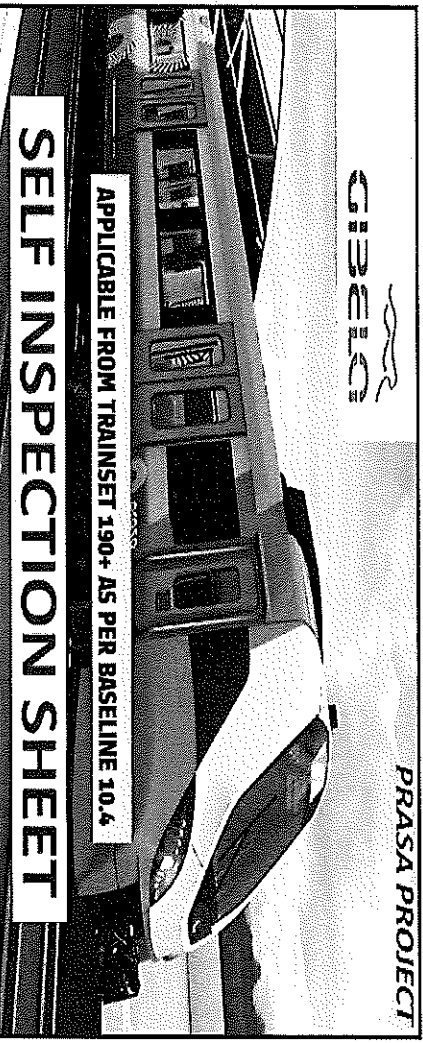
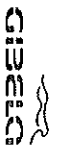




CONFIDENTIAL INFORMATION
 This document and the information contemplated therein have to be considered as Confidential information pursuant to the provisions of Clause 25 of the MSA, and treated as such.

APPLICATION REFERENCE											
MOUNTING	DRAWING	DESCRIPTION	STATION	CAR TYPE					WORK INSTRUCTION	SAFETY ?	
				TC1	M1	M2	M3	TC2			
☐	DTR3025487/3	CA8900/SHELL M3, M4 ASSEMBLY	CB2210		☒				X	PRA, CB2210, DTR30225	YES
☐										487/3.V30	
REV	DATE	MODIFICATION CONTENT		RESPONSIBLE	NAME	DATE					
0	10/01/2018	GIBELA NEW CREATION		APPROVER	Izumeleng Modiba	10/01/2018					
				CHECKER	Nosizo Pindela	10/01/2018					
				COMPLIER	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	Izumeleng 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	Izumeleng 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	Izumeleng Modiba	2018/12/12					
				CHECKER	Nosizo Pindela	2018/12/12					
5	22/01/2019	As per Baseline 10.2		REVISED BY	Ramokone Motama	2018/12/12					
				APPROVER	Izumeleng Modiba	13/03/2019					
				CHECKER	Nosizo Pindela	13/03/2019					
6	13/03/2019	Added D1 and D2 on Self - Inspection		REVISED BY	Izumeleng Modiba	21/08/2019					
				APPROVER	Timothy Maimela	21/08/2019					
				CHECKER	Nosizo Pindela	21/08/2019					
10	21/08/2019	New Baseline 10.2.5		REVISED BY	Vanessa Ntuli	22/01/2019					
				APPROVER	Izumeleng Modiba	13/03/2019					
				CHECKER	Nosizo Pindela	13/03/2019					
				REVISED BY	Izumeleng Modiba	21/08/2019					
15	06/08/2020	New Baseline 10.2.6		APPROVER	Timothy Maimela	06/08/2020					
				CHECKER	Bongane Masina	19/04/2021					
				REVISED BY	Bongane Masina	19/04/2021					
20	19/04/2021	New Baseline change 10.3		APPROVER	Mthombi Collins	17/08/2021					
				CHECKER	Mpho Mulaudzi	17/08/2021					
				REVISED BY	Mthombi Collins	17/08/2021					
21	17/08/2021	ADDED DIMENSIONS BEFORE WELDING		APPROVER	Mthombi Collins	17/08/2021					
				CHECKER	Mpho Mulaudzi	17/08/2021					
25	19/02/2022	New Baseline change 10.3.1		APPROVER	Mthombi Collins	19/02/2022					
				CHECKER	Andani Muthleho	19/02/2022					
				REVISED BY	Andani Muthleho	19/02/2022					
26	14/04/2023	Addition of welding consumable traceability		APPROVER	Nduli Vanessa	14/04/2023					
				CHECKER	Mohlame Amogelang	14/04/2023					
				REVISED BY	Mohlame Amogelang	14/04/2023					
30	20/07/2023	New Baseline change 10.4		APPROVER	Ngebeni Tyson	28/07/2023					
				CHECKER	Mohlame Amogelang	28/07/2023					
				REVISED BY	Mohlame Amogelang	28/07/2023					
31	07/11/2023	Added traceability for welding sections		APPROVER	Ngebeni Tyson	07/11/2023					
				CHECKER	Mohlame Amogelang	07/11/2023					
				REVISED BY	Ntokozo Zwane	07/11/2023					
TRAINSET	CAR	OPERATOR NAME& ALPS NO	DATE	SELF INSPECTION NUMBER		PAGES					
210	M4	1UM620 410081	07.02.24	51.CB2210.254.V30		17					



CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3

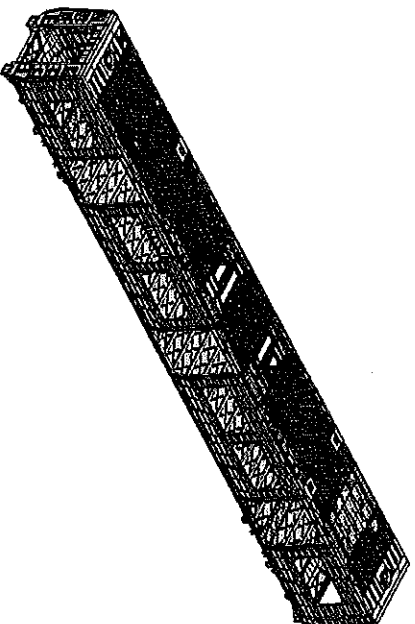
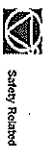
Rev. 31
Date 07/11/2023
Project: PRASA
SI.CB2210.254.V30

Car: M3 & M4

NCR

Work station:

CB2210



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	Type of car					Revision	Observation	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
	C1	M1	M2	M3	M4					
DTR30225487/3					X	31		OK	05.07.2024	01.02.24

I.2 - Instruments Control

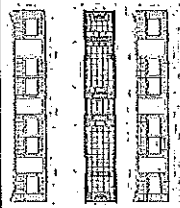
Monitoring and Measuring Instrument Control - Used for Special Process					
Instruments	Serial number	Calibration or Verification Validation Date	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
Insulator type	22316	2023.02.07	OK	05.07.24	05.07.24
6050V type	1254259231	2023.03.01	OK	05.07.2024	05.07.24
(30W) type	416170084	2023.03.31	OK	05.07.2024	01.02.24

I.3 Consumables

Welding Consumable Control - Used for Special Process					
Filler material	Host Number	Welding Process	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
ER 308 LSi	314018	MIG	OK	07.02.24	07.02.24
EP 308 LSi	99637-70322	TIG	OK	05.07.2024	01.02.24

	CARBODYSHELL M3,M4 ASSEMBLY DTR302254873		Rev. 31	Project: PRASA SICB2210.254.V30
			Date 07/11/2023	

II - Self Inspection - Items to Check

II.1 - Items to check									
Item	Photo/Drawing	Description	Acceptance criteria / Record	OK		Signature/Date (Inspecting)	Signature/Date (Quality)		
01	N/A	Corshell free of significant flaws which compromise the appearance or functionality	DTD00000210675	✓		 07.02.24	 07/02/24		
02	REFER TO ANNEXURE A	Spot welding inspected and approved according to procedure	IND-SAL-WMS-016 e DTD00000210675	✓		 07.02.24	 07/02/24		
03	REFER TO ANNEXURE B	Arc welding inspected and approved according to procedure	IND-SAL-WMS-016 REFER TO GIB - TYPEF - ARC - 0000	✓		 07.02.24	 07/02/24		
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓		 07.02.24	 07/02/24		
05		Functional dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document	Approved according specified on pages below.	✓		 07.02.24	 07/02/24		
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 DTD00000210658.	As the welding procedure IND-SAL-WMS-018 and DTD00000210658.	✓		 07.02.24	 07/02/24		

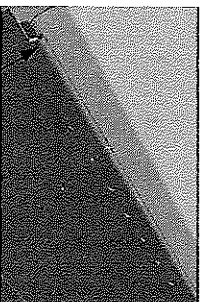


CARBODYSHELL M3, M4 ASSEMBLY DTR30225487/3

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07/11/2023	

Welding Traceability

Roof ring welds



Boiler maker (Name & Sign): Imweco ^{LHS} Welder (Name & Sign): Kevin K. Moko

END 1

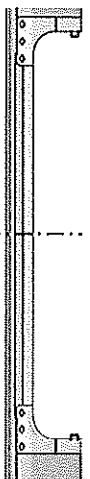
Boiler maker (Name & Sign): Geord Moko ^{RHS} Welder (Name & Sign): Mtho kazi

Boiler maker (Name & Sign): Imweco ^{LHS} Welder (Name & Sign): Mtho kazi

END 2

Boiler maker (Name & Sign): Geord Moko ^{RHS} Welder (Name & Sign): Kevin K. Moko

Door ring welds

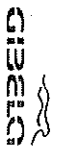


Boiler maker (Name & Sign): Imweco ^{LHS}

Welder (Name & Sign): Kevin K. Moko

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

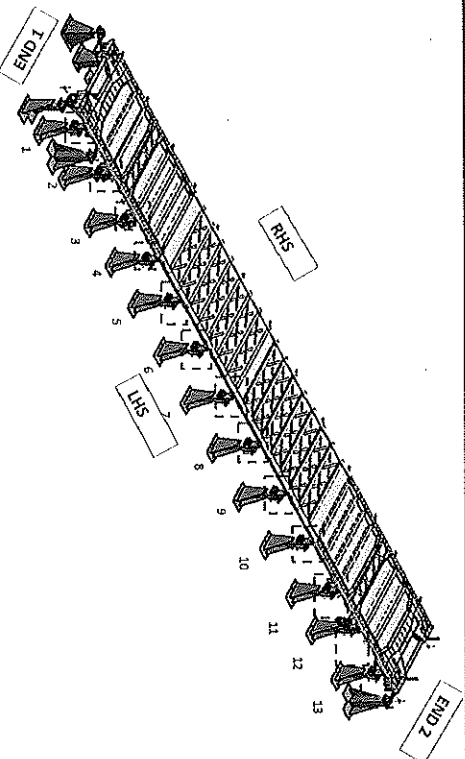
Welder (Name & Sign): Mtho kazi



CARBODYSHELL M3,M4 ASSEMBLY DTR3022487/3

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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 Operations:

Date: 07.07.24

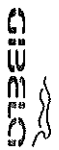
After Welding.

