



ALSTOM UBUNYE

MANUFACTURER ALSTOM Ubunye  
Marievale Road, Vosterkroon, Nigel, 1490  
CUSTOMER Gibela  
CONTRACT  
PROJECT PRASA

#### MANUFACTURER'S DELIVERY DOCUMENT

PRODUCT TYPE MOTOR BOGIE type MB1  
DTR0009706804  
SERIAL NUMBER MB1 - 1457

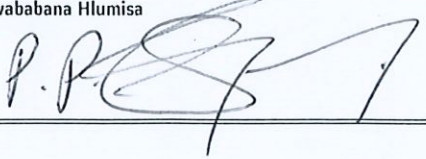
#### CONTENTS

|   |          |                                     |
|---|----------|-------------------------------------|
| - Compliance certificate.....               | Page 1/2 | <input checked="" type="checkbox"/> |
| - List of deviations and missing parts..... | Page 2/2 | <input checked="" type="checkbox"/> |
| - Products traceability.....                | 1 page   | <input checked="" type="checkbox"/> |
| - Load test report.....                     | 1 page   | <input checked="" type="checkbox"/> |
| - Motor certificate.....                    | 8 pages  | <input checked="" type="checkbox"/> |

#### COMPLIANCE CERTIFICATE

We hereby declare, barring exceptions, reservations, or exemptions listed in this statement of conformity, that the listed supplies comply with the contract requirements and that, after completions of testing and verification, they completely satisfy all specified requirements and applicable standards and regulations.

#### CONSTRUCTOR APPROVAL

|      |  |
|------|--|
| DATE | 08 June 2024   |
| NAME | Kwababana Hlumisa  |
| VISA |  |

**I - Deviation / Derogation**

**II - Bogie configuration**

B Bogie index



**ALSTOM UBUNYE**

## PRODUCTS TRACEABILITY

| Products Designation                | Product Reference | Serial Number | Batch or Date Manufactured | Supplier        |
|-------------------------------------|-------------------|---------------|----------------------------|-----------------|
| Motor Bogie MB1                     | DTR0009706804     | M<br>1457     |                            | Alstom - Ubunye |
| Motor Bogie Frame                   | AR00000176080     | M<br>1815     |                            | Alstom - Ubunye |
| Wheelset (Front)                    | AR000000177020    | M<br>3343     |                            | Alstom - Ubunye |
| Axle with fitted gearbox            | AR00000177072     | K<br>2997     |                            | NGC             |
| Wheel (Right)                       | AR00000174670     | 079           | 07.23                      | Bonatrans       |
| Wheel (Left)                        | AR000000174670    | 085           | 07.23                      | Bonatrans       |
| Wheelset (Rear)                     | AR00000178600     | M<br>3344     |                            | Alstom - Ubunye |
| Axle with fitted gearbox            | AR00000177072     | K<br>2844     |                            | NGC             |
| Wheel (Right)                       | AR00000174670     | 147           | 07.23                      | Bonatrans       |
| Wheel (Left)                        | AR00000174670     | 145           | 07.23                      | Bonatrans       |
| Pneumatic suspension (Right)        | AR00000176127     | 2404018       |                            | Hutchinson      |
| Pneumatic suspension (Left)         | AR00000176127     | 2403030       |                            | Hutchinson      |
| Brake unit with PB (Right rear)     | AR00000174544     | 991           | 05.24                      | Wabtec          |
| Brake unit without PB (Right front) | AR00000175185     | 2950          | 05.24                      | Wabtec          |
| Brake unit without PB (Left Front)  | AR00000175185     | 2949          | 05.24                      | Wabtec          |
| Brake unit without PB (left rear)   | AR00000175185     | 2951          | 05.24                      | Wabtec          |
| Motor (front)                       | AR00000168516     | 21643         |                            | Alstom Ornans   |
| Motor (Rear)                        | AR00000168516     | 21645         |                            | Alstom Ornans   |
|                                     |                   |               |                            |                 |



PRESSING REPORT

|                  |                        |                    |                            |
|------------------|------------------------|--------------------|----------------------------|
| DATE<br>6/7/2024 | RESPONSABLE VALIDATION | PRASA<br>ALSTOM    | LOAD TEST :<br>MOTOR BOGIE |
| DATE VALIDATION  |                        | INSTRUCTION SHEET: |                            |
|                  |                        | FAMILY:            | PROJECT:                   |

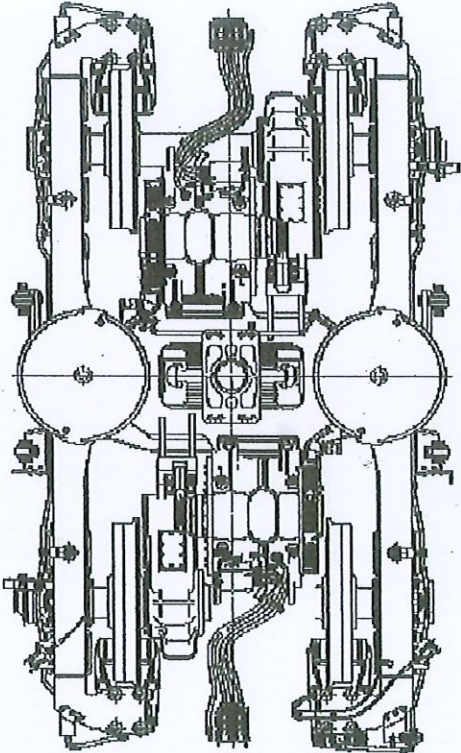
|                             | THEORETICAL            | MEASURED   |
|-----------------------------|------------------------|------------|
| WHEEL DIAMETER [mm]         | MIN<br>MAX             |            |
| GAP PRIMARY SUSPENSION [mm] | MIN 33.00<br>MAX 39.00 | 36.50<br>✓ |
| SHIM THICK [mm]             |                        |            |
| WEIGHT ON WHEEL [Kg]        | Q2                     | 5592       |

| SECONDARY SUSPENSION |                 |                     |                          |
|----------------------|-----------------|---------------------|--------------------------|
| MEASURED [mm]        | SHIM THICK [mm] | DIM. WITH SHIM [mm] | THEORETICAL [mm]         |
| 585.89               | +               | 0.00                | = 585.89                 |
|                      |                 |                     | MIN 585.00<br>MAX 587.50 |

