



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.

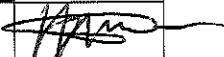
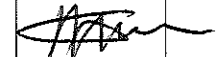
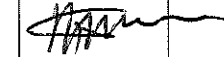
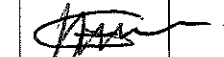
APPLICATION REFERENCE

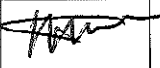
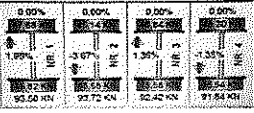
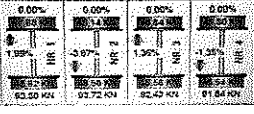
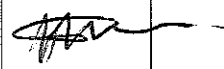
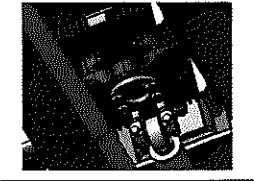
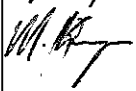
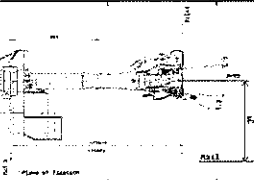
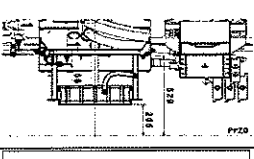
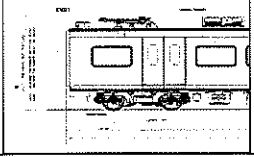
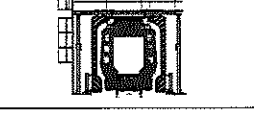
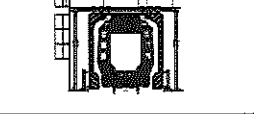
MOUNTING	DESCRIPTION	STATION	CAR TYPE						WORK INSTRUCTION	SAFETY ? 
			TC1	M4	M1	M2	M3	TC2		
☐	DTR3-PROCE-14	LEVELLING, WEIGHTING AND BALANCING M CAR	FT1140	X	1	1	1		PRA.FT1140.04	YES
☐	DTR3-PROCE-14	LEVELLING, WEIGHTING AND BALANCING TC CAR	FT1140	1				1	PRA.FT1140.05	YES
☐	DTR3-PROCE-17	LEVELLING, WEIGHTING AND BALANCING TC CAR	FT1140	1	1	1	1	1	PRA.FT1140.05	YES
☐	DTR3-PROCE-17	LEVELLING, WEIGHTING AND BALANCING TC CAR	FT1140	1	1	1	1	1	PRA.FT1140.05	YES
☐										
☐										
☐										
☐										

REV	DATE	MODIFICATION CONTENT	RESPONSIBLE	NAME	DATE
7	2020/02/11	UPDATE OF AIR TIGHTNESS TEST TIME FROM 4 MIN TO 5 MIN. ADD PANTOGRAPH AIR TIGHTNESS.	APPROVER	GIVEN SILOWA	2020/02/11
			CHECKER	SIMON MOKOENA	2020/02/11
			COMPILER	COMFORT MALATJI	2020/02/11
8	2021/09/13	ADDING GAUGE MEASUREMENT CHECK ON THE SI.	APPROVER	MAKOFANE LUCY	2021/09/13
			CHECKER	RATAU EDISON	2021/09/13
			COMPILER	TSAKANI KHOSA	2021/09/13
9	2022/05/31	pressure valve (APV) Isolation	APPROVER	MAKHURUPETJI THABANG	2022/05/31
			CHECKER	HAZEL MGIBA	2022/05/31
			COMPILER	RATAU EDISON	2021/05/31