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:

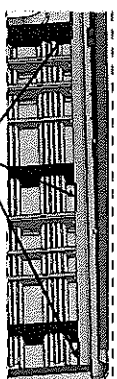
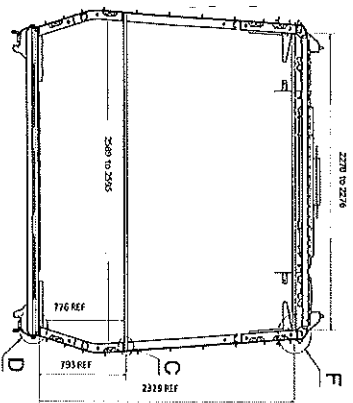
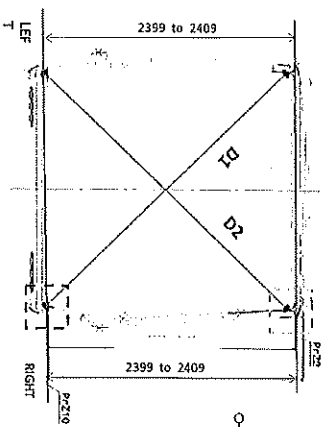
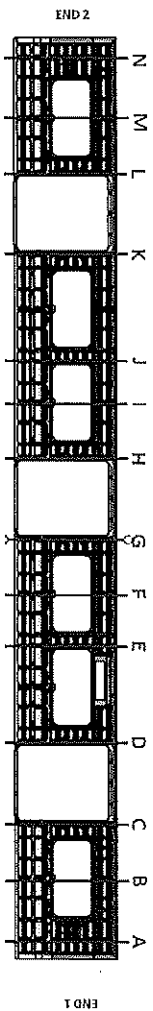
Date: 07/07/24



CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3

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

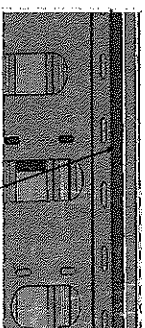
Specifications of Details for CBS measurement



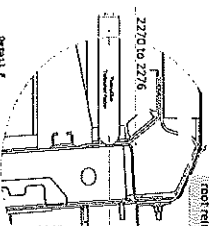
Measurement positions on roof rail and sidewall corner.



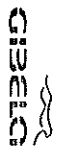
Measurement positions on sidewall and side sill corner.



Reinforcement area measurement positions on roof reinforcement area.



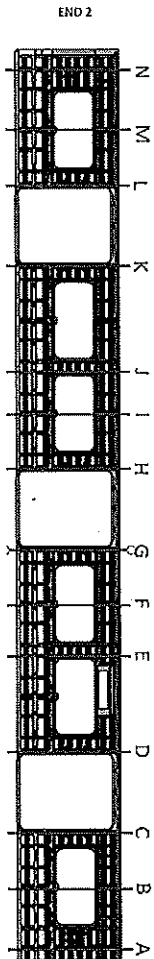
Detail F
See reinforcement



CARBODYSHELL M3,M4 ASSEMBLY DTR30226487/3

Rev.	31	Project: PRASA SI:CB2210.254.V30
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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	3267	3260	3	2408	2407	1
B	3262	3265	1	2404	2406	2
C	3267	3265	2	2406	2408	0
D	3265	3275	12	2406	2406	0
E	3260	3266	6	2406	2407	1
F	3254	3265	6	2404	2405	1
G	3264	3254	10	2405	2407	2
H	3261	3270	9	2406	2406	0
I	3256	3265	9	2405	2406	1
J	3254	3267	8	2405	2404	1
K	3266	3272	6	2407	2404	2
L	3265	3272	4	2407	2408	1
M	3268	3261	7	2405	2405	0
N	3266	3264	3	2407	2410	3

07.07.24

GIBCO

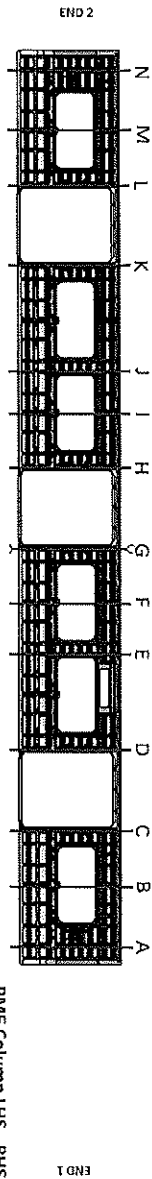
CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3

Rev. 31 Project: PRASA

SI,CB2210.254,V30

Date
07/11/2023

Specifications of Details for CBS measurement



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

AFTER WELDING

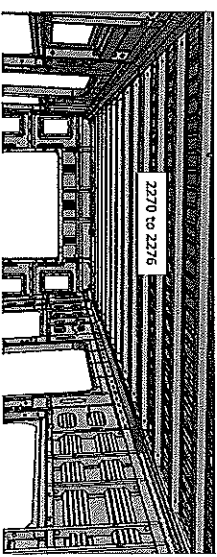
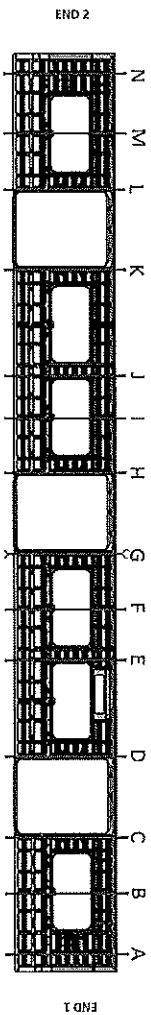
Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS ≤ 2
A 3302	3299	3	2402	2406	6
B 3268	3268	0	2404	2405	1
C 3295	3298	3	2404	2464	0
D 3298	3298	0	2405	2405	0
E 3267	3266	1	2406	2405	1
F 3268	3267	1	2404	2405	1
G 3299	3299	0	2404	2404	0
H 3294	3295	1	2404	2405	1
I 3267	3267	0	2406	2406	0
J 3268	3270	5	2405	2405	0
K 3298	3299	1	2405	2404	1
L 3297	3298	1	2404	2404	0
M 3269	3269	0	2405	2404	1
N 3298	3298	3	2406	2405	1

3

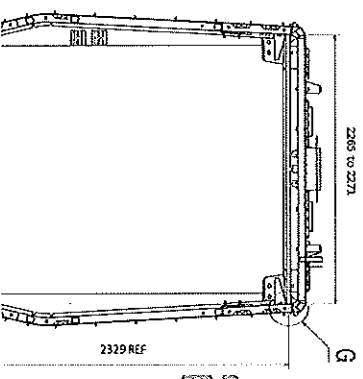
27.02.24

CBS measurement

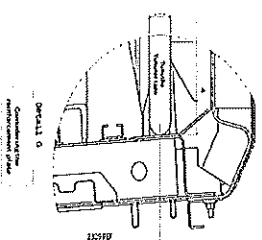
BEFORE WELDING



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



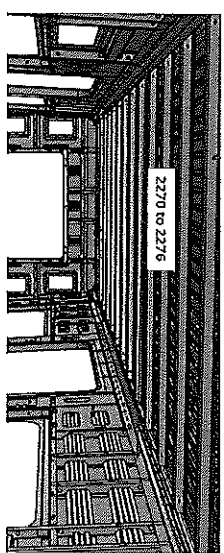
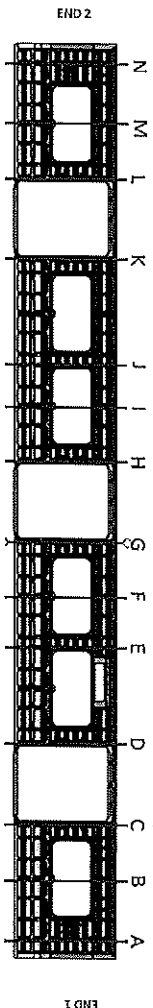
	2270 to 2276
A	2273
B	2272
C	2275
D	2276
E	2275
F	2273
G	2278
H	2274
I	2271
J	2274
K	2278
L	2275
M	2272
N	2270



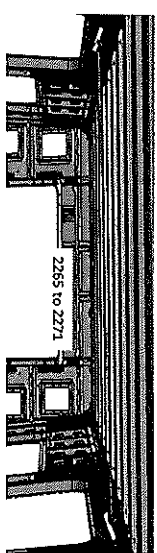
07.02.24

CBS measurement

AFTER WELDING



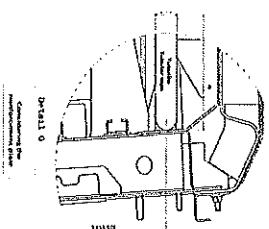
Do not consider reinforcement (Take measurements top area of zee profile)



Take measurement close to radius (considering reinforcement)

A	2268	2270 to 2276
B	2275	2270 to 2276
C	2269	2270 to 2276
D	2267	2270 to 2276
E	2276	2270 to 2276
F	2275	2270 to 2276
G	2268	2270 to 2276
H	2267	2270 to 2276
I	2274	2270 to 2276
J	2272	2270 to 2276
K	2266	2270 to 2276
L	2268	2270 to 2276
M	2275	2270 to 2276
N	2269	2270 to 2276