RIGHT JACK LOAD  
7376 Kg

|                             | THEORETICAL            | MEASURED   |
|-----------------------------|------------------------|------------|
| WHEEL DIAMETER [mm]         | MIN<br>MAX             |            |
| GAP PRIMARY SUSPENSION [mm] | MIN 33.00<br>MAX 39.00 | 36.71<br>✓ |
| SHIM THICK [mm]             |                        |            |
| WEIGHT ON WHEEL [Kg]        | Q4                     | 5570       |

|                              |          |
|------------------------------|----------|
| BOGIE SERIAL N°              | MB1-1457 |
| BOGIE TYPE                   | MB       |
| BOGIE WEIGHT UNDER LOAD [Kg] | 22352    |
| COMPLETE BOGIE WEIGHT [Kg]   | 7261     |
| OPERATOR                     | DATE     |
| BAFANA                       | 6/7/2024 |



|  | THEORETICAL          | MEASURED   |
|--|----------------------|------------|
| LOAD DIFFERENCE ON FRONT AXLE [%]            | MIN 0.00<br>MAX 0.00 | -0.21<br>✓ |
| LOAD DIFFERENCE ON REAR AXLE [%]             | MIN 0.00<br>MAX 0.00 | 0.46<br>✓  |
| LOAD DIFFERENCE FRONT AXLE AND REAR AXLE [%] | MIN 0.00<br>MAX 0.00 | -0.13<br>✓ |
| LOAD DIFFERENCE ON RAILS [%]                 | MIN 0.00<br>MAX 0.00 | 0.13<br>✓  |
| LOAD DIFFERENCE ON DIAGONAL WHEELS [%]       | MIN 0.00<br>MAX 0.00 | 0.33<br>✓  |

|                |
|----------------|
| OPERATOR STAMP |
| DC-3716        |

LEFT JACK LOAD  
7376 Kg

|                             | THEORETICAL            | MEASURED   |
|-----------------------------|------------------------|------------|
| WHEEL DIAMETER [mm]         | MIN<br>MAX             |            |
| GAP PRIMARY SUSPENSION [mm] | MIN 33.00<br>MAX 39.00 | 37.00<br>✓ |
| SHIM THICK [mm]             |                        |            |
| WEIGHT ON WHEEL [Kg]        | Q1                     | 5569       |

| SECONDARY SUSPENSION |                 |                     |                          |
|----------------------|-----------------|---------------------|--------------------------|
| MEASURED [mm]        | SHIM THICK [mm] | DIM. WITH SHIM [mm] | THEORETICAL [mm]         |
| 586.48               | +               | 0.00                | = 586.48                 |
|                      |                 |                     | MIN 585.00<br>MAX 587.50 |

|  |   |                       |
|--|---|-----------------------|
| DIFFERENCE IN RIGHT AND LEFT SUSPENSION HEIGHTS [mm] | ✓ | THEORETICAL [mm]      |
| -0.59  |   | MIN -1.00<br>MAX 1.00 |

|                             | THEORETICAL            | MEASURED   |
|-----------------------------|------------------------|------------|
| WHEEL DIAMETER [mm]         | MIN<br>MAX             |            |
| GAP PRIMARY SUSPENSION [mm] | MIN 33.00<br>MAX 39.00 | 36.20<br>✓ |
| SHIM THICK [mm]             |                        |            |
| WEIGHT ON WHEEL [Kg]        | Q3                     | 5621       |



## CERTIFICATION OF CONFORMITY

Inspection certificate according EN 10204-3.1

Product: Traction Motors 6 ECA 3022 B

Serial Number: N ° 21643

Client / Customer: ALSTOM UBUNYE (PTY) LTD

Project: PRASA

P O Number: 77125893

Status: QC PASS

Derogations / Concession / Waiver N °: N/A

Customer modification: N/A


Missing parts: N/A

We hereby declare, barring exceptions, reservations or exemptions listed in this statement of conformity, that the listed supplies comply with the contract requirements and that, after completion of testing and verification, they completely satisfy all specified requirements, and applicable standards and regulations.

Date: 2024/05/27

Function: Final Inspection

Performed and signed off by: Name \_\_\_\_\_ Dimakatso Mohoalali

Signature 



Gibela Rail  
02 Shosholozza Avenue  
M07 Traction Motor  
1590

GIBELA RAIL

Compiled by M Kola

Date: 22/2/2022

Property of GIBELA RAIL, cannot be distributed or reproduced without authorization





## CERTIFICATION OF CONFORMITY

Inspection certificate according EN 10204-3.1

Product: Traction Motors 6 ECA 3022 B

Serial Number: N ° 21645

Client / Customer: ALSTOM UBUNYE (PTY) LTD

Project: PRASA

P O Number: 77125895

Status: QC PASS

Derogations / Concession / Waiver N °: N/A

Customer modification: N/A


Missing parts: N/A

We hereby declare, barring exceptions, reservations or exemptions listed in this statement of conformity, that the listed supplies comply with the contract requirements and that, after completion of testing and verification, they completely satisfy all specified requirements, and applicable standards and regulations.

Date: 2024/05/27

Function: Final Inspection

Performed and signed off by: Name \_\_\_\_\_ Dimakatso Mohoalali

Signature  \_\_\_\_\_



GIBELA RAIL

Compiled by M Kola

Date: 22/2/2022

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21643

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## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

Référence: TROS 916.216

Révision: 2

Documents de référence: AT00000325953 - AT00000325990

Assembly before test

Date: 16/04/2024

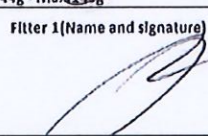
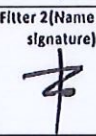
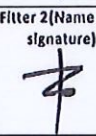
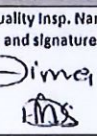
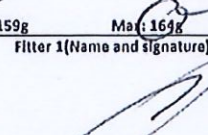
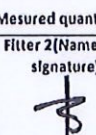
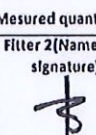
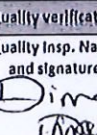
Name: Jacques

