



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




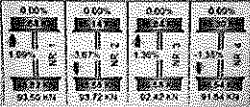

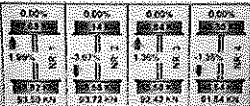






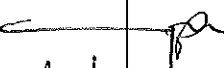




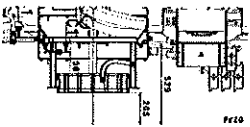

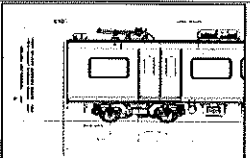

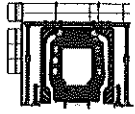
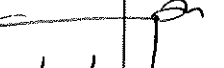


MOUNTING	DESCRIPTION	STATION	CAR TYPE						WORK INSTRUCTION	SAFETY ? 
			TC1	M4	M1	M2	M3	TC2		
<input type="checkbox"/>	DTR3-PROCE-14	LEVELLING, WEIGHTING AND BALANCING M CAR	FT1140	1	1	1	1		PRA.FT1140.04	YES
<input type="checkbox"/>	DTR3-PROCE-14	LEVELLING, WEIGHTING AND BALANCING TC CAR	FT1140	1				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 226	m2	CHIPU	28/05/24	SI.FT1140.52	01/08

	<h2 style="margin: 0;">SELF INSPECTION INDUSTRIAL QUALITY</h2>		Rev:09	Project: PRASA	<h3 style="margin: 0;">SI.FT1140.52</h3>						
			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	NOK	Signature/Date
PRA.FT1140.04									✓		29/05/24
PRA.FT1140.05					✓						
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	GIBTA 0276		26/10/23 - 26/10/24		✓		 29/05/24				
Vanier calliper	GIBVR 0056		06/06/23 - 06/06/24		✓						
Torque wrench 35NM	D2571023		19/12/23 - 19/12/24		✓						
Torque wrench 150NM	D25622009		19/12/23 - 19/12/24		✓						
Torque wrench 320NM	A9650027		21/12/23 - 21/12/24		✓						

	<h1 style="text-align: center;">SELF INSPECTION INDUSTRIAL QUALITY</h1>		Rev:09	Project: 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	NOT 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		✓		28/05/24 MDL								
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) 10,11 bar Final pressure (FP) 10,10 bar FP - IP 0,01 bar APPROVAL CRITERIA: After 5 minutes the pressure cannot drops more than 0,2 bar	✓		28/05/24 MDL								
03		Movement performed at least 50m to shudder the car. And position on the leveled load cell, with wheels on the center.		✓		29/05/24 [Signature]								
04		Measurement inspection was done with car on condition AW0 and the rail leveled. (The load cells system must be leveled and calibrated)	Calibration Validation Date 19/12/2023	✓		29/05/24 [Signature]								
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>CHANGWAY</td> <td>250</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	EQUIPMENT DESCRIPTION	WEIGHT (kg)	CHANGWAY	250					✓		29/05/24 [Signature]
EQUIPMENT DESCRIPTION	WEIGHT (kg)													
CHANGWAY	250													
06		The pressure difference between air spring on each bogie when raise the pressure was maintained < 0.3 bar.		✓		29/05/24 [Signature]								
07		Measurement recorded with empty suspension and loaded are on conformity with tolerances of the project.		✓		29/05/24 [Signature]								
08		All leveling measurements are according to the reference. (Values out of reference must be recorded on "Description of defects")		✓		29/05/24 [Signature]								

		<h1>SELF INSPECTION INDUSTRIAL QUALITY</h1>		Rev:09		Projel: PRASA		SI.FT1140.52	
				Date: 5/31/2022					
Item	Picture/Label	Description	Criteria/Record	OK	NO	Signature/Date			
09		Check that the leveling rods are torqued and have torque marker.		✓		 29/05/24			
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).		✓		 29/05/24			
11		Remove the car, move back onto the load cells and repeat the step 09. Confirm if both are in the tolerance of $\leq 4\%$.		✓		 29/05/24			
12		1 - Record shims thickness used on rod. 2 - All screws were torqued and have torque marker.	THICKNESS (mm) I  II  III  IV 	✓		 29/05/24			
13		Pivot fixation	1- M20 x 90 screws with application of torque according to PRA.FT1140.04/05	✓		 29/05/24			
14		FOR TC CARS F= Height of the center of Automatic coupler F = 695mm (+5/-10mm) (Using levelled rail)	TC CAB #1= _____ mm						
15		FOR TC CARS Height of Eurobaise Antenna = 205mm(+/-10mm) (Using levelled rail)	TC CAB #1= _____ mm						
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)	✓		 29/05/24			
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	✓		 29/05/24			
18		Car does not come into contact with the gauge.	No Contact with Car and Gauge -GO Contact with Car and Gauge - NO GO	✓		 29/05/24			



