PRASA PROJECT

GIBELA

APPLICABLE FROM TRAINSET 190+ AS PER BASELINE 10.4

SELF INSPECTION SHEET

APPLICATION REFERENCE

MOUNTING	DRAWING	DESCRIPTION	STATION	CAR TYPE TC1	M4	M1	M2	M3	TC2	WORK INSTRUCTION	SAFETY?
☐ DTR30225487/3	AAD000127B566	CARBODYSHELL M3,M4 ASSEMBLY	CB2210		X			X		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 Mathegu	10/01/2018
1	2018/05/18	Team leader and Quality Technician to sign Change final signature from PME Manager to Quality manager	APPROVER	Itumeleng Modiba	2018/05/18
			CHECKER	Nosizo Pindela	2018/05/18
			REVISED BY	Ramokone Motama	2018/05/18
2	2018/07/04	Certain dimensional checks moved to CB1220 and CB1230	APPROVER	Itumeleng Modiba	2018/07/04
			CHECKER	Nosizo Pindela	2018/07/04
			REVISED BY	Ramokone Motama	2018/07/04
3	2018/12/12	Added dimensional check points to CB2210	APPROVER	Itumeleng Modiba	2018/12/12
			CHECKER	Nosizo Pindela	2018/12/12
			REVISED BY	Ramokone Motama	2018/12/12
5	22/01/2019	As per Baseline 10.2	APPROVER	Itumeleng Modiba	22/01/2019
			CHECKER	Nosizo Pindela	22/01/2019
			REVISED BY	Vanessa Ntuli	22/01/2019
6	13/03/2019	Added D1 and D2 on Self - Inspection	APPROVER	Itumeleng Modiba	13/03/2019
			CHECKER	Nosizo Pindela	13/03/2019
			REVISED BY	Nosizo Pindela	13/03/2019
10	21/08/2019	New Baseline 10.2.5	APPROVER	Itumeleng Modiba	21/08/2019
			CHECKER	Nosizo Pindela	21/08/2019
			REVISED BY	Nosizo Pindela	21/08/2019
15	06/08/2020	New Baseline 10.2.6	APPROVER	Timothy Maimela	06/08/2020
			CHECKER	Bongane Masina	
			REVISED BY	Bongane Masina	
20	19/04/2021	New Baseline change 10.3	APPROVER	Timothy Maimela	19/04/2021
			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	19/02/2022	New Baseline change 10.3.1	APPROVER	Mbhombi collins	19/02/2022
			CHECKER	Andani Muthelo	
			REVISED BY	Andani Muthelo	
26	14/04/2023	Addition of welding consumable traceability	APPROVER	Ntuli Vanessa	14/04/2023
			CHECKER	Mohlampe Amogelang	
			REVISED BY	Mohlampe Amogelang	
30	20/07/2023	New Baseline change 10.4	APPROVER	Ngobeni Tyson	28/07/2023
			CHECKER	Mohlampe Amogelang	
			REVISED BY	Mohlampe Amogelang	
31	07/11/2023	Added traceability for welding sections	APPROVER	Ngobeni Tyson	07/11/2023
			CHECKER	Mohlampe Amogelang	
			REVISED BY	Ntokozo Zwane	

TRAINSET	CAR	OPERATOR NAME& ALPS NO	DATE	SELF INSPECTION NUMBER	PAGES
215	M4	LUNGA 471497	27/02/24	SI.CB2210.254.V30	17

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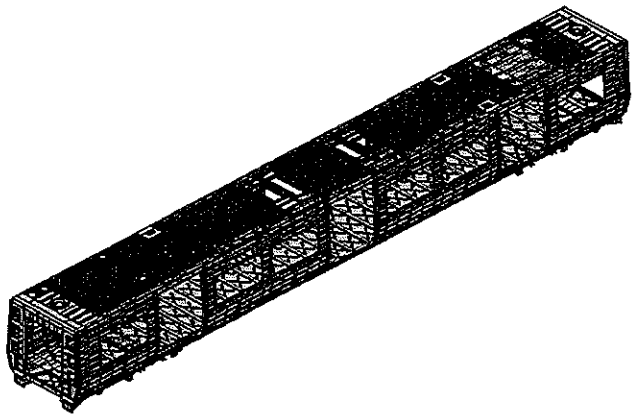
Car: M3 & M4	NCR:	Work station: CB2210

Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	Type of car						Revision	Observation	OK			Signature/Date (Manufacturing)	Signature/Date (Quality)
	TC1	M1	M2	M3	M4	TC2							
DTR30225487/3					✓				✓				

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)
TYBULAR	22713	04/10/23	✓		27/02/24	
30M TAPE	GIBTP0082	23/03/31	✓		27/02/24	
LASER TAPE	1254759Z4	08/01/24	✓		27/02/24	

I.3 Consumables

Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
AUTROD 308LSi	IE221880	MIG	✓		27/02/24	
ER309 LSi	318394	MIG	✓		27/02/24	

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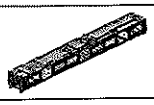
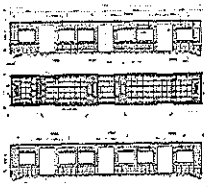
II - Self Inspection - Items to Check

II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK			Signature/Date (Manufacturing)	Signature/Date (Quality)
01	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	✓			27/02/24	27/02/24
02	REFER TO ANNEXURE A	Spot welding inspected and approved according to procedure	**IND-SAL-WMS-016 e DTD0000210675**	✓			27/02/24	27/02/24
03	REFER TO ANNEXURE B	Arc welding inspected and approved according to procedure	**IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000**	✓			27/02/24	27/02/24
04		Cleaning of all Stainless Steel Surface	**According TO GIB-WEL - PROC-0002**	✓			27/02/24	27/02/24
05		Functionals dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document	Approved according specified on pages below.	✓			27/02/24	27/02/24
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 DTD0000210658.	As the welding procedure IND-SAL-WMS-018 and DTD0000210658.	✓			27/02/24	27/02/24

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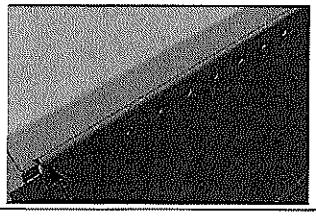
Welding Traceability

Roof ring welds



END 1

LHS

Boiler maker (Name & Sign): _____ Welder (Name & Sign): _____

RHS

Boiler maker (Name & Sign): _____ Welder (Name & Sign): _____

END 2

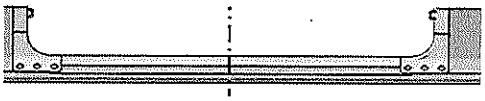
LHS

Boiler maker (Name & Sign): _____ Welder (Name & Sign): _____

RHS

Boiler maker (Name & Sign): _____ Welder (Name & Sign): _____

Door ring welds



LHS

Boiler maker (Name & Sign): _____

Welder (Name & Sign): _____

RHS

Boiler maker (Name & Sign): _____

Welder (Name & Sign): _____

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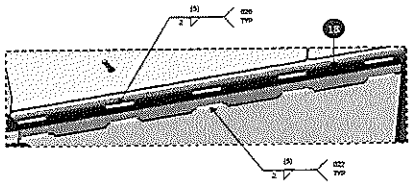
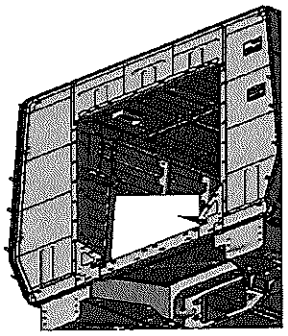
EUF Reinforcement Plates

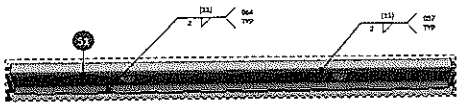




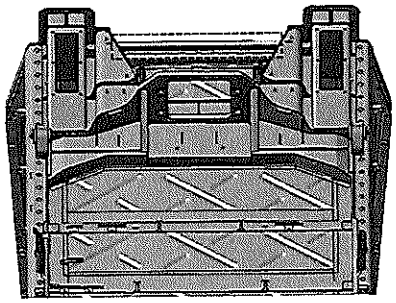
END 1

Boiler maker (Name & Sign):

Welder (Name & Sign):



END 2

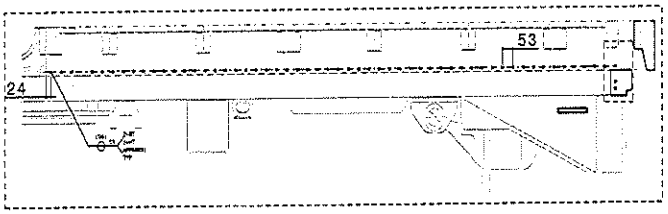


Underneath the CAR

END 2

Boiler maker (Name & Sign): JUSTICE

Welder (Name & Sign): Thabang

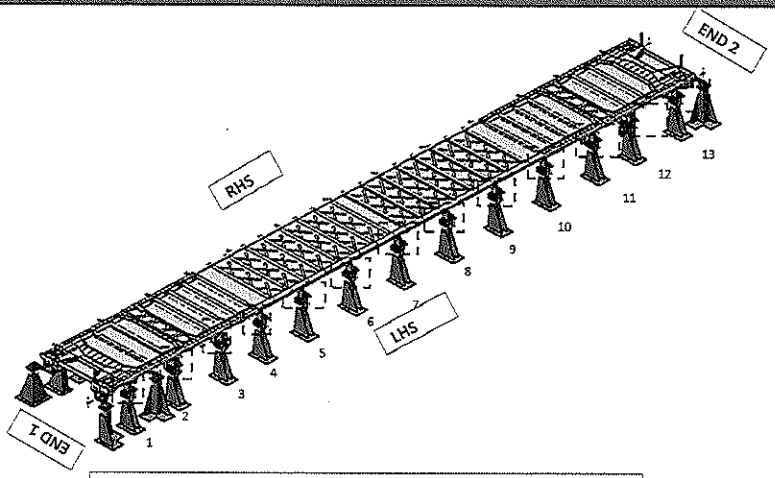


FEDOLI

Operator: SIPHOKAZI

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

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 foundon 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						NA							
Right Hand Side													

Signature Operations: Date: 27/02/24

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							NA						
Right Hand Side													

Signature Industrial Quality: Date: 27/02/24

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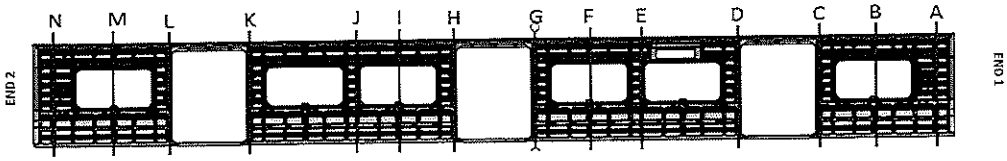
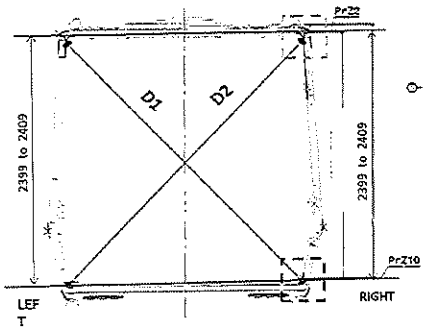
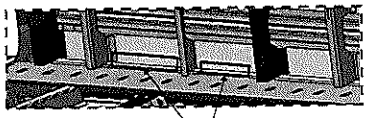
Specifications of Details for CBS measurement

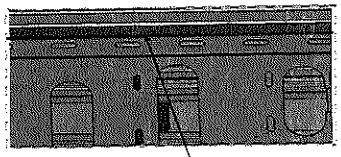




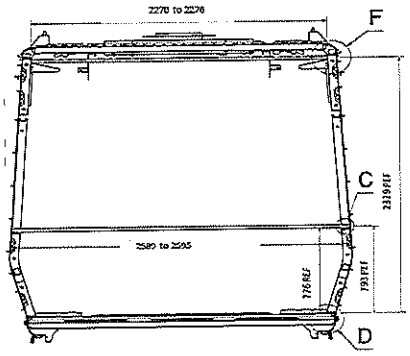
Measurement positions on roof rail and sidewall omega corner.