Assembly after test

Date: 27/05/24

Name: Gwofny

Xolani &amp; Thomas

|  |                        |   |  |
|--|------------------------|---|--|
| ROTOR S/N<br>MCR03-11-046  | STATOR S/N<br>GIB-1638 |   |  |
| <p><b>Bearing lubrication - Security operation</b><br/>Incorrect lubrication can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289</p>  |                        |   |  |
| <p><b>INSULATED CERAMIC BEARING DRIVE END - Security operation</b><br/>Incorrect assembly can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289<br/>FAG: NU 214-E-XL-M1-P6-F1-H257A-J20AB-C4 or NU 214-E-M1-P6-F1-H257A-J20AA-C4<br/>SKF: NU-214-ECM/C4-VA3091<br/>(cross out the references that have not been fitted)</p> |                        |   |  |
| N°: ROMANIA: 0200 X116 - 0651 04/23 SN0016   |                        |   |  |
| <p><b>S2</b> Radial play after assembly (0,042 / 0,114):<br/>0,08mm <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>  |                        | <p><b>S4</b> LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly<br/>Min: 144g - Max: 149g<br/>Filter 1 (Name and signature): <br/>Filter 2 (Name and signature): <br/>Measured quantity: <br/>Quality validation: Dima </p>     |  |
| <p><b>S1</b> INSULATED CERAMIC BEARING OPPOSITE DRIVE END side - Security operation<br/>Incorrect assembly can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289<br/>FAG: 6214-M-P6-J20AB-H257A-C4 or 6214-M-P6-J20AA-H257-C4<br/>SKF: 6214-M/C4-VL 0241<br/>(cross out the references that have not been fitted)</p>       |                        |   |  |
| Serial N°: GERMANY: 0200 X116 - 0651 04/23 SN0016  |                        |   |  |
| <p><b>S3</b> Radial play after assembly (0,021 / 0,067):<br/>0,06mm <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK<br/>AMV920</p>   |                        | <p><b>S3</b> LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly<br/>Min: 159g - Max: 164g<br/>Filter 1 (Name and signature): <br/>Filter 2 (Name and signature): <br/>Measured quantity: <br/>Quality validation: Dima </p> |  |
| FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA   |                        | TROS 916.216 2 Page 1   |  |

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## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

|   |   |                                   |   |
|---|---|-----------------------------------|---|
| Record the value of the Insulation resistance of the bearings to TROS 915.069 (> 50 kΩ) |   | 3,6192                            | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK |
| OPERATOR  |   | Quality verification              |   |
| Out of round at the end of the shaft drive end, 0,05 max<br>Value: 0,01mm               | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number: AMV920      | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |
| Out of round on toothed wheel 0,1 max: 0,05mm   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number: AMV920      | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |
| sensor / toothed wheel play 0,7 (+/- 0,2): 0,7mm  | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number: GIBFL002    | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |
| Sensor reference: DTR0000512252/DSD1830.19Q14HW   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number: 52321000455 | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |



| Prep. & Final Assembly   |   |                                     |                          |                                     |   |                                     |                 |                          |     |
|--|---|-------------------------------------|--------------------------|-------------------------------------|---|-------------------------------------|-----------------|--------------------------|-----|
| OPERATOR   |   |                                     |                          | Quality verification                |   |                                     |                 |                          |     |
| F1   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | QC 1 X 61 Nm  | <input type="checkbox"/>            | OK              | <input type="checkbox"/> | NOK |
| F2   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | QC 1 X 61 Nm  | <input type="checkbox"/>            | OK              | <input type="checkbox"/> | NOK |
| F3   | Torque tightening to 4 x 44 Nm:<br>Fold locking plate | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | QC 1 X 37 Nm  | <input type="checkbox"/>            | OK              | <input type="checkbox"/> | NOK |
| F4   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | QC 1 X 18 Nm  | <input type="checkbox"/>            | OK              | <input type="checkbox"/> | NOK |
| F5   | Torque tightening to 6 x 22 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | QC 1 X 18 Nm  | <input type="checkbox"/>            | OK              | <input type="checkbox"/> | NOK |
| Finishing  |   |                                     |                          |                                     |   |                                     |                 |                          |     |
| F1   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | QC 1 X 22 Nm  | <input type="checkbox"/>            | OK              | <input type="checkbox"/> | NOK |
| Grease protection transport  |   |                                     |                          |                                     |   |                                     |                 |                          |     |
| S3   | 18g (0/+4.5) CC                                       | Mesured quantity:                   | 18g                      | <input checked="" type="checkbox"/> | OK  | <input type="checkbox"/>            | NOK             |                          |     |
| S4   | 18g (0/+4.5) CC                                       | Mesured quantity:                   | 18g                      | <input checked="" type="checkbox"/> | OK  | <input type="checkbox"/>            | NOK             |                          |     |
| Final inspection following the check-list DTR0000452909 and DTR0000452910 (in the case of 100% inspection of the production) |   |                                     |                          |                                     |   | <input checked="" type="checkbox"/> | OK              | <input type="checkbox"/> | NOK |
|  |   |                                     |                          |                                     | <b>Final Inspection</b><br>Quality Insp Name and Signature: |                                     | <b>Comments</b> |                          |     |
|  |   |                                     |                          |                                     | Dima  |                                     |                 |                          |     |
| OBSERVATIONS   |   |                                     |                          |                                     |   |                                     |                 |                          |     |
|  |   |                                     |                          |                                     |   |                                     |                 |                          |     |

|  |  |  |  |              |   |      |
|--|--|--|--|--------------|---|------|
| FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA |  |  |  | TROS 916.216 | 2 | Page |
|  |  |  |  |              |   | 2    |

GIBELA RAIL TRANSPORT CONSORTIUM RF (PTY) LTD  
**Traction Motors Quality**  
 2024-05-27  
 Name: Dima  
 Signature:



21645

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## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

Référence: TROS 916.216

Révision: 2

Documents de référence: AT00000325953 - AT00000325990

Assembly before test

Date:

Name:





17/04/24  
Godfrey

Assembly after test

Date:

Name:

21/05/24  
Godfrey & Xolani, Thomas

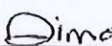
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|--|-------------------------------|---|--|
| ROTOR S/N<br><b>MCR23-11-001</b>   | STATOR S/N<br><b>GIB-1656</b> |   |  |
| <p><b>Bearing lubrication - Security operation</b><br/>Incorrect lubrication can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289</p>  |                               |   |  |
| <p><b>INSULATED CERAMIC BEARING DRIVE END - Security operation</b><br/>Incorrect assembly can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289<br/><b>FAG: NU 214-E-XL-M1-P6-F1-H257A-J20AB-C4 or NU-214-E-M1-P6-F1-H257A-J20AA-C4</b><br/><b>SKF: NU-214-ECM/C4 VA3091</b><br/>(cross out the references that have not been fitted)</p> |                               |   |  |
| <p>N°: <b>ROMANIA-0097 09/23 SN87-1369794</b></p>  |                               |   |  |
| <p><b>Radial play after assembly (0,042 / 0,114): 0,07mm</b></p> <p><input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>  |                               | <p><b>LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</b></p> <p>Min: 144g - Max: 149g</p> <p>Measured quantity: <input type="checkbox"/> OK <input type="checkbox"/> NOK</p> <p>Filter 1 (Name and signature) </p> <p>Filter 2 (Name and signature) </p> <p>Quality validation: <b>Dima</b></p>   |  |
| <p><b>INSULATED CERAMIC BEARING OPPOSITE DRIVE END side - Security operation</b><br/>Incorrect assembly can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289<br/><b>FAG: 6214-M-P6-J20AB-H257A-C4 or 6214-M-P6-J20AA-H257-C4</b><br/><b>SKF 6214-M/C4-VL 0241</b><br/>(cross out the references that have not been fitted)</p>           |                               |   |  |
| <p>Serial N°: <b>GERMANY-0200 X116-0754 04/23 SN0135</b></p>   |                               |   |  |
| <p><b>Radial play after assembly (0,021 / 0,067): 0,05mm</b></p> <p><input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>  |                               | <p><b>LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</b></p> <p>Min: 159g - Max: 164g</p> <p>Measured quantity: <input type="checkbox"/> OK <input type="checkbox"/> NOK</p> <p>Filter 1 (Name and signature) </p> <p>Filter 2 (Name and signature) </p> <p>Quality validation: <b>Dima</b></p> |  |
| <p>Référence appareil: <b>AJZP14</b></p>   |                               |   |  |
| <p>FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA</p>  |                               | <p>TROS 916.216 2 Page 1</p>  |  |

