



CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3

Rev. 31
Date 07/11/2023

Project: PRASA
SI.CB2210.254.V30

Car: M3 & M4

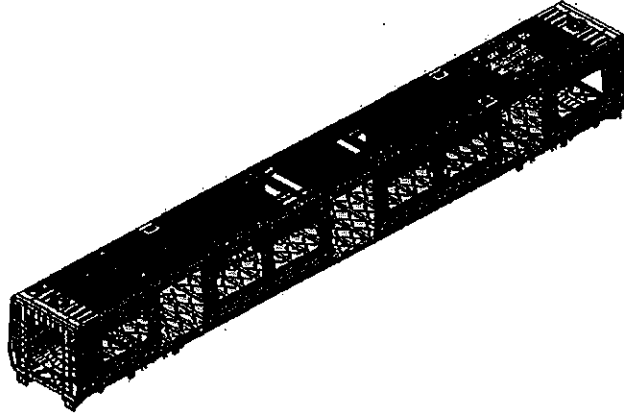
NCR:

Work station:

CB2210



Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	Type of car						Revision	Observation	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
	T	M	M	S	M	P					
DTR30225487/3				X					✓	[Signature]	15/04/24

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	32823-2	15/03/24	✓	[Signature] 15/04/24	[Signature] 15/04/24
30M TAP	618TP 0084	14/03/24	✓	[Signature] 15/04/24	[Signature] 15/04/24
LASER TAP	128425924	08/01/24	✓	[Signature] 15/04/24	[Signature] 15/04/24

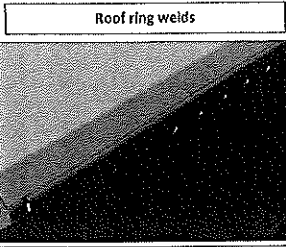
I.3 Consumables

Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK	Signature/Date (Manufacturing)	Signature/Date (Quality)
AUTOD 308 LSI	E24880	MIG	✓	[Signature] 15/04/24	[Signature] 15/04/24
KIC 309 LSI	318394	MIG	✓	[Signature] 15/04/24	[Signature] 15/04/24

GIBELA RAV TRANCO
 IMPRESA...
 ATTEN...
 2024-04-15
 Signature

Welding Traceability



LHS
 Boiler maker (Name & Sign): Timoto [Signature] Welder (Name & Sign): Thebang [Signature]

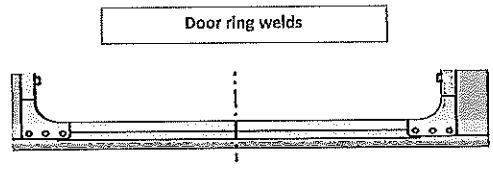
RHS
 Boiler maker (Name & Sign): Timoto [Signature] Welder (Name & Sign): Thebang [Signature]

END 1

LHS
 Boiler maker (Name & Sign): Timoto [Signature] Welder (Name & Sign): Thebang [Signature]

RHS
 Boiler maker (Name & Sign): Timoto [Signature] Welder (Name & Sign): Thebang [Signature]

END 2



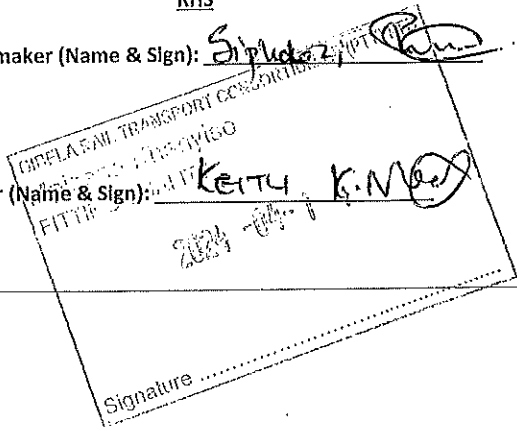
LHS
 Boiler maker (Name & Sign): Siphatozi [Signature]

Welder (Name & Sign): KEITU K.MO

RHS
 Boiler maker (Name & Sign): Siphatozi [Signature]

Welder (Name & Sign): KEITU K.MO

Signature



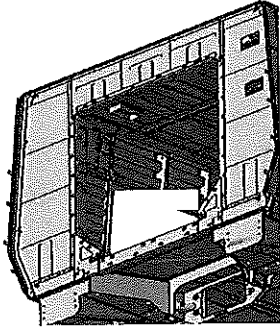
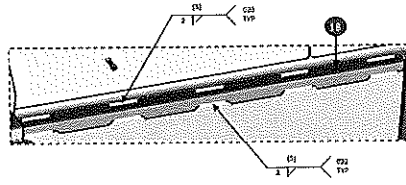


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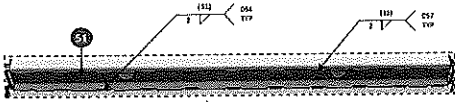
EUJ Reinforcement Plates



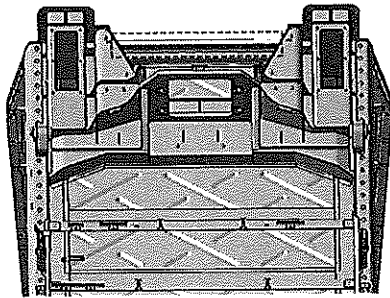
END 1

Boiler maker (Name & Sign): Lawrence Illojan

Welder (Name & Sign): SIPHO KACI



END 2

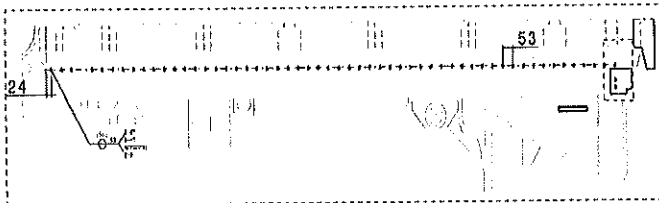


Underneath the CAR

END 2

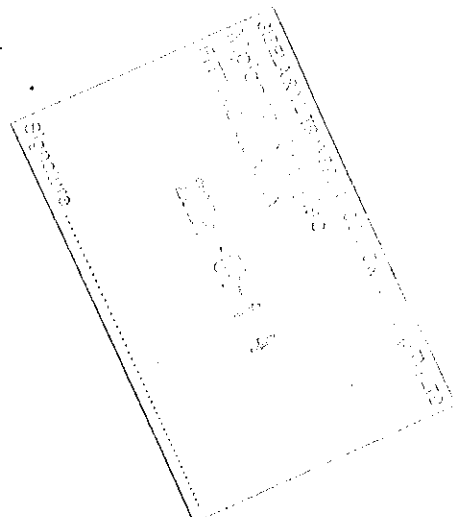
Boiler maker (Name & Sign): Tebago Madalao

Welder (Name & Sign): SIPHO KACI



FEDOLI

Operator: Sipho Kaci



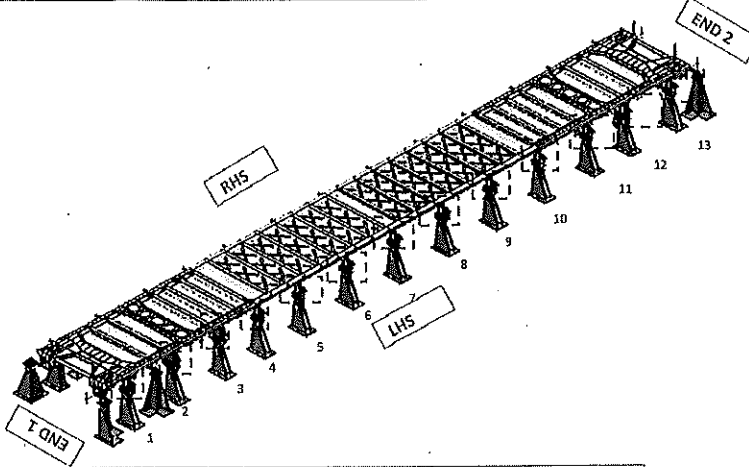


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Specifications of Details for CBS measurement



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: 15/04/24

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: 15/04/24

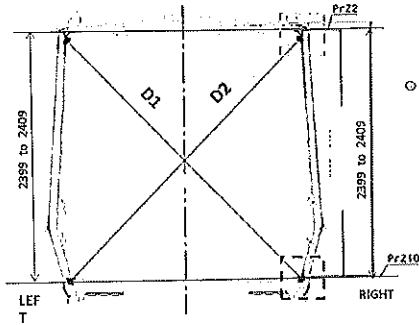
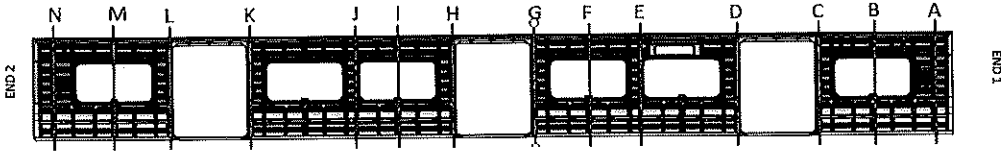
PRASA PROJECT CONSORTIUM RF (PTY) LTD
 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000



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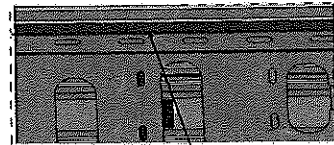
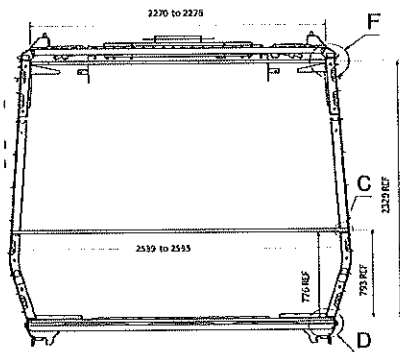
Specifications of Details for CBS measurement



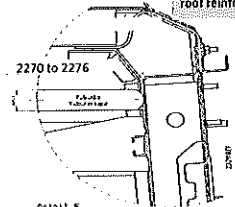
Measurement positions on roof rail and sidewall omega corner.



