

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.

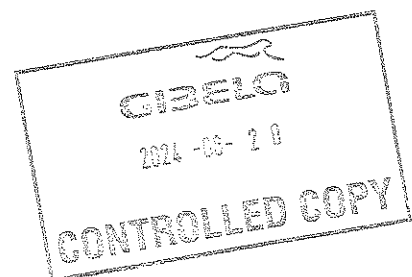
## APPLICATION REFERENCE


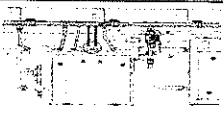

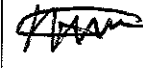

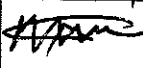



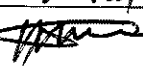





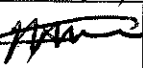
| MOUNTING                 | DESCRIPTION   | STATION                                   | CAR TYPE |    |    |    |    |     | WORK INSTRUCTION | SAFETY ? |  |
|--------------------------|---------------|---|----------|----|----|----|----|-----|------------------|----------|--|
|                          |               |   | TC1      | M4 | M1 | M2 | M3 | TC2 |                  |          |  |
| <input type="checkbox"/> | DTR3-PROCE-14 | LEVELLING, WEIGHTING AND BALANCING M CAR  | FT1140   |    | 1  | 1  | 1  | 1   | PRA.FT1140.04    | YES      |  |
| <input type="checkbox"/> | DTR3-PROCE-14 | LEVELLING, WEIGHTING AND BALANCING TC CAR | FT1140   | X  |    |    |    |     | 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"/> |               |   |          |    |    |    |    |     |                  |          |  |

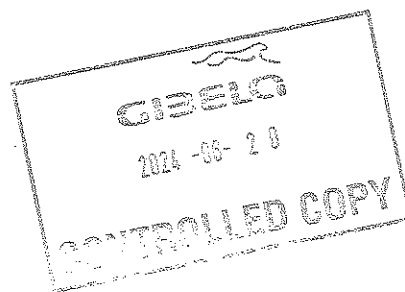
| REV | DATE      | MODIFICATION CONTENT  | RESPONSIBLE | NAME                 | DATE      |
|-----|-----------|---|-------------|----------------------|-----------|
| 7   | 2/11/2020 | UPDATE OF AIR TIGHTNESS TEST TIME FROM 4 MIN TO 5 MIN.<br>ADD PANTOGRAPH AIR TIGHTNESS. | APPROVER    | GIVEN SILOWA         | 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 |



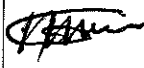

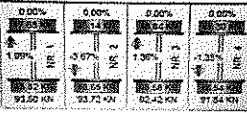
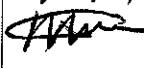

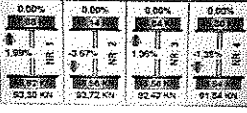


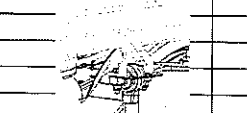






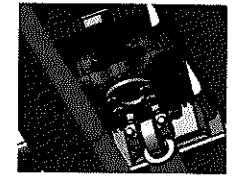


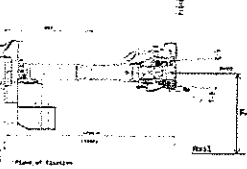


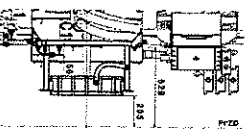


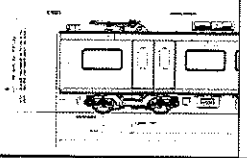

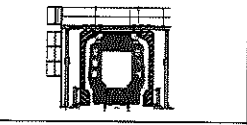

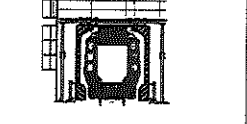

| TUE   | CAR | OPERATOR NAME | DATE     | SELF INSPECTION NUMBER | PAGES |
|-------|-----|---------------|----------|------------------------|-------|
| TS231 | TC1 | GOODNESS      | 20/06/24 | SI.FT1140.52           | 01/08 |