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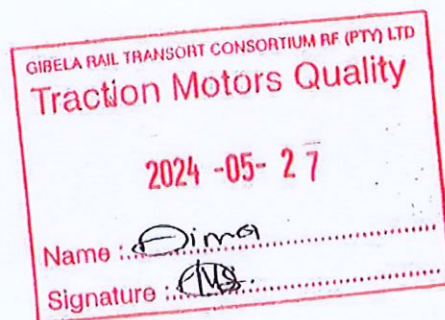
GIBEL

## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

|  |   |   |
|--|---|---|
| Record the value of the Insulation resistance of the bearings to TROS 915.069 (> 50 kΩ) <b>7.10 G 32</b> |   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK |
| OPERATOR   |   | Quality verification  |
| Out of round at the end of the shaft drive end, 0,05 max<br>Value <b>0,02mm</b>                          | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |
| Out of round on toothed wheel 0,1 max: <b>0,08mm</b>   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |
| sensor / toothed wheel play 0,7 (+/- 0,2): <b>0,7mm</b>  | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |
| Sensor reference: DTR0000512252/DSD1830.19Q14HW  | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |

| Prep. & Final Assembly   |   |  |                              |   |  |                                     |    |                          |     |
|--|---|--|------------------------------|---|--|-------------------------------------|----|--------------------------|-----|
| OPERATOR   |   |  |                              | Quality verification  |  |                                     |    |                          |     |
| <input checked="" type="checkbox"/> F1   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | <small>no interference (in the event of failure / absence of the motorised screwdriver)</small><br><b>N005251</b> | QC 1 X 61 Nm   | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> F2   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | <small>no interference (in the event of failure / absence of the motorised screwdriver)</small><br><b>N005251</b> | QC 1 X 61 Nm   | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> F3   | Torque tightening to 4 x 44 Nm:<br>Fold locking plate | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | <small>no interference (in the event of failure / absence of the motorised screwdriver)</small><br><b>N005251</b> | QC 1 X 37 Nm   | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> F4   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | <small>no interference (in the event of failure / absence of the motorised screwdriver)</small><br><b>N005251</b> | QC 1 X 18 Nm   | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> F5   | Torque tightening to 6 x 22 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | <small>no interference (in the event of failure / absence of the motorised screwdriver)</small><br><b>N005251</b> | QC 1 X 18 Nm   | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| Finishing  |   |  |                              |   |  |                                     |    |                          |     |
| <input checked="" type="checkbox"/> F1   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | <small>no interference (in the event of failure / absence of the motorised screwdriver)</small><br><b>N005251</b> | QC 1 X 22 Nm   | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| Grease protection transport  |   |  |                              |   |  |                                     |    |                          |     |
| <input checked="" type="checkbox"/> S3   | 18g (0/+4.5) CC                                       | Mesured quantity:                      | 18g                          |   |  | <input checked="" type="checkbox"/> | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> S4   | 18g (0/+4.5) CC                                       | Mesured quantity:                      | 18g                          |   |  | <input checked="" type="checkbox"/> | OK | <input type="checkbox"/> | NOK |
| Final inspection following the check-list DTR0000452909 and DTR0000452910 (in the case of 100% inspection of the production) |   |  |                              |   |  | <input checked="" type="checkbox"/> | OK | <input type="checkbox"/> | NOK |
|  |   |  |                              |   | <b>Final inspection</b><br>Quality Insp Name and Signature:<br> | Comments                            |    |                          |     |
| OBSERVATIONS   |   |  |                              |   |  |                                     |    |                          |     |

|  |              |   |      |
|--|--------------|---|------|
| FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA | TROS 916.216 | 2 | Page |
|  |              |   | 2    |





MANUFACTURER **ALSTOM Ubunye**  
 Marievale Road, Vosterkroon, Nigel, 1490

CUSTOMER **Gibela**

CONTRACT

PROJECT **PRASA**

### MANUFACTURER'S DELIVERY DOCUMENT

PRODUCT TYPE **MOTOR BOGIE type MB2**

**DTR0009706805**

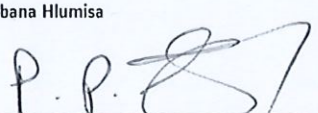
SERIAL NUMBER **MB2 - 613**

#### CONTENTS

|   |          |                                     |
|---|----------|-------------------------------------|
| - Compliance certificate.....               | Page 1/2 | <input checked="" type="checkbox"/> |
| - List of deviations and missing parts..... | Page 2/2 | <input checked="" type="checkbox"/> |
| - Products traceability.....                | 1 page   | <input checked="" type="checkbox"/> |
| - Load test report.....                     | 1 page   | <input checked="" type="checkbox"/> |
| - Motor certificate.....                    | 8 pages  | <input checked="" type="checkbox"/> |

#### COMPLIANCE CERTIFICATE

We hereby declare, barring exceptions, reservations, or exemptions listed in this statement of conformity, that the listed supplies comply with the contract requirements and that, after completions of testing and verification, they completely satisfy all specified requirements and applicable standards and regulations.

| CONSTRUCTOR APPROVAL |  |
|----------------------|--|
| DATE                 | 06 June 2024   |
| NAME                 | Kwababana Hlumisa  |
| VISA                 |  |