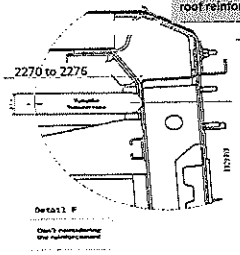


Measurement positions on sidewall and side sill corner.



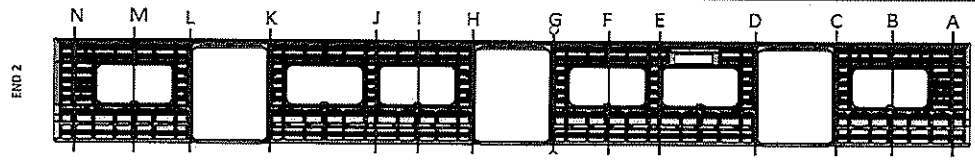
Reinforcement area measurement positions on roof reinforcement area.





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

Specifications of Details for CBS measurement



PME 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	3270	3270	0	2408	2407	1
B	3264	3267	3	2406	2406	0
C	3270	3268	2	2405	2406	1
D	3268	3271	3	2407	2405	2
E	3266	3266	0	2404	2406	2
F	3265	3266	1	2406	2405	1
G	3269	3269	0	2404	2404	0
H	3270	3268	2	2406	2405	1
I	3264	3265	1	2405	2404	1
J	3266	3265	1	2407	2406	1
K	3268	3266	2	2406	2406	0
L	3269	3269	0	2407	2406	1
M	3268	3271	3	2405	2405	0
N	3269	3267	2	2405	2407	1

27/02/24

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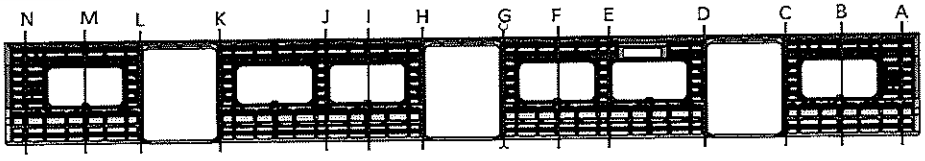
Specifications of Details for CBS measurement



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	3295	1	2406	2408	2
B	3265	3267	2	2405	2405	0
C	3296	3294	2	2404	2406	2
D	3295	3295	0	2405	2406	1
E	3266	3266	0	2407	2405	2
F	3264	3265	1	2404	2404	0
G	3295	3294	1	2406	2404	2
H	3296	3296	0	2403	2404	1
I	3264	3266	2	2405	2406	1
J	3266	3265	1	2406	2404	2
K	3294	3295	1	2405	2404	1
L	3296	3295	1	2406	2407	1
M	3268	3264	4	2406	2408	2
N	3295	3296	1	2409	2407	2

27/02/24

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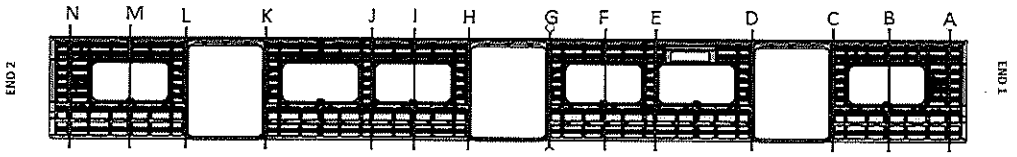
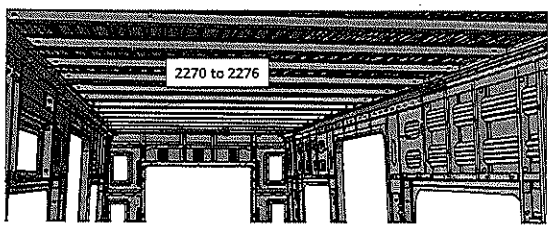
CBS measurement

BEFORE WELDING

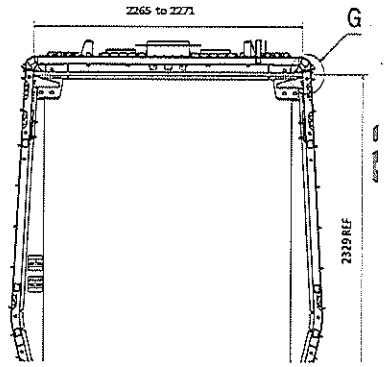


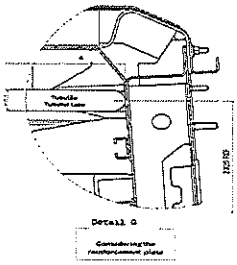


Do not consider reinforcement (Take measurements top area of zee profile

2270 to 2276

A	2271
B	2275
C	2276
D	2272
E	2277
F	2275
G	2274
H	2273
I	2276
J	2276
K	2274
L	2273
M	2275
N	2271





2265 to 2271

10/9
23/02/24

GIBELA	CARBODYSHELL M3,M4 ASSEMBLY DTR302254487/3	Rev. 31	Project: PRASA SI.CB2210.254.V30
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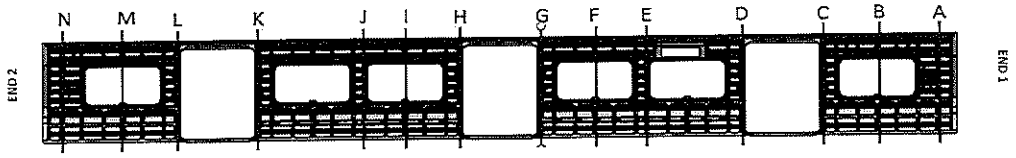
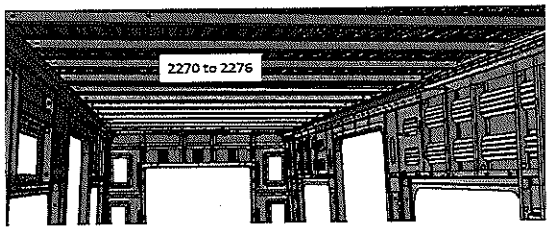
CBS measurement

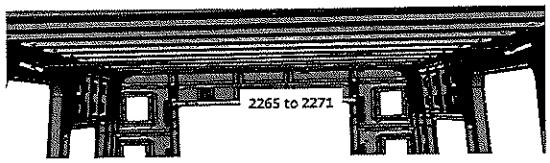
AFTER WELDING



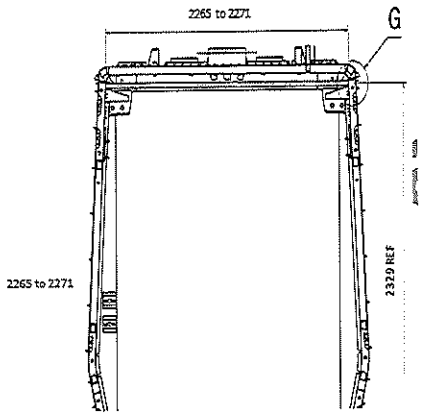
	2265 to 2271	2270 to 2276
A	2268	
B		2273
C	2265	
D	2269	
E		2276
F		2275
G	2268	
H	2270	
I		2274
J		2276
K	2269	
L	2268	
M		2274
N	2266	



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

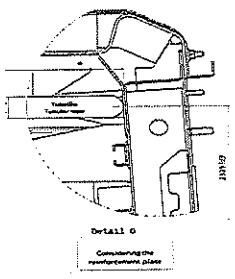


Take measurement close to radius (considering reinforcement)



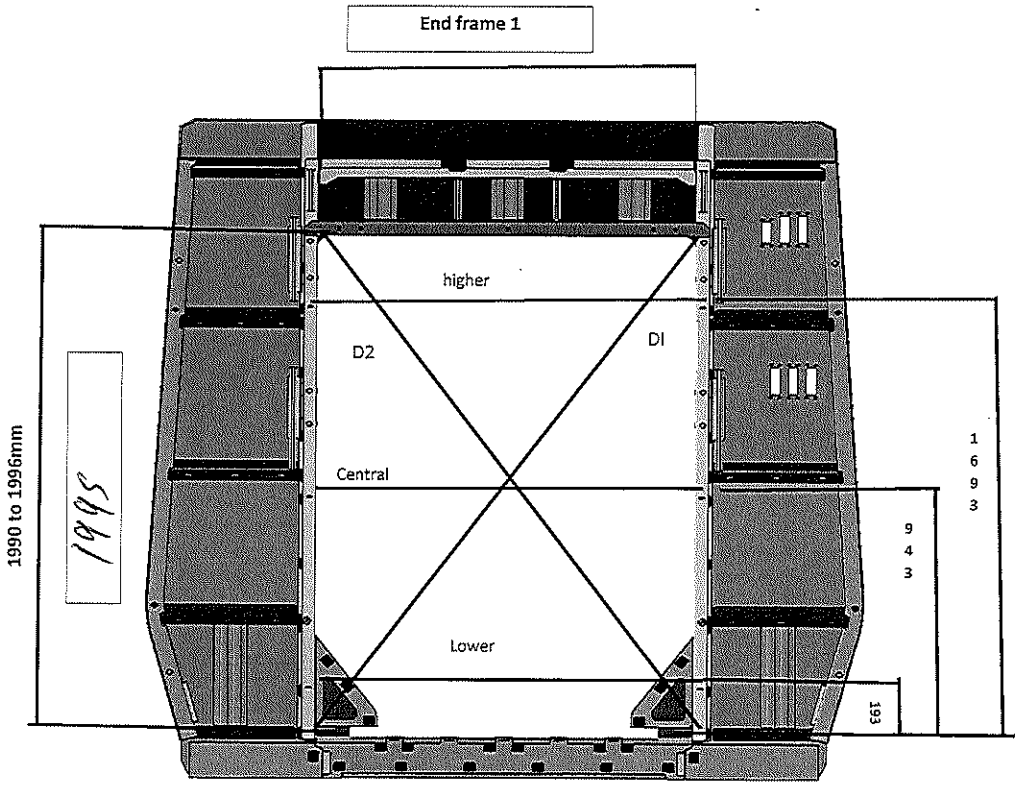
27/02/24

2265 to 2271



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

Specifications of Details for CBS measurement



1380 to 1382 mm

DIAGONAL DIFFERENCE **D1-D2** ≤ 3mm

Higher Dimension	1382	D1	2412
Central Dimension	1381	D2	2413
Lower Dimension	1381	D1-D2	1

