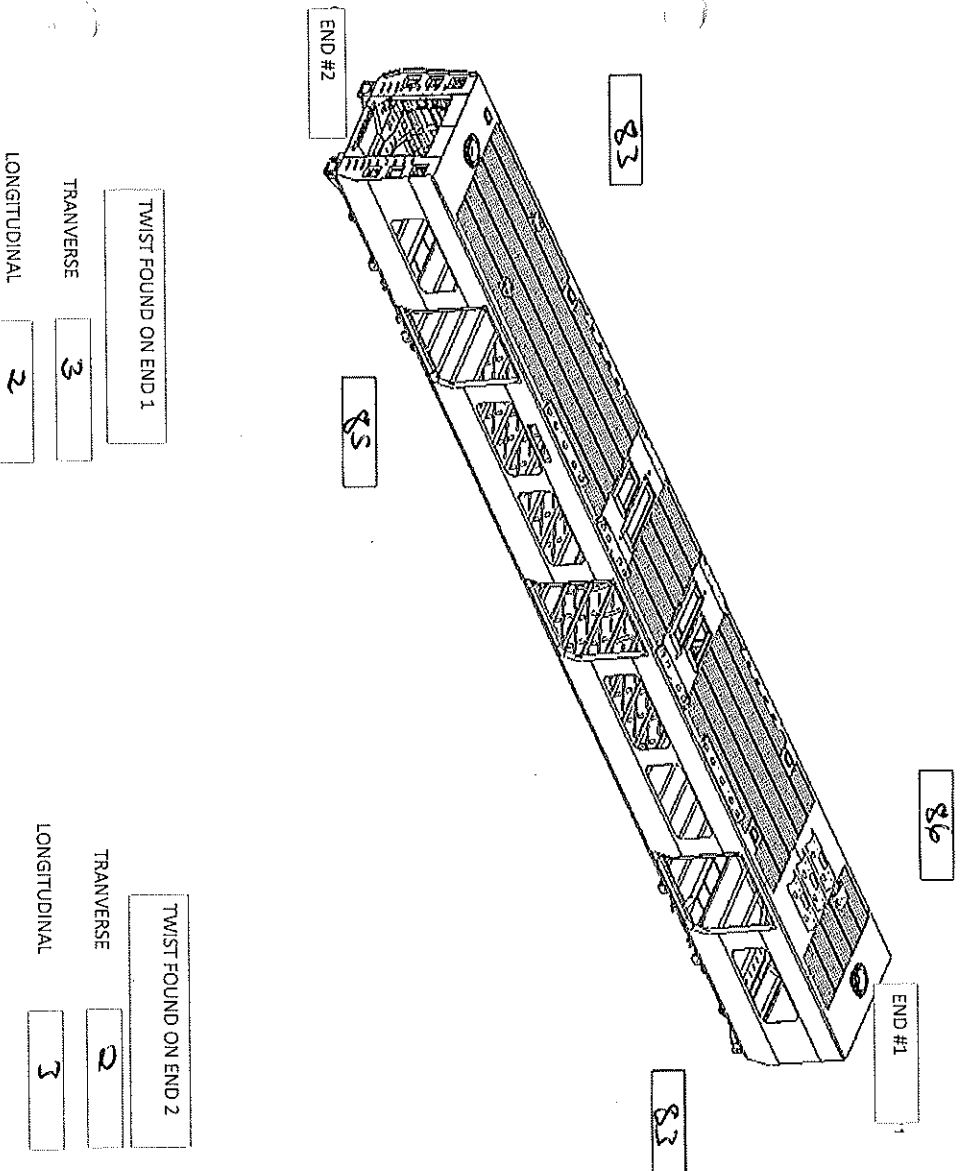
CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000225487