**I - Deviation / Derogation**

**II - Bogie configuration**

B Bogie index





**ALSTOM UBUNYE**

## PRODUCTS TRACEABILITY

| Products Designation                 | Product Reference | Serial Number | Batch or Date Manufactured | Supplier        |
|--------------------------------------|-------------------|---------------|----------------------------|-----------------|
| Motor Bogie MB2                      | DTR0009706805     | 613           |                            | Alstom - Ubunye |
| Motor Bogie Frame                    | AR00000176080     | 1784          |                            | Alstom - Ubunye |
| Wheelset (Front)                     | AR000000177020    | 3329          |                            | Alstom - Ubunye |
| Axle with fitted gearbox             | AR00000177072     | 2980          |                            | NGC             |
| Wheel (Right)                        | AR00000174670     | 063           | 07.23                      | Bonatrans       |
| Wheel (Left)                         | AR000000174670    | 050           | 07.23                      | Bonatrans       |
| Wheelset (Rear)                      | AR00000178600     | 3330          |                            | Alstom - Ubunye |
| Axle with fitted gearbox             | AR00000177072     | 2988          |                            | NGC             |
| Wheel (Right)                        | AR00000174670     | 128           | 07.23                      | Bonatrans       |
| Wheel (Left)                         | AR00000174670     | 095           | 07.23                      | Bonatrans       |
| Pneumatic suspension (Right)         | AR00000176127     | 2401047       |                            | Hutchinson      |
| Pneumatic suspension (Left)          | AR00000176127     | 2401042       |                            | Hutchinson      |
| Brake unit with PB (Right rear)      | AR00000174544     | 984           | 05.24                      | WEBTEC          |
| Brake unit without PB (Right front ) | AR00000175185     | 2933          | 05.24                      | WEBTEC          |
| Brake unit without PB (Left Front)   | AR00000175185     | 2931          | 05.24                      | WEBTEC          |
| Brake unit without PB (left rear)    | AR00000175185     | 2932          | 05.24                      | WEBTEC          |
| Motor (front)                        | AR00000168516     | 21644         |                            | GIBELA          |
| Motor (Rear)                         | AR00000168516     | 21623         |                            | GIBELA          |
|                                      |                   |               |                            |                 |



6/4/2024

DATE VALIDATION

RESPONSABLE VALIDATION

PRASA

INSTRUCTION SHEET:

FAMILY:

# PRESSING REPORT

LOAD TEST : MOTOR BOGIE

PROJECT:

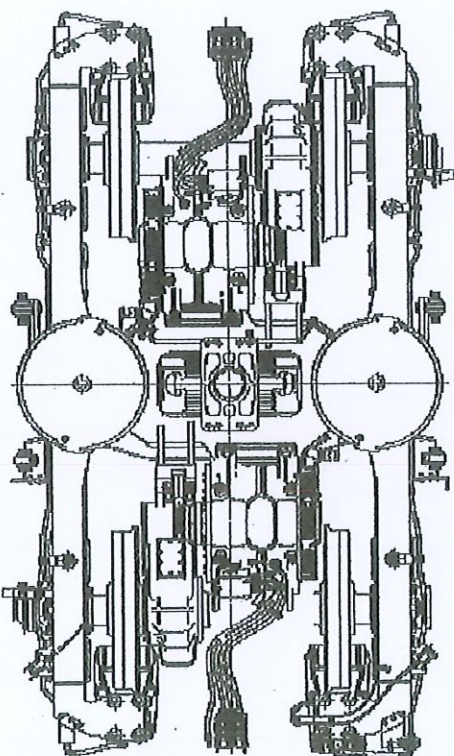
|                             | THEORETICAL            | MEASURED |
|-----------------------------|------------------------|----------|
| WHEEL DIAMETER [mm]         | MIN<br>MAX             |          |
| GAP PRIMARY SUSPENSION [mm] | MIN 33.00<br>MAX 39.00 | 34.59 ✓  |
| SHIM THICK [mm]             |                        |          |
| WEIGHT ON WHEEL [Kg]        | Q2                     | 5617     |

| SECONDARY SUSPENSION ✓ |                 |                     |                          |
|------------------------|-----------------|---------------------|--------------------------|
| MEASURED [mm]          | SHIM THICK [mm] | DIM. WITH SHIM [mm] | THEORETICAL [mm]         |
| 582.66                 | +               | 3.00                | = 585.66                 |
|                        |                 |                     | MIN 585.00<br>MAX 587.50 |

|                 |    |
|-----------------|----|
| RIGHT JACK LOAD |    |
| 7376            | Kg |

|                             | THEORETICAL            | MEASURED |
|-----------------------------|------------------------|----------|
| WHEEL DIAMETER [mm]         | MIN<br>MAX             |          |
| GAP PRIMARY SUSPENSION [mm] | MIN 33.00<br>MAX 39.00 | 34.60 ✓  |
| SHIM THICK [mm]             |                        |          |
| WEIGHT ON WHEEL [Kg]        | Q4                     | 5549     |

|                              |          |
|------------------------------|----------|
| BOGIE SERIAL N°              | MB2-613  |
| BOGIE TYPE                   | MB       |
| BOGIE WEIGHT UNDER LOAD [Kg] | 22393    |
| COMPLETE BOGIE WEIGHT [Kg]   | 7202     |
| OPERATOR                     | DATE     |
| BAFANA                       | 6/4/2024 |



|  | THEORETICAL          | MEASURED |
|--|----------------------|----------|
| LOAD DIFFERENCE ON FRONT AXLE [%]            | MIN 0.00<br>MAX 0.00 | -0.47 ✓  |
| LOAD DIFFERENCE ON REAR AXLE [%]             | MIN 0.00<br>MAX 0.00 | 1.03 ✓   |
| LOAD DIFFERENCE FRONT AXLE AND REAR AXLE [%] | MIN 0.00<br>MAX 0.00 | -0.14 ✓  |
| LOAD DIFFERENCE ON RAILS [%]                 | MIN 0.00<br>MAX 0.00 | 0.28 ✓   |
| LOAD DIFFERENCE ON DIAGONAL WHEELS [%]       | MIN 0.00<br>MAX 0.00 | 0.75 ✓   |

OPERATOR STAMP

DC-371-6

LEFT JACK LOAD

7376 Kg

| SECONDARY SUSPENSION ✓ |                 |                     |                          |
|------------------------|-----------------|---------------------|--------------------------|
| MEASURED [mm]          | SHIM THICK [mm] | DIM. WITH SHIM [mm] | THEORETICAL [mm]         |
| 584.33                 | +               | 1.00                | = 585.33                 |
|                        |                 |                     | MIN 585.00<br>MAX 587.50 |

|  |   |                       |
|--|---|-----------------------|
| DIFFERENCE IN RIGHT AND LEFT SUSPENSION HEIGHTS [mm] | ✓ | THEORETICAL [mm]      |
| 0.33   |   | MIN -1.00<br>MAX 1.00 |

|                             | THEORETICAL            | MEASURED |
|-----------------------------|------------------------|----------|
| WHEEL DIAMETER [mm]         | MIN<br>MAX             |          |
| GAP PRIMARY SUSPENSION [mm] | MIN 33.00<br>MAX 39.00 | 34.40 ✓  |
| SHIM THICK [mm]             |                        |          |
| WEIGHT ON WHEEL [Kg]        | Q1                     | 5564     |

|                             | THEORETICAL            | MEASURED |
|-----------------------------|------------------------|----------|
| WHEEL DIAMETER [mm]         | MIN<br>MAX             |          |
| GAP PRIMARY SUSPENSION [mm] | MIN 33.00<br>MAX 39.00 | 34.50 ✓  |
| SHIM THICK [mm]             |                        |          |
| WEIGHT ON WHEEL [Kg]        | Q3                     | 5664     |