TUE	CAR	OPERATOR NAME	DATE	SELF INSPECTION NUMBER	PAGES
TS210	M4	GOODMESS	27/02/24	SI.FT1140.52	01/08

	SELF INSPECTION INDUSTRIAL QUALITY						Rev:09	Projet: PRASA	SI.FT1140.52
							Date:		
							5/31/2022		
Car:		NCR:				Work Station		FT1140	
 Safety Related									
1 - Document and Instrument Control									
1.1 - Documents control									
Document	TC1	M1	M2	M3	M4	TC2	Revision	Remark	Signature/Date
PRA.FT1140.04									
PRA.FT1140.05					✓				[Signature] - 29/10/24
PRA.FT1140.05									
1.2 - 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	GIRTA 0276		26/10/23-26/10/24		✓	27/02/24 			
Measuring Tape	GIRER 0056		06/06/23-06/06/24		✓				
Torque Wrench 32mm	A9650027		21/12/23-21/12/24		✓				
Torque Wrench 45MM	D28622009		19/12/23-19/12/24		✓				
Torque Wrench 35MM	D2811023		19/12/23-19/12/24		✓				

	SELF INSPECTION INDUSTRIAL QUALITY		Rev:09	Projet: PRASA	SI.FT1140.52								
			Date:										
			5/31/2022										
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		✓	 27/02/24								
02		Check underframe pipe system Air tightness. Test performance according to WI PRAFT1130.15.	The test was performed and no leak was observed. Initial pressure (IP): 10.62 bar Final pressure (FP): 9.97 bar FP - IP = 0.65 bar APPROVAL CRITERIA: After 5 minutes the pressure cannot drops more than 0.2 bar	✓	 27/02/24								
03		Movement performed at least 50m to shudder the car. And position on the leveled load cell, with wheels on the center.		✓	 27/02/24								
04		Measurement inspection was done with car on condition AWD and the rail levelled. (The load cells system must be levelled and calibrated)	Calibration Validation Date 19/12/24	✓	 27/02/24								
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" style="width: 100%;"> <thead> <tr> <th>EQUIPMENT DESCRIPTION</th> <th>WEIGHT (kg)</th> </tr> </thead> <tbody> <tr> <td>Carving Way</td> <td>360</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	EQUIPMENT DESCRIPTION	WEIGHT (kg)	Carving Way	360					✓	 27/02/24
EQUIPMENT DESCRIPTION	WEIGHT (kg)												
Carving Way	360												
06		The pressure difference between air spring on each bogie when raise the pressure was maintained < 0.3 bar.		✓	 27/02/24								
07		Measurement recorded with empty suspension and loaded are on conformity with tolerances of the project.		✓	 27/02/24								
08		All levelling measurements are according to the reference. (Values out of reference must be recorded on "Description of defects")		✓	 27/02/24								

		SELF INSPECTION INDUSTRIAL QUALITY		Rev:09		Project: PRASA	SI.FT1140.52
				Date:	5/31/2022		
09			Check that the levelling rods are torqued and have torque marker.		✓		 27/02/24
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).		✓		 27/02/24
11			Remove the car, move back onto the load cells and repeat the step 09. Confirm if both are in the tolerance of $\leq 4\%$.		✓		 27/02/24
12			1 - Record shims thickness used on rod. 2 - All screws were torqued and have torque marker.	THICKNESS (mm) I  II  III  IV 	✓		 27/02/24
13			Pivot fixation	1- M20 x 90 screws with application of torque according to PRA.FT1140.04 / 05	✓		 27/02/24
14			FOR TC CARS F= Height of the center of Automatic coupler F = 895mm (+5/-10mm) (Using levelled rail)	TC CAB #1= _____ mm			M/A
15			FOR TC CARS Height of Eurobalise Antenna = 205mm(+/-10mm) (Using levelled rail)	TC CAB #1= _____ mm			M/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 trimming)			M/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	✓		 27/02/24
18			Car does not come into contact with the gauge.	No Contact with Car and Gauge -GO Contact with Car and Gauge - NO GO	✓		 27/02/24



SELF INSPECTION INDUSTRIAL QUALITY

Rev:09

Date:

5/31/2022

Projet:
PRASA

SI.FT1140.52

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

		END#1											
		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 ₁₁											A ₁₁
AIR SPRING HEIGHT (FULL)	min 254 max 261	A ₁₂					255 255	255 256					A ₁₂
FLOOR COVERING HEIGHT	min 1096 max 1116	E ₁₁											E ₁₁
AIR SPRING PRESSURE	≤ 0.3 (Ci - Ci)	C ₁₁					2.70 2.64	2.76 2.78					C ₁₁
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ₃											D ₁
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ₄											D ₂
PIVOT VERTICAL GAP	min 25 max 32	K ₁₁											K ₁
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (Ji - Ji)	J ₁₁											J ₁
QTY OF TURNS OF LEVELLING ROD	N/A	X ₁₁											X ₁
SHIMS OF ANTI-ROLL BAR	N/A	Y ₁₁											Y ₁
DESCRIPTION	TOLERANCE	6	5	4	3	2	1	1	2	3	4	5	6
AIR SPRING HEIGHT (EMPTY)	N/A	A ₁₃											A ₁₄
AIR SPRING HEIGHT (FULL)	min 254 max 261	A ₁₃					257 246	254 255					A ₁₄
FLOOR COVERING HEIGHT	min 1096 max 1116	E ₁₃											E ₁₄
AIR SPRING PRESSURE	≤ 0.3 (Ci - Ci)	C ₁₃					2.50 2.70	1.64 2.69					C ₁₄
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ₅											D ₇
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ₆											D ₈
PIVOT VERTICAL GAP	min 25 max 32	K ₁₃											K ₁₄
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (Jiv - Jiv)	J ₁₃											J ₁₄
QTY OF TURNS OF LEVELLING ROD	N/A	X ₁₃											X ₁₄
SHIMS OF ANTI-ROLL BAR	N/A	Y ₁₃											Y ₁₄

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

BOGIE END#1

BOGIE END#2



SELF INSPECTION INDUSTRIAL QUALITY

Rev:09

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5/31/2022

Project:
PRASA

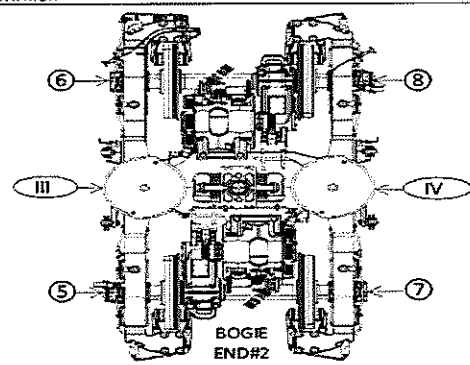
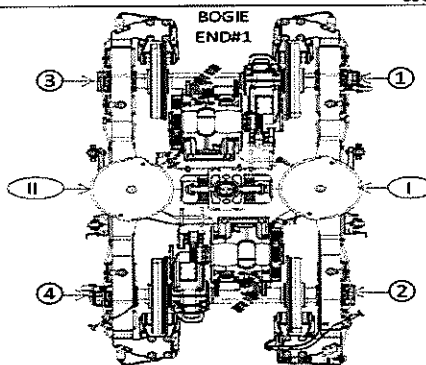
SI.FT1140.52

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	A ^{II}											A ^I
FLOOR COVERING HEIGHT	min 1096 max 1116	E ^{II}											E ^I
AIR SPRING PRESSURE	≤ 0.3 (Q _{II} - Q _I)	C ^{II}											C ^I
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ₃											D ₁
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ₄											D ₂
PIVOT VERTICAL GAP	min 25 max 32	K ^{II}											K ^I
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (A _I - A _I)	J ^{II}											J ^I
QTY OF TURNS OF LEVELLING ROD	N/A	X ^{II}											X ^I
SHIMS OF ANTI-ROLL BAR	N/A	Y ^{II}											Y ^I
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	A ^{III}											A ^{IV}
FLOOR COVERING HEIGHT	min 1096 max 1116	E ^{III}											E ^{IV}
AIR SPRING PRESSURE	≤ 0.3 (Q _{IV} - Q _{III})	C ^{III}											C ^{IV}
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ₅											D ₇
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ₆											D ₈
PIVOT VERTICAL GAP	min 25 max 32	K ^{III}											K ^{IV}
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (J _{IV} - J _{III})	J ^{III}											J ^{IV}
QTY OF TURNS OF LEVELLING ROD	N/A	X ^{III}											X ^{IV}
SHIMS OF ANTI-ROLL BAR	N/A	Y ^{III}											Y ^{IV}

