




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.



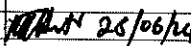
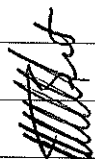
APPLICATION REFERENCE

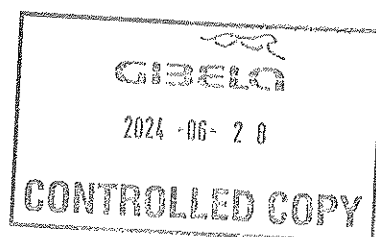
MOUNTING	DESCRIPTION	STATION	CAR TYPE						WORK INSTRUCTION	SAFETY ? 
			TC1	M4	M1	M2	M3	TC2		
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<input type="checkbox"/>	DTR3-PROCE-14	LEVELLING, WEIGHTING AND BALANCING TC CAR	FT1140	1				1	PRA.FT1140.05	YES
<input type="checkbox"/>	DTR3-PROCE-17	LEVELLING,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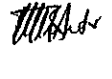



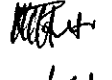

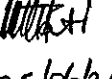

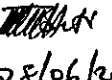
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REV	DATE	MODIFICATION CONTENT	RESPONSIBLE	NAME	DATE
7	2/11/2020	UPDATE OF AIR TIGHTNESS TEST TIME FROM 4 MIN TO 5 MIN. ADD PANTOGRAPH AIR TIGHTNESS.	APPROVER	GIVEN SILOWA	2/11/2020
			CHECKER	SIMON MOKOENA	2/11/2020
			COMPILER	COMFORT MALATJI	2/11/2020
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




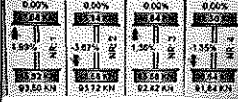
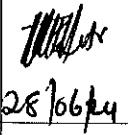
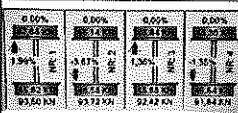
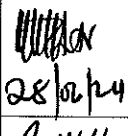
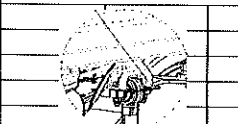




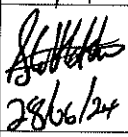
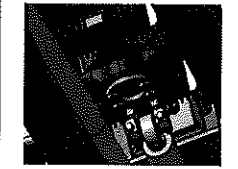
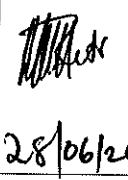
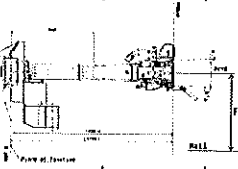
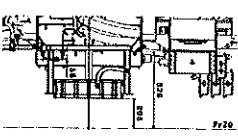
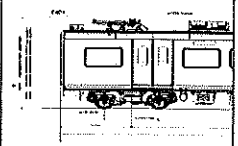
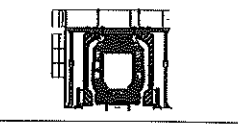
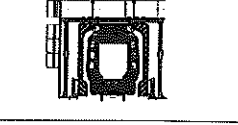
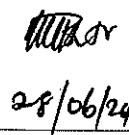
TUE	CAR	OPERATOR NAME	DATE	SELF INSPECTION NUMBER	PAGES
TS 233	M4	B. Momo	28/06/24	SI.FT1140.52	01/08

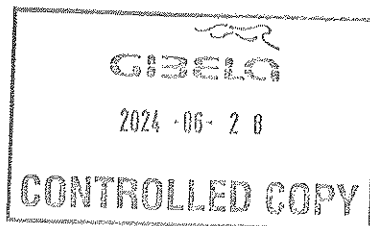
	SELF INSPECTION INDUSTRIAL QUALITY										Rev:09	Project: PRASA	SI.FT1140.52
											Date:		
											5/31/2022		
Car:			NCR:					Work Station					FT1140
 Safety Related													
I - Document and Instrument Control													
I.1 - Documents control													
Document	T01	M1	M2	M3	M4	T02	Revision	Remarks	OK	NOK	Signature/Date		
PRA.FT1140.04													
PRA.FT1140.05					✓				✓		 28/06/24		
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	NOK	Signature/Date		
Measuring tape	L1.BTA 0276					26/10/23 - 26/10/24			✓				
Universal calliper	L1.BVR 0050					06/05/23 - 06/05/24			✓				
Torque wrench 320NM	A9670019					19/11/23 - 19/11/24			✓		 28/06/24		
Torque wrench 150NM	B7217566					21/12/23 - 21/12/24			✓				
Torque wrench 35NM	O2511023					21/12/23 - 21/12/24			✓				



