

GIBELCO
2024-0-15

GIBELCO

PRASA PROJECT



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			
<input type="checkbox"/>	DTR3-PROCE-14	LEVELLING, WEIGHTING AND BALANCING M CAR	FT1140		1	X	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	1	PRA.FT1140.05	YES
<input type="checkbox"/>	DTR3-PROCE-17	LEVELLING, WEIGHTING AND BALANCING TC CAR	FT1140	1	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
TS230	M1	Andrew	15/06/24	SI.FT1140.52	01/08



SELF INSPECTION INDUSTRIAL QUALITY

Rev:09

Date:

5/31/2022

Projet:
PRASA

SI.FT1140.52

Car:

NOR:

Work Station

FT1140



Safety Related

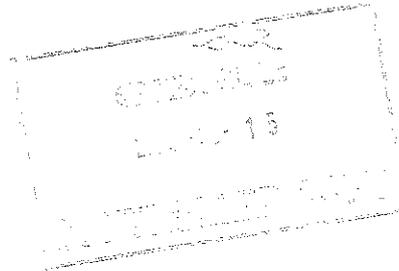
I - Document and Instrument Control

I.1 - Documents control

Document	TCI	RF	QC	MS	SA	TCO	Remarks	Signature/Date
PRA.FT1140.04								
PRA.FT1140.05		✓						✓ <i>Morgan 12/06/24</i>
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	Signature/Date
Measuring tap	CIBTA 0276	26/10/23 - 26/10/24 ✓	
Vernier Caliper	CIBVR 0056	27/10/24 - 27/02/25 ✓	
Torque wrench 35 Nm	D25 11023	19/12/23 - 19/12/24 ✓	15/06/2024 <i>[Signature]</i>
Torque wrench 150 Nm	D28622009	19/12/23 - 19/12/24 ✓	
Torque wrench 320 Nm	A96600227	21/12/23 - 21/12/24 ✓	





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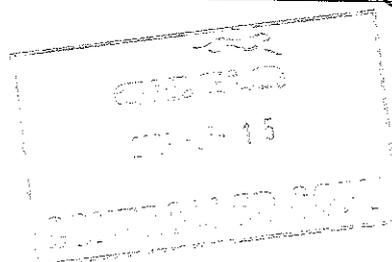
Project:
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SI.FT1140.52

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		✓	<i>[Signature]</i> 14/06/24
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): 9.6 bar Final pressure (FP): 8.45 bar FP - IP = 1.15 bar APPROVAL CRITERIA: After 5 minutes the pressure cannot drops more than 0,2 bar	✓	<i>[Signature]</i> 14/06/24
03		Movement performed at least 50m to shudder the car. And position on the leveled load cell, with wheels on the center.		✓	<i>[Signature]</i> 15/06/24
04		Measurement inspection was done with car on condition AW0 and the rail levelled. (The load cells system must be levelled and calibrated)	Calibration Validation Date 19/12/23	✓	<i>[Signature]</i> 15/06/24
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)	EQUIPMENT DESCRIPTION GANGWAY WEIGHT (kg) 300	✓	<i>[Signature]</i> 14/06/24
06		The pressure difference between air spring on each bogie when raise the pressure was maintained < 0.3 bar.		✓	<i>[Signature]</i> 15/06/24
07		Measurement recorded with empty suspension and loaded are on conformity with tolerances of the project.		✓	<i>[Signature]</i> 15/06/24
08		All levelling measurements are according to the reference. (Values out of reference must be recorded on "Description of defects")		✓	<i>[Signature]</i> 15/06/24





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Item	Pictures/Sketch	Description	Criteria/Record	Signature/Date										
09		Check that the leveling rods are torqued and have torque marker.	✓	15/06/24 Rampant										
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).	✓	15/06/24 Rampant										
11		Remove the car, move back onto the load cells and repeat the step 09. Confirm if both are in the tolerance of $\leq 4\%$.	✓	15/06/24 Rampant										
12		1 - Record shims thickness used on rod. 2 - All screws were torqued and have torque marker.	<table border="1"> <thead> <tr> <th colspan="2">THICKNESS (mm)</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>0</td> </tr> <tr> <td>II</td> <td>0</td> </tr> <tr> <td>III</td> <td>0</td> </tr> <tr> <td>IV</td> <td>0</td> </tr> </tbody> </table>	THICKNESS (mm)		I	0	II	0	III	0	IV	0	15/06/24 Rampant
THICKNESS (mm)														
I	0													
II	0													
III	0													
IV	0													
13		Pivot fixation	1- M20 x 90 screws with application of torque according to PRA.FT1140.04 / 05	15/06/24 Rampant										
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 W1 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)	15/06/24 Rampant										
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	15/06/24 Rampant										
18		Car does not come into contact with the gauge.	No Contact with Car and Gauge -GO Contact with Car and Gauge - NO GO	15/06/24 Rampant										