Rev.	Date
30	06/11/2023

Project: PRASA
SI.CB2230.256.V29

Specifications of Details for CBS measurement CB1230

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



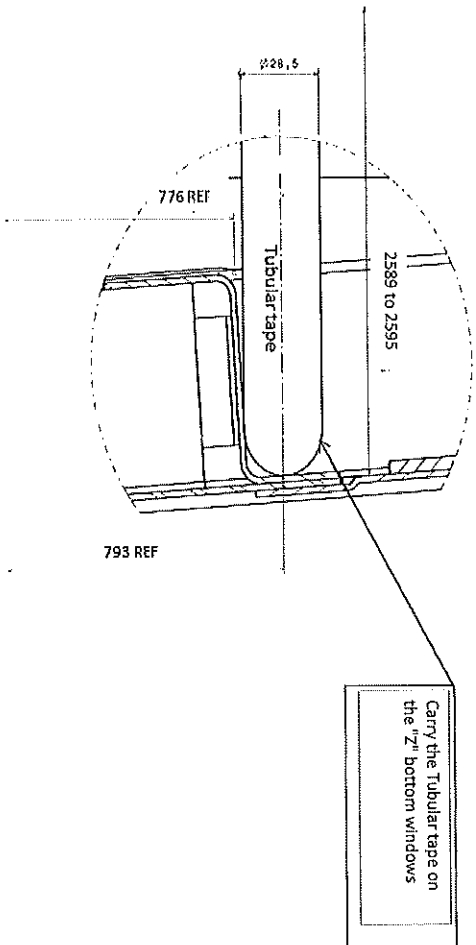


CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000225487

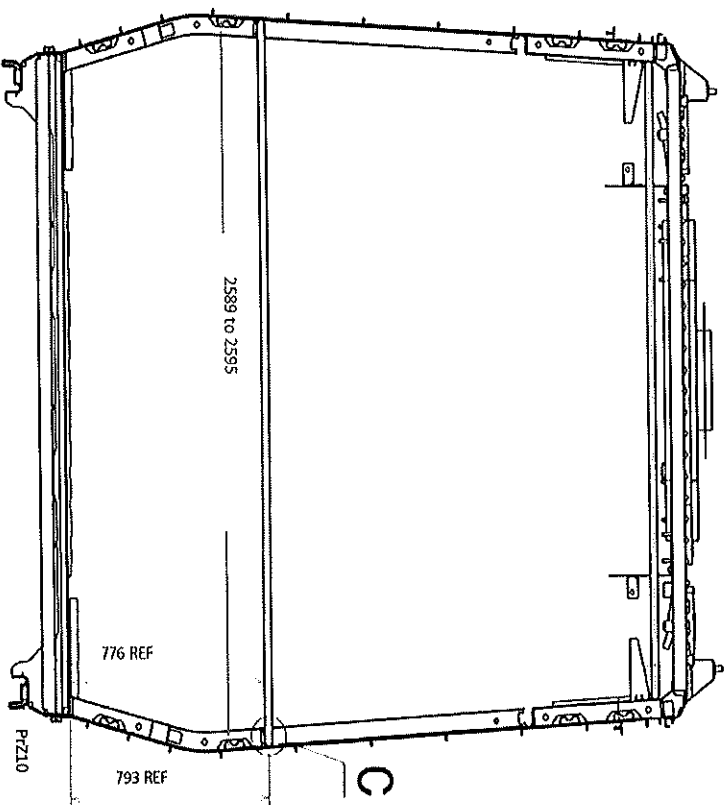
Rev.
30
Date
08/11/2023

Project: PRASA
SI.CB2230.256.V29

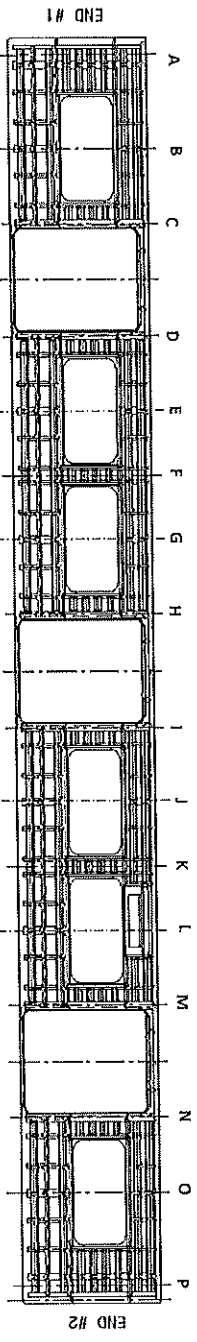
Specifications of Details for CBS measurement CB1230



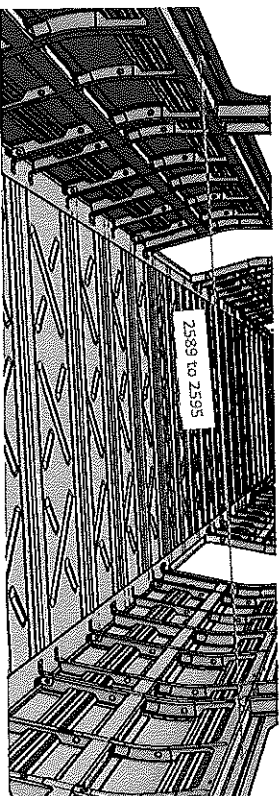
Detail C



Specifications of Details for CBS measurement CB1230



A	2596
B	2592
C	2594
D	2594
E	2592
F	2593
G	2598
H	2594
I	2592
J	2594
K	2594
L	2591
M	2596
N	2594
O	2591
P	2595



Threshold verification

	Door 1	Door 2	Nominal value :38	Door 3
L	38	38	39	39
R	38	38	39	39
L	38	38	39	39
R	38	38	39	39
L	38	38	39	39
R	38	38	39	39

BOILER MAKER: Burle

WELDER: Winkelapelo

