

GIBELQ

2024-04-26

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PRASA PROJECT

SELF INSPECTION SHEET

CONFIDENTIAL INFORMATION



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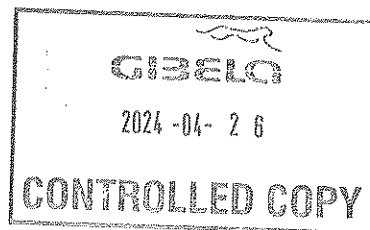
APPLICATION REFERENCE

MOUNTING	DESCRIPTION	STATION	CAR TYPE						WORK INSTRUCTION	SAFETY ? 
			TC1	M4	M1	M2	M3	TC2		
<input type="checkbox"/>	DTR3-PROCE-14	LEVELLING, WEIGHTING AND BALANCING M CAR	FT1140	<input checked="" type="checkbox"/>	1	1	1		PRA.FT1140.04	YES
<input type="checkbox"/>	DTR3-PROCE-14	LEVELLING, WEIGHTING AND BALANCING TC CAR	FT1140	1				1	PRA.FT1140.05	YES
<input type="checkbox"/>	DTR3-PROCE-17	LEVELLING, WEIGHTING AND BALANCING TC CAR	FT1140	1	1	1	1	1	PRA.FT1140.05	YES
<input type="checkbox"/>	DTR3-PROCE-17	LEVELLING, WEIGHTING AND BALANCING TC CAR	FT1140	1	1	1	1	1	PRA.FT1140.05	YES
<input type="checkbox"/>										
<input type="checkbox"/>										
<input type="checkbox"/>										

REV	DATE	MODIFICATION CONTENT	RESPONSIBLE	NAME	DATE
7	2/11/2020	UPDATE OF AIR TIGHTNESS TEST TIME FROM 4 MIN TO 5 MIN. ADD PANTOGRAPH AIR TIGHTNESS.	APPROVER	GIVEN SILOWA	2/11/2020
			CHECKER	SIMON MOKOENA	2/11/2020
			COMPILER	COMFORT MALATJI	2/11/2020
8	9/13/2021	ADDING GAUGE MEASUREMENT CHECK ON THE SI.	APPROVER	MAKOFANE LUCY	9/13/2021
			CHECKER	RATAU EDISON	9/13/2021
			COMPILER	TSAKANI KHOSA	9/13/2021
9	5/31/2022	pressure valve (APV) Isolation	APPROVER	MAKHURUPETJI THABANG	5/31/2022
			CHECKER	HAZEL MGIBA	5/31/2022
			COMPILER	RATAU EDISON	5/31/2021

TUE	CAR	OPERATOR NAME	DATE	SELF INSPECTION NUMBER	PAGES
TS 220	M4	R. Momo	26/04/24	SI.FT1140.52	01/08

	<h1>SELF INSPECTION INDUSTRIAL QUALITY</h1>		Rev:09	Projet: PRASA	SI.FT1140.52					
			Date:							
			5/31/2022							
Car:	NCR:	Work Station	FT1140							
 Safety Related										
I - Document and Instrument Control										
I.1 - Documents control										
Document	TC1	M1	M2	M3	M4	TC2	Revision	Remark	OK	Signature/Date
PRA.FT1140.04										
PRA.FT1140.05					✓				✓	<i>[Signature]</i> 26/04/24
PRA.FT1140.05										
I.2 - Instruments Control - Monitoring and Measuring Instrument Control (Used for all instrument with calibration needed)										
Instruments description	Serial number		Calibration or Verification Validation Date		OK	Signature/Date				
Measuring tape	U1BTA 0276		26/10/23 - 26/10/24		✓					
Vernier Calliper	U1BVR 0066		26/10/23 - 06/11/24		✓					
Torque wrench 320MM	A96 50027		21/12/23 - 29/12/24		✓					
Torque wrench 150MM	D28622009		19/12/23 - 19/12/24		✓					
Torque wrench 35MM	D2511023		17/12/23 - 19/12/24		✓					



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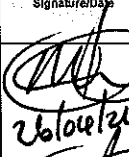
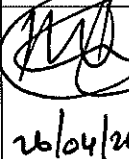