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SELF INSPECTION INDUSTRIAL QUALITY

Rev:08

Date:

5/31/2022

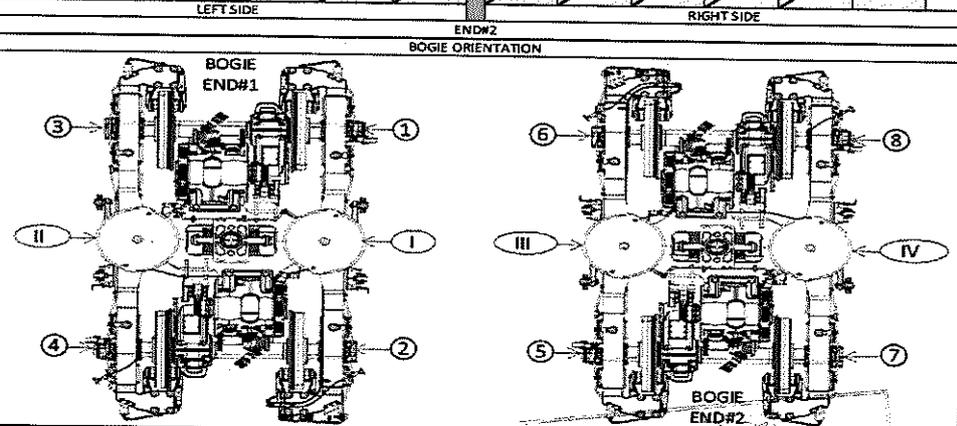
Proj:
PRASA

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	/													
AIR SPRING HEIGHT (FULL)	min 254 max 261	/						257	260	259	254	/			
FLOOR COVERING HEIGHT	min 1096 max 1116	/													
AIR SPRING PRESSURE	≤ 0.3 (Di - Qi)	/						3.03	2.85	3.50	3.02	/			
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	/													
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	/													
PIVOT VERTICAL GAP	min 25 max 32	/													
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (H1 - J)	/													
QTY OF TURNS OF LEVELLING ROD	N/A	/						1 1/2	1 1/2	/					
SHIMS OF ANTI-ROLL BAR	N/A	/													
DESCRIPTION	TOLERANCE	6	5	4	3	2	1	1	2	3	4	5	6		
AIR SPRING HEIGHT (EMPTY)	N/A	/													
AIR SPRING HEIGHT (FULL)	min 254 max 261	/						257	262	256	258	/			
FLOOR COVERING HEIGHT	min 1096 max 1116	/													
AIR SPRING PRESSURE	≤ 0.3 (Qv - Qh)	/						2.89	3.04	2.75	2.93	/			
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	/													
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	/													
PIVOT VERTICAL GAP	min 25 max 32	/													
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 (Jv - Jh)	/													
QTY OF TURNS OF LEVELLING ROD	N/A	/						1 1/2	1	/					
SHIMS OF ANTI-ROLL BAR	N/A	/													