21/02/24

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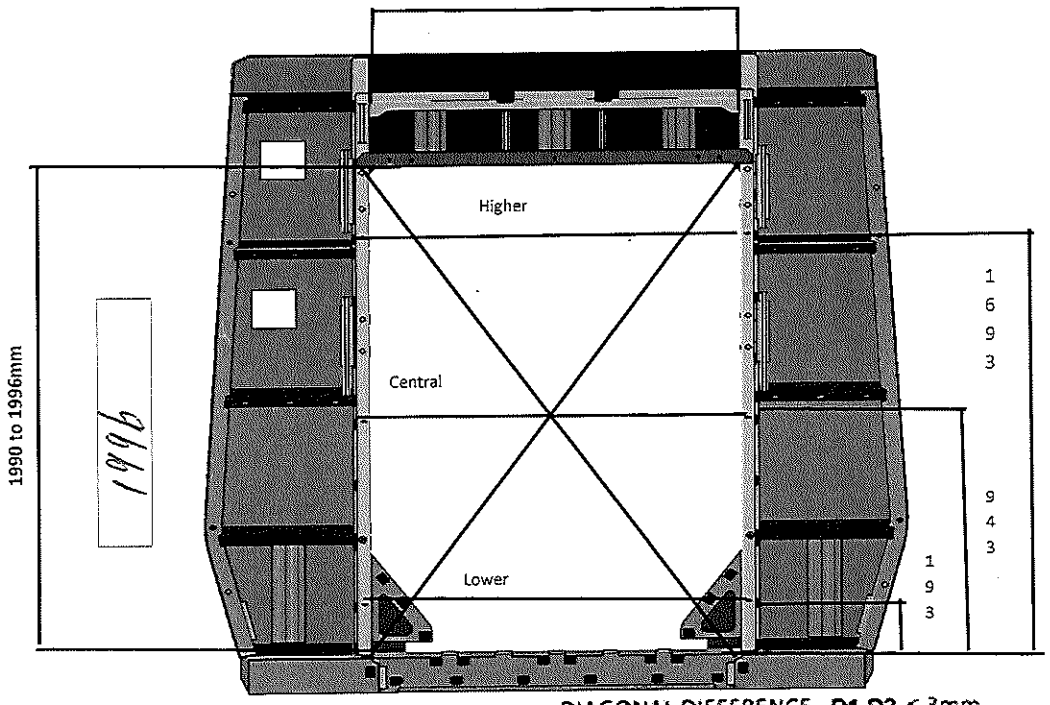
Specifications of Details for CBS measurement

Endframe 2

1380 to 1382 mm



1380 to 1382 mm

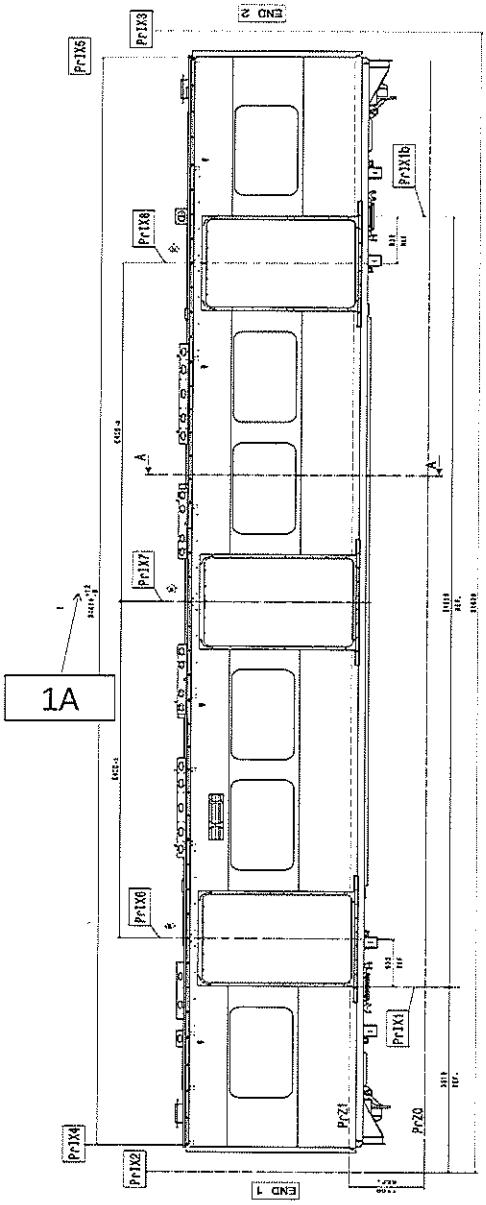
DIAGONAL DIFFERENCE **D1-D2** ≤ 3mm

Higher Dimension	1382	D1	2415
Central Dimension	1382	D2	2413
Lower Dimension	1381	D1-D2	2

27/02/24

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

Specifications of Details for CBS measurement



	LEFT SIDE	
	SPECIFICATION SIZE	ACTUAL SIZE
1A	20632 - 20614	20615

	RIGHT SIDE	
	SPECIFICATION SIZE	ACTUAL SIZE
1A	20632 - 20614	20616

Dye penetrant test

Dye-penetration test to be performed by quality personnel

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

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					

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

Self Inspection – Final Result

				DATE	NAME	SIGNATURE
HOLD POINT		GO	(If activities are not complete, the missing activities must not impact the next stage)	27/02/24	Operations	
			Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	27/02/24	Richmond 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":

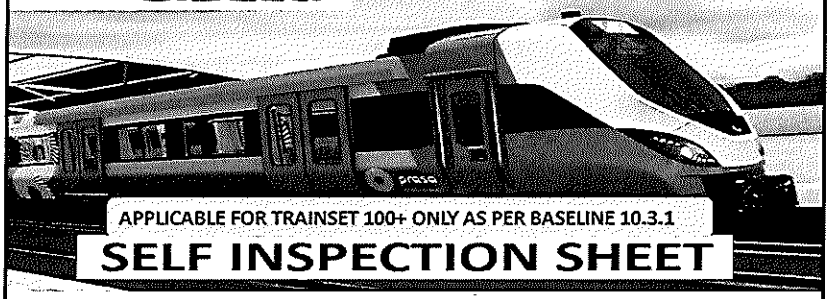
Item	Description		Responsible	Due date	Status

Operations

Quality

PRASA PROJECT

GIBELA



APPLICABLE FOR TRAINSET 100+ ONLY AS PER BASELINE 10.3.1

SELF INSPECTION SHEET

APPLICATION REFERENCE

	MOUNTING	DRAWING	DESCRIPTION	STATION	CAR TYPE TC1	M4	M1	M2	M3	TC2	WORK INSTRUCTION	SAFETY?
☐	DTR3022548 7/2	AA00001278566	CARBODYSHELL M3,M3,M4 ASSEMBLY	CB2220		X	X		X		PRA.CB2220.DTR3022548 7/2.V21	YES
☐												
☐												
☐												
☐												
☐												
☐												

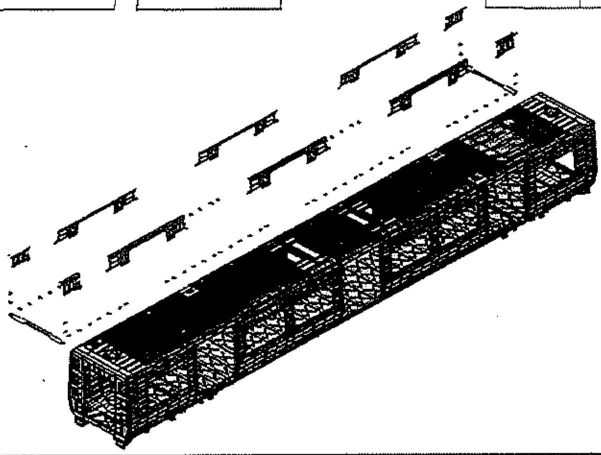
REV	DATE	MODIFICATION CONTENT	RESPONSIBLE	NAME	DATE
0	01/02/2018	GIBELA NEW CREATION	APPROVER	Itumeleng Modiba	01/02/2018
			CHECKER	Nosizo Pindela	01/02/2018
			COMPILER	Thanyani Mathegu	01/02/2018
1	18/05/2018	Team leader and Quality Technician to sign Change final signature from PME Manager to Quality manager	APPROVER	Itumeleng Modiba	18/05/2018
			CHECKER	Nosizo Pindela	18/05/2018
			REVISED BY	Ramokone Motama	18/05/2018
2	2018/07/05	Certain dimensional checks added and others moved to CB1210	APPROVER	Itumeleng Modiba	2018/07/05
			CHECKER	Nosizo Pindela	2018/07/05
			REVISED BY	Ramokone Motama	2018/07/05
3	2018/06/12	Width tolerance as per DT0000336600	APPROVER	Itumeleng Modiba	2018/06/12
			CHECKER	Nosizo Pindela	2018/06/12
			REVISED BY	Nosizo Pindela	2018/06/12
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 D1 and D2 on Self - Inspection Remove length measurements	APPROVER	Itumeleng Modiba	13/03/2019
			CHECKER	Nosizo Pindela	13/03/2019
			REVISED BY	Nosizo Pindela	13/03/2019
10	22/08/2019	New Baseline 10.2.5	APPROVER	Itumeleng Modiba	22/08/2019
			CHECKER	Nosizo Pindela	22/08/2019
			REVISED BY	Nosizo Pindela	22/08/2019
15	06/08/2020	New Baseline 10.2.6	APPROVER	Timothy Maimela	06/08/2020
			CHECKER	Bongane Masina	06/08/2020
			REVISED BY	Bongane Masina	06/08/2020
20	19/04/2021	New Baseline change 10.3	APPROVER	Timothy Maimela	19/04/2021
			CHECKER	Bongane Masina	
			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	20/02/2022	New Baseline change 10.3.1	APPROVER	Collins Mbhombhi	19/02/2022
			CHECKER	Andani Muthelo	
			REVISED BY	Andani Muthelo	
26	14/06/2022	Update minimum temperature requirement for sealant application	APPROVER	Collins Mbhombhi	14/06/2022
			CHECKER	Andani Muthelo	
			REVISED BY	Andani Muthelo	
27	19/10/2022	Addition of traceability for sealant application & welding	APPROVER	Collins Mbhombhi	19/10/2022
			CHECKER	Ntokozo Zwane	
			REVISED BY	Amogelang Mohlampe	
28	14/04/2023	Added sealant batch number & welding consumables traceability	APPROVER	Vanessa Ntuli	14/04/2023
			CHECKER	Ntokozo Zwane	
			REVISED BY	Amogelang Mohlampe	
29	28/10/2023	Addition of bracket quantity	APPROVER	Ngobeni Tyson	28/10/2023
			CHECKER	Ntokozo Zwane	
			REVISED BY	Amogelang Mohlampe	