|   |                                       |    |  |                   |              |     |  |        |    |     |                |  |
|---|---------------------------------------|----|--|-------------------|--------------|-----|--|--------|----|-----|----------------|--|
|    | SELF INSPECTION<br>INDUSTRIAL QUALITY |    | Rev:09   | Project:<br>PRASA | SI.FT1140.52 |     |  |        |    |     |                |  |
|   |                                       |    | Date:<br>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   | X                                     |    |  |                   |              |     |  |        | ✓  |     | 20/06/24       |  |
| 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<br>Validation Date |                   | OK           | NOK | Signature/Date   |        |    |     |                |  |
| Measuring Tape  | GIBTA 0276                            |    | 26/10/23-26/10/24                              |                   | ✓            |     | 20/06/24<br> |        |    |     |                |  |
| Vernier Caliper   | GIBVR 0056                            |    | 06/03/23-06/03/24                              |                   | ✓            |     |  |        |    |     |                |  |
| Torque Wrench 35N.M   | D2511023                              |    | 19/12/23-19/12/24                              |                   | ✓            |     |  |        |    |     |                |  |
| Torque Wrench 150N.M  | D28622009                             |    | 19/12/23-19/12/24                              |                   | ✓            |     |  |        |    |     |                |  |
| Torque Wrench 320N.M  | A9650027                              |    | 21/12/23-21/12/24                              |                   | ✓            |     |  |        |    |     |                |  |
| Torque Wrench 530N.M  | A9630053                              |    | 21/12/23-21/12/24                              |                   | ✓            |     |  |        |    |     |                |  |
| Torque Wrench 170N.M  | D2861617                              |    | 19/12/23-19/12/24                              |                   | ✓            |     |  |        |    |     |                |  |



|  | <h1>SELF INSPECTION<br/>INDUSTRIAL QUALITY</h1>                                     |  | Rev:09  | Project:<br>PRASA     | SI.FT1140.52  |             |    |  |  |  |  |  |  |   |   |
|---|---|--|---|-----------------------|---|-------------|----|--|--|--|--|--|--|---|---|
|   |   |  | Date:<br>5/31/2022  |                       |   |             |    |  |  |  |  |  |  |   |   |
| <b>II - Self Inspection - Items to Check</b>                                      |   |  |   |                       |   |             |    |  |  |  |  |  |  |   |   |
| 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                   |   | ✓                     | <br>20/06/24   |             |    |  |  |  |  |  |  |   |   |
| 02  |   | Check underframe pipe system Air tightness.<br>Test performance according to WI PRA.FT1130.15.   | The test was performed and no leak was observed.<br>Initial pressure (IP): _____ bar<br>Final pressure (FP): _____ bar<br>FP - IP = _____ bar<br>APPROVAL CRITERIA: After 5 minutes the pressure cannot drops more than 0,2 bar   | ✓                     | <br>20/06/24   |             |    |  |  |  |  |  |  |   |   |
| 03  |    | Movement performed at least 50m to shudder the car. And position on the leveled load cell, with wheels on the center.  |   | ✓                     | <br>20/06/24   |             |    |  |  |  |  |  |  |   |   |
| 04  |  | Measurement Inspection was done with car on condition AWD and the rail levelled.<br>(The load cells system must be levelled and calibrated)  | Calibration Validation Date<br>19/12/2023   | ✓                     | <br>20/06/24 |             |    |  |  |  |  |  |  |   |   |
| 05  |  | In case of the equipments not installed, equivalent weight of the item should be added in the same place to simulate the equipment.<br>(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>Driver Seat</td> <td>60</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table> | EQUIPMENT DESCRIPTION | WEIGHT (kg)   | Driver Seat | 60 |  |  |  |  |  |  | ✓ | <br>20/06/24 |
| EQUIPMENT DESCRIPTION   | WEIGHT (kg)   |  |   |                       |   |             |    |  |  |  |  |  |  |   |   |
| Driver Seat   | 60  |  |   |                       |   |             |    |  |  |  |  |  |  |   |   |
|   |   |  |   |                       |   |             |    |  |  |  |  |  |  |   |   |
|   |   |  |   |                       |   |             |    |  |  |  |  |  |  |   |   |
|   |   |  |   |                       |   |             |    |  |  |  |  |  |  |   |   |
| 06  |  | The pressure difference between air spring on each bogie when raise the pressure was maintained < 0.3 bar.   |   | ✓                     | <br>20/06/24 |             |    |  |  |  |  |  |  |   |   |
| 07  |  | Measurement recorded with empty suspension and loaded are on conformity with tolerances of the project.  |   | ✓                     | <br>20/06/24 |             |    |  |  |  |  |  |  |   |   |
| 08  |  | All levelling measurements are according to the reference.<br>(Values out of reference must be recorded on "Description of defects")   |   | ✓                     | <br>20/06/24 |             |    |  |  |  |  |  |  |   |   |