216444

ALSTOM

GIBEL

## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

Référence: TROS 916.216

Révision: 2

Documents de référence: AT00000325953 - AT00000325990

Assembly before test

Date: 17/04/24

Name: Geoffrey

Assembly after test

Date: 17/05/24

Name: Geoffrey Kolari Thomas

|   |  |  |  |
|---|--|--|--|
| ROTOR S/N<br>MCR23-11-061   |  | STATOR S/N<br>GIB-1639   |  |
| <p><b>Bearing lubrication - Security operation</b><br/>Incorrect lubrication can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289</p>   |  |  |  |
| <p><b>INSULATED CERAMIC BEARING DRIVE END - Security operation</b><br/>Incorrect assembly can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289<br/>FAG: NU 214-E-XL-M1-P6-F1-H257A-J20AB-C4 or NU-214-E-M1-P6-F1-H257A-J20AA-C4<br/>SKE-NU-214-ECM/C4-VA3091<br/>(cross out the references that have not been fitted)</p> |  |  |  |
| N°: ROMANIA: 0097 09/23 SN127 - 1369794   |  |  |  |
| <p><b>S2</b> Radial play after assembly (0,042 / 0,114): 0,06mm</p> <p><input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>  |  | <p><b>S4</b> LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</p> <p>Min: 144g - Max: 149g</p> <p>Mesured quantity: <input type="checkbox"/> OK <input type="checkbox"/> NOK</p> <p>Filter 1 (Name and signature): </p> <p>Filter 2 (Name and signature): </p> <p>Quality Insp. Name and signature: Dima </p> |  |
| <p><b>INSULATED CERAMIC BEARING OPPOSITE DRIVE END side - Security operation</b><br/>Incorrect assembly can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289<br/>FAG: 6214-M-P6-J20AB-H257A-C4 or 6214-M-P6-J20AA-H257-C4<br/>SKE-6214-M/C4-VL-0241<br/>(cross out the references that have not been fitted)</p>          |  |  |  |
| Serial N°: GERMANY: 0200 X116-0659 04/23 SN0032   |  |  |  |
| <p><b>S1</b> Radial play after assembly (0,021 / 0,067): 0,05mm</p> <p><input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>  |  | <p><b>S3</b> LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</p> <p>Min: 159g - Max: 164g</p> <p>Mesured quantity: <input type="checkbox"/> OK <input type="checkbox"/> NOK</p> <p>Filter 1 (Name and signature): </p> <p>Filter 2 (Name and signature): </p> <p>Quality Insp. Name and signature: Dima </p> |  |
| Référence appareil: A52P14  |  |  |  |
| FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA  |  | TROS 916.216 2 Page 1  |  |









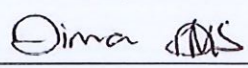
ALSTOM

GIBEL

## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

|   |   |                                     |  |   |
|---|---|-------------------------------------|--|---|
| Record the value of the Insulation resistance of the bearings to TROS 915.069 (> 50 kΩ) |   | 9.70 GΩ                             |  | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK |
| OPERATOR  |   | Quality verification                |  |   |
| Out of round at the end of the shaft drive end, 0,05 max<br>Value: 0,01mm               | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number<br>A52P14      | <input type="checkbox"/> OK <input type="checkbox"/> NOK |   |
| Out of round on toothed wheel 0,1 max: 0,06mm   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number<br>A52P14      | <input type="checkbox"/> OK <input type="checkbox"/> NOK |   |
| sensor / toothed wheel play 0,7 (± 0,2): 0,7mm  | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number<br>GIBEL001    | <input type="checkbox"/> OK <input type="checkbox"/> NOK |   |
| Sensor reference: DTR0000512252/DSD1830.19Q14HW   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number<br>52321003378 | <input type="checkbox"/> OK <input type="checkbox"/> NOK |   |



| Prep. & Final Assembly   |   |                                     |  |   |  |                                     |  |  |  |
|--|---|-------------------------------------|--|---|--|-------------------------------------|--|--|--|
| OPERATOR   |   |                                     |  | Quality verification  |  |                                     |  |  |  |
|   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> OK <input type="checkbox"/> NOK | watch reference (in the event of false absence of the motorised screwdriver)<br>N005287 | QC 1 X 61 Nm   | <input type="checkbox"/>            | <input type="checkbox"/> OK <input type="checkbox"/> NOK |  |  |
|   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> OK <input type="checkbox"/> NOK | watch reference (in the event of false absence of the motorised screwdriver)<br>N005287 | QC 1 X 61 Nm   | <input type="checkbox"/>            | <input type="checkbox"/> OK <input type="checkbox"/> NOK |  |  |
|   | Torque tightening to 4 x 44 Nm:<br>Fold locking plate | <input checked="" type="checkbox"/> | <input type="checkbox"/> OK <input type="checkbox"/> NOK | watch reference (in the event of false absence of the motorised screwdriver)<br>N005287 | QC 1 X 37 Nm   | <input type="checkbox"/>            | <input type="checkbox"/> OK <input type="checkbox"/> NOK |  |  |
|   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> OK <input type="checkbox"/> NOK | watch reference (in the event of false absence of the motorised screwdriver)<br>N005287 | QC 1 X 18 Nm   | <input type="checkbox"/>            | <input type="checkbox"/> OK <input type="checkbox"/> NOK |  |  |
|   | Torque tightening to 6 x 22 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> OK <input type="checkbox"/> NOK | watch reference (in the event of false absence of the motorised screwdriver)<br>N005287 | QC 1 X 18 Nm   | <input type="checkbox"/>            | <input type="checkbox"/> OK <input type="checkbox"/> NOK |  |  |
| Finishing  |   |                                     |  |   |  |                                     |  |  |  |
|   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> OK <input type="checkbox"/> NOK | watch reference (in the event of false absence of the motorised screwdriver)<br>N005287 | QC 1 X 22 Nm   | <input type="checkbox"/>            | <input type="checkbox"/> OK <input type="checkbox"/> NOK |  |  |
| Grease protection transport  |   |                                     |  |   |  |                                     |  |  |  |
|   | 18g (0/+4.5) CC                                       | Mesured quantity:                   | 18g  |   |  | <input checked="" type="checkbox"/> | <input type="checkbox"/> OK <input type="checkbox"/> NOK |  |  |
|   | 18g (0/+4.5) CC                                       | Mesured quantity:                   | 18g  |   |  | <input checked="" type="checkbox"/> | <input type="checkbox"/> OK <input type="checkbox"/> NOK |  |  |
| Final inspection following the check-list DTR0000452909 and DTR0000452910 (in the case of 100% inspection of the production) |   |                                     |  |   |  | <input checked="" type="checkbox"/> | <input type="checkbox"/> OK <input type="checkbox"/> NOK |  |  |
|  |   |                                     |  |   | <b>Final Inspection</b><br>Quality Insp Name and Signature:                          |                                     | <b>Comments</b>  |  |  |
|  |   |                                     |  |   |  |                                     |  |  |  |
| OBSERVATIONS   |   |                                     |  |   |  |                                     |  |  |  |
|  |   |                                     |  |   |  |                                     |  |  |  |