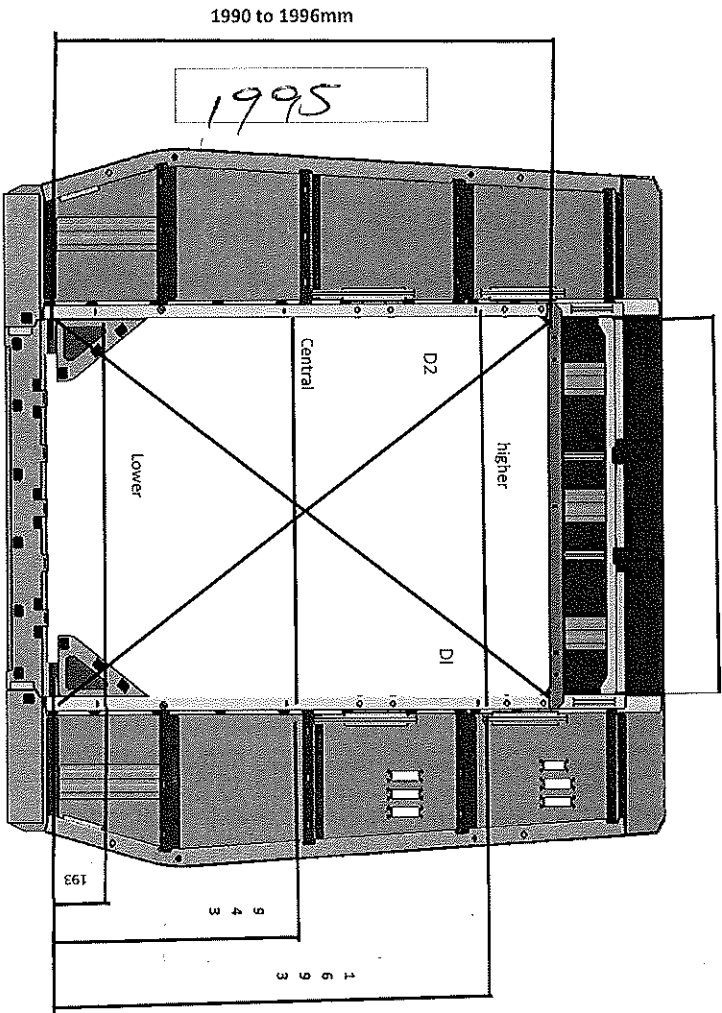
2265 to 2271



2265 to 2271

Specifications of Details for CBS measurement

End frame 1



1380 to 1382 mm

DIAGONAL DIFFERENCE D1-D2 ≤ 3mm

Higher Dimension

1881

D1

2417

Central Dimension

1380

D2

2415

Lower Dimension

1380

D1-D2

2

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07.02.24



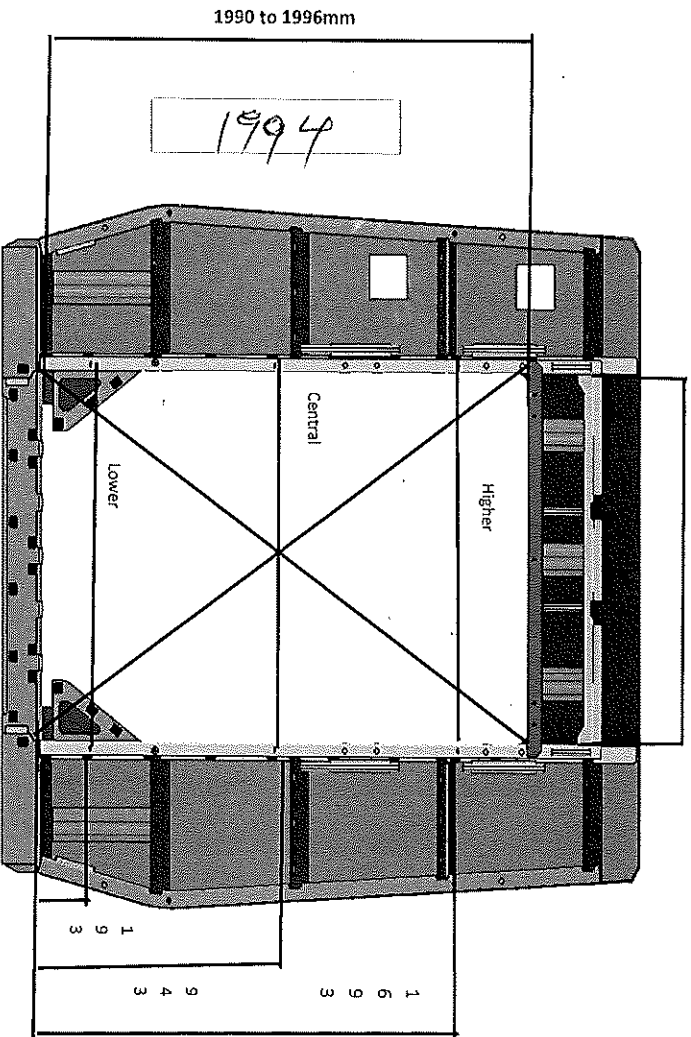
CARBODYSHELL M3,M4 ASSEMBLY DTR302254873

Rev.	Project: PRASA
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Date	
07/11/2023	

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

2418

CENTRAL DIMENSION

1381

D2

2417

LOWER DIMENSION

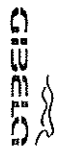
1381

D1-D2

1

[Signature]

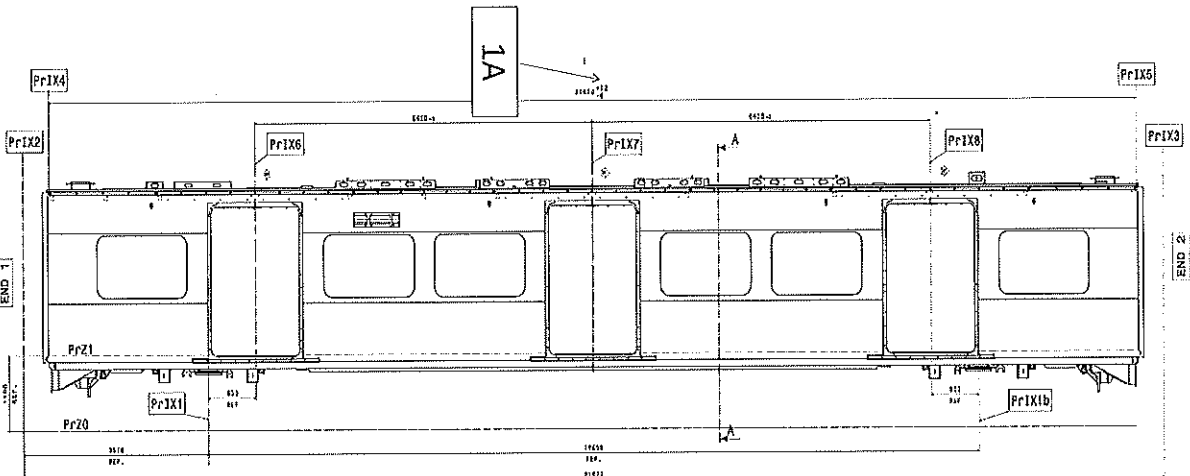
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CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3

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Specifications of Details for CBS measurement



LEFT SIDE	
SPECIFICATION SIZE	ACTUAL SIZE
1A	20632 - 20614
	206329

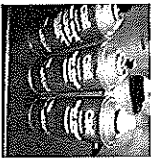
RIGHT SIDE	
SPECIFICATION SIZE	ACTUAL SIZE
1A	20632 - 20614
	206330

[Handwritten signature]

07.02.24

Dye penetrant test

Dye-penetration test to be performed by quality personnel



[illegible]

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

Self Inspection - Final Result

		DATE	NAME	SIGNATURE
HOLD POINT	GO	07-02-24	Thierry ELIO Operations	
		07/02/24	Richard Industrial Quality	
			Operations	
			Industrial Quality	

In case of "NO GO", describe blocking problems

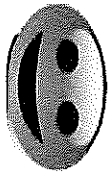
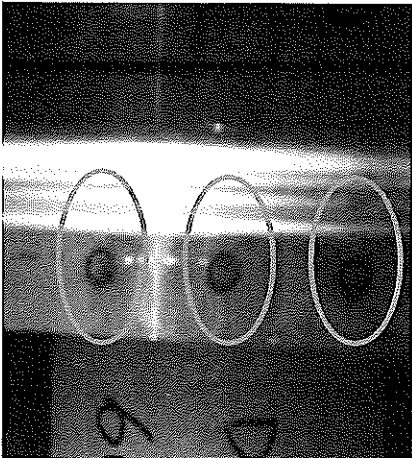
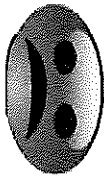
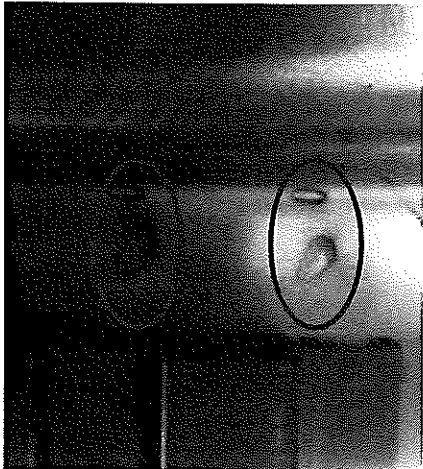
In case of "NO GO", the operations manager must define below action plan to ensure "GO":				
Item	Description	Responsible	Due date	Status

Operations

Quality

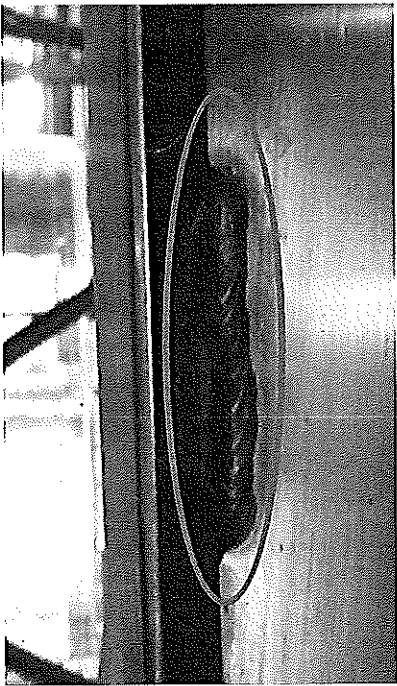
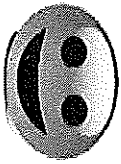
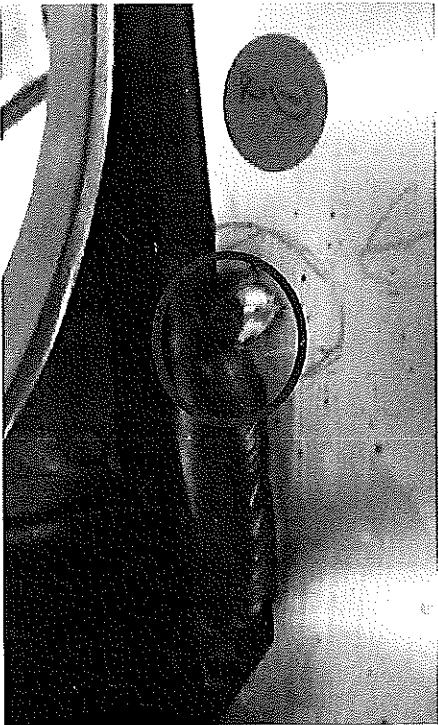
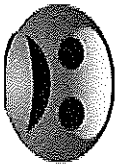
	CARBODYSHELL M3,M4 ASSEMBLY DTR302254873		Rev. 31 Date 07/1/2023 Project: PRA5A SI.CB2210.254.V30	
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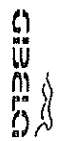
ANNEXURE A: Spot Welding Quality Acceptance Standard



 GIBELG		CARBODYSHELL M3,M4 ASSEMBLY DTR30224873		Rev. 31 Date 07/11/2023	Project: PRASA SI.CB2210.254.V30
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ANNEXURE B: Arc Welding Quality Acceptance Standard





CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR302254872

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

Car: M1,M3,M4

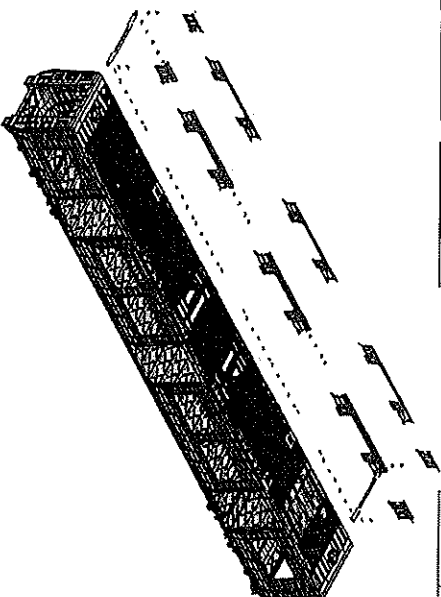
NOTE:

Work station:

CB2220



Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	Type of car				Revision	Observation	OK	NOK	Signature/Date (Manufacturing)	Signature/Date (Quality)
	T01	M1	M2	M3						
DTR302254872				X	29	08/02/24	✓		N/A	08/02/24

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	22113	03/08/2024	✓	08/02/24	08/02/24

1.3 Consumables

Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
308	33427	308 MIG	✓	08/02/24	08/02/24



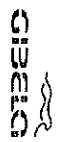
CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30225487/2

Rev. Project: PRASA
29
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/Datex (Manufacturing)	Signature/Datex (Quality)
01	N/A	Assembly according to Instruction Engineering n° PRA.CB2220.DTR30225487/2 Verification of moment for all reinforcement brackets.	PRA.CB2220.DTR30225487/2	✓	08/06/24 08/06/24	08/06/24 08/06/24
02	N/A	Catchall free of significant flaws which compromise the appearance or functionality	DTD0000210675	✓	08/06/24 08/06/24	08/06/24 08/06/24
03	REFER TO ANNEXURE A	ARC Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓	08/06/24 08/06/24	08/06/24 08/06/24
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓	08/06/24 08/06/24	08/06/24 08/06/24
05		Functional dimensions approved according drawing or complementary document approved by Atosim engineering and registered in this document.	Approved according specified on pages below.	✓	08/06/24 08/06/24	08/06/24 08/06/24
06		Perform visual inspection of welds in 100% of the project. Run by penetrant testing in electric arc welding (weld ring) as IND-SAL-WMS-028. Run by percent testing welds (weld ring) and fillet sampling as described in DTD0000210658.	As the welding procedure IND-SAL-WMS-028 and DTD0000210658.	✓	08/06/24 08/06/24	08/06/24 08/06/24
07	N/A	Before application of sealant record the expiry date and make sure that the room temperature and humidity are within specified values as per Work instructions Specified: Temperature: Min - Max (°) Min-Max Relative humidity Min - Max-Max Max (°) Min-Max 80%	Sealant Batch No. <u>BR 7003</u> Exp Date: <u>1/02/24</u> Actuals Temperature: <u>25°C</u> Humidity: <u>40%</u>	✓	08/06/24 08/06/24	08/06/24 08/06/24
08	NA	Verification of sealant application in certain regions in the drawing.	AA0000210656		08/06/24 08/06/24	08/06/24 08/06/24
09		Verification of safety welds	Approved according to DTD000210658 reference and Self inspection	✓	08/06/24 08/06/24	08/06/24 08/06/24



CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR3022948712

Rev.	Project: PRASA
29	
Date	SI.CB22220.250.V29
28/10/2023	

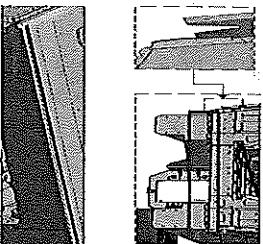
II - Self Inspection - Items to Check

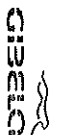
SEALANT APPLICATION

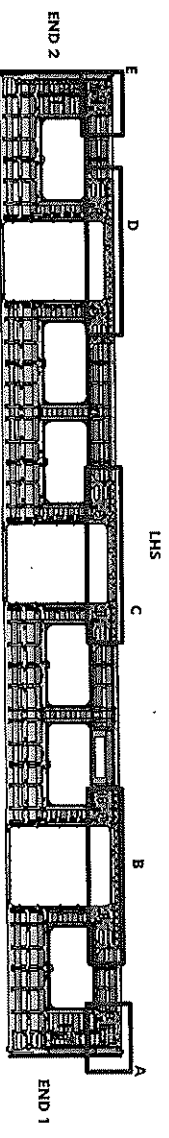
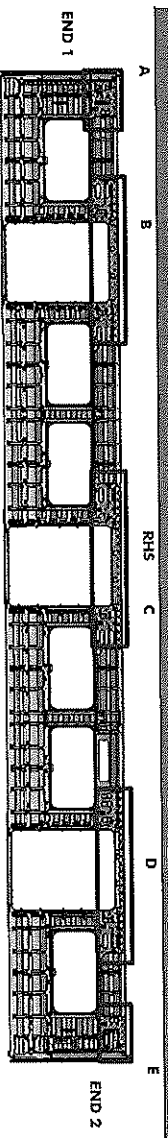
AREA 1 & 2 END 1

Operator (Name & sign): *F. Scilla*

Operator (Name & sign): *F. Scilla*

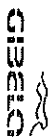


	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2		Rev. 29	Project: PRASA
	II - Self Inspection - Items to Check		Date 28/10/2023	SI.CB2220.250.V29



REINFORCEMENT WELDING

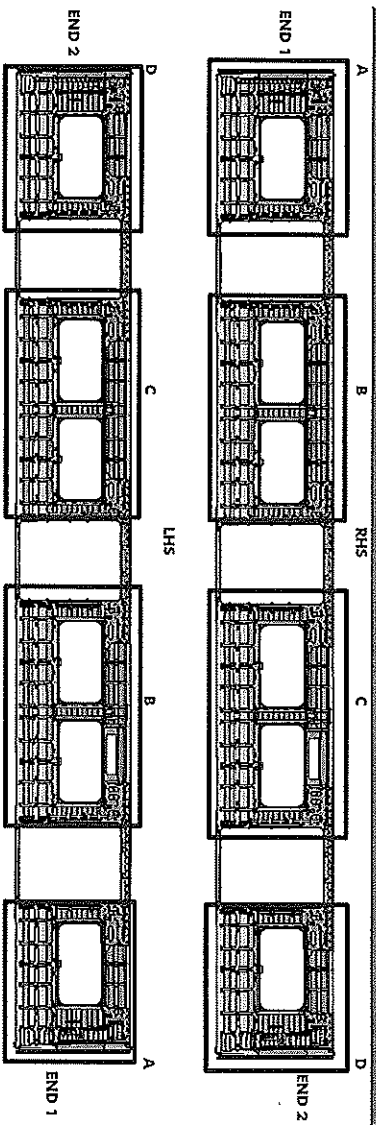
AREA	LHS	RHS
A	Operator (Name&sign): <u>NAKUNGA Dima</u>	Operator (Name&sign): <u>SITHO</u>
B	Operator (Name&sign): <u>NAKUNGA Dima</u>	Operator (Name&sign): <u>SITHO</u>
C	Operator (Name&sign): <u>SBU</u>	Operator (Name&sign): <u>SBU</u>
D	Operator (Name&sign): <u>THULAN</u>	Operator (Name&sign): <u>THULAN</u>
E	Operator (Name&sign): <u>THULAN</u>	Operator (Name&sign): <u>THULAN</u>



CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR3022548712

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

II - Self Inspection - Items to Check



BRACKETING

INSTALLATION

C-RAILS: Operator: frisally

Operator: _____

DOOR MECHANISMS: Operator: Posilla

Operator: _____

TAPPING PADS: Operator: NOKUNENA Dyre

Operator: NOKUNENA Dyre

INSTALLATION & VERIFICATION

SEAT & LUGGAGE BRACKETS: Operator: Mthwesi

Operator: _____

SEAT BRACKETS VERIFICATION: Operator: THULANI

Operator: _____

WELDING

AREA

LHS

RHS

A (Seat brackets) : Operator (Name&sign): Nokunena Dyre

(C-rails, Luggage and earth bushes) : Operator (Name&sign): Nokunena Dyre

B (Seat brackets) : Operator (Name&sign): THULANI

(C-rails, Luggage and earth bushes) : Operator (Name&sign): Mthwesi

C (Seat brackets) : Operator (Name&sign): Sibisi

(C-rails, Luggage and earth bushes) : Operator (Name&sign): Sibisi

D (Seat brackets) : Operator (Name&sign): THULANI

(C-rails, Luggage and earth bushes) : Operator (Name&sign): THULANI

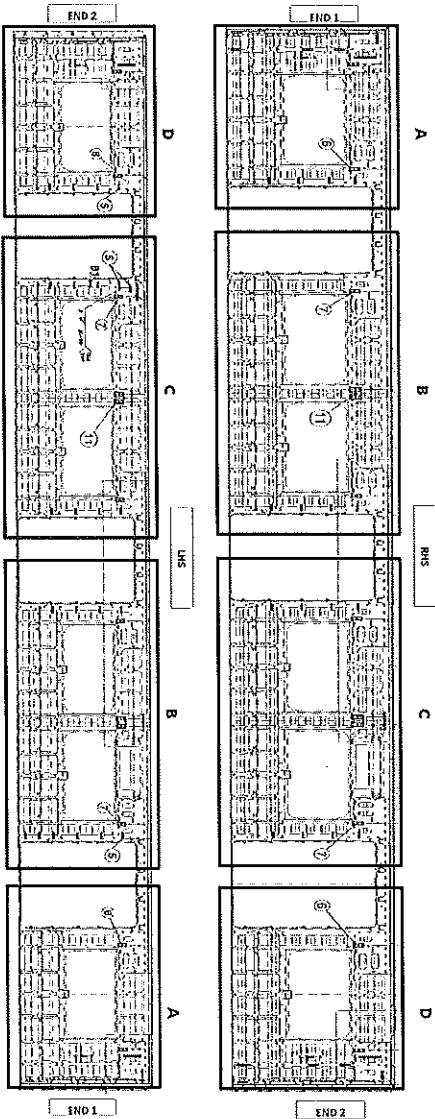
ENDS

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

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

II - Self Inspection - Items to Check

M1/M3/M4 BRACKET INSTALLATION



QUANTITIES (M3/M4)

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

ROOF ENDS:

GRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY: *Handwritten signature*

QUANTITIES (M1)

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

ROOF ENDS:

GRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY: *N/A*

QUANTITIES (M3)

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

ROOF ENDS:

GRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY: *Handwritten signature*

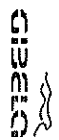
QUANTITIES (M1)

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

ROOF ENDS:

GRAILS 2 OFF EACH END
EARTH BUSH 6 OFF EACH END

VERIFICATION BY: *N/A*



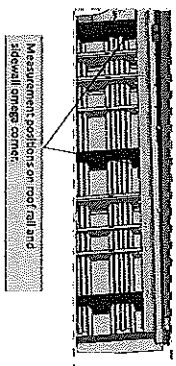
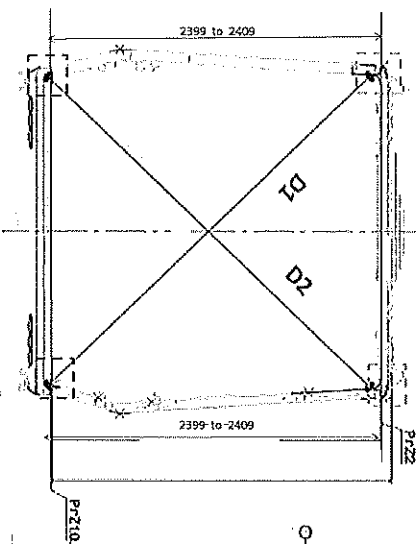
CARBODYSHELL M1/M3/M4 ASSEMBLY
DTR30225487/2

Rev.
29
Date
28/10/2023

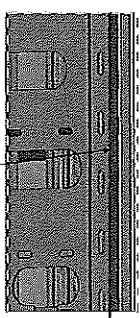
Project: PRASA

SI.CB2220.250.V29

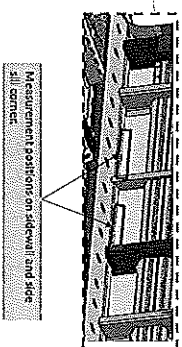
Specifications of Details for CBS measurement



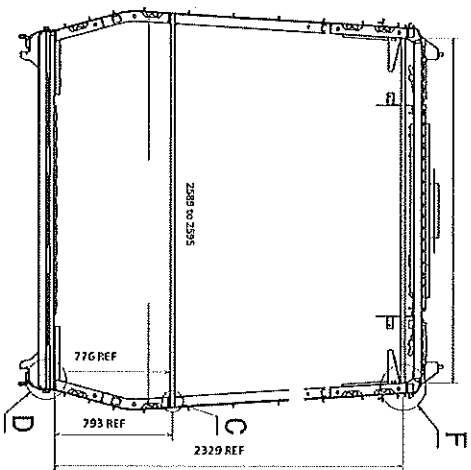
Measurement points on roof rail and sidewall corner.

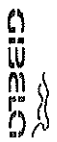


Reinforcement area measurement points on roof reinforcement area.



Measurement points on sidewall and side all corner.





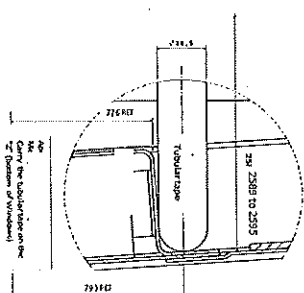
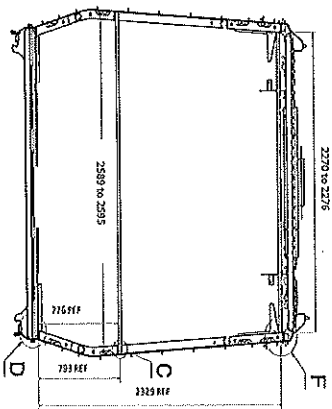
CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR3022487/2

Rev.
Z9
Date
28/10/2023

Project: PRASA

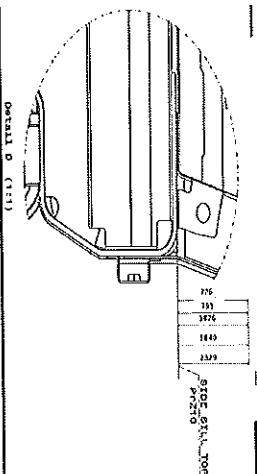
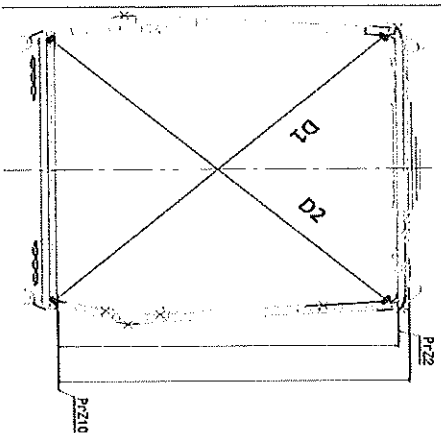
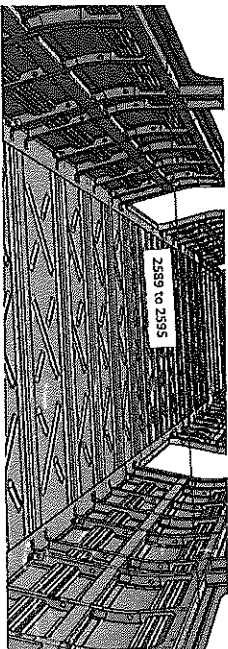
SI.CB2220.250.V29

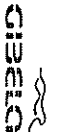
CBS measurement

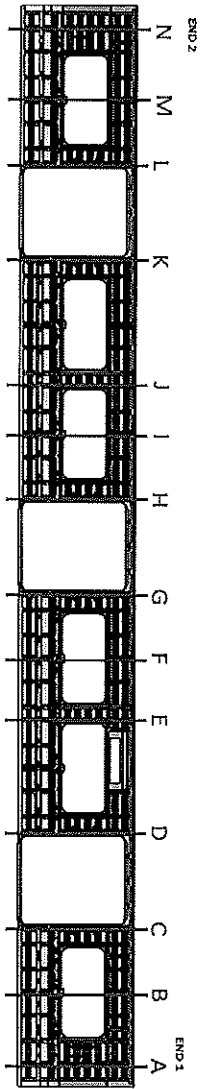


Detail C

Take measurement close to radius

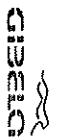


	CARBODYSHELL M1,M3,M4 ASSEMBLY		Rev.	Project: PRASA
	DTR30225487/2		29 Date 28/02/2023	SI.CB2220.250.V29
CBS measurement				



BEFORE WELDING

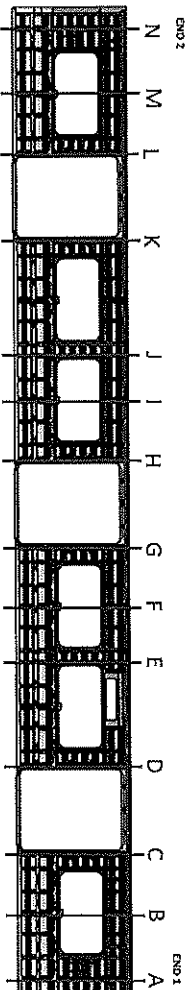
	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3298	3299	1	-
B	3267	3265	2	-
C	3295	3295	0	-
D	3295	3297	2	-
E	3265	3265	0	-
F	3267	3265	2	-
G	3297	3296	1	-
H	3293	3295	2	-
I	3265	3266	1	-
J	3268	3265	3	-
K	3299	3295	4	-
L	3297	3296	1	-
M	3262	3265	3	-
N	3295	3299	4	-



CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR302254872

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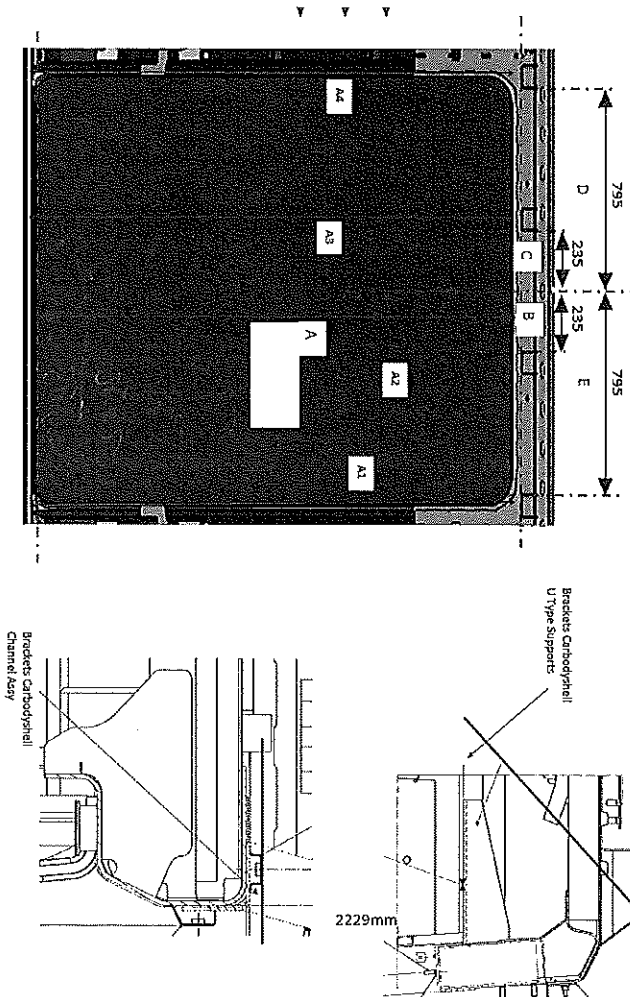
G35 MEASUREMENT



AFTER WELDING

Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A 3297	3300	3	2585
B 3265	3285	0	2590
C 3255	3285	6	3535
D 3287	3298	1	2592
E 3265	3270	5	2595
F 3264	3264	0	2535
G 3295	3295	0	2591
H 3290	3360	0	2591
I 3262	3268	4	2594
J 3268	3270	2	2595
K 3297	3298	1	2591
L 3294	3301	5	2591
M 3264	3268	4	2590
N 3294	3298	4	2594

Specifications of Details for CBS measurement CB1220



DOOR 1 - LHS

VALUE	ACTUAL
A1 2230 to 2232	7232
A2 2230 to 2232	2232
A3 2230 to 2232	2232
A4 2230 to 2232	2232
B 234 to 236	235
C 234 to 236	235
D 794 to 796	795
E 794 to 796	795

DOOR 2 - LHS

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

DOOR 2 - RHS

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

DOOR 1 - RHS

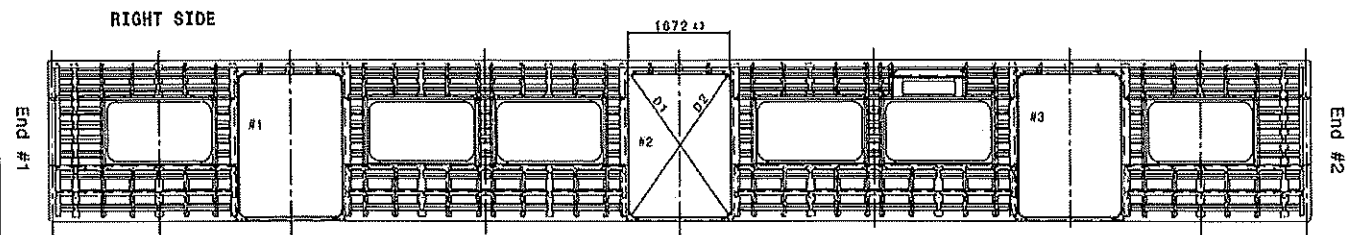
VALUE	ACTUAL
A1 2230 to 2232	2230
A2 2230 to 2232	2230
A3 2230 to 2232	2230
A4 2230 to 2232	2230
B 234 to 236	235
C 234 to 236	235
D 794 to 796	795
E 794 to 796	795

