

GIBELQ

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.

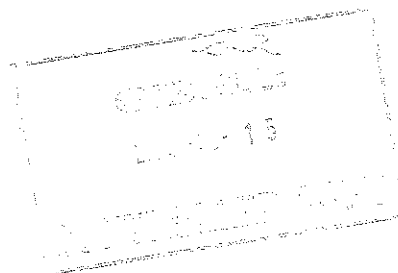
APPLICATION REFERENCE

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	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
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	TC1	M1	M2	M3	M4	TC2	Revision	Remark	OK	NOK	Signature/Date
PRA.FT1140.04											
PRA.FT1140.05		✓							✓		12/06/24
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 tap	CIBTA 0276		26/10/23 - 26/10/24		✓						
Vernier Caliper	CIBVR 0056		27/10/24 - 27/02/25		✓						
Torque wrench 35 N.m	D25 11023		19/12/23 - 19/12/24		✓		15/06/2024 				
Torque wrench 150 N.m	D28622009		19/12/23 - 19/12/24		✓						
Torque wrench 320 N.m	A96500227		21/12/23 - 21/12/24		✓						





SELF INSPECTION INDUSTRIAL QUALITY

Rev:09

Date:

5/31/2022

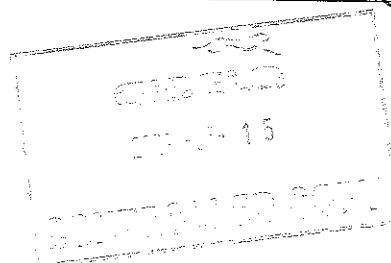
Project:
PRASA

SI.FT1140.52

II - Self Inspection - Items to Check

II.1 - Items to Check

Item	Picture/Sketch	Description	Criteria/Record	S.R.	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		✓	 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): 9.96 bar Final pressure (FP): 9.49 bar FP - IP = 0.47 bar APPROVAL CRITERIA: After 5 minutes the pressure cannot drops more than 0.2 bar	✓	 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.		✓	 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	✓	 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)	<table><tr><th>EQUIPMENT DESCRIPTION</th><th>WEIGHT (kg)</th></tr><tr><td>GANGWAY</td><td>300</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	EQUIPMENT DESCRIPTION	WEIGHT (kg)	GANGWAY	300					✓	 14/06/24
EQUIPMENT DESCRIPTION	WEIGHT (kg)												
GANGWAY	300												
06		The pressure difference between air spring on each bogie when raise the pressure was maintained < 0.3 bar.		✓	 15/06/24								
07		Measuremet recorded with empty suspension and loaded are on conformity with tolerances of the project.		✓	 15/06/24								
08		All levelling measurements are according to the reference. (Values out of reference must be recorded on "Description of defects")		✓	 15/06/24								





SELF INSPECTION INDUSTRIAL QUALITY

Rev:09

Date:

5/31/2022

Project:
PRASA

SI.FT1140.52

Item	Picture/Sketch	Description	Criteria/Record	✓	✗	Signature/Date
09		Check that the leveling rods are torqued and have torque marker.		✓		15/06/24 Rajesh
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 Rajesh
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 Rajesh
12		1 - Record shims thickness used on rod. 2 - All screws were torqued and have torque marker.	THICKNESS (mm) I II III IV	✓		15/06/24 Rajesh
13		Pivot fixation	1- M20 x 90 screws with application of torque according to PRA.FT1140.04 / 05	✓		15/06/24 Rajesh
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 Eurobalise 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. -Roof piping connection fittings(Roof arch and door blinning)	✓		15/06/24 Rajesh
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 Rajesh
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 Rajesh



SELF INSPECTION INDUSTRIAL QUALITY

Rev:08

Date:

5/31/2022

Projet:
PRASA

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 ¹ _{II}											
AIR SPRING HEIGHT (FULL)	min 254 max 261	A ¹ _{II}					257 260	259 254					
FLOOR COVERING HEIGHT	min 1096 max 1116	E ¹ _{II}											
AIR SPRING PRESSURE	≤ 0.3 {Q ₁ - Q ₁ }	C ¹ _{II}					3,03 2,85	3,50 3,02					
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ³ ₃											
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ⁴ ₄											
PIVOT VERTICAL GAP	min 25 max 32	K ¹ _{II}											
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 {J ₁ - J ₁ }	J ¹ _{II}											
QTY OF TURNS OF LEVELLING ROD	N/A	X ¹ _{II}					1 1/2	1 1/4					
SHIMS OF ANTI-ROLL BAR	N/A	Y ¹ _{II}											
DESCRIPTION	TOLERANCE	6	5	4	3	2	1	1	2	3	4	5	6
AIR SPRING HEIGHT (EMPTY)	N/A	A ¹ _{III}											
AIR SPRING HEIGHT (FULL)	min 254 max 261	A ¹ _{III}					257 262	256 258					
FLOOR COVERING HEIGHT	min 1096 max 1116	E ¹ _{III}											
AIR SPRING PRESSURE	≤ 0.3 {Q _v - Q _v }	C ¹ _{III}					2,89 3,04	2,75 2,93					
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ⁵ ₅											
PRIMARY SUSPENSION	SEE TABLE (ONLY REF)	D ⁶ ₆											
PIVOT VERTICAL GAP	min 25 max 32	K ¹ _{III}											
PIVOT LATERAL STOP GAPS DIFFERENCE	≤ 4 {J _v - J _v }	J ¹ _{III}											
QTY OF TURNS OF LEVELLING ROD	N/A	X ¹ _{III}					1 1/4	1					
SHIMS OF ANTI-ROLL BAR	N/A	Y ¹ _{III}											

COMPARE EACH TENTATIVE WITH
THE TOLERANCE AND IDENTIFY
EACH MEASURE AS BELOWGOOD LOWER HIGHER
✓ ↓ ↑WEIGHT
COMPENSATION

EQUIPMENT

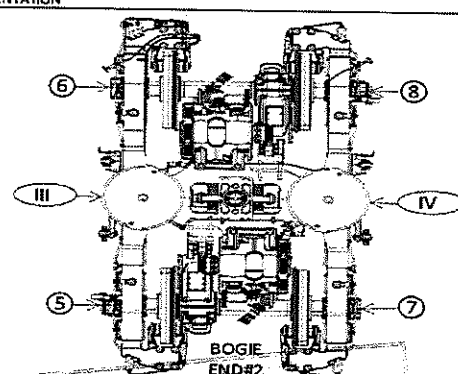
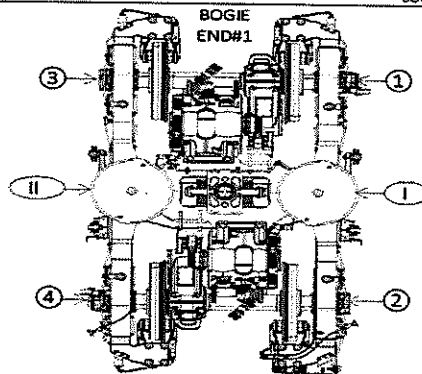
WEIGHT

EQUIPMENT

WEIGHT

SECONDARY MEASUREMENTS
(ONLY TO CAR)AUTOMATIC COUPLER
HEIGHT

ANTENNA HEIGHT





SELF INSPECTION INDUSTRIAL QUALITY

Rev:09
Date:
5/31/2022

Projeto:
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	MB2	MB2	MB1	MB1	TBint	TBext
Photo lateral stop gaps difference [mm]	Jn-Jn+1 (1+2)	Fig. 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
Air Spring height [mm]	A _n (1+2)	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
Air spring pressure at AWD [Bar]	C _n (1+2)	Fig. 5	3,76 (Ref.)	2,87 (Ref.)	2,83 (Ref.)	3,02 (Ref.)	2,91 (Ref.)	3,07 (Ref.)	2,85 (Ref.)	2,83 (Ref.)	2,87 (Ref.)	2,83 (Ref.)	3,76 (Ref.)
	C ₁ - C ₂		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		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]	D ₁₂ D ₅	Fig. 6	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄	35 ⁺¹² ₋₄
	D ₁₃ D ₆												
	D ₁₄ D ₇												
	D ₁₅ D ₈												
Carbody floor height [mm]	E _n (1+2)	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
Booster height [mm]	N _n (1+2)	Fig. 7	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇	850 ⁺⁵ ₋₇
Coupling End height [mm]	F ₁	Fig. 8	895 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	895 (Ref.)	760 (Ref.)
	F ₂	Fig. 9	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)	760 (Ref.)
Photo Vertical gap [mm]	K _n	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