|  |   | <h1>SELF INSPECTION<br/>INDUSTRIAL QUALITY</h1>                                     |  | Rev:09  | Projet:<br>PRASA | SI.FT1140.52  |
|---|---|---|--|---|------------------|---|
|   |   | Date:<br>5/31/2022  |  |   |                  |   |
| 09  |    |   | Check that the leveling rods are torqued and have torque marker.   |   | ✓                | <br>20/06/24   |
| 10  |    |    | The difference of weight between the left and right wheels of each axis, must be $\leq 4\%$ .<br>(Verify on the T&C equipment if all arrows are in green). |   | ✓                | <br>20/06/24   |
| 11  |    |    | Removes the car, move back onto the load cells and repeat the step 09. Confirm if both are in the tolerance of $\leq 4\%$ .                                |   | ✓                | <br>20/06/24   |
| 12  |    |    | 1 - Record shims thickness used on rod.<br>2 - All screws were torqued and have torque marker.   | THICKNESS (mm)<br>I <br>II <br>III <br>IV  | ✓                | <br>20/06/24   |
| 13  |  |   | Pivot fixation   | 1- M20 x 90 screws with application of torque according to PRA.FT1140.04 / 05   | ✓                | <br>20/06/24  |
| 14  |  |  | FOR TC CARS<br>F= Height of the center of Automatic coupler<br>F = 865mm (+5 / -10mm)<br>(Using levelled rail)   | TC CAB #1= _____ mm   | ✓                | <br>20/06/24 |
| 15  |  |  | FOR TC CARS<br>Height of Eurobalise Antenna = 205mm(+/-10mm)<br>(Using levelled rail)  | TC CAB #1= _____ mm   | ✓                | <br>20/06/24 |
| 16  |  |  | Check pantograph piping air tightness.<br>Test performance according to WI PRA.FT1140.17.  | The test was performed and no leak was observed.<br>-Roof piping connection fittings.<br>-Room piping connection fittings(Roof arch and door trimming)  |                  | N/A   |
| 17  |  |  | Pantograph does not come in contact with the higher height gauge when passing through.   | No Contact with Pantograph and Gauge -GO<br>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<br>Contact with Car and Gauge - NO GO   | ✓                | <br>20/06/24 |