	<h1 style="text-align: center;">SELF INSPECTION INDUSTRIAL QUALITY</h1>		Rev:09	Projet: PRASA	SI.FT1140.52									
			Date:											
			5/31/2022											
II - Self Inspection - Items to Check														
II.1 - Items to Check														
Item	Pictures/Sketch	Description	Criteria/Record	OK	NOT OK	Remarks								
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		✓		 28/06/24								
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) <u>1.2</u> bar Final pressure (FP) <u>1.0</u> bar FP - IP = <u>0.2</u> bar APPROVAL CRITERIA: After 5 minutes the pressure cannot drops more than 0.2 bar	✓		 28/06/24								
03		Movement performed at least 50m to shudder the car. And position on the leveled load cell, with wheels on the center.		✓		 28/06/24								
04		Measurement inspection was done with car on condition AWD and the rail leveled. (The load cells system must be levelled and calibrated)	Calibration Validation Date _/_/___	✓		 28/06/24								
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 border="1"> <thead> <tr> <th>EQUIPMENT DESCRIPTION</th> <th>WEIGHT (kg)</th> </tr> </thead> <tbody> <tr> <td><u>Language</u></td> <td><u>360</u></td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	EQUIPMENT DESCRIPTION	WEIGHT (kg)	<u>Language</u>	<u>360</u>					✓		 28/06/24
EQUIPMENT DESCRIPTION	WEIGHT (kg)													
<u>Language</u>	<u>360</u>													
06		The pressure difference between air spring on each bogie when raise the pressure was maintained < 0.3 bar.		✓		 28/06/24								
07		Measurement recorded with empty suspension and loaded are on conformity with tolerances of the project.		✓		 28/06/24								
08		All leveling measurements are according to the reference. (Values out of reference must be recorded on "Description of defects")		✓		 28/06/24								



		SELF INSPECTION INDUSTRIAL QUALITY		Rev:09	Projet: PRASA	SI.FT1140.52
				Date: 5/31/2022		
Item	Picture/Detail	Description	Critères/Access	OK	NG	Signature/Date
09		Check that the leveling rods are torqued and have torque marker.		✓		 28/06/24
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).		✓		 28/06/24
11		Remove the car, move back onto the load cells and repeat the step 09. Confirm if both are in the tolerance of $\leq 4\%$.		✓		 28/06/24
12		1 - Record shims thickness used on rod. 2 - All screws were torqued and have torque marker.	THICKNESS (mm) I  II  III  IV 	✓		 28/06/24
13		Pivot fixation	1- M20 x 90 screws with application of torque according to PRA FT1140.04 / 05	✓		 28/06/24
14		FOR TC CARS F= Height of the center of Automatic coupler F = 865mm (+5/-10mm) (Using levelled rail)	TC CAB #1= _____ mm			N/A
15		FOR TC CARS Height of Eurobalise Antenna = 205mm(+/-10mm) (Using levelled rail)	TC CAB #1= _____ mm			N/A
16		Check pantograph piping air tightness. Test performance according to VII PRA FT1140.17.	The test was performed and no leak was observed. -Roof piping connection fittings. -Room piping connection fittings(Roof arch and door bracing)			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	✓		 28/06/24





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Projet:
PRASA

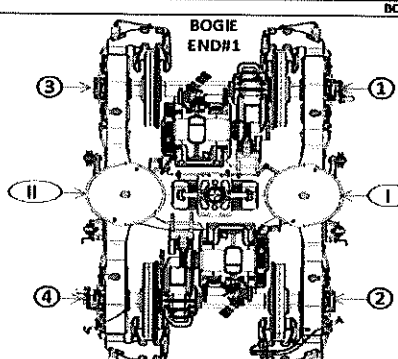
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DRAFT TO MEASUREMENTS DURING LEVELLING (ALL UNITS MUST BE IN mm/bar/kg)