|  |              |   |           |
|--|--------------|---|-----------|
| FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA | TROS 916.216 | 2 | Page<br>2 |
|--|--------------|---|-----------|





21644

ALSTOM

GIBELA

## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

Référence: TROS 916.216

Révision: 2

Documents de référence: AT00000325953 - AT00000325990

Assembly before test

Date: 17/04/24

Name: Geoffrey

Assembly after test

Date: 12/05/24

Name: Geoffrey Kolari Thomas

|   |  |   |  |
|---|--|---|--|
| ROTOR S/N   |  | STATOR S/N  |  |
| MCR23-11-061  |  | GIB-1639  |  |
| <p><b>Bearing lubrication - Security operation</b><br/>Incorrect lubrication can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289</p>   |  |   |  |
| <p><b>INSULATED CERAMIC BEARING DRIVE END - Security operation</b><br/>Incorrect assembly can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289<br/>FAG: NU 214-E-XL-M1-P6-F1-H257A-J20AB-C4 or NU 214-E-M1-P6-F1-H257A-J20AA-C4<br/>SKE-NU 214-ECM/C4-VA3091<br/>(cross out the references that have not been filled)</p> |  |   |  |
| N°: ROMANIA: 0097 09/23 SN127 - 1369794   |  |   |  |
| <p><b>S2</b> Radial play after assembly (0,042 / 0,114): 0,06mm</p> <p><input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>  |  | <p><b>S4</b> LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</p> <p>Min: 144g - Max: 149g</p> <p>Measured quantity: <input type="checkbox"/> OK <input type="checkbox"/> NOK</p> <p>Filter 1 (Name and signature): </p> <p>Filter 2 (Name and signature): </p> <p>Quality Insp. Name and signature: Dima </p> |  |
| <p><b>INSULATED CERAMIC BEARING OPPOSITE DRIVE END side - Security operation</b><br/>Incorrect assembly can lead to engine failure with a safety risk in service<br/>SRIL TROS 965.289<br/>FAG: 6214-M-P6-J20AB-H257A-C4 or 6214-M-P6-J20AA-H257-C4<br/>SKE-6214-M/C4-VL 0241<br/>(cross out the references that have not been filled)</p>          |  |   |  |
| Serial N°: GERMANY: 0200 X116-0659 04/23 SN0082   |  |   |  |
| <p><b>S1</b> Radial play after assembly (0,021 / 0,067): 0,05mm</p> <p><input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>  |  | <p><b>S3</b> LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</p> <p>Min: 159g - Max: 169g</p> <p>Measured quantity: <input type="checkbox"/> OK <input type="checkbox"/> NOK</p> <p>Filter 1 (Name and signature): </p> <p>Filter 2 (Name and signature): </p> <p>Quality Insp. Name and signature: Dima </p> |  |
| <p>Référence appareil: A52P14</p>   |  |   |  |
| FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA  |  | TROS 916.216 2 Page 1   |  |

ALSTOM

GIBELA

## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

|   |   |                                     |  |   |
|---|---|-------------------------------------|--|---|
| Record the value of the Insulation resistance of the bearings to TROS 915.069 (> 50 kΩ) |   | 9.70 GΩ                             |  | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK |
| OPERATOR  |   | Quality verification                |  |   |
| Out of round at the end of the shaft drive end, 0,05 max<br>Value: 0,01mm               | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number<br>A52P14      | <input type="checkbox"/> OK <input type="checkbox"/> NOK |   |
| Out of round on toothed wheel 0,1 max: 0,06mm   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number<br>A52P14      | <input type="checkbox"/> OK <input type="checkbox"/> NOK |   |
| sensor / toothed wheel play 0,7 (+/- 0,2): 0,7mm  | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number<br>GIBELA001   | <input type="checkbox"/> OK <input type="checkbox"/> NOK |   |
| Sensor reference: DTR0000S12252/DSD1830.19Q14HW   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number<br>52321003378 | <input type="checkbox"/> OK <input type="checkbox"/> NOK |   |



| Prep. & Final Assembly   |   |  |                              |  |                                  |                                     |    |                          |     |
|--|---|--|------------------------------|--|----------------------------------|-------------------------------------|----|--------------------------|-----|
| OPERATOR   |   |  |                              | Quality verification   |                                  |                                     |    |                          |     |
| <input checked="" type="checkbox"/> F1   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | attach reference (in the event of future absence of the motorized screwdriver) | QC 1 X 61 Nm                     | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> F2   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | attach reference (in the event of future absence of the motorized screwdriver) | QC 1 X 61 Nm                     | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> F3   | Torque tightening to 4 x 44 Nm:<br>Fold locking plate | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | attach reference (in the event of future absence of the motorized screwdriver) | QC 1 X 37 Nm                     | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> F4   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | attach reference (in the event of future absence of the motorized screwdriver) | QC 1 X 18 Nm                     | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> F5   | Torque tightening to 6 x 22 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | attach reference (in the event of future absence of the motorized screwdriver) | QC 1 X 18 Nm                     | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| Finishing  |   |  |                              |  |                                  |                                     |    |                          |     |
| <input checked="" type="checkbox"/> F1   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOK | attach reference (in the event of future absence of the motorized screwdriver) | QC 1 X 22 Nm                     | <input type="checkbox"/>            | OK | <input type="checkbox"/> | NOK |
| Grease protection transport  |   |  |                              |  |                                  |                                     |    |                          |     |
| <input checked="" type="checkbox"/> S3   | 18g (0/+4.5) CC                                       | Mesured quantity:                      | 18g                          |  |                                  | <input checked="" type="checkbox"/> | OK | <input type="checkbox"/> | NOK |
| <input checked="" type="checkbox"/> S4   | 18g (0/+4.5) CC                                       | Mesured quantity:                      | 18g                          |  |                                  | <input checked="" type="checkbox"/> | OK | <input type="checkbox"/> | NOK |
| Final inspection following the check-list DTR0000452909 and DTR0000452910 (in the case of 100% inspection of the production) |   |  |                              |  |                                  | <input checked="" type="checkbox"/> | OK | <input type="checkbox"/> | NOK |
|  |   |  |                              |  | Final Inspection                 | Comments                            |    |                          |     |
|  |   |  |                              |  | Quality Insp Name and Signature: |                                     |    |                          |     |
|  |   |  |                              |  | Oima                             |                                     |    |                          |     |
| OBSERVATIONS   |   |  |                              |  |                                  |                                     |    |                          |     |
|  |   |  |                              |  |                                  |                                     |    |                          |     |