TRAINSET	CAR	OPERATOR NAME& ALPS NO	DATE	SELF INSPECTION NUMBER	PAGES
215	M4	Priscilla 41057	28/02/24	SI.CB2220.250.V29	13

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

Car: M1,M3&M4 | NCR: | Work station: CB2220

Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	TC1	M1	M2	M3	M4	TC2	Revision	Observation	OK			Signature/Date (Manufacturing)	Signature/Date (Quality)
DTR30225487/2					✓		29		✓		N/A	28/02/24	28/02/2024

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	22713	2023/08/03-2024/08/03	✓		28/02/24	28/02/24
measuring tape	G11B19039	2023/04/05-2024/04/05	✓		28/02/24	28/02/24

1.3 Consumables

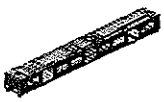
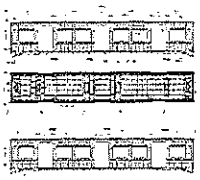
Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK		Signature/Date (Manufacturing)	Signature/Date (Quality)
308 LSi	E231067	mig welding	✓		28/02/24	28/02/24

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

II - Self Inspection - Items to Check

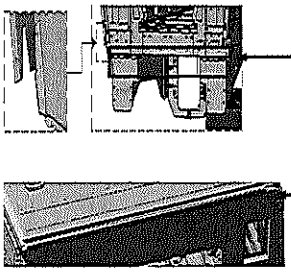
II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK			Signature/Date (Manufacturing)	Signature/Date (Quality)
01	N/A	Assembly according to Instruction Engineering n° PRA.CB2220.DTR30225487/2 Verification of fitment for all reinforcement brackets.	PRA.CB2220.DTR30225487/2	✓			28/02/24	28/02/2024
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	✓			28/02/24	28/02/24
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	**IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000**	✓			28/02/24	28/02/24
04		Cleaning of all Stainless Steel Surface	**According TO GIB-WEL - PROC-0002**	✓			28/02/24	28/02/24
05		Functionals dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	✓			28/02/24	28/02/24
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 fillet sampling as described in DTD0000210658.	As the welding procedure IND-SAL-WMS-018 and DTD0000210658.	✓			28/02/24	28/02/24
07	N/A	Before application of sealant record the expiry date and make sure that the room temperature and humidity are withion specified values as per Works Instructions Specified: Temperature Min - Max (T) Min-Max 10°C - 35°C Relative humidity Min – Max (T) Min-Max 25% - 80%	Sealant Batch No: FA2324850 Exp Date: ___ / 03 / 24 Actuals Temperature: 20.2°C Humidity: 67%	✓			28/02/24	28/02/24
08	NA	Verification of sealant application in certain regions in the drawing.	AAD0001278566	✓			28/02/24	28/02/24
09		Verfication of safety welds	Approved according to DTD000210658 reference and Self inspection	✓			28/02/24	28/02/24

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

II - Self Inspection - Items to Check

SEALANT APPLICATION



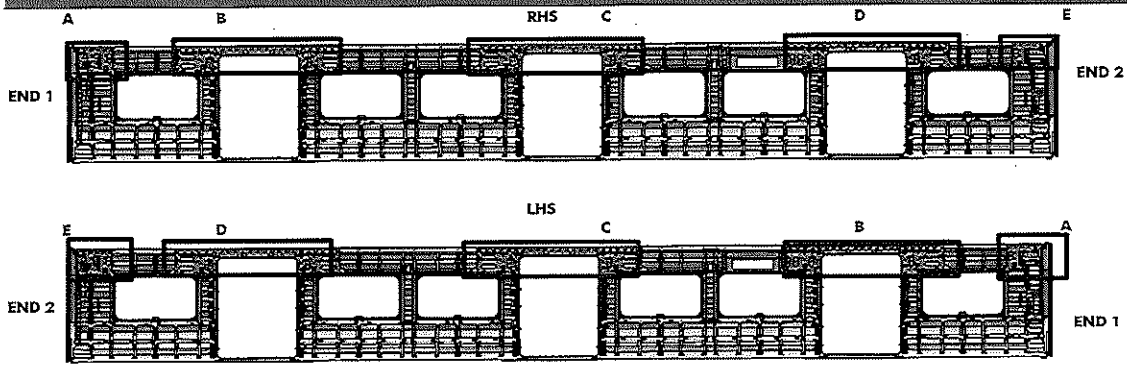
AREA 1 & 2 END 1

Operator (Name & sign):

Operator (Name & sign):

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

II - Self Inspection - Items to Check

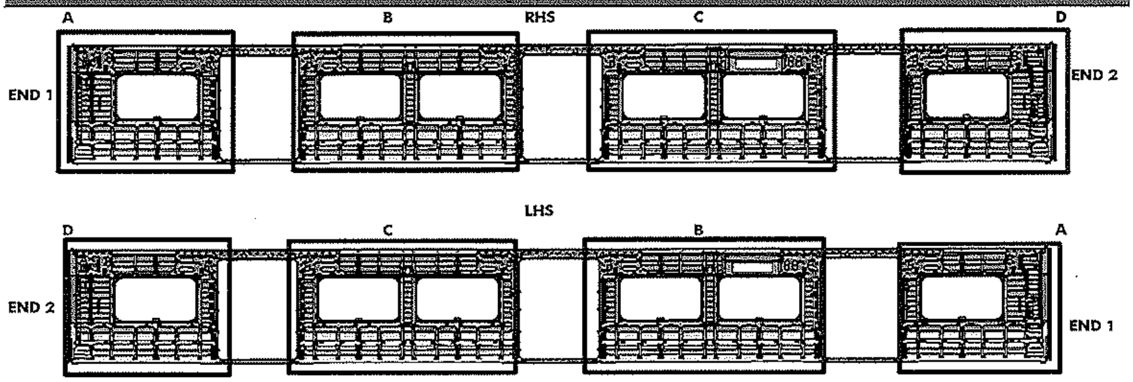


REINFORCEMENT WELDING

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

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

II - Self Inspection - Items to Check



BRACKETING

INSTALLATION

C-RAILS: Operator: Mtlohozigi

Operator: ______

DOOR MECHANISMS: Operator: Mtlohozigi

Operator: ______

TAPPING PADS Operator: LINDO END1

Operator: LINDO END2

INSTALLATION & VERIFICATION

SEAT & LUGGAGE BRACKETS: Operator: ASANDA

Operator: ______

SEAT BRACKETS VERIFICATION: Operator: ASANDA

Operator: ______

WELDING

AREA		LHS	RHS
A	(Seat brackets) : Operator (Name&sign):	[signature]	[signature]
	(C-rails, Luggage and earth bushes) : Operator (Name&sign):	[signature]	[signature]
B	(Seat brackets) : Operator (Name&sign):	[signature]	[signature]
	(C-rails, Luggage and earth bushes) : Operator (Name&sign):	[signature]	[signature]
C	(Seat brackets) : Operator (Name&sign):	[signature]	THOLANI
	(C-rails, Luggage and earth bushes) : Operator (Name&sign):	[signature]	THOLANI
D	(Seat brackets) Operator (Name&sign):	[signature]	THOLANI
	(C-rails, Luggage and earth bushes) : Operator (Name&sign):	[signature]	THOLANI

ENDS

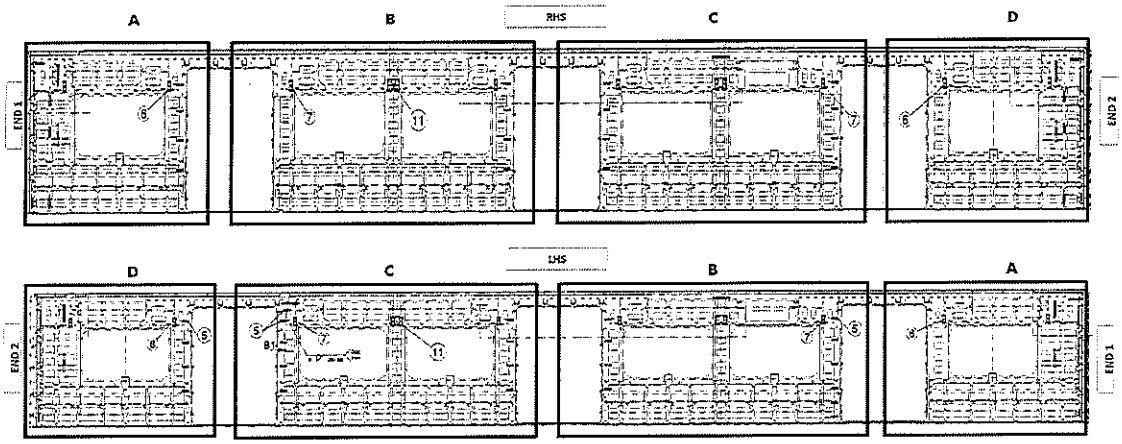
END 1 TAPPING PADS WELDING: Operator (Name&sign): LINDO

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

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

II - Self Inspection - Items to Check

M1/M3/M4 BRACKET INSTALLATION



QUANTITIES (M3/M4)

RHS

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

ROOF ENDS:

CRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY: _____

LHS

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

ROOF ENDS:

CRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY: _____

QUANTITIES (M1)

RHS

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

ROOF ENDS:

CRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY: N/A

LHS

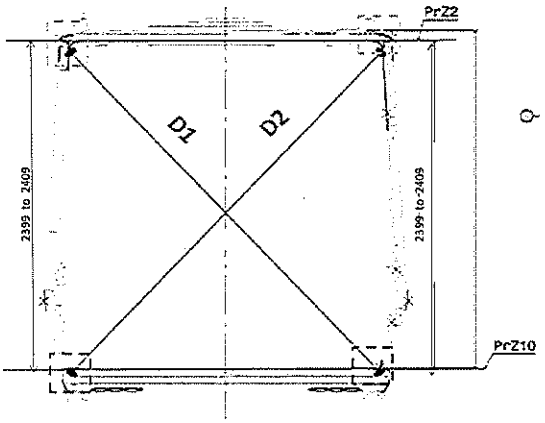
	SECTION	QUANTITY	OK	NOK
C-RAILS	A	2		
	B	10		
	C	11		
	D	6		
SEAT BRACKETS	A	13		
	B	21		
	C	21		
	D	13		
EARTH BUSH	A	3		
	B	7		
	C	8		
	D	2		

ROOF ENDS:

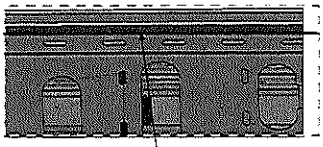
CRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY: N/A

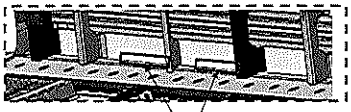
Specifications of Details for CBS measurement



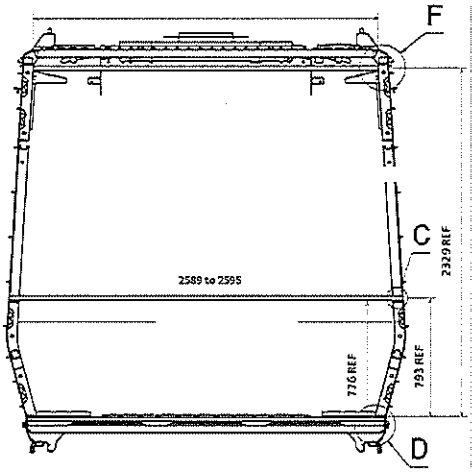
Measurement positions on roof rail and sidewall omega corner.



Reinforcement area measurement positions on roof reinforcement area.

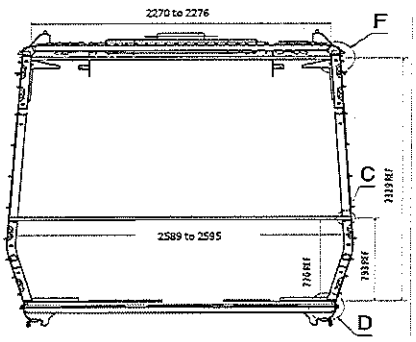


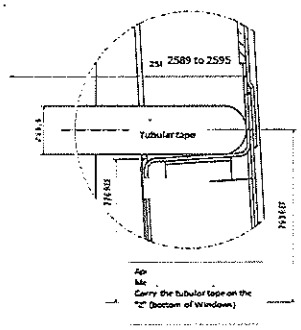
Measurement positions on sidewall and side sill corner.



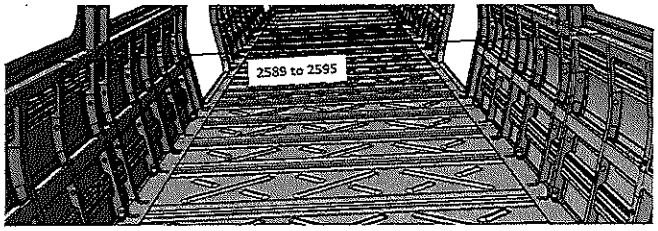
GIBELO	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2	Rev. 29 Date 28/10/2023	Project: PRASA SI.CB2220.250.V29

CBS measurement

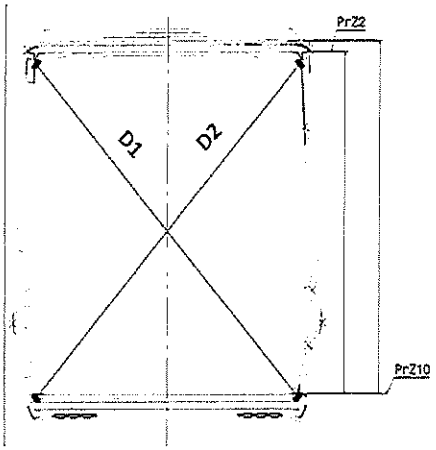


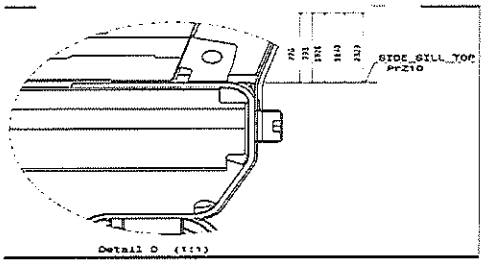


Detail C



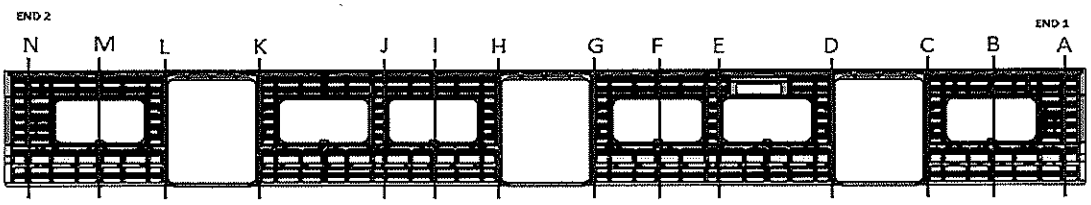
Take measurement close to radius





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

CBS measurement

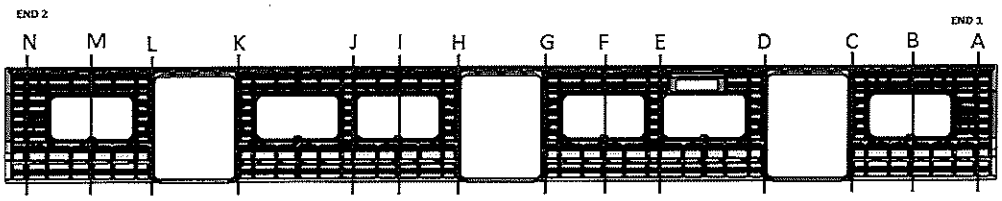


BEFORE WELDING

	ecord D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3301	3304	3	
B	3267	3268	1	
C	3295	3300	5	
D	3300	3300	0	
E	3267	3269	2	
F	3265	3264	1	
G	3295	3300	5	
H	3295	3299	4	
I	3265	3269	4	
J	3265	3270	5	
K	3297	3298	1	
L	3299	3294	5	
M	3269	3270	1	
N	3299	3297	2	

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

CBS measurement

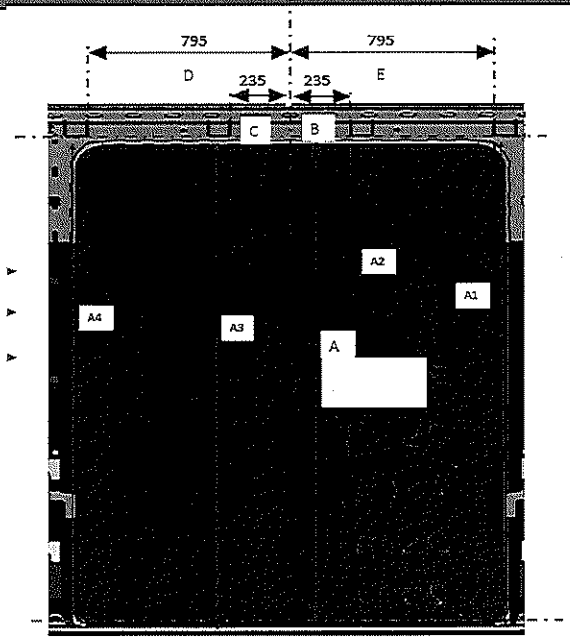


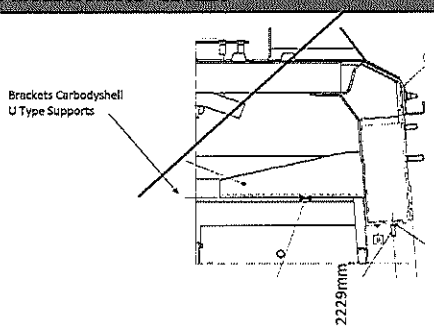
AFTER WELDING

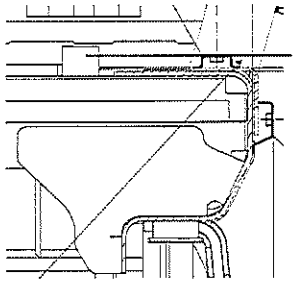
	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3299	3298	1	2595
B	3268	3265	2	2589
C	3298	3294	4	2589
D	3295	3297	2	2589
E	3260	3265	5	2590
F	3265	3260	5	2589
G	3295	3292	3	2589
H	3292	3294	2	2589
I	3262	3265	3	2589
J	3290	3265	5	2589
K	3294	3296	2	2590
L	3292	3295	3	2589
M	3264	3266	2	2589
N	3294	3294	0	2595

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

Specifications of Details for CBS measurement CB1220







DOOR 1 - LHS

	VALUE	ACTUAL
A1	2230 to 2232	2233
A2	2230 to 2232	2233
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 - LHS

	VALUE	ACTUAL
A1	2230 to 2232	2235
A2	2230 to 2232	2233
A3	2230 to 2232	2232
A4	2230 to 2232	2232
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	2232
A4	2230 to 2232	2232
B	234 to 236	236
C	234 to 236	234
D	794 to 796	795
E	794 to 796	796