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# 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            |   |   |   |   |   |            |      |   |   |   |   |                 |
|------------------------------------|--|------------------|---|---|---|---|---|------------|------|---|---|---|---|-----------------|
| 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 <sup>II</sup>  |   |   |   |   |   |            |      |   |   |   |   | A <sup>I</sup>  |
| AIR SPRING HEIGHT (FULL)           | min 254<br>max 261                             | A <sup>II</sup>  |   |   |   |   |   | 257        | 256  |   |   |   |   | A <sup>I</sup>  |
| FLOOR COVERING HEIGHT              | min 1096<br>max 1116                           | E <sup>II</sup>  |   |   |   |   |   |            |      |   |   |   |   | E <sup>I</sup>  |
| AIR SPRING PRESSURE                | ≤ 0.3<br>{C <sub>I</sub> - C <sub>I</sub> }    | C <sup>II</sup>  |   |   |   |   |   | 3,7        | 3,5  |   |   |   |   | C <sup>I</sup>  |
| PRIMARY SUSPENSION                 | SEE TABLE (ONLY REF)                           | D <sub>3</sub>   |   |   |   |   |   |            |      |   |   |   |   | D <sub>1</sub>  |
| PRIMARY SUSPENSION                 | SEE TABLE (ONLY REF)                           | D <sub>4</sub>   |   |   |   |   |   |            |      |   |   |   |   | D <sub>2</sub>  |
| PIVOT VERTICAL GAP                 | min 25<br>max 32                               | K <sup>II</sup>  |   |   |   |   |   |            |      |   |   |   |   | K <sup>I</sup>  |
| PIVOT LATERAL STOP GAPS DIFFERENCE | ≤ 4<br>{J <sub>I</sub> - J <sub>I</sub> }      | J <sup>II</sup>  |   |   |   |   |   |            |      |   |   |   |   | J <sup>I</sup>  |
| QTY OF TURNS OF LEVELLING ROD      | N/A  | X <sup>II</sup>  |   |   |   |   |   |            |      |   |   |   |   | X <sup>I</sup>  |
| SHIMS OF ANTI-ROLL BAR             | N/A  | Y <sup>II</sup>  |   |   |   |   |   |            |      |   |   |   |   | Y <sup>I</sup>  |
| DESCRIPTION                        | TOLERANCE                                      |                  | 6 | 5 | 4 | 3 | 2 | 1          | 1    | 2 | 3 | 4 | 5 | 6               |
| AIR SPRING HEIGHT (EMPTY)          | N/A  | A <sup>III</sup> |   |   |   |   |   |            |      |   |   |   |   | A <sup>IV</sup> |
| AIR SPRING HEIGHT (FULL)           | min 254<br>max 261                             | A <sup>III</sup> |   |   |   |   |   | 259        | 257  |   |   |   |   | A <sup>IV</sup> |
| FLOOR COVERING HEIGHT              | min 1096<br>max 1116                           | E <sup>III</sup> |   |   |   |   |   |            |      |   |   |   |   | E <sup>IV</sup> |
| AIR SPRING PRESSURE                | ≤ 0.3<br>{C <sub>IV</sub> - C <sub>III</sub> } | C <sup>III</sup> |   |   |   |   |   | 3,84       | 3,01 |   |   |   |   | C <sup>IV</sup> |
| PRIMARY SUSPENSION                 | SEE TABLE (ONLY REF)                           | D <sub>5</sub>   |   |   |   |   |   |            |      |   |   |   |   | D <sub>7</sub>  |
| PRIMARY SUSPENSION                 | SEE TABLE (ONLY REF)                           | D <sub>6</sub>   |   |   |   |   |   |            |      |   |   |   |   | D <sub>8</sub>  |
| PIVOT VERTICAL GAP                 | min 25<br>max 32                               | K <sup>III</sup> |   |   |   |   |   |            |      |   |   |   |   | K <sup>IV</sup> |
| PIVOT LATERAL STOP GAPS DIFFERENCE | ≤ 4<br>{J <sub>IV</sub> - J <sub>III</sub> }   | J <sup>III</sup> |   |   |   |   |   |            |      |   |   |   |   | J <sup>IV</sup> |
| QTY OF TURNS OF LEVELLING ROD      | N/A  | X <sup>III</sup> |   |   |   |   |   |            |      |   |   |   |   | X <sup>IV</sup> |
| SHIMS OF ANTI-ROLL BAR             | N/A  | Y <sup>III</sup> |   |   |   |   |   |            |      |   |   |   |   | Y <sup>IV</sup> |

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

GOOD LOWER HIGHER

✓ ↓ ↑

WEIGHT  
COMPENSATION

EQUIPMENT

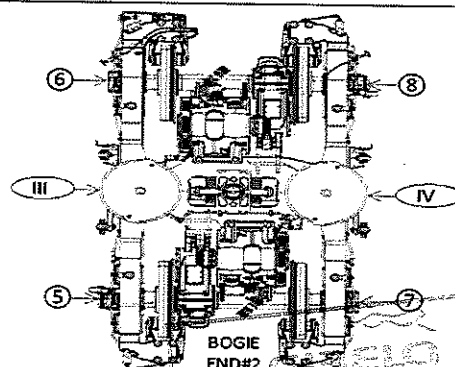
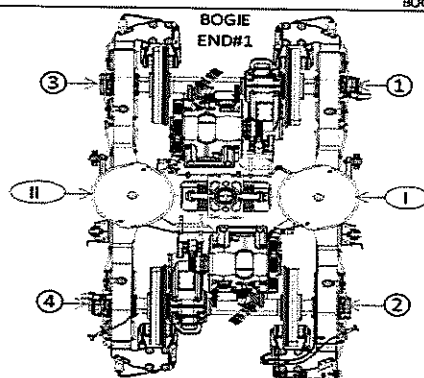
WEIGHT