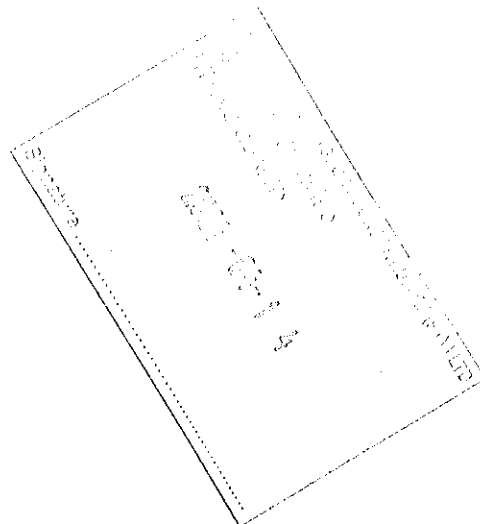
Measurement positions on sidewall and side sill corner.



Reinforcement area measurement positions on roof reinforcement area.



Detail F
Don't consider this reinforcement



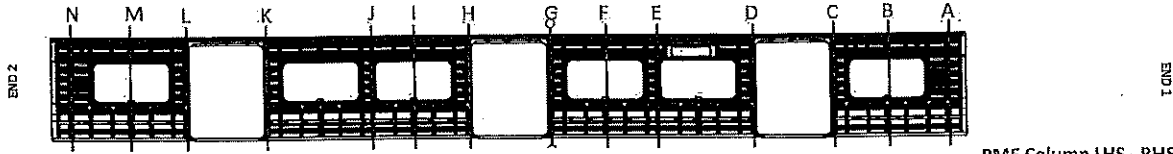


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Specifications of Details for CBS measurement



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	3269	3270	1	2408	2407	1
B	3266	3268	2	2406	2406	0
C	3267	3267	0	2405	2407	2
D	3269	3268	1	2406	2405	1
E	3265	3265	0	2406	2406	0
F	3266	3264	2	2405	2404	1
G	3267	3267	0	2407	2406	1
H	3269	3266	3	2405	2405	0
I	3264	3265	1	2406	2404	2
J	3266	3266	0	2405	2406	1
K	3267	3269	2	2404	2404	0
L	3268	3268	0	2406	2405	1
M	3269	3265	4	2406	2406	0
N	3270	3268	2	2407	2408	1

MOLO
15/04/24

Signature: [Stamp]
2024-04-15

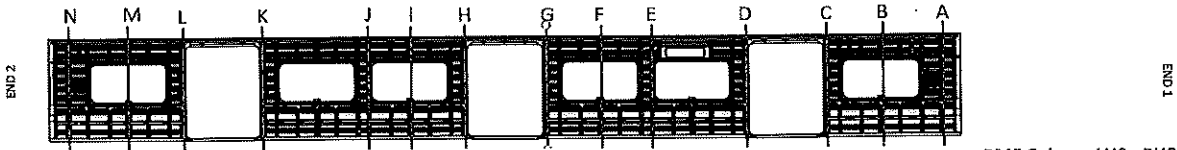


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Specifications of Details for CBS measurement

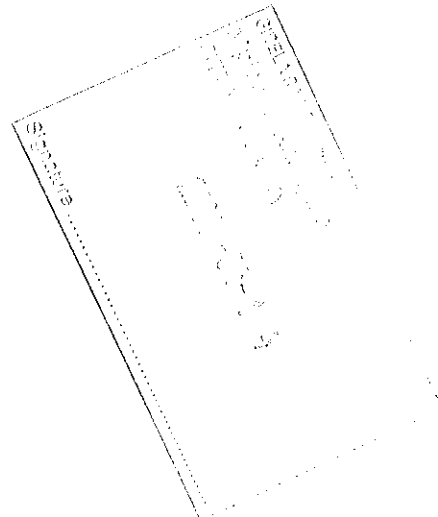


PME Column LHS - RHS should be $\leq 2\text{MM}$ on each point.

AFTER WELDING

	Record D1 values	Record D2 values	D1-D2 $\leq 5\text{mm}$	2399 to 2409	2399 to 2409 (RHS)	LHS-RHS ≤ 2
A	3294	3295	1	2408	2409	1
B	3266	3268	2	2407	2406	1
C	3294	3294	0	2406	2405	1
D	3295	3294	1	2406	2406	0
E	3266	3266	0	2407	2405	2
F	3266	3264	2	2406	2407	1
G	3293	3295	2	2405	2405	0
H	3294	3294	0	2406	2404	2
I	3264	3265	1	2405	2405	0
J	3266	3266	0	2406	2405	1
K	3294	3296	2	2405	2407	2
L	3295	3295	0	2406	2405	1
M	3266	3268	2	2406	2406	0
N	3294	3295	1	2408	2408	0


15/04/24





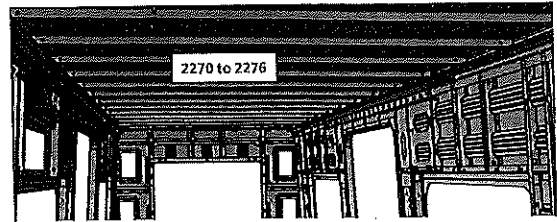
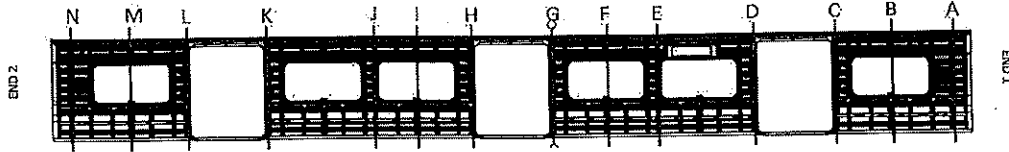
CARBODYSHELL M3,M4 ASSEMBLY DTR30225487/3

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CBS measurement

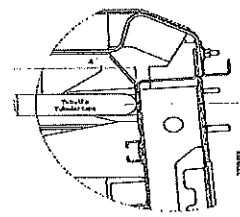
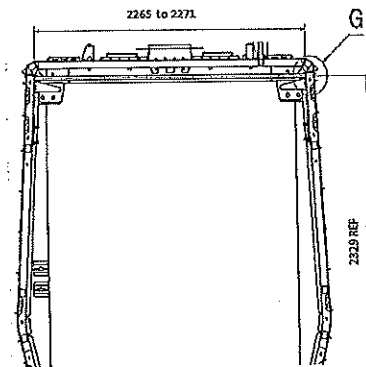
BEFORE WELDING



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

2270 to 2276

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



2265 to 2271

Detail 0
Considering the reinforcement plate

[Handwritten signature]
15/04/24

Signature

2023-03-14



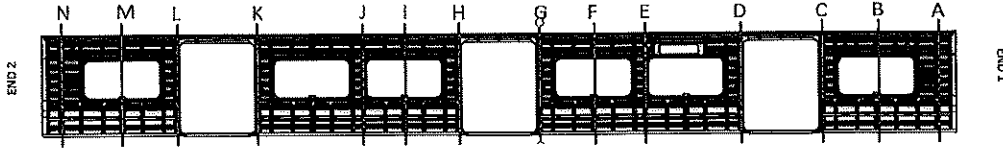
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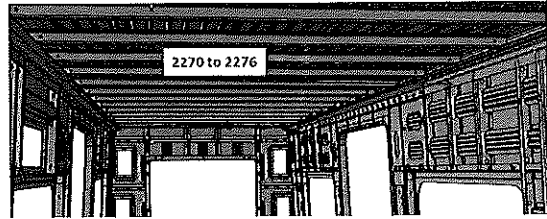
Project: PRASA
SI.CB2210.254.V30

CBS measurement

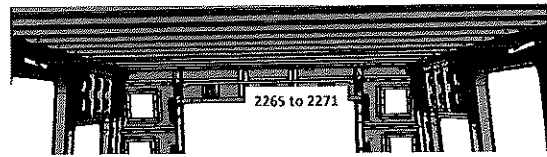
AFTER WELDING



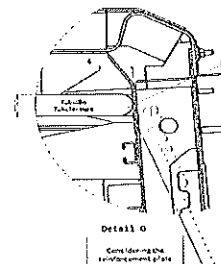
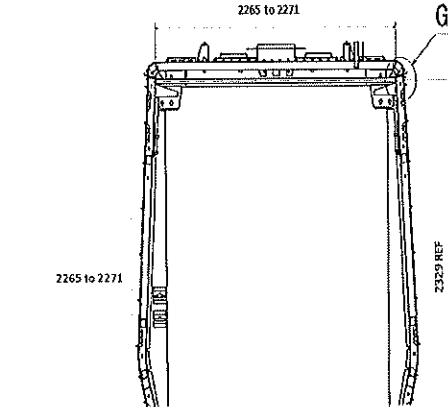
	2265 to 2271	2270 to 2276
A	2270	
B		2275
C	2265	
D	2268	
E		2276
F		2276
G	2265	
H	2266	
I		2275
J		2276
K	2266	
L	2269	
M		2273
N	2268	



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



Take measurement close to radius (considering reinforcement)



10/10
15/04/24

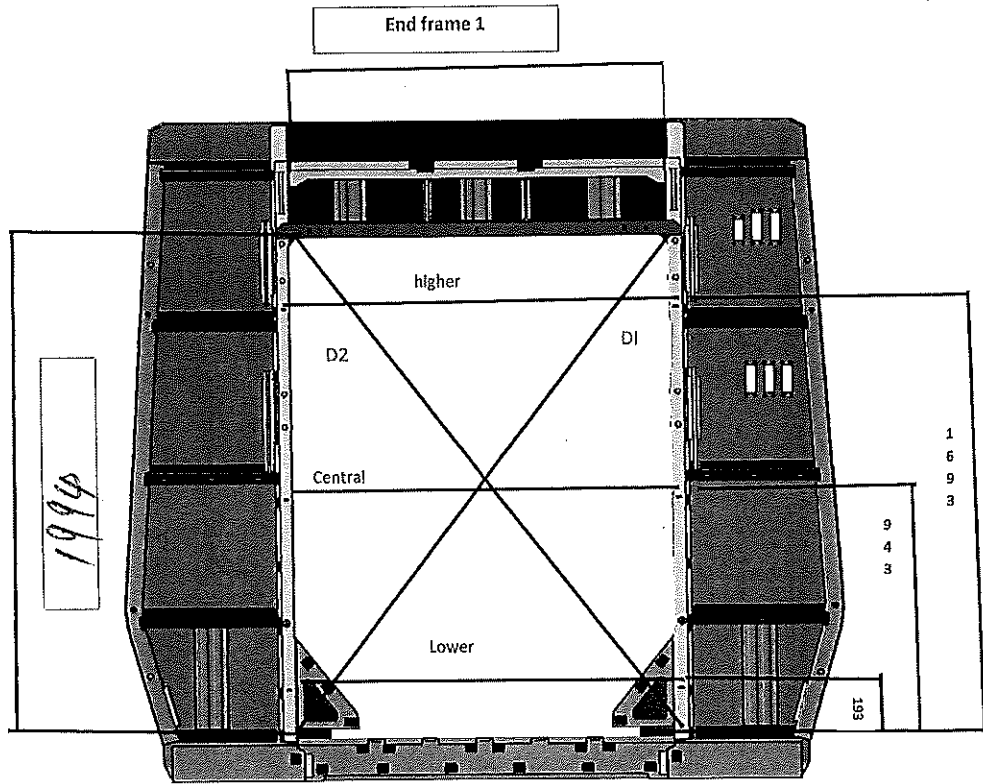


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Specifications of Details for CBS measurement



1380 to 1382 mm

DIAGONAL DIFFERENCE $D1-D2 \leq 3mm$

Higher Dimension

1382

D1

2414

Central Dimension

1382

D2

2413

Lower Dimension

1301

D1-D2

1

10/10
15/04/2023

APPROVED FOR CONSTRUCTION
15/04/2023
FITNESS FOR USE
Signature



CARBODYSHELL M3,M4 ASSEMBLY DTR30226487/3

Rev.