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 CAR)		
AUTOMATIC COUPLER HEIGHT		
ANTENNA HEIGHT		



2022-05-31

15

INDUSTRIAL QUALITY



SELF INSPECTION INDUSTRIAL QUALITY

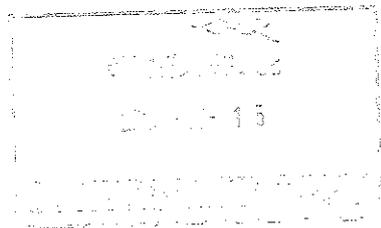
Rev:09
Date:
5/31/2022

Proj:
PRASA

SI.FT1140.52

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

ITEM	THEORETICAL VALUES													
	TC1 CAR		M1 CAR		M2 CAR		M3 CAR		M4 CAR		M5 CAR		TC2 CAR	
	TBext	TBint	MB1	MB2	TBint	TBext								
Photo lateral stop gaps difference [mm]	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4
Air Spring height (mm)	255 ⁺⁶ ₋₄													
Air spring pressure at AWD [Bar]	3,76 (Ref.)	2,82 (Ref.)	2,87 (Ref.)	2,91 (Ref.)	2,85 (Ref.)	3,07 (Ref.)	2,83 (Ref.)	3,76 (Ref.)						
Primary Suspension gaps [mm]	C ₁ -C ₂	0,3 Máx.												
	C ₃ -C ₄	0,3 Máx.												
	D ₁ ; D ₅	35 ⁺¹² ₋₄												
	D ₃ ; D ₄	35 ⁺¹² ₋₄												
Carbody Floor height [mm]	1106 ⁺¹⁰ ₋₁₀													
Booster height [mm]	850 ⁺⁵ ₋₇													
Coupling End height [mm]	F ₁	895 (Ref.)	760 (Ref.)	895 (Ref.)										
	F ₂	760 (Ref.)												
Photo Vertical gap [mm]	K ₆	30 ⁺¹⁵ ₋₅												
		30 ⁺¹⁵ ₋₅												





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

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

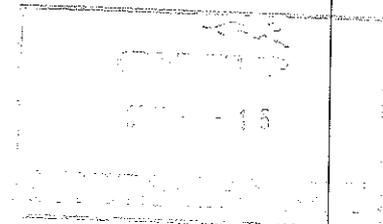
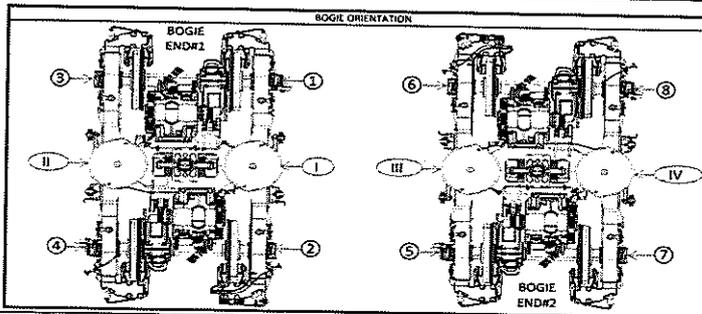
References for secondary suspension full
An Air spring height
Bn Difference between measurement A'n and An
En Floor covering height
Cn Air spring pressure
Dn Primary suspension
Kn Pivot Vertical gap
Jn Pivot Lateral stop gaps difference

Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
A'n	N/A	A'I 243	A'II 243	A'III 245	A'IV 245
An	254 to 261	A'I 255	A'II 258	A'III 260	A'IV 259
Bn = An - A'n	N/A	B'I 12	B'II 15	B'III 15	B'IV 14
En	1106 ±10 mm	E'I 1108	E'II 1105	E'III 1109	E'IV 1110
Item	Reference [bar]	END#1		END#2	
Cn	Table 02 (*)	C'I 3,04	C'II 2,99	C'III 2,87	C'IV 2,90
Cn - Cn+1	Difference ≤ 0,3	C'I - C'II 0,05		C'III - C'IV 0,03	
Gauge serial number	N/A	GIB05873	GIB05873	GIB05873	GIB05873
Item	Reference [mm]	END#1		END#2	
Dn	Table 01 (*)	D'I 43,16	D'II 45,13	D'III 45,10	D'IV 45,21
		D'II 43,62	D'III 44,47	D'IV 45,08	D'V 45,90
Kn	25 to 45	K'I 36,17		K'II 32,43	
Jn	Difference ≤ 4	J'I 25,32	J'II 26,77	J'III 26,33	J'IV 24,88

(*) 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											

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)



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TRAIN SET 230 REF: GIB000001672_JO PRASA WEIGHT BALANCE EN
 PC09 WEIGHING REPORT

	Front Bogie [Tons]	Rear Bogie [Tons]	Longitudinal Imbalance [%]	Criteria Longitudinal Imbalance
M1	18.67	18.03	1.74%	PASS
	Weight Measured vs Predicted	Weight Predicted [Tons]	Weight Difference [%]	Tolerance [%]
	36.70	36.87	0.45%	1.37%
				Criteria Min/Dir/Max
				PASS

Test Participants		Date
Name <i>Plus</i>	Signature <i>[Signature]</i>	15/06/2024
Company GIBELA Rail	Department EOC	