EQUIPMENT

WEIGHT

SECONDARY MEASUREMENTS  
(ONLY TC CARS)AUTOMATIC COUPLER  
HEIGHT

ANTENNA HEIGHT



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# SELF INSPECTION INDUSTRIAL QUALITY

Rev:09

Date:

5/31/2022

Proj:  
PRASA

SI.FT1140.52

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

| DESCRIPTION                        | TOLERANCE                                   | END#1            |   |   |   |   |   |            |   |   |   |   |                 |
|------------------------------------|---|------------------|---|---|---|---|---|------------|---|---|---|---|-----------------|
|                                    |   | LEFT SIDE        |   |   |   |   |   | RIGHT SIDE |   |   |   |   |                 |
|                                    |   | 6                | 5 | 4 | 3 | 2 | 1 | 1          | 2 | 3 | 4 | 5 | 6               |
| AIR SPRING HEIGHT (EMPTY)          | N/A   | A <sub>II</sub>  |   |   |   |   |   |            |   |   |   |   | A <sub>I</sub>  |
| AIR SPRING HEIGHT (FULL)           | min 254<br>max 261                          | A <sub>II</sub>  |   |   |   |   |   |            |   |   |   |   | A <sub>I</sub>  |
| FLOOR COVERING HEIGHT              | min 1096<br>max 1116                        | E <sub>II</sub>  |   |   |   |   |   |            |   |   |   |   | E <sub>I</sub>  |
| AIR SPRING PRESSURE                | ≤ 0.3<br>(Ci - Ci)                          | C <sub>II</sub>  |   |   |   |   |   |            |   |   |   |   | C <sub>I</sub>  |
| PRIMARY SUSPENSION                 | SEE TABLE (ONLY REF)                        | D <sub>3</sub>   |   |   |   |   |   |            |   |   |   |   | D <sub>1</sub>  |
| PRIMARY SUSPENSION                 | SEE TABLE (ONLY REF)                        | D <sub>4</sub>   |   |   |   |   |   |            |   |   |   |   | D <sub>2</sub>  |
| PIVOT VERTICAL GAP                 | min 25<br>max 32                            | K <sub>II</sub>  |   |   |   |   |   |            |   |   |   |   | K <sub>I</sub>  |
| PIVOT LATERAL STOP GAPS DIFFERENCE | ≤ 4<br>(J <sub>II</sub> - J <sub>I</sub> )  | J <sub>II</sub>  |   |   |   |   |   |            |   |   |   |   | J <sub>I</sub>  |
| QTY OF TURNS OF LEVELLING ROD      | N/A   | X <sub>II</sub>  |   |   |   |   |   |            |   |   |   |   | X <sub>I</sub>  |
| SHIMS OF ANTI-ROLL BAR             | N/A   | Y <sub>II</sub>  |   |   |   |   |   |            |   |   |   |   | Y <sub>I</sub>  |
| DESCRIPTION                        | TOLERANCE                                   | 6                | 5 | 4 | 3 | 2 | 1 | 1          | 2 | 3 | 4 | 5 | 6               |
| AIR SPRING HEIGHT (EMPTY)          | N/A   | A <sub>III</sub> |   |   |   |   |   |            |   |   |   |   | A <sub>IV</sub> |
| AIR SPRING HEIGHT (FULL)           | min 254<br>max 261                          | A <sub>III</sub> |   |   |   |   |   |            |   |   |   |   | A <sub>IV</sub> |
| FLOOR COVERING HEIGHT              | min 1096<br>max 1116                        | E <sub>III</sub> |   |   |   |   |   |            |   |   |   |   | E <sub>IV</sub> |
| AIR SPRING PRESSURE                | ≤ 0.3<br>(QV - QI)                          | C <sub>III</sub> |   |   |   |   |   |            |   |   |   |   | C <sub>IV</sub> |
| PRIMARY SUSPENSION                 | SEE TABLE (ONLY REF)                        | D <sub>5</sub>   |   |   |   |   |   |            |   |   |   |   | D <sub>7</sub>  |
| PRIMARY SUSPENSION                 | SEE TABLE (ONLY REF)                        | D <sub>6</sub>   |   |   |   |   |   |            |   |   |   |   | D <sub>8</sub>  |
| PIVOT VERTICAL GAP                 | min 25<br>max 32                            | K <sub>III</sub> |   |   |   |   |   |            |   |   |   |   | K <sub>IV</sub> |
| PIVOT LATERAL STOP GAPS DIFFERENCE | ≤ 4<br>(J <sub>IV</sub> - J <sub>II</sub> ) | J <sub>III</sub> |   |   |   |   |   |            |   |   |   |   | J <sub>IV</sub> |
| QTY OF TURNS OF LEVELLING ROD      | N/A   | X <sub>III</sub> |   |   |   |   |   |            |   |   |   |   | X <sub>IV</sub> |
| SHIMS OF ANTI-ROLL BAR             | N/A   | Y <sub>III</sub> |   |   |   |   |   |            |   |   |   |   | Y <sub>IV</sub> |