DOOR 1 - RHS

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

DOOR 2 - RHS

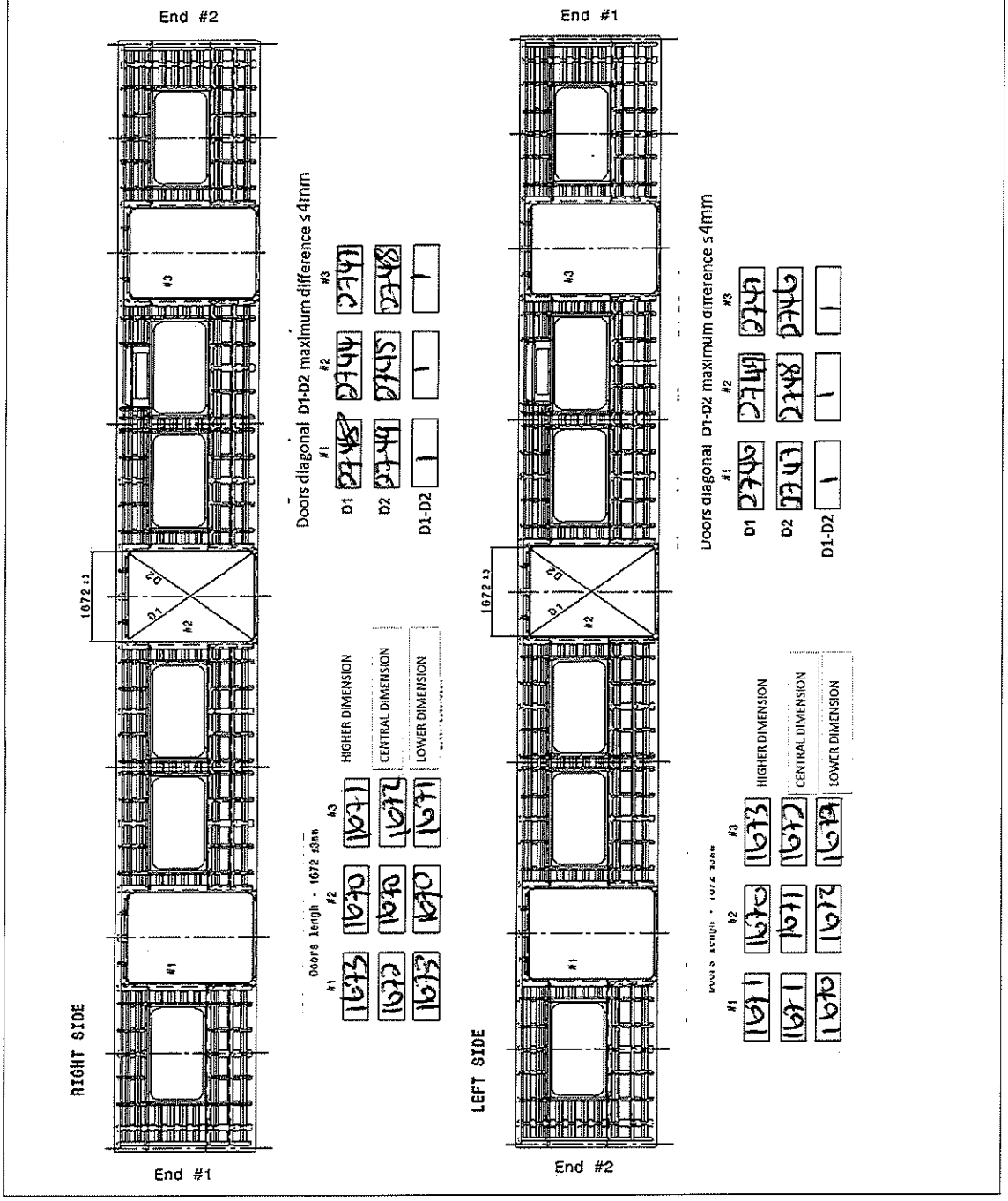
	VALUE	ACTUAL
A1	2230 to 2232	2234
A2	2230 to 2232	2234
A3	2230 to 2232	2233
A4	2230 to 2232	2233
B	234 to 236	236
C	234 to 236	234
D	794 to 796	796
E	794 to 796	794

DOOR 3 - RHS

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

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

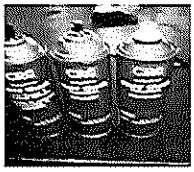
Specifications of Details for CBS measurement CB1220



CBS measurement (Manufacturing)

Dye penetrant test

Dye-penetration test to be performed by quality personnel



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

II.2 - Check List REX

Check List Items

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

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

Self Inspection - Final Result

Is 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 f activities are not complete, the missing activities must not impact the next stage!	28/02/24	Priscilla Operations	
			Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	28/02/24	Ana 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

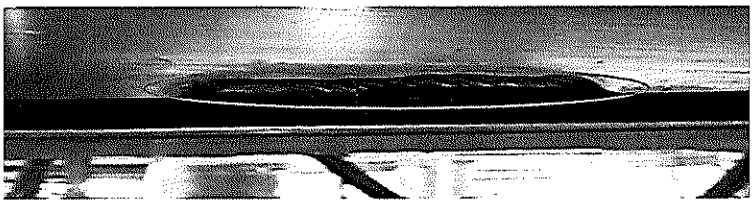
In case of "NO GO", the operations manager must define below action plan to ensure "GO":

Item	Description		Responsible	Due date	Status
	c-roll not installed	(Missing part)			

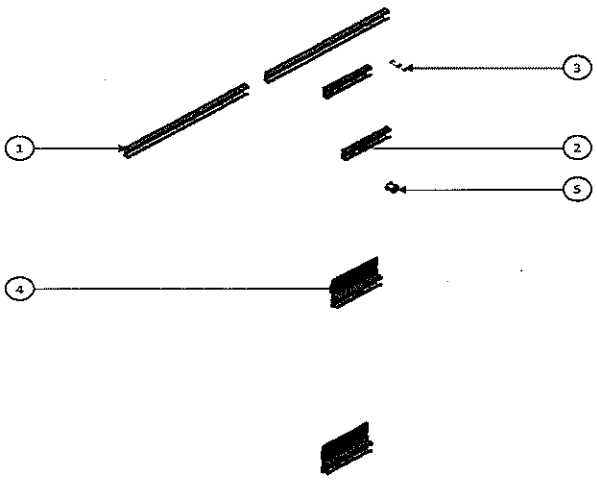
Operations

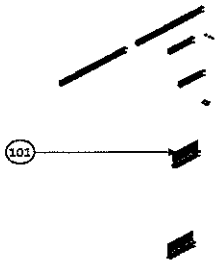
Quality

ANNEXURE A: Arc Welding Quality Acceptance Standard



Station: CB1220-004- U108 & U107





PART NO.	ITEM NO.	QTY	DESCRIPTION	MASS (KG)
DTR0220074083	5	6	EARTH STUD 6	0.036
AA00001201842	4	6	ASSEMBLY SUPPORT	0.271
DTR0000340305	3	12	WELDING STUD ISO13918 PT – M8X20 - SST	0.007
AA00001180424	2	12	ASSEMBLY SUPPORT	0.193
AA00001184418	1	14	ASSEMBLY SUPPORT	0.522
AA00007161080	101	6	CARBODYSHELL BRACKETS CARBODYSHELL M1/M3/M4 CAR(SIDE FRAME MODULE END – OPP)	12.132

APPLICABLE FOR TRAINSET 100+ ONLY AS PER BASELINE 10.3.1

SELF INSPECTION SHEET

APPLICATION REFERENCE

MOUNTING	DRAWING	DESCRIPTION	STATION	CAR TYPE TC1	M4	M1	M2	M3	TC2	WORK INSTRUCTION	SAFETY?
☐ DT00000225487	AA0000127856	CARBODYSHELL M1,M2,M4 ASSEMBLY	CB2230		X	X		X		PRA.CB2230.DT000002 25487.V20	YES
☐											
☐											

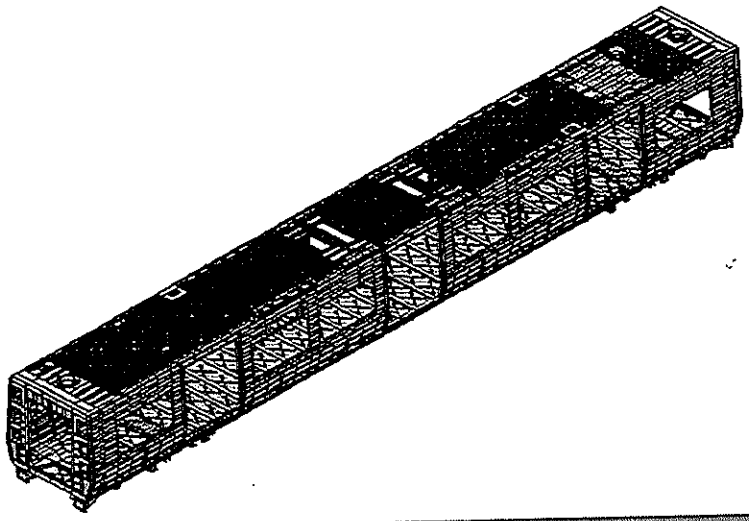
	DATE	MODIFICATION CONTENT	RESPONSIBLE	NAME	DATE
0	2018/08/02	GIBELA NEW CREATION	APPROVER	Philipe Marques	2018/08/02
			CHECKER	Nosizo Pindela	2018/08/02
			COMPILER	Nosizo Pindela	2018/08/02
1	30/5/2018	Team leader and Quality Technician to sign Change final signature from PME Manager to Quality manager	APPROVER	Itumeleng Modiba	30/5/2018
			CHECKER	Nosizo Pindela	30/5/2018
			REVISED BY	Nosizo Pindela	30/5/2018
2	2018/05/07	Certain dimensional checks moved to CB1220	APPROVER	Itumeleng Modiba	2018/05/07
			CHECKER	Nosizo Pindela	2018/05/07
			REVISED BY	Ramokone Motama	2018/05/07
5	24/01/2019	As per Baseline 10.2	APPROVER	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
			REVISED BY	Nosizo Pindela	13/03/2019
10	23/08/2019	New Baseline 10.2.5	APPROVER	Itumeleng Modiba	23/08/2019
			CHECKER	Nosizo Pindela	23/08/2019
			REVISED BY	Nosizo Pindela	23/08/2019
15	06/08/2020	New Baseline 10.2.6	APPROVER	Timothy Maimela	06/08/2020
			CHECKER	Bongane Masina	
			REVISED BY	Bongane Masina	
20	19/04/2021	New Baseline change 10.3	APPROVER	Timothy Maimela	19/04/2021
			CHECKER	Bongane Masina	
			REVISED BY	Bongane Masina	
25	20/02/2022	New Baseline change 10.3.1	APPROVER	Collins Mbhombhi	20/02/2022
			CHECKER	Andani Muthelo	
			REVISED BY	Andani Muthelo	
26	14/06/2022	Update minimum temperature requirement for sealant application	APPROVER	Collins Mbhombhi	14/06/2022
			CHECKER	Andani Muthelo	
			REVISED BY	Andani Muthelo	
27	26/07/2022	Threashold measurements addition	APPROVER	Collins Mbhombhi	26/07/2022
			CHECKER	Andani Muthelo	
			REVISED BY	Andani Muthelo	
28	17/10/2022	Added traceability of sealant application	APPROVER	Collins Mbhombhi	17/10/2022
			CHECKER	Ntokozo Zwane	
			REVISED BY	Amogelang Mohlampe	
29	14/04/2023	Added sealant batch number & welding consumables traceability	APPROVER	Vanessa Ntuli	14/04/2023
			CHECKER	Ntokozo Zwane	
			REVISED BY	Amogelang Mohlampe	
30	06/11/2023	Added threashold traceability for boiler makers and welders	APPROVER	Ngobeni Tyson	06/11/2023
			CHECKER	Andani Muthelo	
			REVISED BY	Ntokozo Zwane	

TRAINSET	CAR	OPERATOR NAME& ALPS NO	DATE	SELF INSPECTION NUMBER	PAGES
215	M04	Leroy 626959	23/02/2024	SI.CB2230.256.V29	12