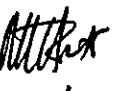


5/31/2022

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SI.FT1140.52

II - Self Inspection - Items to Check

II.1 - Items to Check

Item	Picture/Sketch	Description	Criteria/Record	OK	Signature/Date										
01		Ensure that the average pressure valve (APV) is isolated by capping the two input pipes at the fittings installing the blanking fitting on the pipes highlighted		✓	 26/04/24										
02		Check underframe pipe system Air tightness. Test performance according to WI PRA.FT1130.15.	The test was performed and no leak was observed Initial pressure (IP): 9.88 bar Final pressure (FP): 9.84 bar FP - IP = 0.04 bar APPROVAL CRITERIA: After 5 minutes the pressure cannot drops more than 0.2 bar	✓	 26/04/24										
03		Movement performed at least 50m to shudder the car. And position on the leveled load cell, with wheels on the center.		✓	 26/04/24										
04		Measurement inspection was done with car on conditon AW0 and the rail levelled. (The load cell's system must be leveled and calibrated)	Calibration Validation Date _ / _ / _	✓	 26/04/24										
05		In case of the equipments not installed, equivalent weight of the item should be added in the same place to simulate the equipment. (Any simulated weight, add on pending list)	<table><tr><th>EQUIPMENT DESCRIPTION</th><th>WEIGHT (kg)</th></tr><tr><td>Guangway</td><td>360</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td>1</td></tr></table>	EQUIPMENT DESCRIPTION	WEIGHT (kg)	Guangway	360						1	✓	 26/04/24
EQUIPMENT DESCRIPTION	WEIGHT (kg)														
Guangway	360														
	1														
06		The pressure difference between air spring on each bogie when raise the pressure was maintained < 0.3 bar.		✓	 26/04/24										
07		Measuremet recorded with empty suspension and loaded are on conformity with tolerances of the project		✓	 26/04/24										
08		All leveling measurements are according to the reference. (Values out of reference must be recorded on "Description of defects")		✓	 26/04/24										

SELF INSPECTION INDUSTRIAL QUALITY		Rev:09	Date: 5/31/2022	Proj: PRASA	SI.FT1140.52
Item	Picture/Link	Description	Criteria/Record	Pass	Signature/Date
09		Check that the leveling rods are torqued and have torque marker.		✓	 26/04/24
10		The difference of weight between the left and right wheels of each axis, must be $\leq 4\%$. (Verify on the T&C equipment if all arrows are in green).		✓	 26/04/24
11		Remove the car, move back onto the load cells and repeat the step 09. Confirm if both are in the tolerance of $\leq 4\%$.		✓	 26/04/24
12		1 - Record shims thickness used on rod. 2 - All screws were torqued and have torque marker.	THICKNESS (mm) I II III IV	✓	 26/04/24
13		Pivot fixation	1- M20 x 90 screws with application of torque according to PRA FT1140.04 / 05	✓	 26/04/24
14		FOR TC CARS F= Height of the center of Automatic coupler F = 895mm (+5/-10mm) (Using levelled rail)	TC CAB #1= _____ mm		N/A
15		FOR TC CARS Height of Eurobaise Antenna = 205mm(+/-10mm) (Using levelled rail)	TC CAB #1= _____ mm		N/A
16		Check pantograph piping air tightness. Test performance according to WI PRA FT1140.17.	The test was performed and no leak was observed -Roof piping connection fittings. -Room piping connection fittings(Roof arch and door binning)		N/A
17		Pantograph does not come in contact with the higher height gauge when passing through.	No Contact with Pantograph and Gauge -GO Contact with Pantograph and Gauge - NO GO		N/A
18		Car does not come into contact with the gauge.	No Contact with Car and Gauge -GO Contact with Car and Gauge - NO GO	✓	 26/04/24

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DRAFT TO MEASUREMENTS DURING LEVELLING (ALL UNITS MUST BE IN mm/bar/kg)