DOOR 2 - RHS

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

DOOR 3 - RHS

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

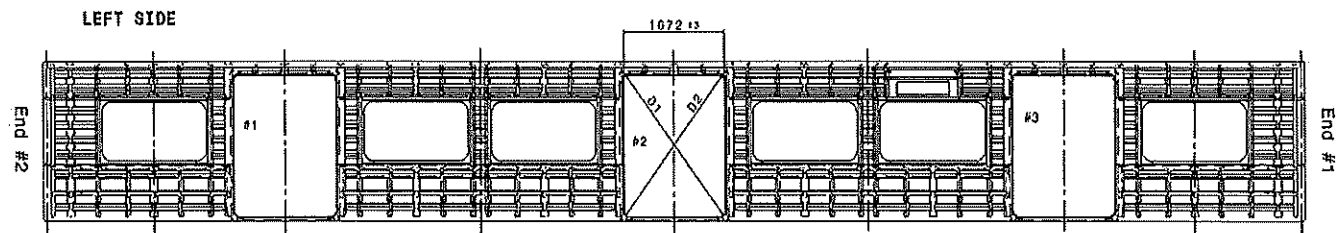


Doors length - 1672 ±3mm

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

Doors diagonal D1-D2 maximum difference ≤4mm

	#1	#2	#3
D1	2750	2748	2747
D2	2752	2749	2748
D1-D2	2	1	1



Doors length - 1672 ±3mm

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

Doors diagonal D1-D2 maximum difference ≤4mm

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

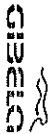
	CARBODYSHELL M1,M3,M4 ASSEMBLY DTR30225487/2	Rev.	Project: PRASA
		29	
		Date	SI.CB2220.250.V29
		28/10/2023	

Self Inspection - Final Result

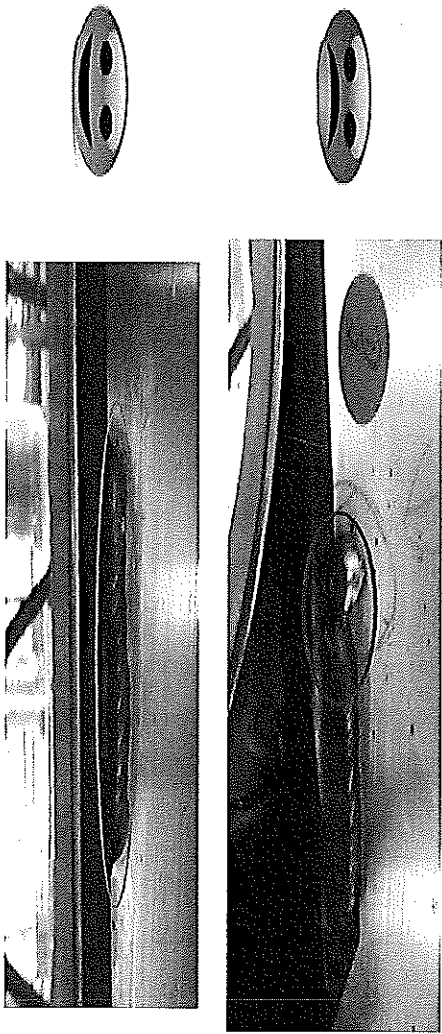
Is the self good to advance to the next workstation/process? (Approval of Operations Manager and Industrial Quality)		DATE	NAME	SIGNATURE
HOLD POINT	GO			
In case of "NO GO", describe blocking problems				
In case of "NO GO", the operations manager must define below action plan to ensure "GO":				
Item	Description	Responsible	Due date	Status

Operations

Quality

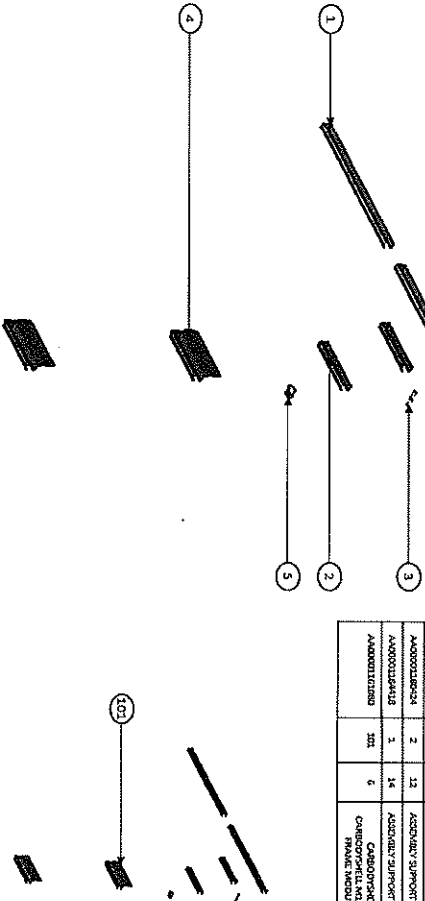
	Rev.		Project: PRASA
	29		
	Date	29/10/2023	
CARBODYSHELL M1,M2,M4 ASSEMBLY DTR3022548712			SI.CB2220.250.V29

ANNEXURE A: Arc Welding Quality Acceptance Standard



Station: CB1220-004- U108 & U107

PART NO.	ITEM NO.	QTY	DESCRIPTION	MASS (KG)
0700C00716B0	5	6	LATCH STUD 6	0.296
A400001301B0	4	6	ASSSEMBLY SUPPORT	0.271
0700C03140G5	3	12	WELDING STUD 30X35X1.6 F-16020-50T	0.007
A400001308C4	2	12	ASSSEMBLY SUPPORT	0.293
A400001344A18	1	14	ASSSEMBLY SUPPORT	0.522
A400001101B0	101	6	CARBODYSHELL BRACKETS CARBODYSHELL M1/M2/M4 CARBOSIDE FRAME MODULE (20-079)	12.112



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	SITION	CAR TYPE					WORK INSTRUCTION	SAFETY ?
				TC	MA	MC	MS	TC		
☐	DT0000025467	CARBODYSHELL M1,M3,M4-ASSEMBLY	CB2230	☒	☒	☒	☒	☒	PRA.CB2230.DT0000002 25487.V20	YES
☐										
☐										
DATE	MODIFICATION CONTENT	RESPONSIBLE	NAME	DATE						
0	2018/08/02	GIBELA NEW CREATION	APPROVER Philippe Marques	2018/08/02						
			CHECKER Nodizo Pindela	2018/08/02						
			COMPILER Nodizo Pindela	2018/08/02						
			APPROVER Itumeleng Modiba	30/5/2018						
			CHECKER Nodizo Pindela	30/5/2018						
			REVISOR BY Nodizo Pindela	30/5/2018						
1	30/5/2018	Team leader and Quality Technician to sign Change final signature from PWE Manager to Quality manager	APPROVER Itumeleng Modiba	2018/05/07						
			CHECKER Nodizo Pindela	2018/05/07						
			REVISOR BY Randolone Motzama	2018/05/07						
2	2018/05/07	Certain dimensional checks moved to CB1220	APPROVER Itumeleng Modiba	24/01/2019						
			CHECKER Nodizo Pindela	24/01/2019						
			REVISOR BY Vanessa Ntuli	24/01/2019						
5	24/01/2019	As per Baseline 10.2	APPROVER Itumeleng Modiba	13/05/2019						
			CHECKER Nodizo Pindela	13/05/2019						
6	13/03/2019	Added Twist and Door Bracket Measurements Remove Door Measurements	APPROVER Nodizo Pindela	13/03/2019						
			REVISOR BY Nodizo Pindela	13/03/2019						
10	23/08/2019	New Baseline 10.2.5	APPROVER Itumeleng Modiba	23/08/2019						
			CHECKER Nodizo Pindela	23/08/2019						
			REVISOR BY Nodizo Pindela	23/08/2019						
15	08/08/2020	New Baseline 10.2.6	APPROVER Bongane Masina	06/08/2020						
			REVISOR 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						
			REVISOR BY Bongane Masina	19/04/2021						
25	20/02/2022	New Baseline change 10.3.1	APPROVER Andani Muthelo	20/02/2022						
			CHECKER Andani Muthelo	20/02/2022						
			REVISOR BY Andani Muthelo	20/02/2022						
26	14/06/2022	Update minimum temperature requirement for sealant application	APPROVER Collins Mkhombhi	14/06/2022						
			CHECKER Andani Muthelo	14/06/2022						
			REVISOR BY Andani Muthelo	14/06/2022						
27	26/07/2022	Threshold measurements addition	APPROVER Andani Muthelo	26/07/2022						
			CHECKER Andani Muthelo	26/07/2022						
			REVISOR BY Andani Muthelo	26/07/2022						
28	17/10/2022	Added traceability of sealant application	APPROVER Collins Mkhombhi	17/10/2022						
			CHECKER Mokoziso Zwane	17/10/2022						
			REVISOR BY Amogelang Mchampe	17/10/2022						
29	14/04/2023	Added sealant batch number & welding consumables traceability	APPROVER Vanessa Ntuli	14/04/2023						
			CHECKER Mokoziso Zwane	14/04/2023						
			REVISOR BY Amogelang Mchampe	14/04/2023						
30	06/11/2023	Added threshold traceability for boiler makers and welders	APPROVER Ngobeni Tyson	06/11/2023						
			CHECKER Andani Muthelo	06/11/2023						
			REVISOR BY Mokoziso Zwane	06/11/2023						
TRAINSET	CAR	OPERATOR NAME, ALPS NO	DATE	SELF INSPECTION NUMBER	PAGES					
210	M4	Zonke 148274 09102224	51.CB2230.256.V29	12						



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Car:

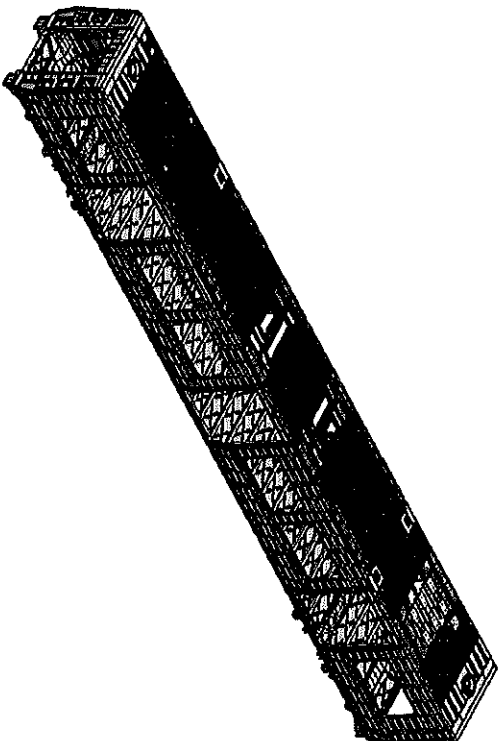
NCR:

Work station:

CB2230



Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

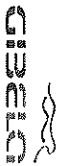
Document	Type of car					Revision	Observation	OK	NOK	Recor	Signature/Date (Operations)	Signature/Date (Quality)
	M1	M2	M3	M4	TC2							
PRA CB2230.DT00000225487						30		X		N/A	10/06/24	10/06/24

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	22418	03/06/2024	X		10/06/24 27	10/06/24 27
Combustion square	GIB50137	2024/10/11	X		10/06/24 27	10/06/24 27
tape Measurement	GIBTA0394	2024/04/105	X		10/06/24 27	10/06/24 27

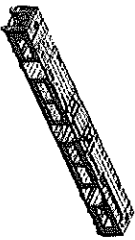
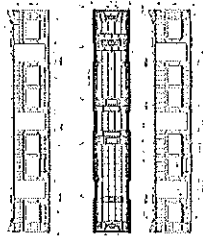
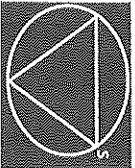
I.3 Consumables

Welding Consumable Control - Used for Special Process						
Filler Material	Heat Number	Welding Process	OK	NOK	Signature/Date (Manufacturing)	Signature/Date (Quality)
308	14348-A	mg	X		for 10/01/24	10/01/24

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			Date	
			06/11/2023	SI.CB2230.256.V29

II - Self Inspection - Items to Check

II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	NOT	REWORK	Signature/Date (Operations)	Signature/Date (Quality)
01	N/A	Assembly according to Instruction Engineering n° PRA.CB1230.DT00000225487 Verification of fitment for all brackets.	PRA.CB1230.DT00000225487	☒	☐	☐	 09/01/24	 09/01/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	☒	☐	☐	 09/01/24	 09/01/24
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	☒	☐	☐	 09/01/24	 09/01/24
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	☒	☐	☐	 09/01/24	 09/01/24
05		Functionals dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	☒	☐	☐	 09/01/24	 09/01/24
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.	☒	☐	☐	 09/01/24	 09/01/24
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 Relative Humidity Min - Max (1) Min-Max 10°C - 35°C 25% - 80%	Sealant Batch No: <u>154</u> to <u>163</u> Exp Date: <u>05/24</u> Actuals Temperature: <u>31°C</u> Humidity: <u>39%</u>	☒	☐	☐	 09/01/24	 09/01/24
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	☒	☐	☐	 09/01/24	 09/01/24
09	N/A	Verification of sealant application in certain regions in the drawing.	AAD0001278566	☒	☐	☐	 09/01/24	 09/01/24



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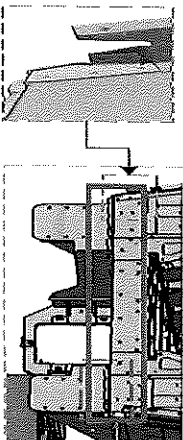
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II - Self Inspection - Items to Check

END 2 SEALANT

AREA 1



OPERATOR
(Name & sign):

Leroy

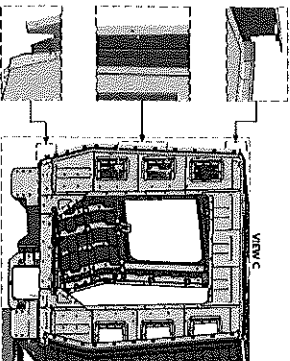
OPERATOR
(Name & sign):

Leroy

OPERATOR
(Name & sign):

Leroy

AREA 2 (VIEW C)



bottom

bottom

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

Operator (Name & sign):

E. M. J. E.

E. M. J. E.

Operator (Name & sign):

Burle

Operator (Name & sign):

Bailumele

Operator (Name & sign):

Bailumele

Operator (Name & sign):

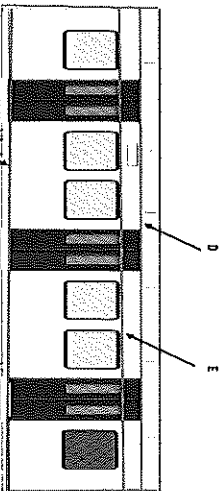
Zanele

Operator (Name & sign):

Khuselo

Khuselo

H





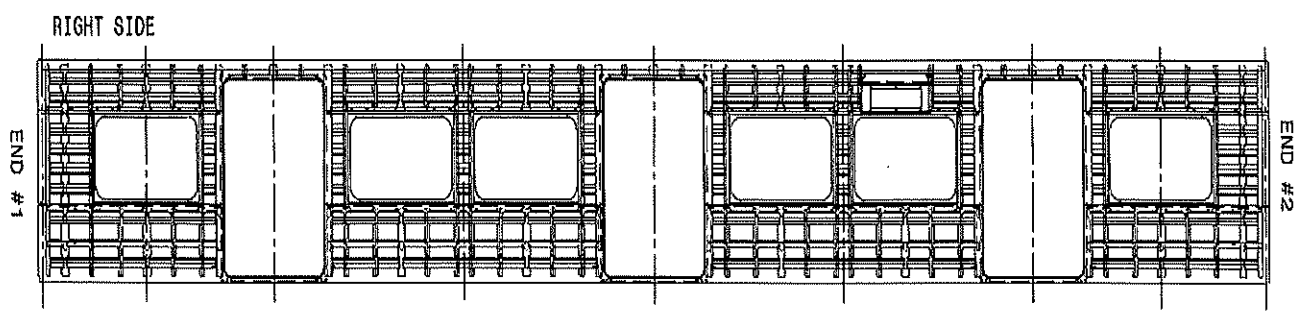
CARBODYSHELL M1 M3 M4 ASSEMBLY
DT00000225487

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30	06/11/2023

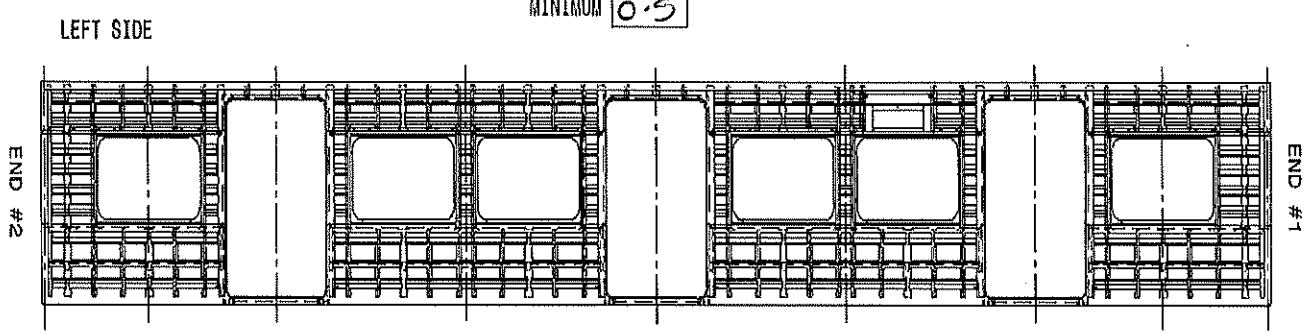
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Specifications of Details for CBS measurement CB1230

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.



MAXIMUM 1
MINIMUM 0.5



MAXIMUM 0.2
MINIMUM 0.3



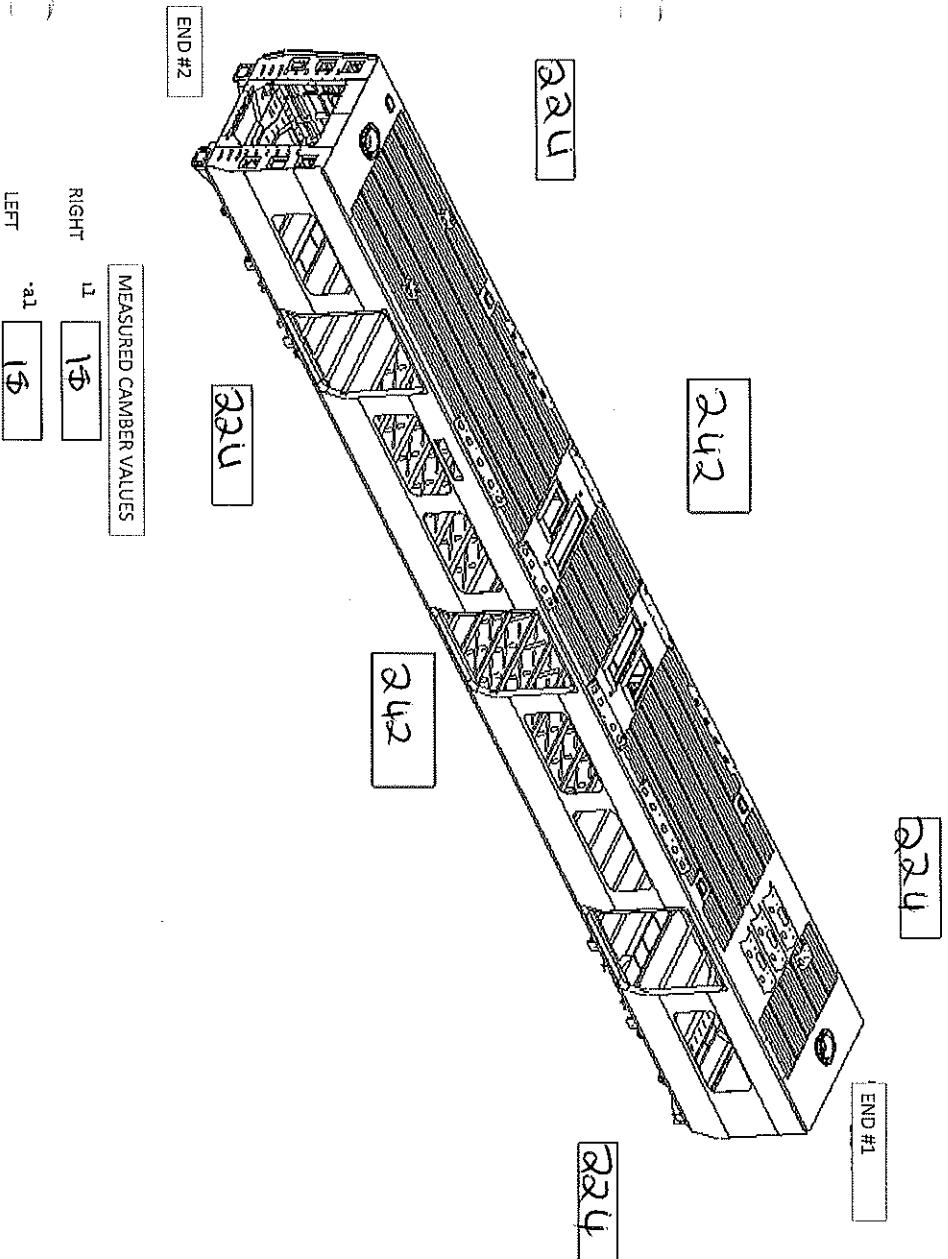
CARBODYSHELL M1,M3,M4 ASSEMBLY
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Specifications of Details for CBS measurement CB1230