31

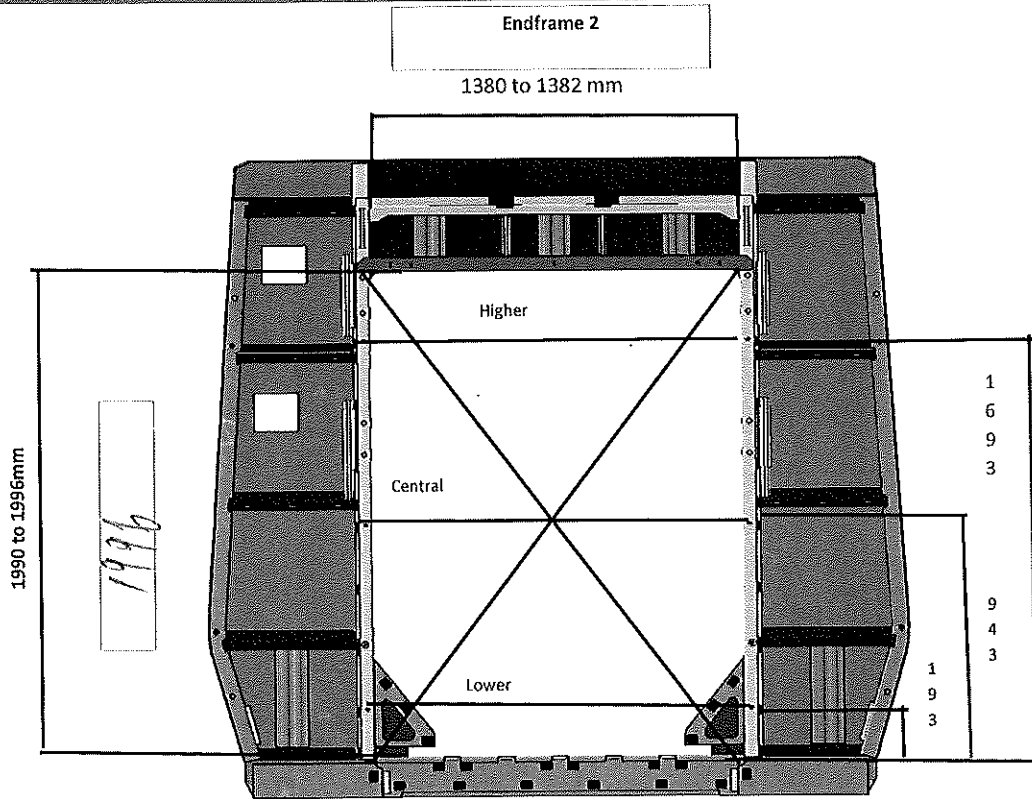
Date

07/11/2023

Project: PRASA

SI.CB2210.254.V30

Specifications of Details for CBS measurement



1380 to 1382 mm

DIAGONAL DIFFERENCE $D1-D2 \leq 3mm$

Higher Dimension

1381

D1

2413

Central Dimension

1381

D2

2414

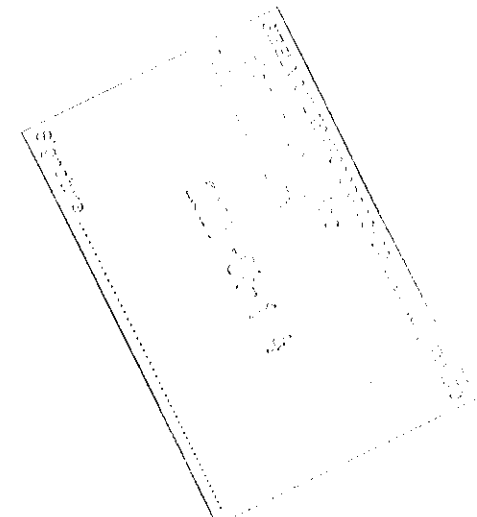
Lower Dimension

1380

D1-D2

7

MO/10
15/04/24





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Self Inspection - Final Result

		DATE	NAME	SIGNATURE
HOLD POINT	GO	(If activities are not complete, the missing activities must not impact the next stage)	15/04/24 L/N/G/A Operations	
		Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	15/04/24 Ardeni Industrial Quality	
		There are activities pending that impact/stop the activities of the next process Obs: (To describe problems below)		
		There are non-conformities impact the quality of the product and there is no corrective action defined yet)		

In case of "NO GO", describe blocking problems

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

Item	Description	Responsible	Due date	Status

Operations

Quality

SIRELA R.M. TRANSPORT CONSTRUCTION (PTY) LTD
 Mplsane Kg 11, ISO
 FITTING QUALITY
 2024-04-14
 Signature



APPLICABLE FOR TRAINSET 100+ ONLY AS PER BASELINE 10.3.1

SELF INSPECTION SHEET

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

APPLICATION REFERENCE													
MOUNTING	DRAWING	DESCRIPTION	STATION	CAR TYPE						WORK INSTRUCTION	SAFETY ?		
				TCR	MP	ML	MD	MR	TR				
<input type="checkbox"/>	OTR302254/7/2	AAD0001278566	CARBOYSHELL M1,M3,MA ASSEMBLY	CB2220		X	X				X	PRA:CB2220.OTR302254/7/2.V21	YES
<input type="checkbox"/>													
<input type="checkbox"/>													
<input type="checkbox"/>													
<input type="checkbox"/>													
<input type="checkbox"/>													
<input type="checkbox"/>													
REV	DATE	MODIFICATION CONTENT			RESPONSIBLE	NAME	DATE						
0	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 length measurements Remove			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	19/04/2021						
					REVISED BY	Bongane Masina	19/04/2021						
21	17/08/2021	ADDED DIMENSIONS BEFORE WELDING			APPROVER	Mbhombi Collins	17/08/2021						
					CHECKER	Mpho Mulaudzi	17/08/2021						
					REVISED BY	Mpho Mulaudzi	17/08/2021						
25	20/02/2022	New Baseline change 10.3.1			APPROVER	Collins Mbhombhi	18/02/2022						
					CHECKER	Andani Muthelo	18/02/2022						
					REVISED BY	Andani Muthelo	18/02/2022						
26	14/06/2022	Update minimum temperature requirement for sealant application			APPROVER	Collins Mbhombhi	14/06/2022						
					CHECKER	Andani Muthelo	14/06/2022						
					REVISED BY	Andani Muthelo	14/06/2022						
27	19/10/2022	Addition of traceability for sealant application & welding			APPROVER	Collins Mbhombhi	19/10/2022						
					CHECKER	Ntokozo Zwane	19/10/2022						
					REVISED BY	Amogelang Mohlampe	19/10/2022						
28	14/04/2023	Added sealant batch number & welding consumables traceability			APPROVER	Vanessa Ntuli	14/04/2023						
					CHECKER	Ntokozo Zwane	14/04/2023						
					REVISED BY	Amogelang Mohlampe	14/04/2023						
29	28/10/2023	Addition of bracket quantity			APPROVER	Ngobeni Tyson	28/10/2023						
					CHECKER	Ntokozo Zwane	28/10/2023						
					REVISED BY	Amogelang Mohlampe	28/10/2023						
TRAINSET	CAR	OPERATOR NAME & ALPES NO	DATE	SELF INSPECTION NUMBER	PAGES								
B222	M03	ASAMU-90774	16-04-24	SI.CB2220.250.V29	13								

RECEIVED
05-17
QUALITY



CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30225487/2

Rev.
29
Date
28/10/2023

Project: PRASA
SI.CB2220.250.V29

Car: M1,M3&M4

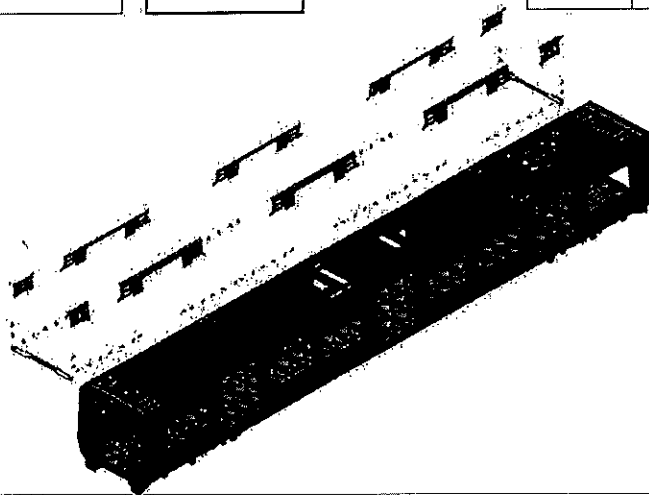
NCR:

Work station:

CB2220



Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	Type of use					Revision	Observation		Signature/Date (Manufacturing)	Signature/Date (Quality)
	TS	TS	TS	TS	TS					
DTR30225487/2			X			29	28-10-2023	X	N/A	16-04-24