| 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   |       |        |

BOGIE END#1

BOGIE END#2

GIBELQ

2021-03-20

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# SELF INSPECTION INDUSTRIAL QUALITY

Rev:09  
Date:  
5/31/2022

Project:  
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                 | MB1                 | MB1                 | MB2                 | TBint               | TBext               |
| Pivot lateral stop gap difference [mm] | Fig. 4            | $\leq 4$            | $\leq 4$            | $\leq 4$            | $\leq 4$            | $\leq 4$            | $\leq 4$            | $\leq 4$            | $\leq 4$            | $\leq 4$            | $\leq 4$            | $\leq 4$            | $\leq 4$            |
| Air Spring height [mm]                 | Fig. 5            | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     | $255^{+6}_{-1}$     |
| Air spring pressure at AWO [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                |
|  | $C_n - C_n$       | (Ref.)              | (Ref.)              | (Ref.)              | (Ref.)              | (Ref.)              | (Ref.)              | (Ref.)              | (Ref.)              | (Ref.)              | (Ref.)              | (Ref.)              | (Ref.)              |
|  | $C_{up} - C_{up}$ | 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.            |
|  | $D_{12} D_8$      | 35                  | 35                  | 35                  | 35                  | 35                  | 35                  | 35                  | 35                  | 35                  | 35                  | 35                  | 35                  |
| Primary Suspension gaps [mm]           | Fig. 6            | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     | $35^{+12}_{-5}$     |
|  | $D_{12} D_8$      | 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 $^{+10}_{-10}$ |
|  | $D_{12} D_7$      | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   |
|  | $D_{12} D_8$      | 895 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 895 (Ref.)          | 895 (Ref.)          |
| 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 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   | 850 $^{+15}_{-7}$   |
| 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.)          | 895 (Ref.)          | 895 (Ref.)          |
|  | Fig. 9            | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          | 760 (Ref.)          |
| 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 $^{+15}_{-5}$    |



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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

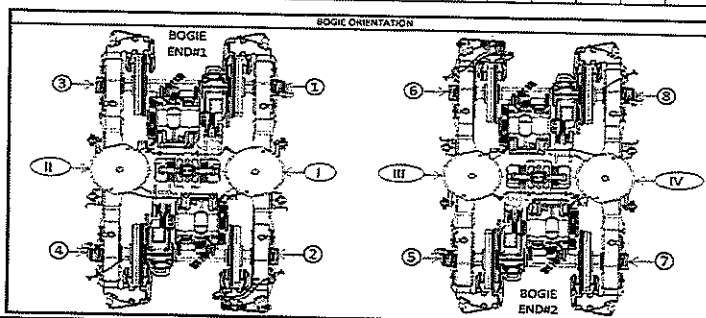
An Air spring height  
Bn Difference between measurement A'n and An  
En Floor covering height  
Cn Air spring pressure  
Dn Primary suspension  
Kn Pivot Vertical gap  
Jn Pivot Lateral stop gaps difference