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





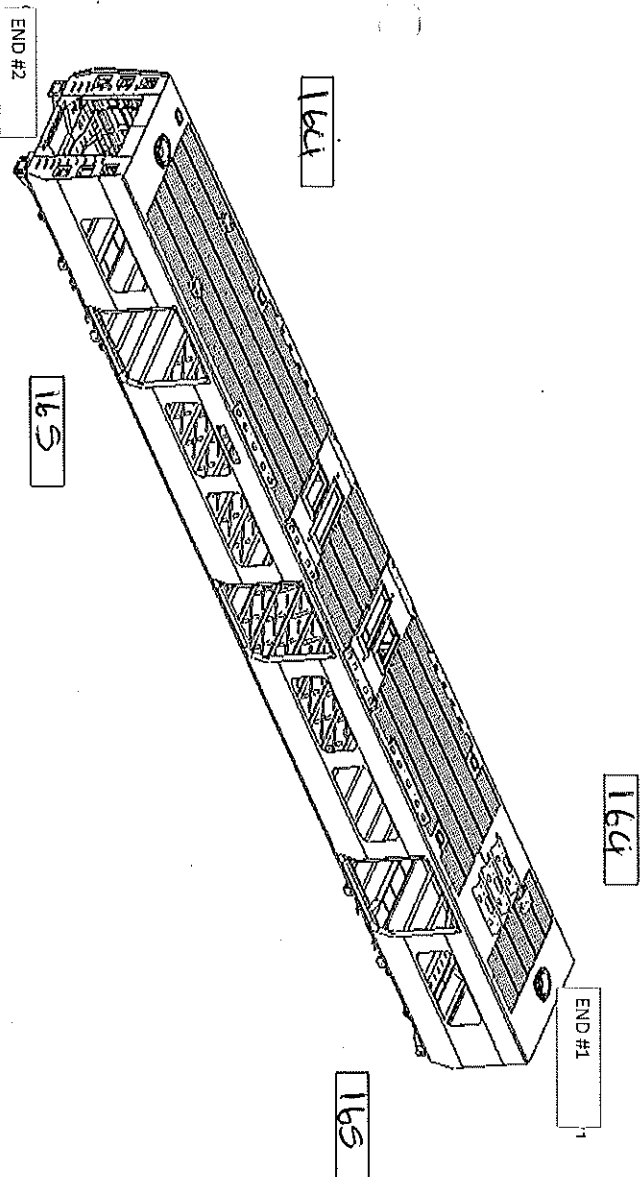
CARBODYSHELL M1,M3,M4 ASSEMBLY
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Specifications of Details for CBS measurement CB1230

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



TWIST FOUND ON END 1

TRANVERSE

1

LONGITUDINAL

0

TWIST FOUND ON END 2

TRANVERSE

1

LONGITUDINAL

0

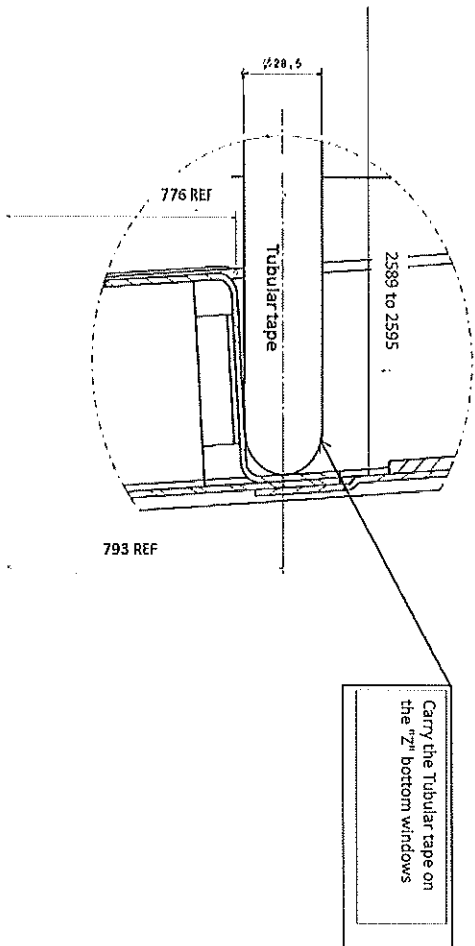


CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000225487

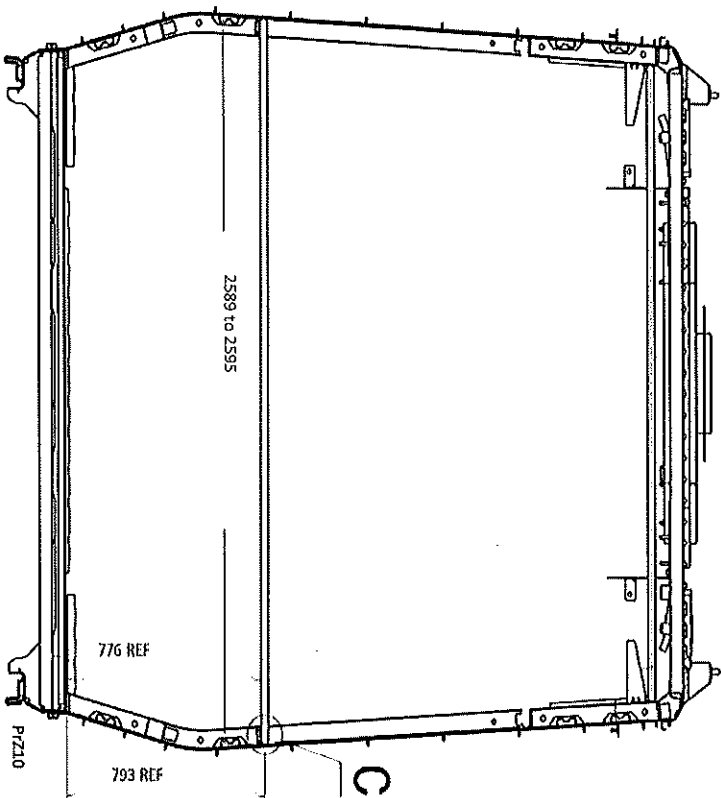
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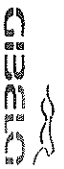
Project: PRASA
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Specifications of Details for CBS measurement CB1730



Detail C



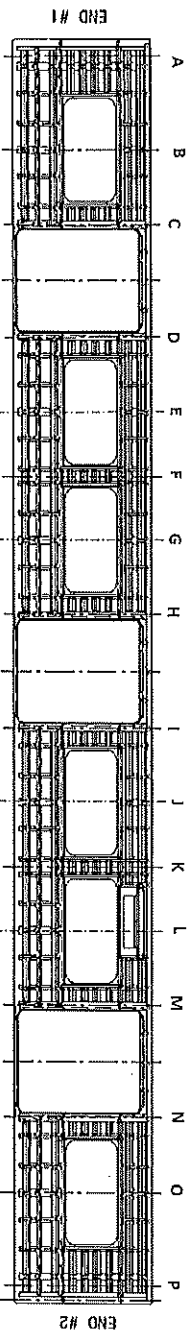


CARBODYSHELL M1 M3 M4 ASSEMBLY
DT00000225487

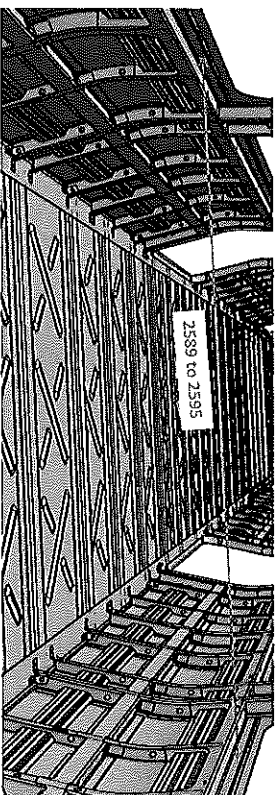
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Specifications of Details for CBS measurement C31230



2589 to 2595mm	
A	2595
B	2590
C	2595
D	2592
E	2593
F	2595
G	2593
H	2591
I	2591
J	2589
K	2590
L	2591
M	2592
N	2593
O	2594
P	2594



Threshold verification

Nominal value :38

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

BOILER MAKER:

Malajie

WELDER:

Mphokozisi Habelo

Dye penetrant test

Dye-penetration test to be performed by quality personnel





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Specifications of Details for CBS measurements

[illegible]

11.2 - Check List REX

Check List Items

Item	Picture/Drawing	Description	Criteria/Record	OK	NOK	Remarks	Signature/Date (operations)	Signature/Date (quality)
01	N/A	To complete REX	Refer to REX. Now defects must be added on the REX					

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Self Inspection - Final Result

Is the car good to advance to the next workstation/process? (Approval of Operations and Industrial Quality)		DATE	NAME	SIGNATURE
HOLD POINT	GO	09/01/24	Zarek Operations	
		01/01/24	Andani Industrial Quality	
	NO GO			
(If activities are not complete, the missing activities must not impact the next stage) Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.) There are activities pending that impact the activities of the next process Ops. (To describe problems below) There are non-conformities impact the quality of the product and there is no corrective action defined yet)				

In ca. of "NO GO", describe blocking problems

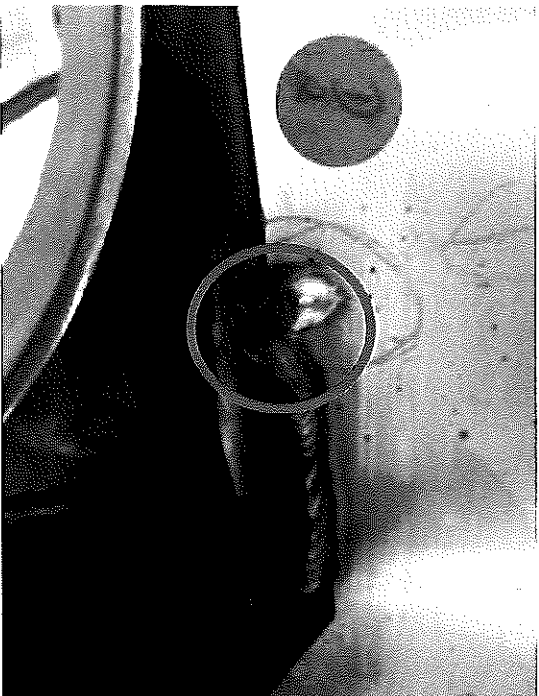
In case of "NO GO", the operations manager must define below action plan to ensure "GO":				
Item	Description	Responsible	Due date	Status

Operations

Quality

 GIBBELCO	CARBODYSHELL M1,M3,M4 ASSEMBLY DT00000225487		Rev. 30 Date 06/11/2023	Project: PRASA SI.CB2230.256.V29
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ANNEXURE A: Arc Welding Quality Acceptance Standard



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

ANNEXURE B: Sealant