I.2 - Instruments Control

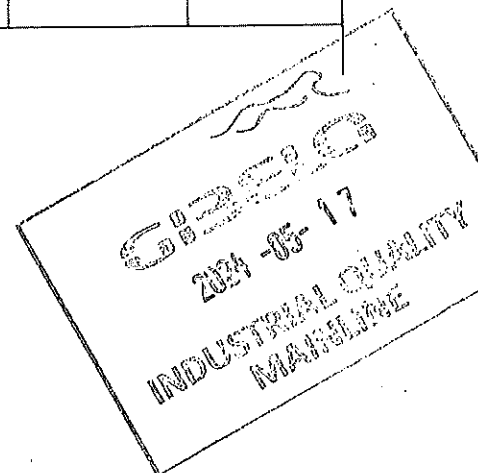
Monitoring and Measuring Instrument Control - Used for Special Process

Instrument	Serial number	Calibration or Verification / Indication Date		Signature/Date (Manufacturing)	Signature/Date (Quality)
Tubular	32823	15/03/2025	X	16-04-24	16/04/24
measuring tape	CF87A0231	10/04/2025	X	16-04-24	

I.3 Consumables








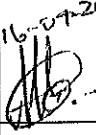

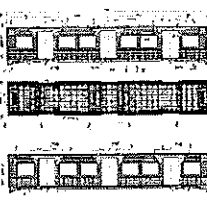


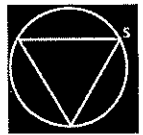
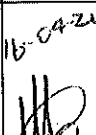

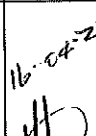

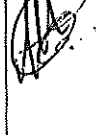


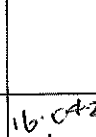
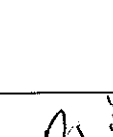
Welding Consumable Control - Used for Special Process

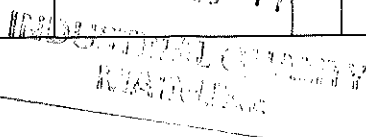
Filler Material	Heat Number	Welding Process		Signature/Date (Manufacturing)	Signature/Date (Quality)
308	275471	MIG	X	16-04-24	16/04/24



II - Self Inspection - Items to Check

II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record			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	/	/	16-04-24 	 16/04/24						
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	/	/	16-04-24 	 16/04/24						
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	/	/	16-04-24 	 16/04/24						
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	/	/	16-04-24 	 16/04/24						
05		Functionals dimensions approved according drawing or complementary document approved by Aistom engineering and registered in this document.	Approved according specified on pages below.	/	/	16-04-24 	 16/04/24						
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.	/	/	16-04-24 	 16/04/24						
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: <table style="font-size: small; margin-left: 20px;"> <tr><td>Temperature Min - Max (I)</td><td>Min-Max</td><td>10°C - 35°C</td></tr> <tr><td>Relative humidity Min - Max (I)</td><td>Min-Max</td><td>25% - 80%</td></tr> </table>	Temperature Min - Max (I)	Min-Max	10°C - 35°C	Relative humidity Min - Max (I)	Min-Max	25% - 80%	Sealant Batch No: <u>2001955P</u> Exp Date: <u>1/05/24</u> Actuals Temperature: <u>16</u> Humidity: <u>71</u>	/	/	16-04-24 	 16/04/24
Temperature Min - Max (I)	Min-Max	10°C - 35°C											
Relative humidity Min - Max (I)	Min-Max	25% - 80%											
08	NA	Verification of sealant application in certain regions in the drawing.	AAD0001278566	/	/	16-04-24 	 16/04/24						
09		Verification of safety welds	Approved according to DTD000210658 reference and Self inspection	/	/	16-04-24 	 16/04/24						

APPROVED
QUALITY
MANAGER




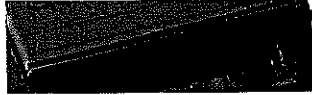
CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30225487/2

Rev.
29
Date
28/10/2023

Project: PRASA
SI.CB2220.250.V29

II - Self Inspection - Items to Check

SEALANT APPLICATION



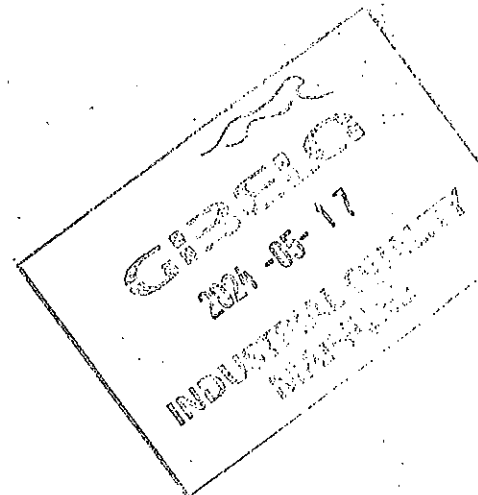
AREA 1 & 2 END 1

Operator (Name & sign):

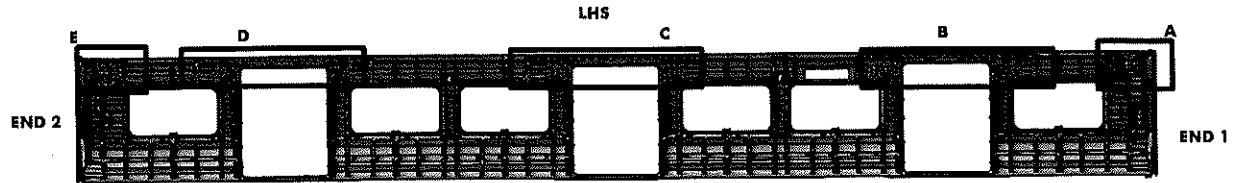
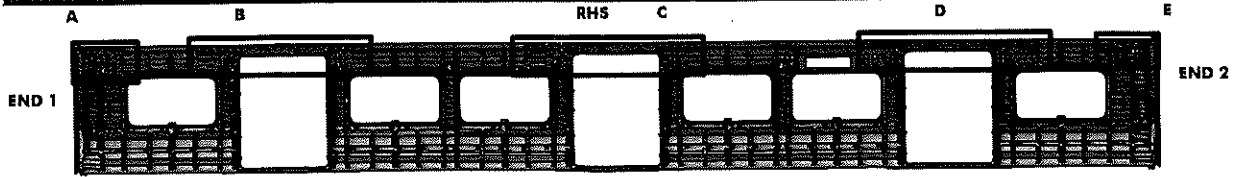
Mthelozzi

Operator (Name & sign):

Mthelozzi



II - Self Inspection - Items to Check



REINFORCEMENT WELDING

AREA	LHS	RHS
A	Operator (Name&sign): <u>Nokulungu Jraw</u>	<u>[Signature]</u>
B	Operator (Name&sign): <u>Nokulungu Jraw</u>	<u>[Signature]</u>
C	Operator (Name&sign): <u>[Signature]</u>	<u>[Signature]</u>
D	Operator (Name&sign): <u>Sibigi</u>	<u>Thulani</u>
E	Operator (Name&sign): <u>Sibigi</u>	<u>Thulani</u>

2024-05-17
INDUSTRIAL QUALITY
INSURANCE



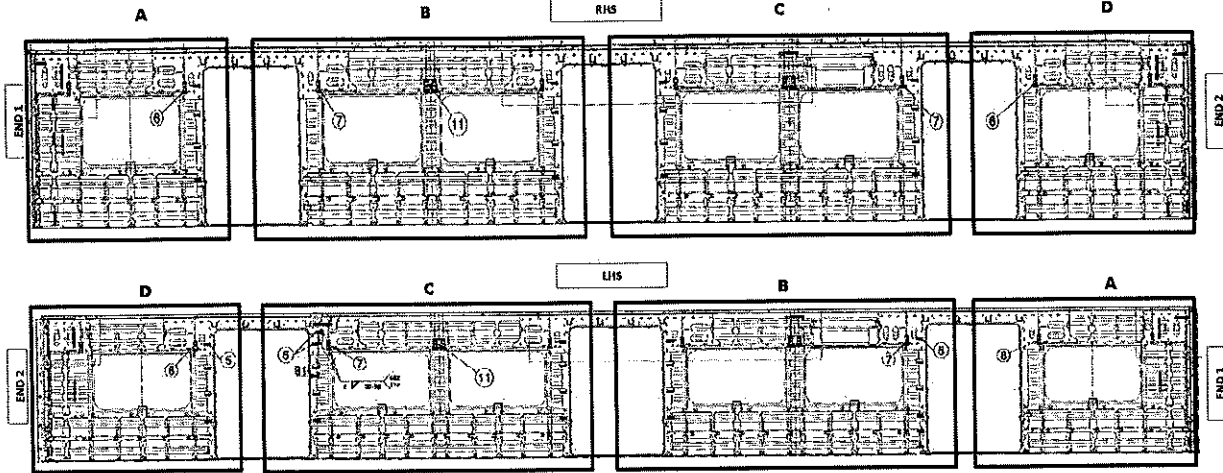
CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30225487/2

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: ASANA

LHS				
	SECTION	QUANTITY	OK	NOK
C-RAILS	A	2		
	B	8		
	C	11		
	D	6		
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: ASANA

QUANTITIES (M1)

RHS				
	SECTION	QUANTITY	OK	NOK
C-RAILS	A	7		
	B	8		
	C	8		
	D	6		
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: _____

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	6		
	D	2		

ROOF ENDS:
 CRAILS 2 OFF EACH END
 EARTH BUSH 6 OFF EACH END

VERIFICATION BY: _____

2023-05-17
 INDUSTRIAL DIVISION
 A. SANA

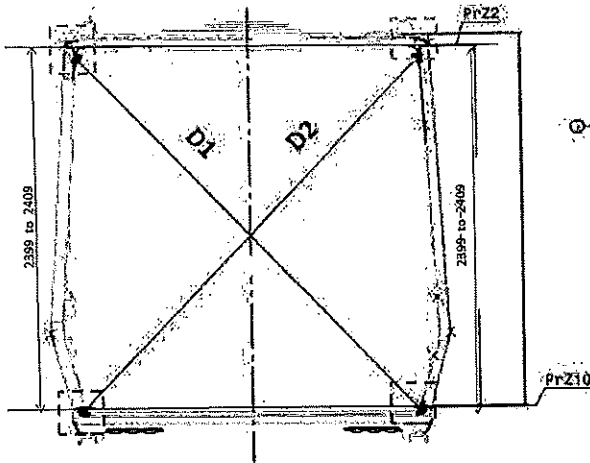


CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30225487/2

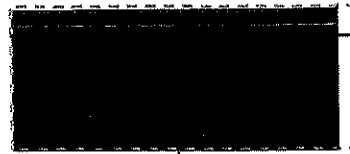
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SI.CB2220.250.V29