| Item                | Reference [mm]   | END#1         |           | END#2           |            |
|---------------------|------------------|---------------|-----------|-----------------|------------|
|                     |                  | Right Side    | Left Side | Left Side       | Right Side |
| A'n                 | N/A              | A'i 235       | A'ii 234  | A'iii 240       | A'iv 240   |
| An                  | 254 to 261       | Ai 257        | Aii 257   | Aiii 259        | Aiv 258    |
| Bn = An - A'n       | N/A              | Bi 22         | Bii 23    | Biii 19         | Biv 18     |
| En                  | 1106 ±10 mm      | Ei 1110       | Eii 1106  | Eiii 1114       | Eiv 1112   |
| Item                | Reference [bar]  | END#1         |           | END#2           |            |
|                     |                  | Right Side    | Left Side | Left Side       | Right Side |
| Cn                  | Table 02 (*)     | Ci 3.59       | Cii 3.70  | Ciii 3.85       | Civ 2.96   |
| Cn - Cn-1           | Difference ≤ 0,3 | Ci - Cii 0.11 |           | Ciii - Civ 0.11 |            |
| 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 D1 (*)     | Di 43.84      | Dis 43.85 | Dis 46.12       | Dis 45.09  |
|                     |                  | Dz 43.71      | Ds 44.87  | Ds 44.98        | Ds 45.03   |
| Kn                  | 25 to 45         | Ki 31.15      |           | Kii 34.99       |            |
| Jn                  | Difference ≤ 4   | Ji 25.07      | Jii 27.16 | Jiii 25.00      | Jiv 25.07  |

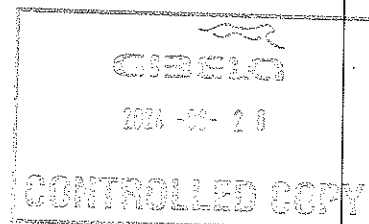
(\*) Reference, only include values, isn't approval criteria.

| Table 01<br>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<br>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 |

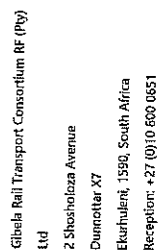


Weighting report from Test and Commissioning (Final measurements after Levelling and Weighting fine)





|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|--|--|---------------------------------------|--|--|-----------|---|-------------------------------|--------------------|--------------|-----------|--|------------------|--|--|
| GIBELQ   |  | SELF INSPECTION<br>INDUSTRIAL QUALITY |  |  | Rev:09    |   | Project:<br>PRASA             |                    | SI.FT1140.52 |           |  |                  |  |  |
|  |  |                                       |  |  | Date:     |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  | 5/31/2022 |   |                               |                    |              |           |  |                  |  |  |
| Item   |  | Description of defects                |  |  |           |   |                               |                    |              |           |  | Signature/Date   |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
|  |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
| IL2 - Check List REX   |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
| Check List Items   |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
| Item   |  | Picture/Drawing                       |  | Diagnosis Description  |           | Criteria / Record                                 |                               |                    |              |           |  | Signature/Date   |  |  |
| 01   |  | N/A                                   |  | To complete REX  |           | Refer to RDL New defects must be added on the REX |                               | ✓                  |              |           |  | Hamm<br>20/06/24 |  |  |
| Self Inspection - Final Result   |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
| Is the car good to advance to the next workstation/process?<br>(Approval of Operations Manager/Team Leader and Industrial Quality) |  |                                       |  |  |           |   |                               |                    |              |           |  |                  |  |  |
| HOLD POINT   |  | GO                                    |  | If activities are not complete, the missing activities must not impact the next stage!   |           | DATE  |                               | NAME               |              | SIGNATURE |  |                  |  |  |
|  |  |                                       |  | Every auto inspection performed conforms to specification or in case of discrepancy the same is approved by the competent party. |           | 20/06/24  |                               | P. HENING          |              | Z. KANE   |  |                  |  |  |
|  |  |                                       |  | There are activities pendings that Impact/stop the activities of the next process  |           | 20/06/24  |                               | TS. KANI           |              | J. S. S.  |  |                  |  |  |
|  |  |                                       |  | Obs: (To describe problems below)  |           |   |                               | Operations Manager |              |           |  |                  |  |  |
|  |  |                                       |  | 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 |                    |              |           |  |                  |  |  |



|     | Balance across front and rear bogies | Front Bogie [Tons]     | Rear Bogie [Tons]       | Longitudinal Imbalance [%] | Criteria Longitudinal Imbalance $\leq 10\%$ |
|-----|--------------------------------------|------------------------|-------------------------|----------------------------|---|
| TCL |                                      | 15.45                  | 18.48                   | 8.93%                      | PASS  |
|     | Weight Measured vs Predicted         | Weight Measured [Tons] | Weight Predicted [Tons] | Weight Difference [%]      | Criteria MinDiff/Max                        |
|     |                                      | 33.93                  | 34.42                   | 1.44%                      | 1.62%<br>PASS                               |

[illegible]