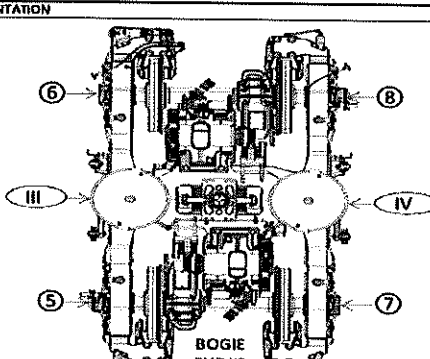
DESCRIPTION	TOLERANCE	LEFTSIDE						RIGHTSIDE						
		6	5	4	3	2	1	1	2	3	4	5	6	
AIR SPRING HEIGHT (EMPTY)	N/A	A'II											A'I	
AIR SPRING HEIGHT (FULL)	min 254 max 261	AII			255	255	253	250	255	255	257	257	AI	
FLOOR COVERING HEIGHT	min 1096 max 1116	EII			1107	1107	1104	1100	1107	1107	1109	1109	EI	
AIR SPRING PRESSURE	≤ 0.3 (QI - Q)	CII			2,74	2,75	2,76	2,86	2,82	2,67	2,71	2,70	CI	
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	Ds											D1	
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D4											D2	
PIVOT VERTICAL GAP	min 25 max 32	KII											KI	
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (J1 - J)	JII											J1	
QTY OF TURNS OF LEVELLING ROD	N/A	XII					1/2 ↑	1/4	0	1/2 ↑			X1	
SHIMS OF ANTI-ROLL BAR	N/A	YII											Y1	
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			256	255	256	256	256	259	258	258		AIV
FLOOR COVERING HEIGHT	min 1096 max 1116	EIII			1103	1102	1103	1103	1105	1106	1105	1105		EIV
AIR SPRING PRESSURE	≤ 0.3 (QIV - QII)	OIII			2,78	2,79	2,78	2,95	2,66	2,71	2,76	2,75		OIV
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	Ds												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 - JII)	JIII												JIV
QTY OF TURNS OF LEVELLING ROD	N/A	XIII						0	1/4					XIV
SHIMS OF ANTI-ROLL BAR	N/A	YIII												YIV

COMPARE EACH TENTATIVE WITH THE TOLERANCE AND IDENTIFY EACH MEASUREMENT BELOW		
GOOD	LOWER	HIGHER
✓	↓	↑
WEIGHT COMPENSATION		
EQUIPMENT		
WEIGHT		
EQUIPMENT		
WEIGHT		
SECONDARY MEASUREMENTS (ONLY TC GAPS)		
AUTOMATIC COUPLER HEIGHT		
ANTENNA HEIGHT		

BOGIE END#1



BOGIE END#2



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2024-06-20

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SI.FT1140.52

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

		LEFT SIDE						RIGHT SIDE					
DESCRIPTION	TOLERANCE	6	5	4	3	2	1	1	2	3	4	5	6
AIR SPRING HEIGHT (EMPTY)	N/A	A'II											A'
AIR SPRING HEIGHT (FULL)	min 254 max 261	AII											A
FLOOR COVERING HEIGHT	min 1096 max 1116	EII											E
AIR SPRING PRESSURE	≤ 0.3 (Ci - Cj)	CII											C
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D3											D1
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D4											D2
PIVOT VERTICAL GAP	min 25 max 32	KII											K
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (Ai - Aj)	JII											J
QTY OF TURNS OF LEVELLING ROD	N/A	XII											X
SHIMS OF ANTI-ROLL BAR	N/A	YII											Y
DESCRIPTION	TOLERANCE	6	5	4	3	2	1	1	2	3	4	5	6
AIR SPRING HEIGHT (EMPTY)	N/A	A'III											A'n
AIR SPRING HEIGHT (FULL)	min 254 max 261	AIII											An
FLOOR COVERING HEIGHT	min 1096 max 1116	EIII											En
AIR SPRING PRESSURE	≤ 0.3 (CiV - Cj)	CIII											CjV
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D5											D7
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D6											D8
PIVOT VERTICAL GAP	min 25 max 32	KIII											Kv
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (AiV - Aj)	JIII											Jv
QTY OF TURNS OF LEVELLING ROD	N/A	XIII											Xv
SHIMS OF ANTI-ROLL BAR	N/A	YIII											Yv

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

GOOD LOWER HIGHER



WEIGHT COMPENSATION

EQUIPMENT

WEIGHT

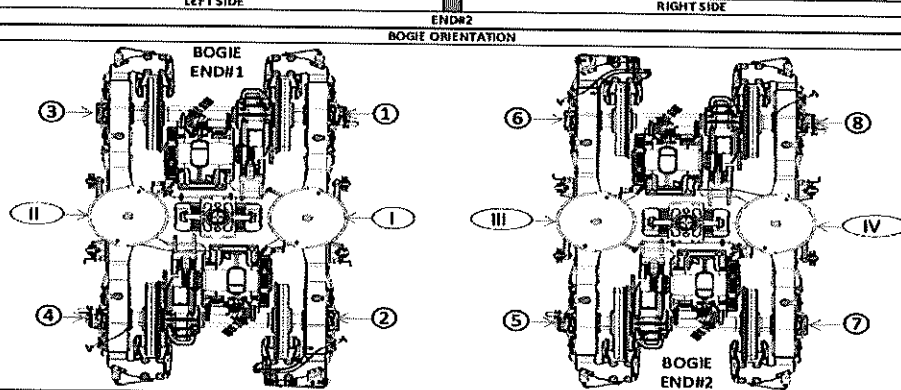
EQUIPMENT

WEIGHT

SECONDARY MEASUREMENTS (ONLY TO CARS)