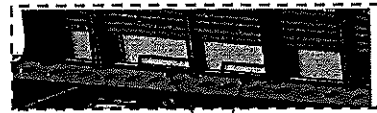
Specifications of Details for CBS measurement



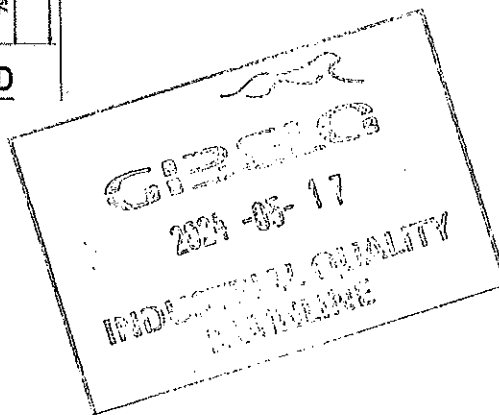
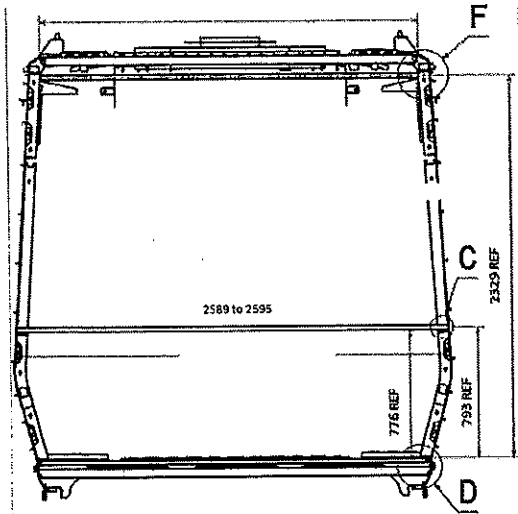
Measurement positions for frame and window opening



Measurement positions for window opening and frame



Measurement positions on sash and side of frame



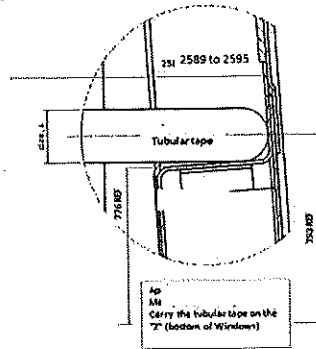
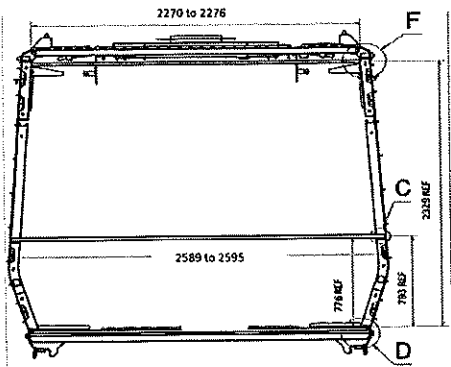


CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30225487/2

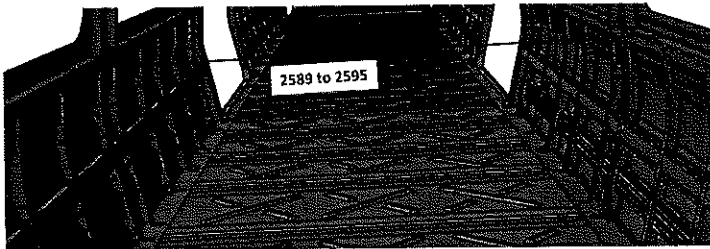
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SI.CB2220.250.V29

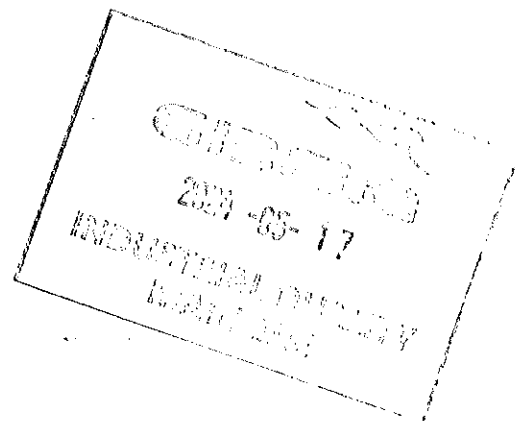
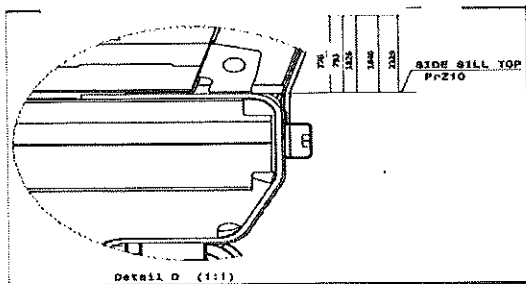
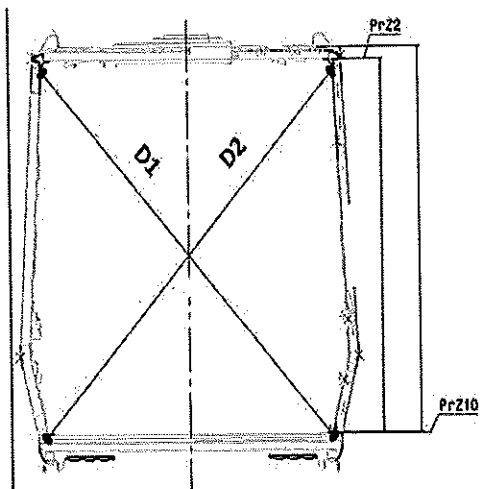
CBS measurement

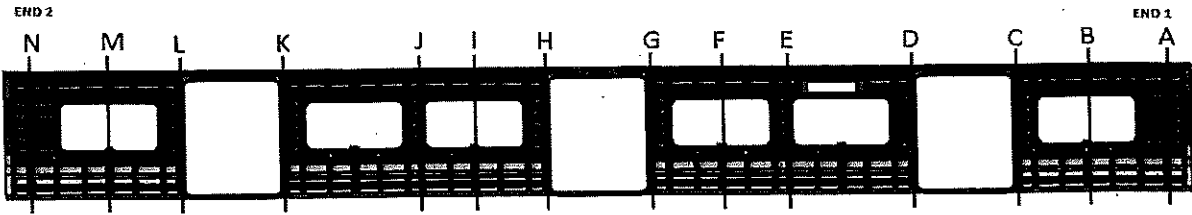


Detail C



Take measurement close to radius

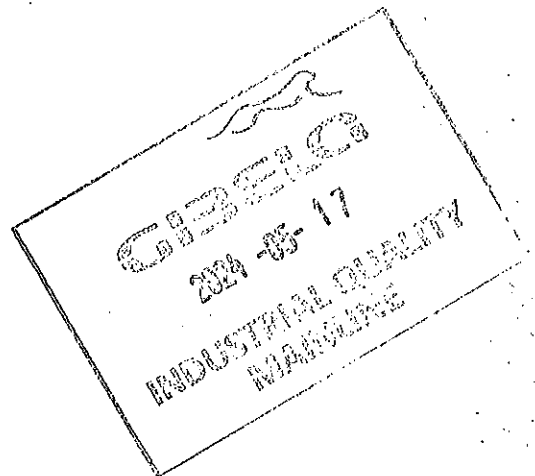




BEFORE WELDING

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3300	3298	2	-
B	3267	3269	2	-
C	3297	3297	0	-
D	3295	3297	2	-
E	3265	3266	1	-
F	3268	3265	3	-
G	3297	3294	3	-
H	3295	3294	1	-
I	3265	3265	0	-
J	3268	3268	0	-
K	3298	3297	1	-
L	3295	3297	2	-
M	3266	3268	2	-
N	3298	3298	0	-