SELF INSPECTION INDUSTRIAL QUALITY

Rev:09

Date:

5/31/2022

Project:
PRASA

SI.FT1140.52

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

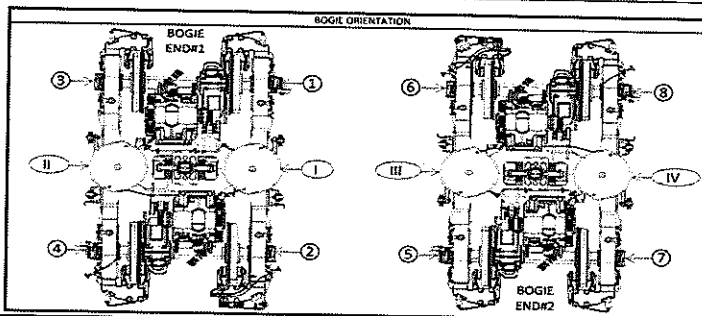
An Air spring height
Bn Difference between measurement A'n and An
En Floor covering height
Cn Air spring pressure
Dn Primary suspension
Kn Pivot Vertical gap
Jn Pivot Lateral stop gaps difference

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	Ai 255	Aii 258	Aiii 260	Aiv 259
Bn = An - A'n	N/A	Bi 12	Bii 15	Biii 15	Biv 14
En	1106 ±10 mm	Ei 1108	Eii 1105	Eiii 1109	Eiv 1110
Item	Reference [bar]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Cn	Table 02 (*)	Ci 3,04	Cii 2,99	Ciii 2,87	Civ 2,90
Cn - Cn+1	Difference ≤ 0,3	Ci - Cii 0,05		Ciii - Civ 0,03	
Gauge serial number	N/A	GIB05873	GIB05873	GIB05873	GIB05873
Item	Reference [mm]	END#1		END#2	
		Right Side	Left Side	Left Side	Right Side
Dn	Table 01 (*)	D1 43,16	D3 45,13	D5 45,10	D6 45,21
		D2 43,62	D4 44,47	D5 45,08	D7 45,90
Kn	25 to 45	Ki 36,17		Kii 32,43	
Jn	Difference ≤ 4	Ji 25,32	Jii 26,77	Jiii 26,33	Jiv 24,88

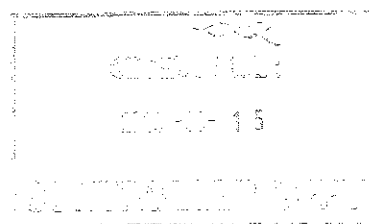
(*) Reference, only include values, isn't approval criteria.

Table 01 D Theoretical Values	TC1		M4		M1		M2		M3		TC2	
	Tbex	TBin	Mb1	Mb1	Mb1	Mb2	Mb2	Mb1	Mb1	Mb1	Tbin	Tbex
D=	95 ⁺¹² ₋₅	95 ⁺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)

[illegible]



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

TRAIN SET 230	REF: GIBD000001672 JO PRASA WEIGHT BALANCE EN
	PC09 WEIGHING REPORT

M1	Balance across front and rear bogies	Front Bogie [Tons]	Rear Bogie [Tons]	Longitudinal Imbalance [%]	Criteria Longitudinal Imbalance ≤ 3%
		18.67	18.03	1.74%	PASS
	Weight Measured vs Predicted	Weight Measured [Tons]	Weight Predicted [Tons]	Weight Difference [%]	Tolerance [%]
		36.70	36.87	0.45%	1.37% Criteria Min ≤ Diff ≤ Max PASS

Test Participants			
Name	Company	Department	Signature
Elms	GIBELA Rail	EOC	
			Date
			18/06/2024