DESCRIPTION	TOLERANCE	LEFT SIDE						RIGHT SIDE					
		6	5	4	3	2	1	1	2	3	4	5	6
AIR SPRING HEIGHT (EMPTY)	N/A	A'ii											A'i
AIR SPRING HEIGHT (FULL)	min 254 max 261	Aii			250	256	254	255	256	256			Ai
FLOOR COVERING HEIGHT	min 1096 max 1116	Eii			1112	1109	1107	1108	1109	1109			Ei
AIR SPRING PRESSURE	≤ 0.3 (Ci - Qi)	Cii			2.72	2.62	2.57	2.90	2.85	2.77			Ci
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D3											D1
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D4											D2
PIVOT VERTICAL GAP	min 25 max 32	Kii											Ki
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (Ai - Ai)	Jii											Ji
QTY OF TURNS OF LEVELLING ROD	N/A	Xii				3/4	1/2	0	0				Xi
SHIMS OF ANTI-ROLL BAR	N/A	Yii											Yi
AIR SPRING HEIGHT (EMPTY)	N/A	A'iii											A'iv
AIR SPRING HEIGHT (FULL)	min 254 max 261	Aiii			257	255	253	256	258	260			Aiv
FLOOR COVERING HEIGHT	min 1096 max 1116	Eiii			1113	1111	1109	1104	1106	1108			Eiv
AIR SPRING PRESSURE	≤ 0.3 (Civ - Qi)	Ciii			2.77	2.87	2.90	2.55	2.62	2.71			Civ
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D5											D7
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D6											D8
PIVOT VERTICAL GAP	min 25 max 32	Kiii											Kiv
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (Av - Av)	Jiii											Jiv
QTY OF TURNS OF LEVELLING ROD	N/A	Xiii				0	1/2	1/2	3/4	9			Xiv
SHIMS OF ANTI-ROLL BAR	N/A	Yiii											Yiv

COMPARE EACH TENTATIVE WITH THE TOLERANCE AND IDENTIFY EACH MEASURE AS BELOW

GOOD LOWER HIGHER

✓

↓

↑

WEIGHT COMPENSATION

EQUIPMENT

WEIGHT

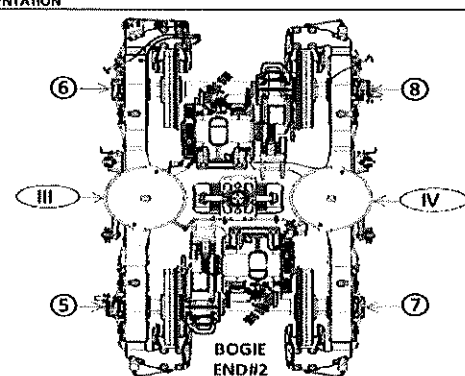
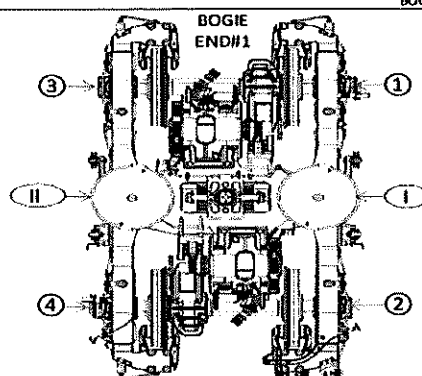
EQUIPMENT

WEIGHT

SECONDARY MEASUREMENTS (ONLY TO CARS)

AUTOMATIC COUPLER HEIGHT

ANTENNA HEIGHT



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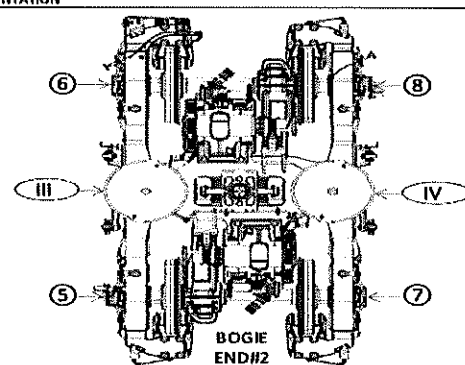
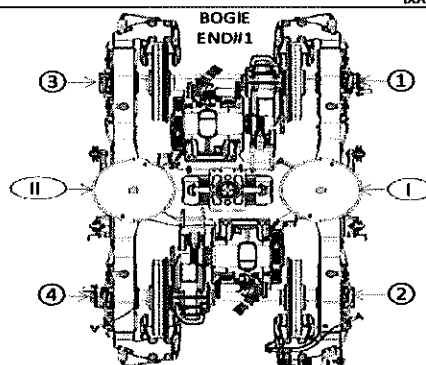
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DRAFT TO MEASUREMENTS DURING LEVELLING (ALL UNITS MUST BE IN mm/bar/kg)