 16-07-24



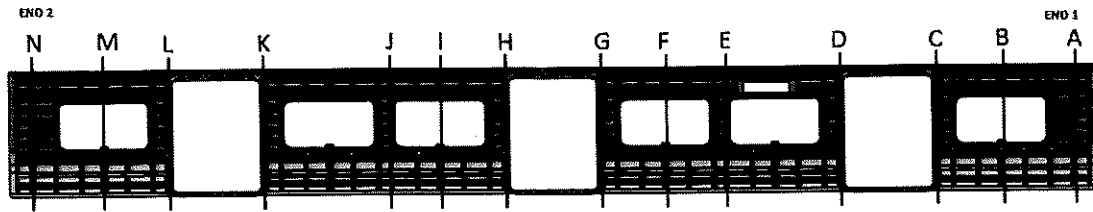


CARBODYSHELL M1,M3,M4 ASSEMBLY
DTR30225487/2

Rev.
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Date
28/10/2023

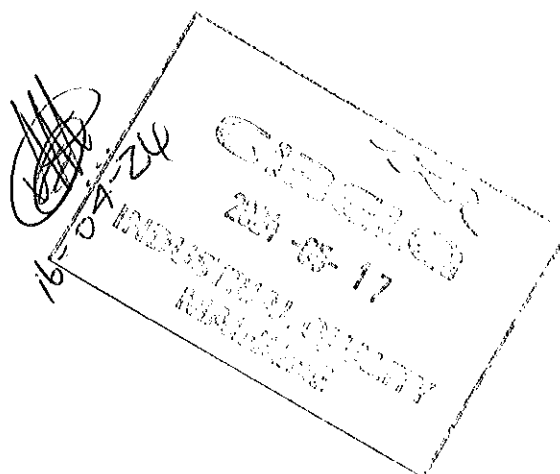
Project: PRASA
SI.CB2220.250.V29

CBS measurement

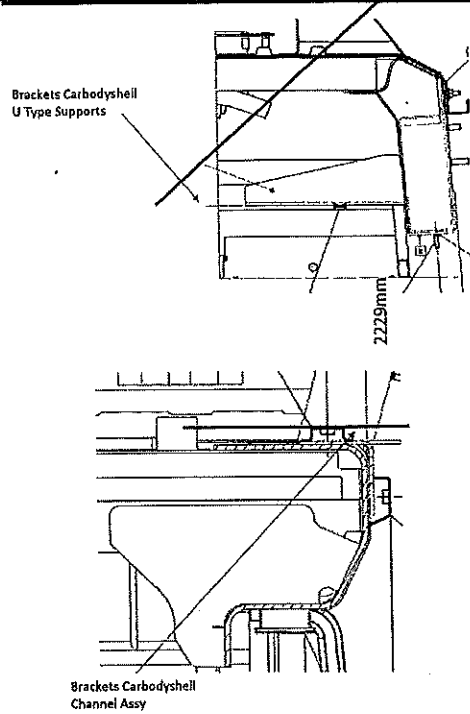
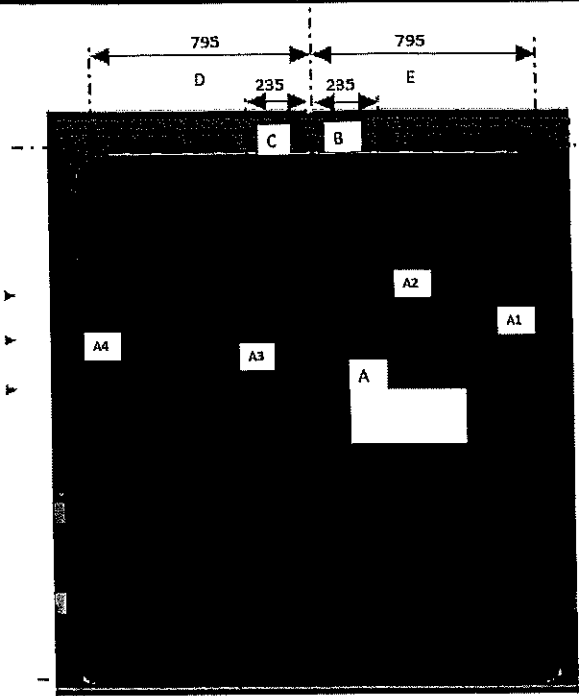


AFTER WELDING

	Record D1 values	Record D2 values	D1-D2 ≤ 5mm	2589 to 2595
A	3295	3297	2	2592
B	3266	3263	5	2593
C	3290	3298	8	2589
D	3300	3294	6	2590
E	3264	3267	3	2595
F	3264	3261	3	2590
G	3291	3294	3	2590
H	3296	3294	2	2592
I	3263	3265	2	2593
J	3266	3268	2	2593
K	3297	3297	0	2593
L	3297	3298	1	2591
M	3264	3266	2	2590
N	3294	3294	0	2593



Specifications of Details for CBS measurement CB1220



DOOR 1 - 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	796

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

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

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

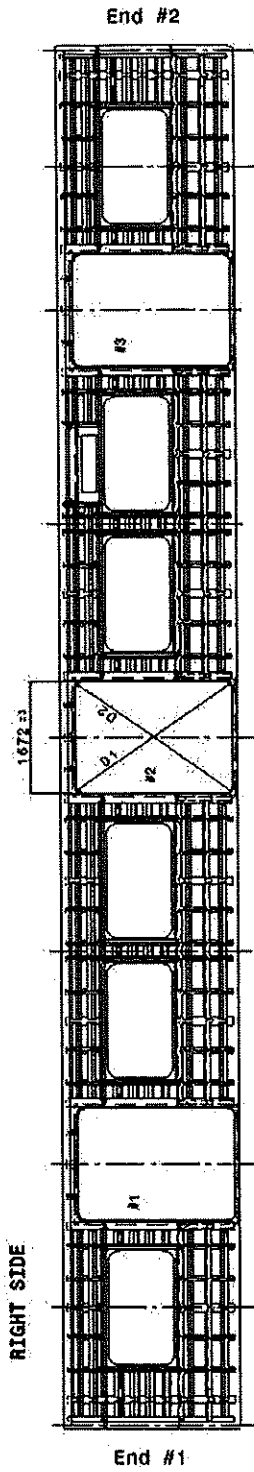
DOOR 2 - RHS		
	VALUE	ACTUAL
A1	2230 to 2232	2232
A2	2230 to 2232	2232
A3	2230 to 2232	2231
A4	2230 to 2232	2232
B	234 to 236	235
C	234 to 236	235
D	794 to 796	795
E	794 to 796	794

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

16-04-24

GIBELG
2024-05-17
INDUSTRIAL QUALITY
MANUFACTURE

Specifications of Details for CBS measurement CB1220

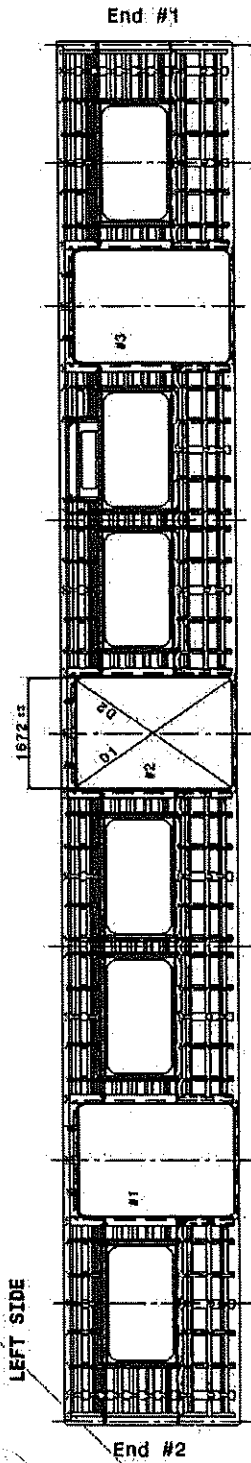


Doors diagonal D1-D2 maximum difference ≤4mm

	#1	#2	#3
D1	2748	2747	2746
D2	2746	2745	2745
D1-D2	2	2	1

Doors length - 1672 ±3mm

	#1	#2	#3
HIGHER DIMENSION	1673	1674	1674
CENTRAL DIMENSION	1673	1673	1673
LOWER DIMENSION	1672	1672	1673




Doors diagonal D1-D2 maximum difference ≤4mm

	#1	#2	#3
D1	2744	2747	2746
D2	2746	2745	2748
D1-D2	2	2	2



Doors length - 1672 ±3mm

	#1	#2	#3
HIGHER DIMENSION	1674	1673	1672
CENTRAL DIMENSION	1672	1672	1672
LOWER DIMENSION	1671	1672	1671

RECEIVED
2024-05-17
16-PA-24

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

Self Inspection - Final Result

Is the car good to advance to the next workstation/process? (Approval of Operations Manager and Industrial Quality)		DATE	NAME	SIGNATURE
HOLD POINT	(If activities are not complete, the missing activities must not impact the next stage)	16-04-24	ASANDA <small>Operations</small>	
	Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	16/04/24	Ntokozo <small>Industrial Quality</small>	
	There are activities pending that impact/stop the activities of the next process Obs: (To describe problems below)			
	There are non-conformities impact the quality of the product and there is no corrective action defined yet)			

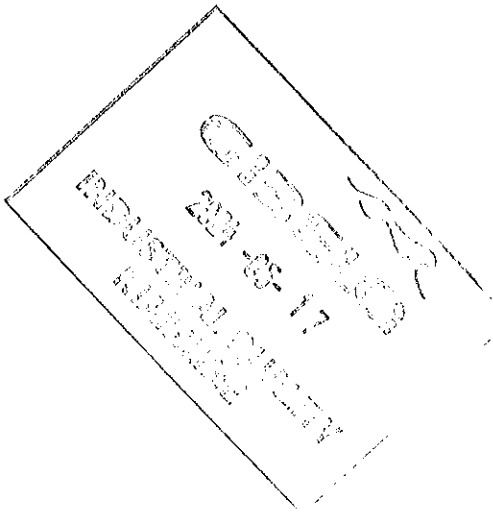
In case of "NO GO", describe blocking problems

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

Item	Description	Responsible	Due date	Status

_____ Operations

_____ Quality



GIBELA

PRASA PROJECT



APPLICABLE FOR TRAINSET 100+ ONLY AS PER BASELINE 10.3.1

SELF INSPECTION SHEET

CONFIDENTIAL INFORMATION

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

APPLICATION REFERENCE

MOUNTING	DRAWING	DESCRIPTION	STATION	CAR TYPE						WORK INSTRUCTION	SAFETY ?
				TC1	M1	M2	M3	M4	TC2		
<input type="checkbox"/>	DT00000225487	AAD0001278565 CARBODYSHELL M1,M3,M4 ASSEMBLY	CB2230		X	X				PRA.CB2230.DT000002 25487.V20	YES

REV	DATE	MODIFICATION CONTENT	RESPONSIBLE	NAME	DATE
0	2018/08/02	GIBELA NEW CREATION	APPROVER	Philippe 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	Ramekone 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	06/08/2020
			REVISED BY	Bongane Masina	06/08/2020
20	19/04/2021	New Baseline change 10.3	APPROVER	Timothy Maimela	19/04/2021
			CHECKER	Bongane Masina	19/04/2021
			REVISED BY	Bongane Masina	19/04/2021
25	20/02/2022	New Baseline change 10.3.1	APPROVER	Collins Mhombhi	20/02/2022
			CHECKER	Andani Muthelo	20/02/2022
			REVISED BY	Andani Muthelo	20/02/2022
26	14/06/2022	Update minimum temperature requirement for sealant application	APPROVER	Collins Mhombhi	14/06/2022
			CHECKER	Andani Muthelo	14/06/2022
			REVISED BY	Andani Muthelo	14/06/2022
27	26/07/2022	Threshold measurements addition	APPROVER	Collins Mhombhi	26/07/2022
			CHECKER	Andani Muthelo	26/07/2022
			REVISED BY	Andani Muthelo	26/07/2022
28	17/10/2022	Added traceability of sealant application	APPROVER	Collins Mhombhi	17/10/2022
			CHECKER	Ntokozo Zwane	17/10/2022
			REVISED BY	Amogelang Mohlampe	17/10/2022
29	14/04/2023	Added sealant batch number & welding consumables traceability	APPROVER	Vanessa Ntuli	14/04/2023
			CHECKER	Ntokozo Zwane	14/04/2023
			REVISED BY	Amogelang Mohlampe	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
			REVISED BY	Ntokozo Zwane	06/11/2023