GIBELA	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



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	Type of car M1	M2	M3	M4	TC2	Revision	Observation	OK	NOK	Revision	Signature/Date (Operations)	Signature/Date (Quality)
PRA.CB2230.DT00000225487				X		30		✓		N/A	28/02/24	28/02/24

I.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)
Tubular	22713	29/11/2023	✓		28/02/24	
Combination Square	GIBCS0073	2024/01/11	✓		28/02/24	28/02/24
Measuring Tape	GIBTA0348	2023/04/05	✓		28/02/24	

I.3 Consumables

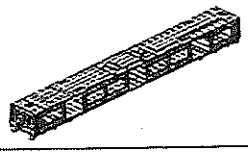
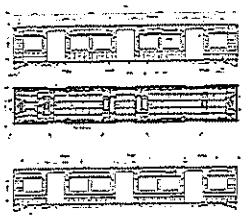
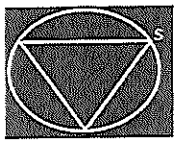
Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK	NOK	Signature/Date (Manufacturing)	Signature/Date (Quality)
Autorod 308 LSi	E231067	MIG	✓		28/02/24	28/02/24

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

II - Self Inspection - Items to Check

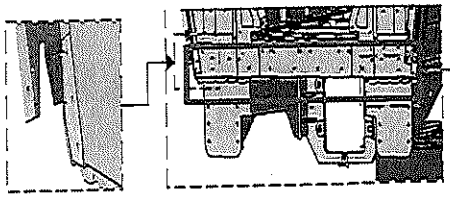
II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	NOK	Remark	Signature/Date (Operations)	Signature/Date (Quality)
01	N/A	Assembly according to Instruction Engineering nº PRA.CB1230.DT00000225487 Verification of fitment for all brackets.	PRA.CB1230.DT00000225487	✓			28/02/24	28/02/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	✓			28/02/24	28/02/24
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	**IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000**	✓			28/02/24	28/02/24
04		Cleaning of all Stainless Steel Surface	**According TO GIB-WEL - PROC-0002**	✓			28/02/24	28/02/24
05		Functionals dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	✓			28/02/24	28/02/24
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 fillet sampling as described in DTD0000210658.	As the welding procedure IND-SAL-WMS-018 and DTD0000210658.	✓			28/02/24	28/02/24
07	N/A	Before application of sealant record the expiry date and make sure that the room temperature and humidity are withion specified values as per Works Instructions Specified: Temperature Min - Max (1) Min-Max 10°C - 35°C Relative humidity Min – Max (1) Min-Max 25% - 80%	Sealant Batch No: ISP 70-03 Exp Date: ____ / 05 / 24 Actuals Temparature: 19°C Humidity: 56 %	✓			28/02/24	28/02/24
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**	✓			28/02/24	28/02/24
09	N/A	Verification of sealant application in certain regions in the drawing.	AAD0001278566	✓			28/02/24	28/02/24

II – Self Inspection - Items to Check

END 2 SEALANT

AREA 1

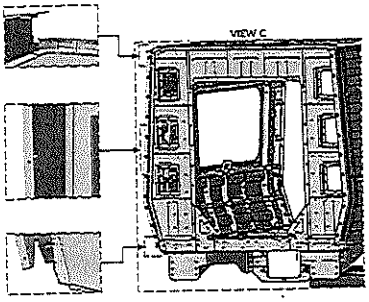


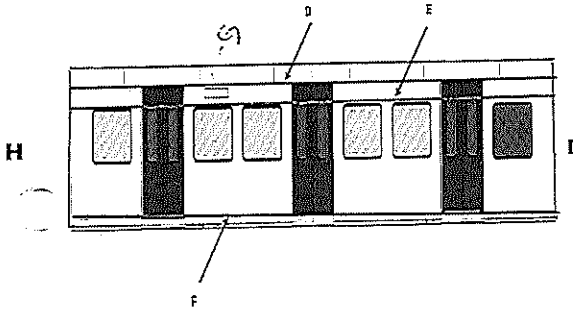
OPERATOR (Name & sign): Leroy

OPERATOR (Name & sign): Leroy

OPERATOR (Name & sign): Leroy

AREA 2 (VIEW C)





Area D,E,F,G,H,I
Operator (Name & sign) (E) LHS Bunle, E,F,H,I RHS

Operator (Name & sign) : F,H,I Bunle Bunle

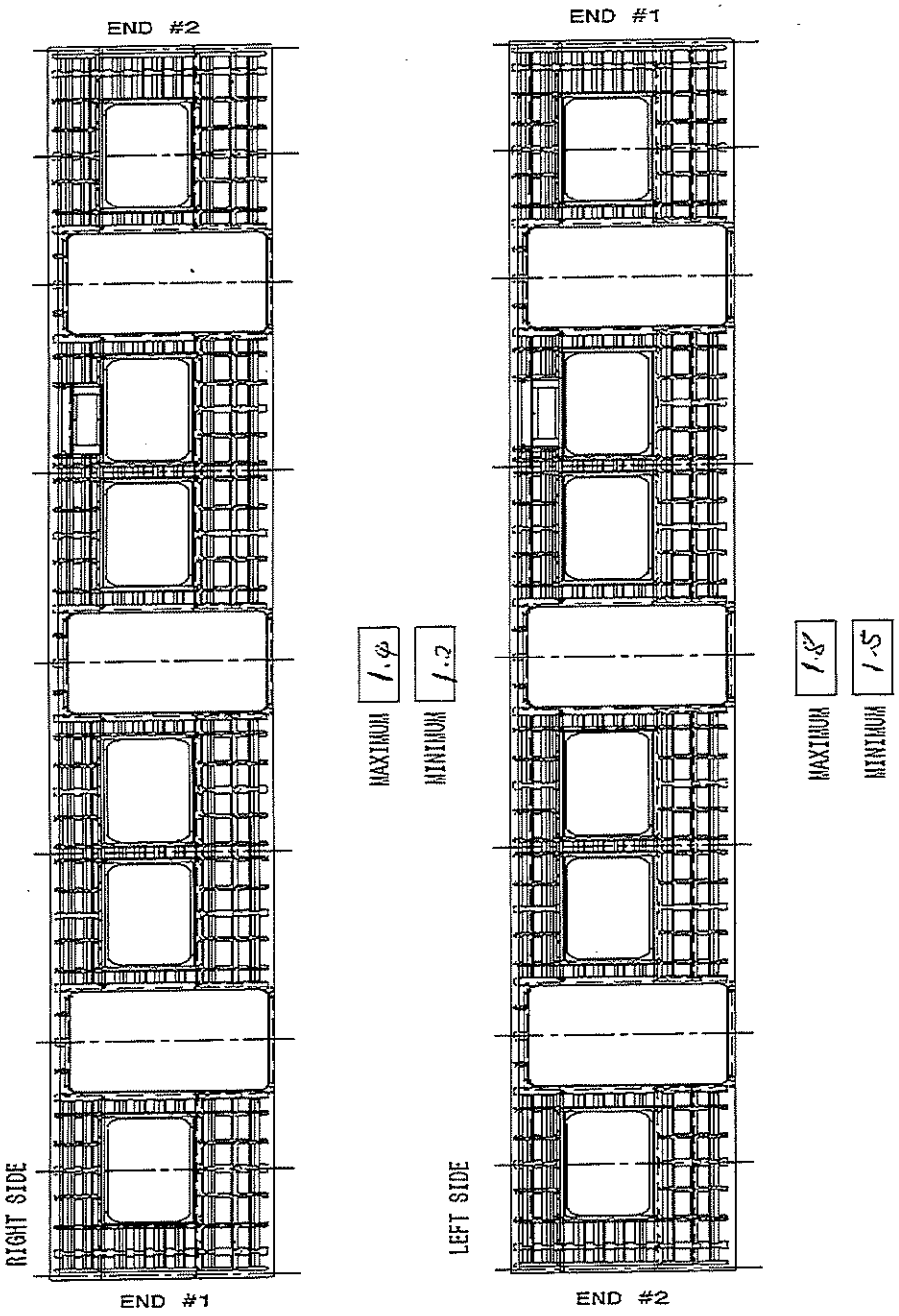
Operator (Name & sign) : Lerato (LM) Lerato (LM)

Operator (Name & sign) : (D) (D)

Operator (Name & sign) : Sinle Sinle

Operator (Name & sign) :

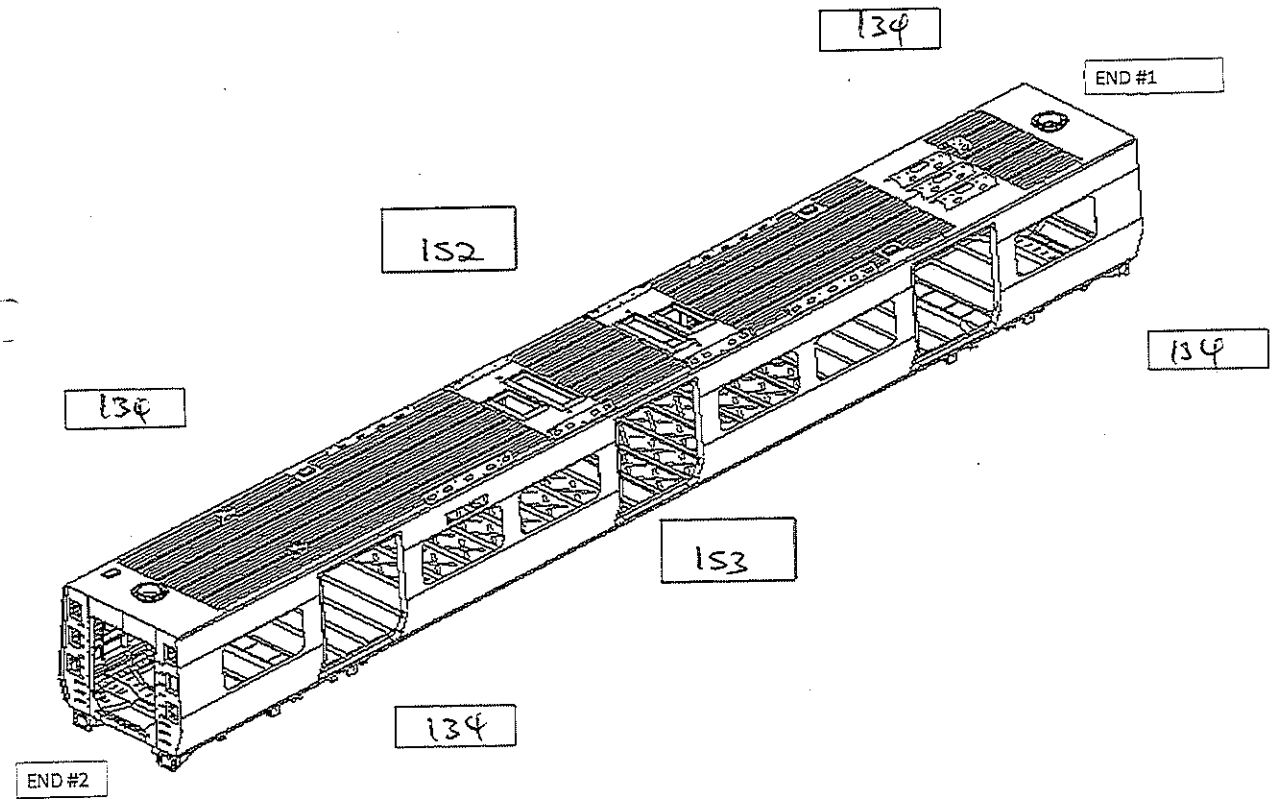
Flatness side left and right maximum of 2mm in the valley to peak measured in 900mm. Recod the maximum and minimum value foundand indicate the corresponding region.