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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Rev:09
Date:
5/31/2022

Projet:
PRASA

SI.FT1140.52

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

ITEM		THEORETICAL VALUES											
		TCL CAR		M4 CAR		M3 CAR		M2 CAR		M3 CAR		TCL CAR	
		TBext	TBint	MB1	MB2	MB1	MB2	MB1	MB2	MB1	MB2	TBint	TBext
		≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4
Pivot lateral stop gaps difference [mm]	Fig. 4	3,76	2,82	2,87	2,83	3,02	2,91	3,07	2,85	2,83	2,87	2,83	3,76
Air Spring height [mm]	Fig. 5	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄	255 ⁺⁶ ₋₄
Air spring pressure at AW0 [Bar]	Fig. 5	3,76	2,82	2,87	2,83	3,02	2,91	3,07	2,85	2,83	2,87	2,83	3,76
C ₁ - C ₂	Fig. 5	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.
C ₃ - C ₄	Fig. 5	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.	0,3 Máx.
Primary Suspension gaps [mm]	Fig. 6	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
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
Bolster height [mm]	Fig. 7	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇	850 ⁺³ ₋₇
Coupling End height [mm]	Fig. 8	895	895	895	895	895	895	895	895	895	895	895	895
Pivot Vertical gap [mm]	Fig. 10	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅	30 ⁺¹⁵ ₋₅

	SELF INSPECTION INDUSTRIAL QUALITY	Rev:09	Project: 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

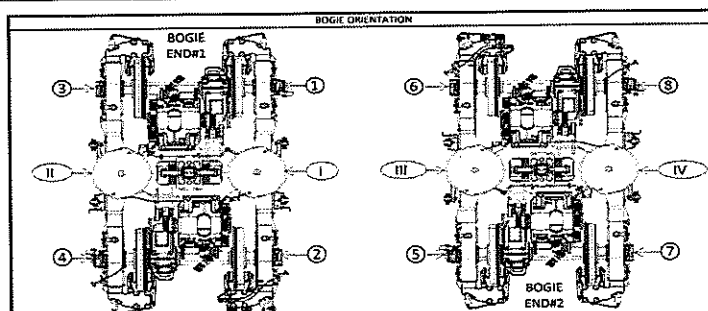
An Air spring height
 Bn Difference between measurement A'n and An
 En Floor covering height
 Cn Air spring pressure
 Dn Primary suspension
 Kn Pivot Vertical gap
 Jn Pivot Lateral stop gaps difference

Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
A'n	N/A	A'i 241	A'ii 240	A'iii 240	A'iv 239
An	254 to 251	Ai 260	Aii 256	Aiii 256	Aiv 258
Bn = An - A'n	N/A	Bi 19	Bii 16	Biii 16	Biv 19
En	1106 ±10 mm	Ei 1113	Eii 1112	Eiii 1115	Eiv 1111
Item	Reference [bar]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Cn	Table 02 (*)	Ci 2,17	Cii 2,12	Ciii 2,82	Civ 2,69
Cn - Cn+1	Difference ≤ 0,3	Ci - Cii 0,05		Ciii - Civ 0,13	
Gauge serial number	N/A	G1605875	G1605875	G1605875	G1605875
Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Dn	Table 01 (*)	D1 45,48	D3 44,92	D6 44,96	D8 45,76
		D2 45,34	D4 45,36	D5 44,98	D7 45,41
Kn	25 to 45	Ki 33,94		Kii 32,62	
Jn	Difference ≤ 4	Ji 24,87	Jii 25,82	Jiii 24,92	Jiv 25,84

(*) 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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Reception: +27 (0)10 600 0651

TRAIN SET 210	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%
		17.83	17.79	0.03%	PASS
	Weight Measured vs Predicted	Weight Measured [Tons]	Weight Predicted [Tons]	Weight Difference [%]	Tolerance [%]
		35.71	35.95	0.67%	1.36%
					Criteria Min&Diff&Max
					PASS

Test Participants			
Name	Company	Department	Date
Harvey Zwane	Gibela	EOC	27/02/24