APPROVED
 16/04/24
 APPROVED
 APPROVED
 APPROVED

TRAINSET	CAR	OPERATOR NAME & ALPS NO	DATE	SELF INSPECTION NUMBER	PAGES
222	M3	Levon 628959	16/04/24	SI.CB2230.256.V29	12



CARBODYSHELL M1,M3,M4 ASSEMBLY
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06/11/2023

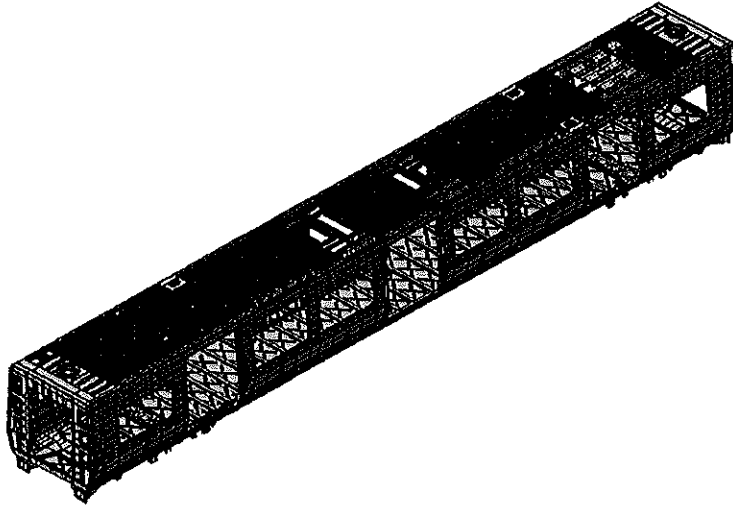
Project: PRASA
SI.CB2230.256.V29

Car: NCR:

Work station: CB2230



Safety Related



I - Documentation and Instruments Control

I.1 - Documentation Control

Document	Type of car					Revision	Observation	OK	NOX	Rework	Signature/Date (Operations)	Signature/Date (Quality)
	M1	M2	M3	M4	TCC							
PRA.CB2230.DT00000225487			X			30		✓		N/A	<i>[Signature]</i> 16/04/24	<i>[Signature]</i> 16/04/24

I.2 - Instruments Control

Monitoring and Measuring Instrument Control - Used for Special Process

Instruments	Serial number	Calibration or Verification Validation Date	OK	NOX	Signature/Date (Operations)	Signature/Date (Quality)
Measuring Tape	GIB 0794	2025 / 04 / 20	✓		<i>[Signature]</i> 16/04/24	
Combination Square	GIB 0072	2024 / 07 / 27	✓		<i>[Signature]</i> 16/04/24	<i>[Signature]</i>
Tubular	12602	2025 / 02 / 19	✓		<i>[Signature]</i> 16/04/24	16/04/24

1.3 Consumables

Welding Consumable Control - Used for Special Process

Filler Material	Heat Number	Welding Process	OK	NOX	Signature/Date (Manufacturing)	Signature/Date (Quality)
OK <i>[Signature]</i> 308 L Si	E231067	MIG	✓		<i>[Signature]</i> 16/04/24	<i>[Signature]</i> 16/04/24

6 1-10-2023

II - Self Inspection - Items to Check

II.1 - Items to check

Item	Picture/Drawing	Description	Acceptance criteria / Record	OK	NOX	NOVA	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	✓			16/04/24	16/04/24
02	N/A	Carshell free of significant flaws which compromise the appearance or functionality	DTD0000210675	✓			16/04/24	16/04/24
03	REFER TO ANNEXURE A	Arc Welding inspected and approved according procedure.	IND-SAL-WMS-016 REFER TO GIB - TYPDEF - ARC - 0000	✓			16/04/24	16/04/24
04		Cleaning of all Stainless Steel Surface	According TO GIB-WEL - PROC-0002	✓			16/04/24	16/04/24
05		Functionals dimensions approved according drawing or complementary document approved by Alstom engineering and registered in this document.	Approved according specified on pages below.	✓			16/04/24	16/04/24
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.	✓			16/04/24	16/04/24
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 (I) Min-Max 10°C - 35°C Relative humidity Min - Max (I) Min-Max 25% - 60%	Sealant Batch No: <u>ISP 70-03</u> Exp Date: <u>105/24</u> Actuals Temperature: <u>19°C</u> Humidity: <u>38%</u>	✓			16/04/24	16/04/24
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	✓			16/04/24	16/04/24
09	N/A	Verification of sealant application in certain regions in the drawing.	AAD0001278566	✓			16/04/24	16/04/24



CARBODYSHELL M1,M3,M4 ASSEMBLY
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Project: PRASA

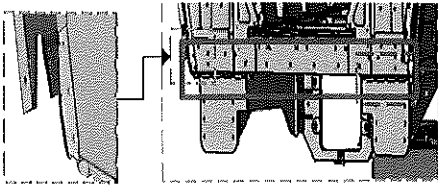
Date

SI.CB2230.256.V29

06/11/2023

II - Self Inspection - Items to Check

AREA 1



END 2 SEALANT

OPERATOR
(Name & sign):

[Signature] Leroy

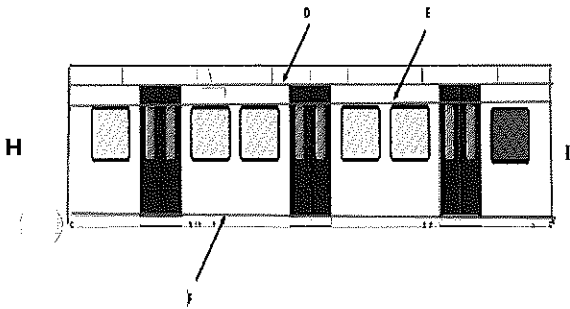
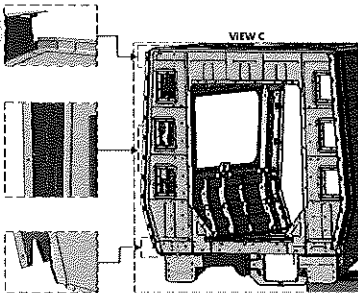
OPERATOR
(Name & sign):

[Signature] Leroy

OPERATOR
(Name & sign):

[Signature] Leroy

AREA 2 (VIEW C)



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

Operator (Name & sign):

LHS
D,E,F,G,H,I

RHS
D,E,F,G,H,I

Operator (Name & sign):

[Signature]

[Signature]

Operator (Name & sign):

[Signature]

[Signature]

Operator (Name & sign):

[Signature]

[Signature]

Operator (Name & sign):

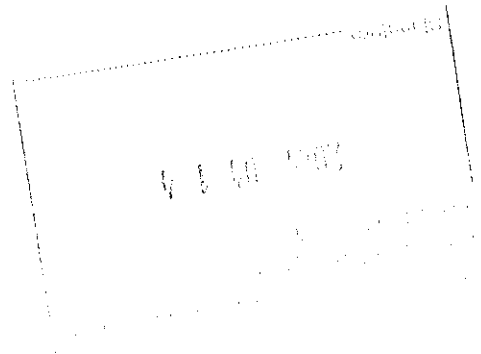
Ishenolo

Ishenolo

Operator (Name & sign):

[Signature]

[Signature]





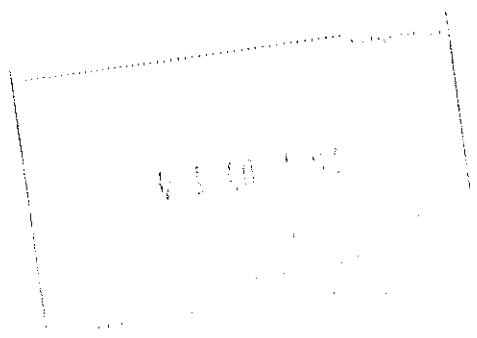
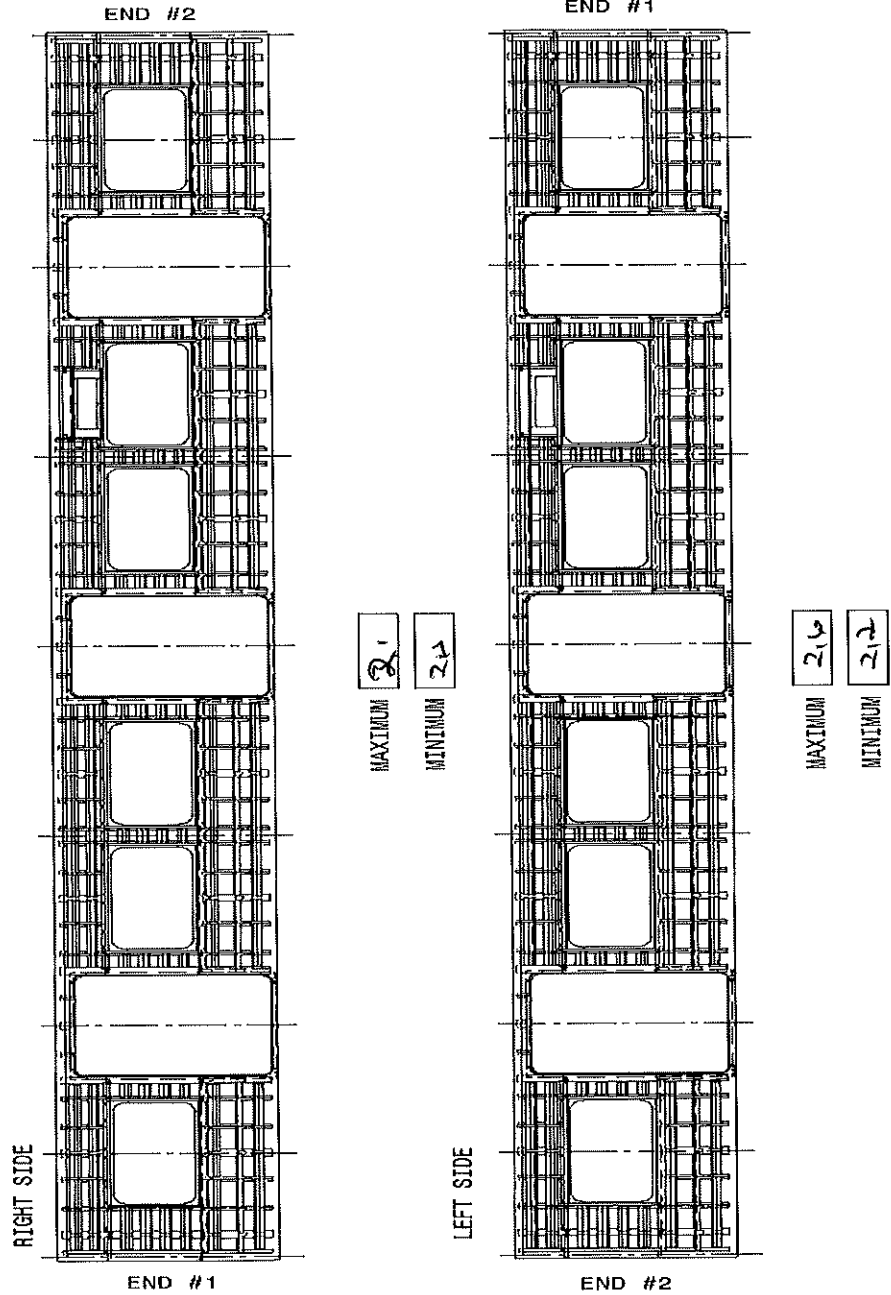
CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000225487

Rev.
30
Date
06/11/2023

Project: PRASA
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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 found and indicate the corresponding region.