DESCRIPTION	TOLERANCE	LEFT SIDE						RIGHT SIDE					
		6	5	4	3	2	1	1	2	3	4	5	6
AIR SPRING HEIGHT (EMPTY)	N/A	A'II											A'I
AIR SPRING HEIGHT (FULL)	min 254 max 261	AII											AI
FLOOR COVERING HEIGHT	min 1096 max 1116	EII											EI
AIR SPRING PRESSURE	≤ 0.3 (CI - C)	CII											CI
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D3											D1
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D4											D2
PIVOT VERTICAL GAP	min 25 max 32	KII											KI
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (Ji - J)	JII											Ji
QTY OF TURNS OF LEVELLING ROD	N/A	XII											Xi
SHIMS OF ANTI-ROLL BAR	N/A	YII											Yi
DESCRIPTION	TOLERANCE	6	5	4	3	2	1	1	2	3	4	5	6
AIR SPRING HEIGHT (EMPTY)	N/A	A'III											A'IV
AIR SPRING HEIGHT (FULL)	min 254 max 261	AIII											AIV
FLOOR COVERING HEIGHT	min 1096 max 1116	EIII											EIV
AIR SPRING PRESSURE	≤ 0.3 (CIV - CI)	CIII											CIV
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D5											D7
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D6											D8
PIVOT VERTICAL GAP	min 25 max 32	KIII											KIV
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (Jiv - Jv)	JIII											Jiv
QTY OF TURNS OF LEVELLING ROD	N/A	XIII											Xiv
SHIMS OF ANTI-ROLL BAR	N/A	YIII											Yiv

COMPARE EACH TENTATIVE WITH
THE TOLERANCE AND IDENTIFY
EACH MEASURE AS BELOW


GOOD	LOWER	HIGHER
✓	↓	↑
WEIGHT COMPENSATION		
EQUIPMENT		
WEIGHT		
EQUIPMENT		
WEIGHT		
SECONDARY MEASUREMENTS (ONLY TO CARS)		
AUTOMATIC COUPLER HEIGHT		
ANTENNA HEIGHT		



	<h2 style="margin: 0;">SELF INSPECTION INDUSTRIAL QUALITY</h2>	Rev:09	Projet: PRASA	SI.FT1140.52
		Date:		
		5/31/2022		

Table 1 - Reference Values and Measurement Tolerances for the Car Levelling.

ITEM		THEORETICAL VALUES														TOL CAR	
		TCL CAR		M4 CAR		M1 CAR		M2 CAR		M3 CAR		M5 CAR		TCL CAR			
		TBext	TBint	MB1	MB2	MB1	MB2	MB1	MB2	MB1	MB2	MB1	MB2	TBint	TBext		
Pivot lateral stop gaps difference [mm]	Jrel-r=1 (1.40)	Fig. 4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	
Air Spring height [mm]	A ₀ (1.40)	Fig. 5	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	255 ⁺⁴ ₋₁	
Air spring pressure at AWO [Bar]	C ₀ (1.40)	Fig. 5	3,76	2,82	2,87	2,83	3,02	2,91	3,07	2,85	2,83	2,87	2,83	2,83	2,83	3,76	
	C ₁ -C ₄		Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	
	C ₅ -C ₆		0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	0,3 Max.	
Primary Suspension gaps [mm]	D ₃ -D ₅	Fig. 6	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	35 ⁺²⁵ ₋₄	
	D ₃ -D ₆																
	D ₃ -D ₇																
	D ₃ -D ₈																
Carbody Floor height [mm]	E ₀ (1.40)	Fig. 7	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	1106 ⁺¹⁰ ₋₁₀	
Bolster height [mm]	N ₀ (1.40)	Fig. 7	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	850 ⁺³ ₋₂	
Coupling End height [mm]	F ₁	Fig. 8	895	Ref.	760	Ref.	760	Ref.	760	Ref.	760	Ref.	760	Ref.	895	Ref.	
	F ₂	Fig. 9	760	Ref.	760	Ref.	760	Ref.	760	Ref.	760	Ref.	760	Ref.	760	Ref.	
Pivot Vertical gap [mm]	K ₀	Fig. 10	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	30 ⁺³⁵ ₋₃	