AUTOMATIC COUPLER HEIGHT

ANTENNA HEIGHT



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2024-06-20

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

ITEM	THEORETICAL VALUES													
	T1 CAR		M1 CAR		M2 CAR		M3 CAR		M4 CAR		M5 CAR		T2 CAR	
	TRIM	TRIM	M1	M1	M2	M2	M3	M3	M4	M4	M5	M5	TRIM	TRIM
Pivot lateral stop gap difference [mm]	Fig. 4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4
Air Spring height [mm]	Fig. 5	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄	255 ⁺⁰ ₋₄
Air spring pressure at AVO [Bar]	Fig. 5	3,76 (Ref.)	2,87 (Ref.)	2,83 (Ref.)	3,02 (Ref.)	2,91 (Ref.)	3,07 (Ref.)	2,85 (Ref.)	2,87 (Ref.)	2,83 (Ref.)	2,83 (Ref.)	2,87 (Ref.)	2,83 (Ref.)	3,76 (Ref.)
Primary Suspension gaps [mm]	Fig. 6	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.	0,3 Min.
Carbody Floor height [mm]	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
Bolster height [mm]	Fig. 7	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅	850 ⁺⁵ ₋₅
Coupling End height [mm]	Fig. 8	895 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	895 (Ref.)	760 (Ref.)
Pivot Vertical gap [mm]	Fig. 10	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅	30 ⁺⁵ ₋₅

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2021-06-28
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SELF INSPECTION INDUSTRIAL QUALITY

Rev:09

Date:

5/31/2022

Project:
PRASA

SI.FT1140.52

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

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

References for secondary suspension full

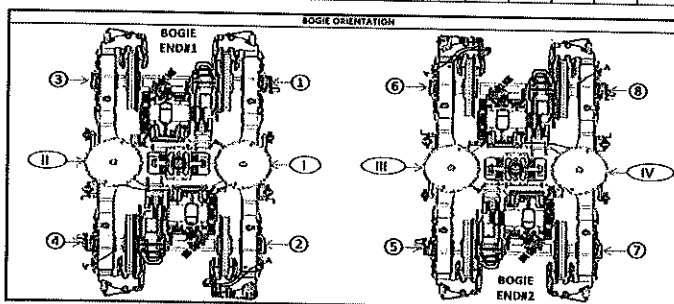
An Air spring height
Bn Difference between measurement A'n and An
En Floor covering height
Cn Air spring pressure
Dn Primary suspension
Kn Pivot Vertical gap
Jn Pivot Lateral stop gaps difference

Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
A'n	N/A	A'n 243	A'n 245	A'n 242	A'n 244
An	254 to 261	An 257	An 255	An 256	An 258
Bn = An - A'n	N/A	Bn 14	Bn 10	Bn 14	Bn 14
En	1106 ±10 mm	En 1109	En 1107	En 1103	En 1105
Item	Reference [bar]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Cn	Table 02 (*)	Cn 2.70	Cn 2.74	Cn 2.78	Cn 2.75
Cn - Cn	Difference ≤ 0,3	0,04		0,03	
Gauge serial number	N/A	G1B05873	G1B05873	G1B05873	G1B05873
Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Dn	Table 01 (*)	D1 45.31	D1 45.49	D1 44.36	D1 45.43
		D2 46.09	D2 45.14	D2 44.86	D2 44.85
Kn	25 to 45	36.57		35.65	
Jn = J1 - J2 + 1	Difference ≤ 4	J1 25.19	J1 25.98	J1 26.41	J1 24.61

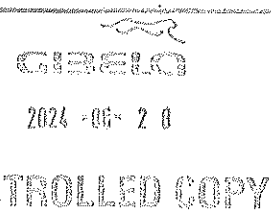
(*) Reference, only include values, isn't approval criteria.

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



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



[illegible]



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TRAIN SET 233	PC09 WEIGHING REPORT
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M4	Balance across front and rear bogies	Front Bogie [Tons]	Rear Bogie [Tons]	Longitudinal Imbalance [%]	Criteria Longitudinal Imbalance ≤ 3%
		17.90	17.79	0.31%	PASS
	Weight Measured vs Predicted	Weight Measured [Tons]	Weight Predicted [Tons]	Weight Difference [%]	Tolerance [%] Criteria Min:Diff:Max
		35.69	35.95	0.72%	1.36% PASS

Test Participants			
Name	Company	Department	Date
Thato Mushi	Gibela	EOC	28/06/24