CARBODYSHELL M1,M3,M4 ASSEMBLY
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Rev.
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Date

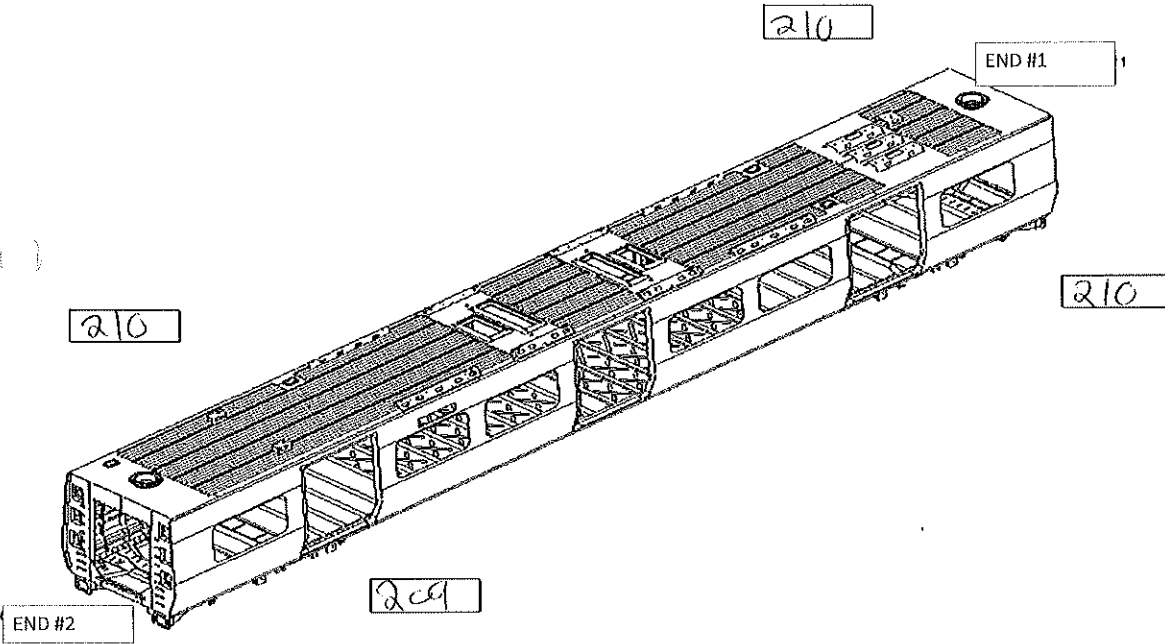
06/11/2023

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 following twist measurement document.



TWIST FOUND ON END 1

TRANVERSE

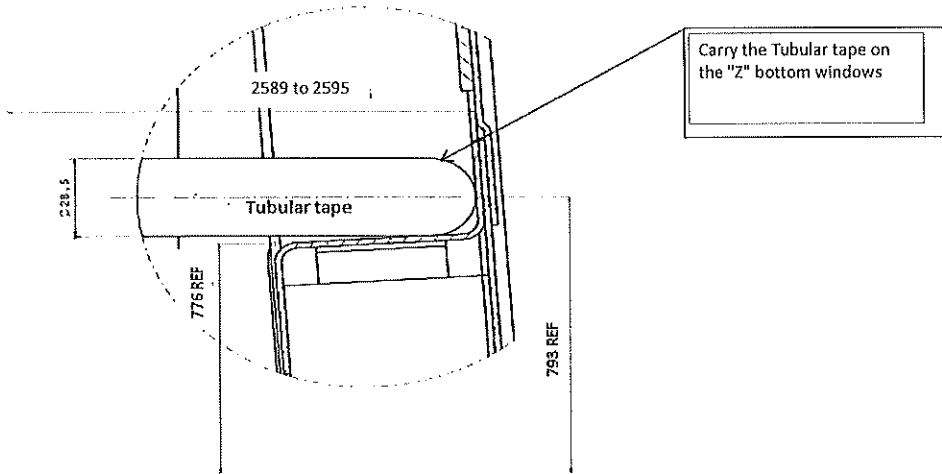
LONGITUDINAL

TWIST FOUND ON END 2

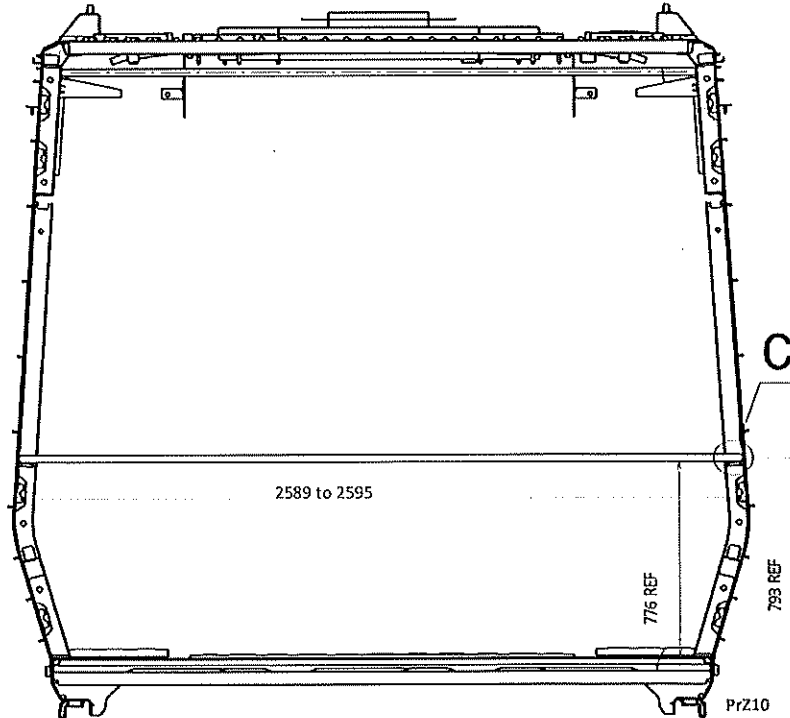
TRANVERSE

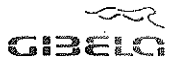
LONGITUDINAL

Specifications of Details for CBS measurement CB1230



Detail C





CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000226487

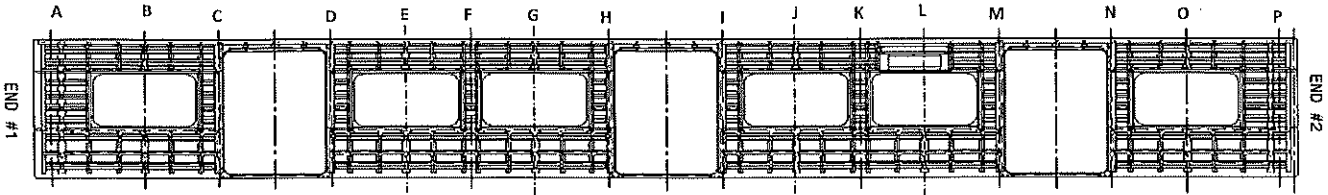
Rev.
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Date
06/11/2023

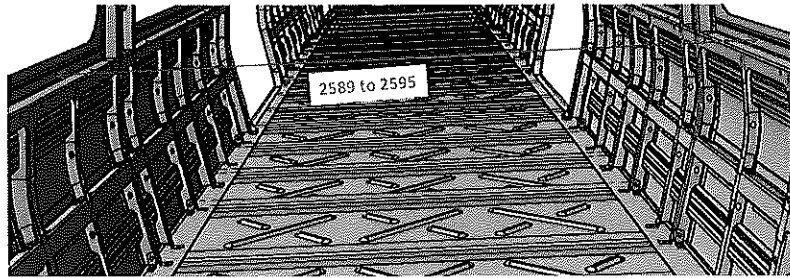
SI.CB2230.256.V29

Specifications of Details for CBS measurement CB1230



2589 to 2595mm

A	25 95
B	25 95
C	25 89
D	25 90
E	25 89
F	25 95
G	25 90
H	25 89
I	25 90
J	25 90
K	25 92
L	25 95
M	25 94
N	25 93
O	25 91
P	25 93



Threshold verification

Nominal value :38

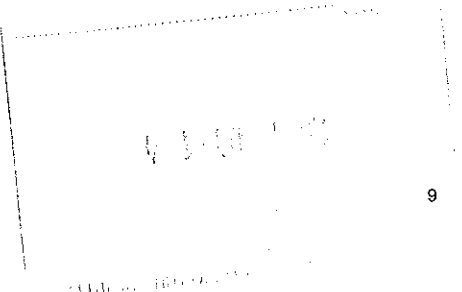
Door 1		Door 2		Door 3	
L	R	L	R	L	R
38	39	38	38	39	38

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

BOILER MAKER: Emmanuel *Emmanuel*
 WELDER: Zanele *Zanele*

Dye penetrant test

Dye-penetration test to be performed by quality personnel





CARBODYSHELL M1,M3,M4 ASSEMBLY
DT00000225487

Rev.
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Project: PRASA

Date

08/11/2023

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 activities are not complete, the missing activities must not impact the next stage)	16/04/2024	Levy Operations	
	GO	Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.)	16/04/24	Andrini Industrial Quality	
	NO GO	There are activities pending that impact/stop the activities of the next process Obs: (To describe problems below)			
	NO GO	There are non-conformities impact the quality of the product and there is no corrective action defined yet)			

Andrini

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