	<h1 style="text-align: center;">SELF INSPECTION INDUSTRIAL QUALITY</h1>	Rev:09	Projet: PRASA	SI.FT1140.52
		Date:		
		5/31/2022		

Leveling report from Production (Final measurements after Levelling and Weighting fine)

References for secondary suspension empty
A'n Air spring height empty

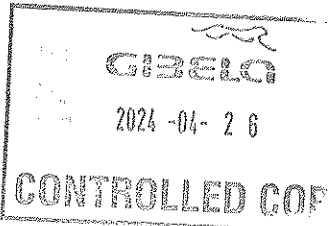
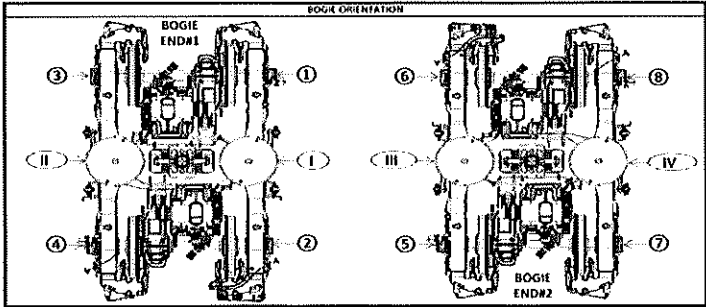
References for secondary suspension full
An Air spring height
Bn Difference between measurement A'n and An
En Floor covering height
Cn Air spring pressure
Dn Primary suspension
Kn Pivot Vertical gap
Jn Pivot Lateral stop gaps difference

Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
A'n	N/A	A'n 244	A'n 246	A'n 241	A'n 245
An	254 to 261	An 256	An 260	An 257	An 260
Bn = An - A'n	N/A	Bn 12	Bn 14	Bn 16	Bn 15
En	1106 ±10 mm	En 1109	En 1112	En 1113	En 1108
Item	Reference [bar]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Cn	Table 02 (*)	Cn 2.77	Cn 2.72	Cn 2.77	Cn 2.71
Cn - Cn+1	Difference ≤ 0,3	Cn - Cn+1 0,05		Cn - Cn+1 0,06	
Gauge serial number	N/A	GIB05873		GIB05873	
Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Dn	Table 01 (*)	D1 44.83	D1 46.22	D1 45.40	D1 46.18
		D2 44.88	D2 45.46	D2 45.98	D2 46.55
Kn	25 to 45	Kn 35.62		Kn 36.93	
Jn	Difference ≤ 4	Jn 25.96	Jn 24.98	Jn 26.61	Jn 23.89

(*) Reference, only include values, isn't approval criteria.

Table 01 D Theoretical Values	TC1		M4		M1		M2		M3		TC2	
	Tbex	TBin	Mb1	Mb1	Mb1	Mb2	Mb2	Mb1	Mb1	Mb1	Tbin	Tbex
D=	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅	35 ⁺¹² ₋₅

Table 02 C Theoretical Values	TC1		M4		M1		M2		M3		TC2	
	Tbex	TBin	Mb1	Mb1	Mb1	Mb2	Mb2	Mb1	Mb1	Mb1	Tbin	Tbex
C=	3.76	2.82	2.87	2.83	3.02	2.91	3.07	2.85	2.83	2.87	2.83	3.76



Weighting report from Test and Commissioning (Final measurements after Levelling and Weighting fine)



Gibela Rail Transport Consortium RF (Pty)
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2 Shosholoza Avenue
Dunmottar X7
Ekurhuleni, 1590, South Africa
Reception: +27 (0)10 600 0651

TRAIN SET 220	PC09 WEIGHING REPORT
---------------	----------------------

M4	Balance across front and rear bogies	Front Bogie [Tons]	Rear Bogie [Tons]	Longitudinal Imbalance [%]	Criteria Longitudinal Imbalance ≤ 3%
		17.85	17.92	0.20%	PASS
	Weight Measured vs Predicted	Weight Measured [Tons]	Weight Predicted [Tons]	Weight Difference [%]	Tolerance [%]
		35.77	35.95	0.50%	1.36%
					Criteria MinDiffMax
					PASS

Test Participants			
Name	Company	Department	Date
Davhana	Gibela	EOC	26/04/2024
N.A.			