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

Specifications of Details for CBS measurement CB1230

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

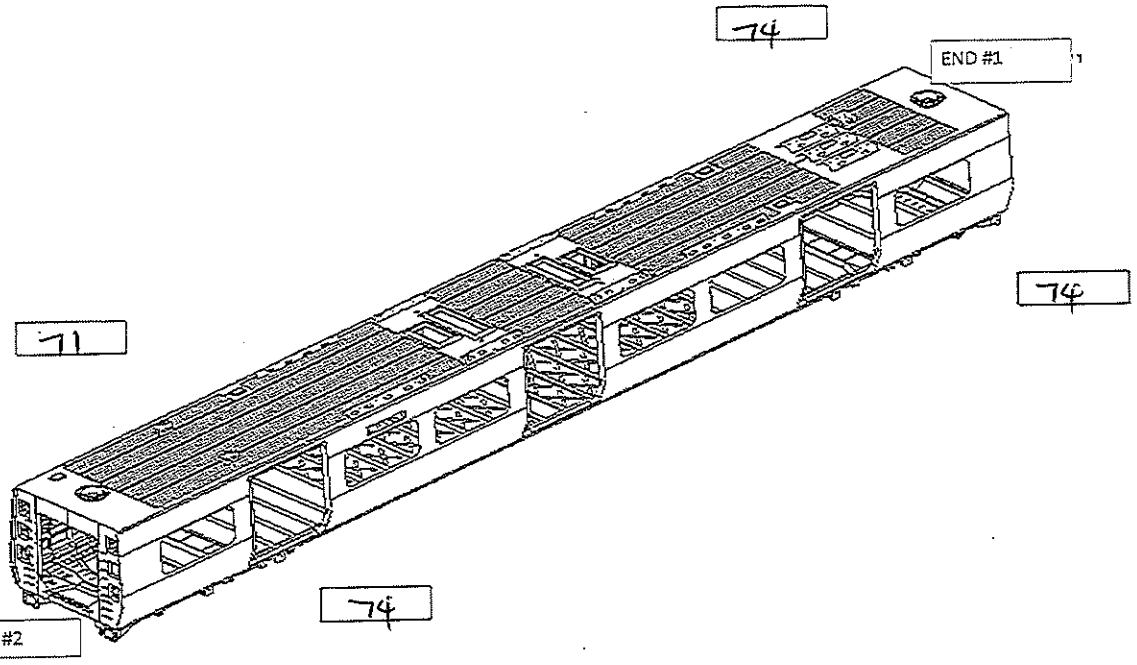


MEASURED CAMBER VALUES	
RIGHT	19
LEFT	18

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

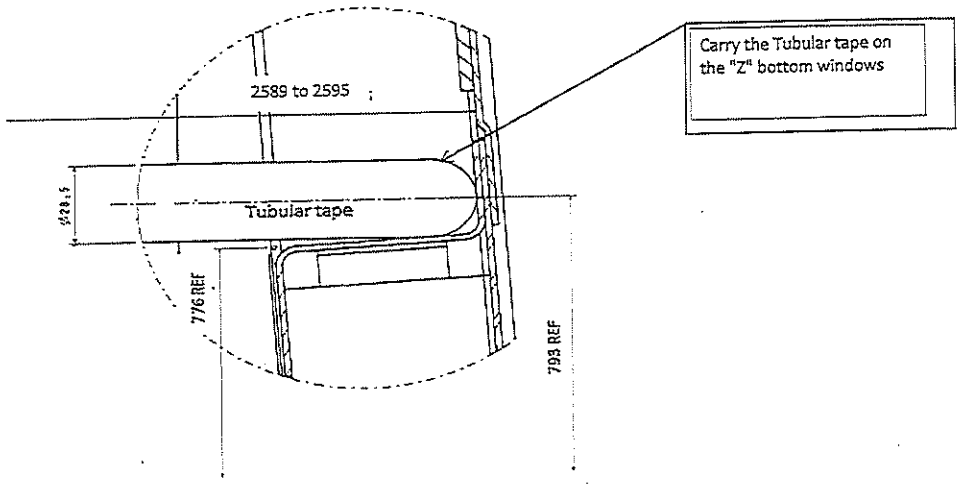
Specifications of Details for CBS measurement CB1230

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

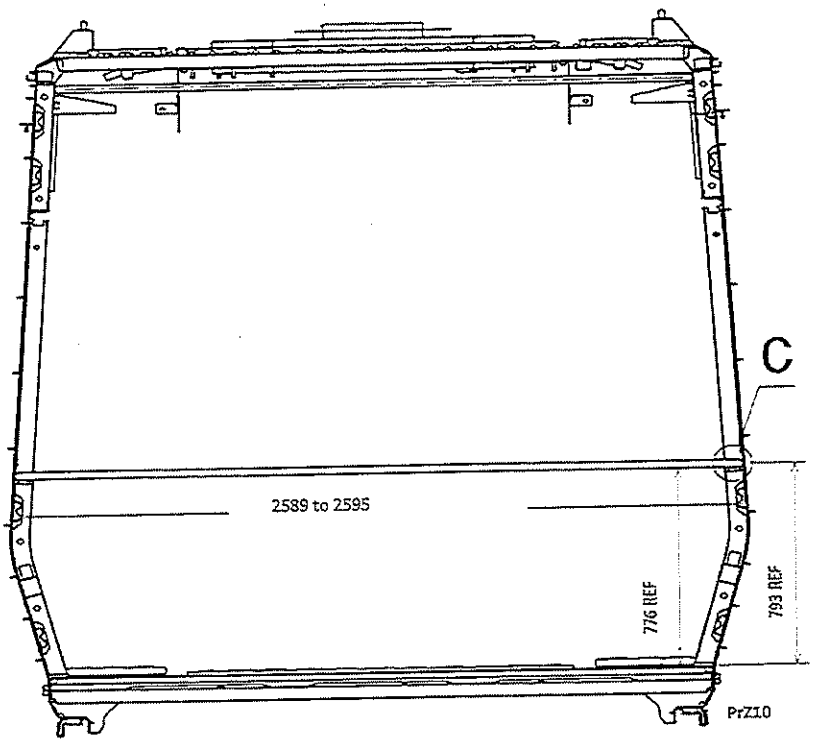


TWIST FOUND ON END 1	
TRANVERSE	0
LONGITUDINAL	0

TWIST FOUND ON END 2	
TRANVERSE	3
LONGITUDINAL	3

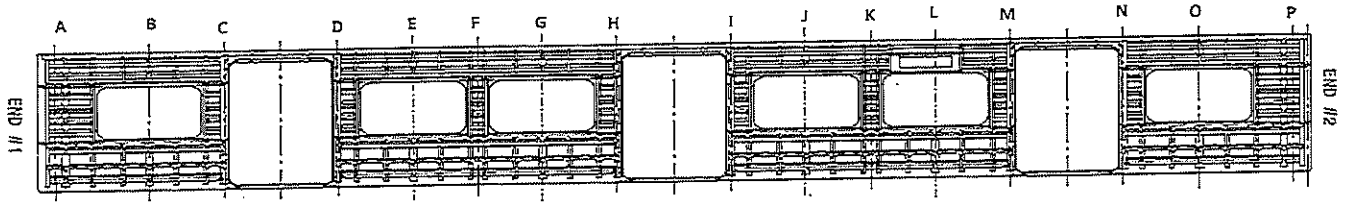

2589 to 2595
Tubular tape
776 REF
793 REF
Carry the Tubular tape on the "Z" bottom windows

Detail C


C
2589 to 2595
776 REF
793 REF
PrZ10

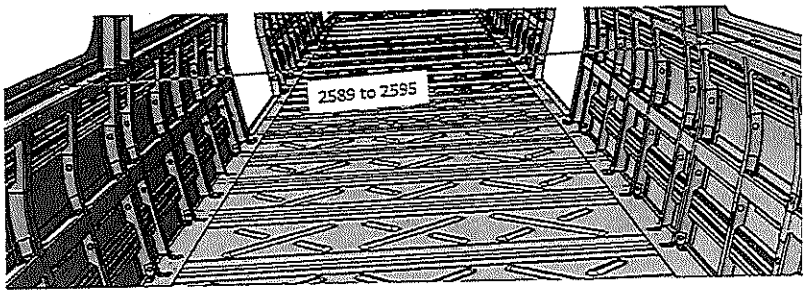
GIBELA	CARBODYSHELL M1,M3,M4 ASSEMBLY DT00000225487	Rev. 30 Date 06/11/2023	Project: PRASA SI.CB2230.256.V29

Specifications of Details for CBS measurement CB1230



2589 to 2595mm

A	25 95
B	25 92
C	25 91
D	25 90
E	25 90
F	25 91
G	25 89
H	25 89
I	25 89
J	25 89
K	25 91
L	25 89
M	25 91
N	25 89
O	25 89
P	25 95



Threashold verification

Nominal value :38

Door 1		Door 2		Door 3	
L	R	L	R	L	R
38	37	36	37	38	38

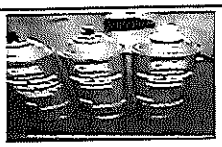
Door 4		Door 5		Door 6	
L	R	L	R	L	R
38	37	38	38	38	38

BOILER MAKER: Ishmael

WELDER: Zanele

Dye penetrant test

Dye-penetration test to be performed by quality personnel



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

Specifications of Details for CBS measurement

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

IL2 - Check List REX

Check List Items

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

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

Self Inspection - Final Result

Is the car good to advance to the next workstation/process? (Approval of Operations and Industrial Quality)				DATE	NAME	SIGNATURE
HOLD POINT		GO	(If f activities are not complete, the missing activities must not impact the next stage!	28/02/2024	Levoy Operations	
			Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	28/02/24	Richmond Industrial Quality	
		NO GO	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		Responsible	Due date	Status

Operations

Quality