Dye penetrant test

Dye-penetration test to be performed by quality personnel



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

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	13/02/24	Bunke Operations	
		13/02/24	Richmweil Industrial Quality	
	NO GO		Operations	
If "NO GO", describe blocking problems There are non-conformities impact the quality of the product and there is no corrective action defined yet			Industrial Quality	

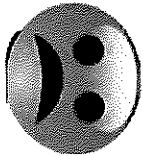
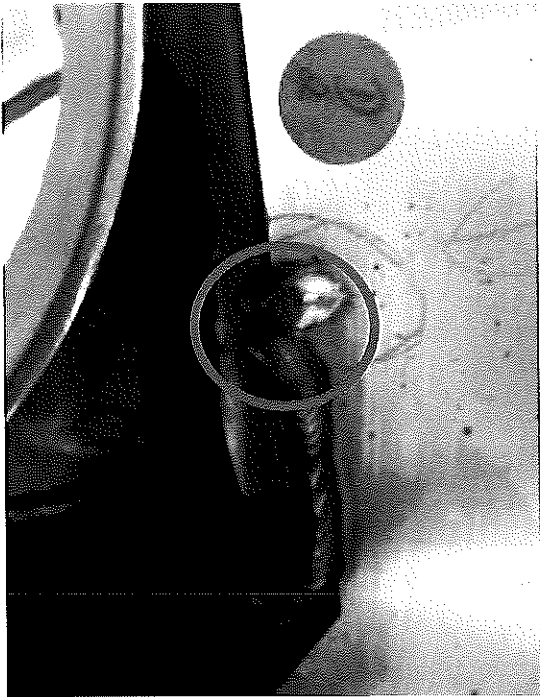
In case of "NO GO", the operations manager must define below action plan to ensure "GO":				
Item	Description	Responsible	Due date	Status

Operations

Quality

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

ANNEXURE A: Arc Welding Quality Acceptance Standard



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

ANNEXURE B: Sealant