SELF INSPECTION INDUSTRIAL QUALITY

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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	A ^{II}					256	257	254	257					A ^I
FLOOR COVERING HEIGHT	min 1096 max 1116	E ^{II}													E ^I
AIR SPRING PRESSURE	± 0.3 (Q1 - Q)	C ^{II}					219	310	218	310					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 (J1 - J)	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}					259	256	256	259					A ^{IV}
FLOOR COVERING HEIGHT	min 1096 max 1116	E ^{III}													E ^{IV}
AIR SPRING PRESSURE	± 0.3 (Qv - Qv)	C ^{III}					212	217	210	217					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 (Jv - Jv)	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

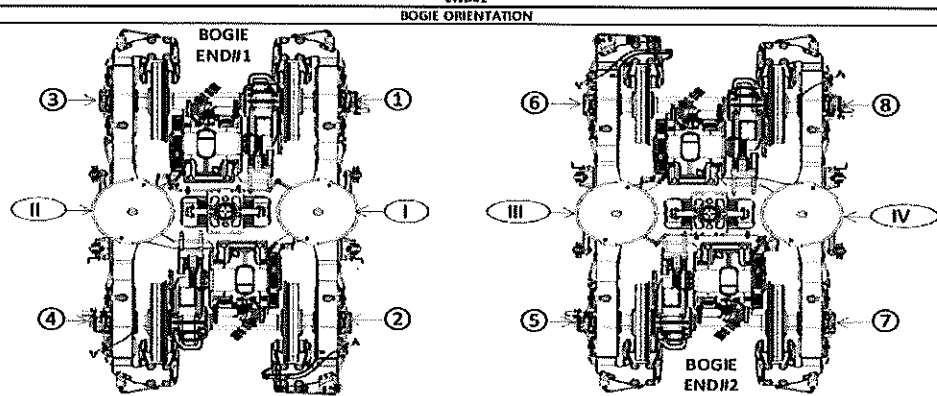
EQUIPMENT

WEIGHT

SECONDARY MEASUREMENTS (ONLY TO CAPS)

AUTOMATIC COUPLER HEIGHT

ANTENNA HEIGHT





SELF INSPECTION INDUSTRIAL QUALITY

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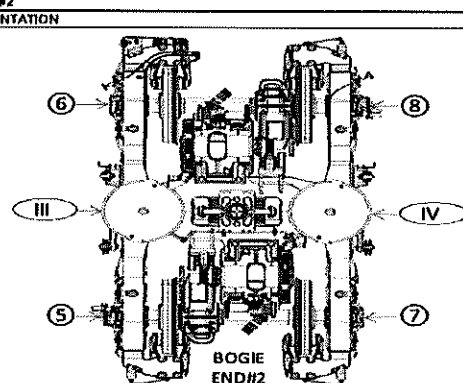
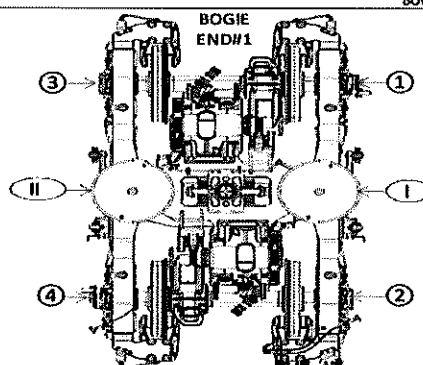
SI.FT1140.52

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 263	AII											AI
FLOOR COVERING HEIGHT	min 1096 max 1116	EII											EI
AIR SPRING PRESSURE	≤ 0.3 (QI - Q)	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 (J1 - J)	JII											JI
QTY OF TURNS OF LEVELLING ROD	N/A	XII											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 263	AIII											AIV
FLOOR COVERING HEIGHT	min 1096 max 1116	EIII											EIV
AIR SPRING PRESSURE	≤ 0.3 (QIV - Q3)	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 - J3)	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 TC CAR)		
AUTOMATIC COUPLER HEIGHT		
ANTENNA HEIGHT		





SELF INSPECTION INDUSTRIAL QUALITY


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5/31/2022

Projeto:
PRASA

SI.FT1140.52

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

ITEM		THEORETICAL VALUES											
		TQ1 CAR		M4 CAR		M1 CAR		M2 CAR		M3 CAR		TQ2 CAR	
		TBext	TBint	MB1	MB2	MB1	MB2	MB2	MB1	MB1	MB2	TBint	TBext
Photo Internal stop gaps difference [mm]	Fig. 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
Air Spring height [mm]	Fig. 5	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}	255^{+4}_{-4}
Air spring pressure at AWD [Bar]	Fig. 5	3,76	2,82	2,83	2,83	3,02	2,91	3,07	2,85	2,83	2,83	2,83	3,76
		(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)
		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]	Fig. 6	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}	35^{+5}_{-5}
		$D_1; D_3$	$D_2; D_4$	$D_3; D_5$	$D_4; D_6$	$D_5; D_7$	$D_6; D_8$	$D_7; D_9$	$D_8; D_{10}$	$D_9; D_{11}$	$D_{10}; D_{12}$	$D_{11}; D_{13}$	$D_{12}; D_{14}$
		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}
		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}
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^{+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.)	895	(Ref.)
	Fig. 9	760	(Ref.)	760	(Ref.)	760	(Ref.)	760	(Ref.)	760	(Ref.)	760	(Ref.)
Photo 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}

	<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

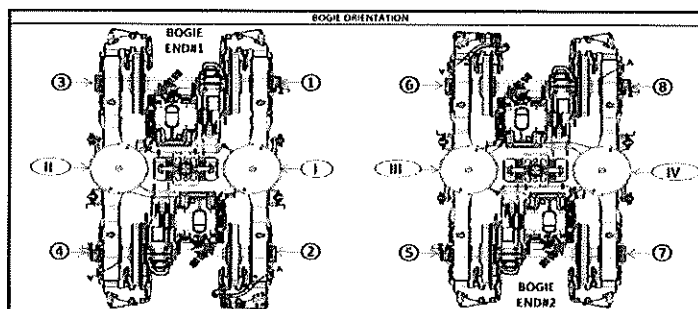
References for secondary suspension full
An Air spring height
Bn Difference between measurement A'n and An
En Floor covering height
Cn Air spring pressure
Dn Primary suspension
Kn Pivot Vertical gap
Jn Pivot Lateral stop gaps difference

Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
A'n	N/A	A'i 239	A'ii 240	A'is 239	A'iv 240
An	254 to 261	Ai 258	Aii 257	Ais 258	Aiv 259
Bn = An - A'n	N/A	Bi 19	Bii 17	Bis 19	Biv 19
En	1106 ±10 mm	Ei 1113	Eii 1106	Eis 1109	Eiv 1110
Item	Reference [bar]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Cn	Table 02 (*)	Ci 3.01	Cii 2.90	Cis 2.90	Civ 2.70
Cn - Cn+1	Difference ≤ 0,3	Ci - Cii 0.11		Cis - Civ 0.2	
Gauge serial number	N/A	91B05873		91B05873	
Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Dn	Table 01 (*)	D1 44.41	D3 44.14	D6 44.86	D8 45.72
		D2 45.71	D4 44.16	D5 44.61	D7 45.70
Kn	25 to 45	Ki 35.88		Kii 30.79	
Jn	Difference ≤ 4	Ji 25.33	Jii 25.95	Jis 25.15	Jiv 24.86


(*) 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

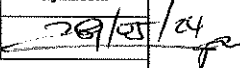


Weighting report from Test and Commissioning (Final measurements after Levelling and Weighting fine)


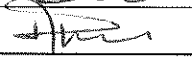
	<h1 style="margin: 0;">SELF INSPECTION INDUSTRIAL QUALITY</h1>		Rev:09	Project: PRASA	SI.FT1140.52
			Date: 5/31/2022		

Item	Description of defects	NOK	OK	Signature/Date

IL2 - Check List REX

Check List Items						
Item	Picture/Drawing	Description	Criteria/Remark	OK	NOK	Signature/Date
01	N/A	To complete REX	Refer to REX. New defects must be added on the REX	✓		29/05/24 

Self Inspection - Final Result

Is the cargo good to advance to the next workstation/process? (Approval of Operations Manager/Team Leader and Industrial Quality)		DATE	NAME	SIGNATURE
HOLD POINT	GO	If activities are not complete, the missing activities must not impact the next stage!	29/05/24	Operations Manager 
	GO	Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party.	29/05/24	Industrial Quality 
	NO GO	There are activities pending that impact/stop the activities of the next process Obs: (To describe problems below)		Operations Manager
	NO GO	There are non-conformities impact the quality of the product and there is no corrective action defined yet!		Industrial Quality

In case of "NO GO", describe blocking problems

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

Item	Description	Action	Responsible	Status

Operations Manager / Team Leader

Quality Manager / Team Leader



Gibela Rail Transport Consortium RF (Pty)
Ltd
2 Shosholozu Avenue
Dunnettar XT
Ekurhuleni, 1590, South Africa
Reception: +27 (0)10 600 0651

TRAIN SET 226	REF: GIB000001672_ID PRASA WEIGHT BALANCE EN
	PC09 WEIGHING REPORT

M2	Balance across front and rear bogies	Front Bogie [Tons]	Rear Bogie [Tons]	Longitudinal Imbalance [%]	Criteria Longitudinal Imbalance $\leq 3\%$
		18.67	17.94	1.99%	PASS
	Weight Measured vs Predicted	Weight Measured [Tons]	Weight Predicted [Tons]	Weight Difference [%]	Tolerance [%]
		36.61	37.06	1.22%	1.37% Criteria Mine Diff Max PASS

Train Information			
Name	Company	Department	Date
Thabo Mushi	GIBELA	EOC	29/05/24