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| FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA | TROS 916.216 | 2 | Page |
|  |              |   | 2    |





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## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

Référence: TROS 916.216

Révision: 2

Documents de référence: AT00000325953 - AT00000325990

Assembly before test

Date: 08/04/2024

Name: Jacques

Assembly after test

Date: 15/05/2024

Name: Jacques

|   |  |  |  |
|---|--|--|--|
| ROTOR S/N   |  | STATOR S/N   |  |
| MCP23-107060  |  | CTB-1610   |  |
| <p><b>Bearing lubrication - Security operation</b></p> <p>Incorrect lubrication can lead to engine failure with a safety risk in service</p> <p>SRIL TROS 965.289</p>   |  |  |  |
| <p><b>INSULATED CERAMIC BEARING DRIVE END - Security operation</b></p> <p>Incorrect assembly can lead to engine failure with a safety risk in service</p> <p>SRIL TROS 965.289</p> <p>FAG: NU 214-E-XL-M1-P6-F1-H257A-J20AB-C4 or NU 214-E-M1-P6-F1-H257A-J20AA-C4</p> <p>SKF: NU 214 ECM/C4 VA3091</p> <p>(cross out the references that have not been fitted)</p> |  |  |  |
| <p>N° Romania 0097 09/23 SN10-1369794</p>   |  |  |  |
| <p><b>S2</b> Radial play after assembly (0,042 / 0,114):</p> <p>0,08mm <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>  |  | <p><b>S3</b> LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</p> <p>Min: 144g - Max: 49g</p> <p>Measured quantity:</p> <p>Filter 1 (Name and signature) <i>[Signature]</i></p> <p>Filter 2 (Name and signature) <i>[Signature]</i></p> <p>Quality validation</p> <p>Quality Insp. Name and signature <i>Dima</i></p> |  |
| <p><b>INSULATED CERAMIC BEARING OPPOSITE DRIVE END side - Security operation</b></p> <p>Incorrect assembly can lead to engine failure with a safety risk in service</p> <p>SRIL TROS 965.289</p> <p>FAG: 6214-M-P6-J20AB-H257A-C4 or 6214-M-P6-J20AA-H257-C4</p> <p>SKF 6214-M/C4-VL 0241</p> <p>(cross out the references that have not been fitted)</p>           |  |  |  |
| <p>Serial N°: Germany 0200 X116-0710-04/23 SN0054</p>   |  |  |  |
| <p><b>S1</b> Radial play after assembly (0,021 / 0,067):</p> <p>0,06mm <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p> <p>AMX920</p>  |  | <p><b>S3</b> LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</p> <p>Min: 159g - Max: 64g</p> <p>Measured quantity:</p> <p>Filter 1 (Name and signature) <i>[Signature]</i></p> <p>Filter 2 (Name and signature) <i>[Signature]</i></p> <p>Quality validation</p> <p>Quality Insp. Name and signature <i>Dima</i></p> |  |
| FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA  |  | TROS 916.216 2   |  |
|   |  | Page 1   |  |

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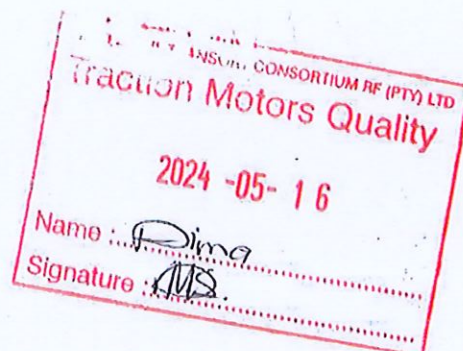
## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

|   |   |  |  |
|---|---|--|--|
| Record the value of the insulation resistance of the bearings to TROS 915.069 (> 50 kΩ) |   | 524 MΩ <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK |  |
| OPERATOR  |   | Quality verification   |  |
| Out of round at the end of the shaft drive end, 0,05 max                                | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number   | <input type="checkbox"/> OK <input type="checkbox"/> NOK |
| Value: 0,01mm   |   | AMX920   |  |
| Out of round on toothed wheel 0,1 max:  | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number   | <input type="checkbox"/> OK <input type="checkbox"/> NOK |
| 0,05mm  |   | AMX920   |  |
| sensor / toothed wheel play 0,7 (+/- 0,2):  | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number   | <input type="checkbox"/> OK <input type="checkbox"/> NOK |
| 0,75mm  |   | CTB1610  |  |
| Sensor reference: DTR0000512252/DSD1830.19Q14HW   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | Device serial number   | <input type="checkbox"/> OK <input type="checkbox"/> NOK |
|   |   | 52321002947  |  |



| Prep. & Final Assembly   |   |   |   |   |   |          |  |  |  |
|--|---|---|---|---|---|----------|--|--|--|
| OPERATOR   |   |   |   | Quality verification  |   |          |  |  |  |
| <input checked="" type="checkbox"/> F1   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | check reference for the correct torque / absence of the motorised screwdriver | QC 1 X 61 Nm  | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |          |  |  |  |
| <input checked="" type="checkbox"/> F2   | Torque tightening to 8 x 76 Nm:                       | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | check reference for the correct torque / absence of the motorised screwdriver | QC 1 X 61 Nm  | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |          |  |  |  |
| <input checked="" type="checkbox"/> F3   | Torque tightening to 4 x 44 Nm:<br>Fold locking plate | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | check reference for the correct torque / absence of the motorised screwdriver | QC 1 X 37 Nm  | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |          |  |  |  |
| <input checked="" type="checkbox"/> F4   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | check reference for the correct torque / absence of the motorised screwdriver | QC 1 X 18 Nm  | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |          |  |  |  |
| <input checked="" type="checkbox"/> F5   | Torque tightening to 6 x 22 Nm:                       | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | check reference for the correct torque / absence of the motorised screwdriver | QC 1 X 18 Nm  | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |          |  |  |  |
| Finishing  |   |   |   |   |   |          |  |  |  |
| <input checked="" type="checkbox"/> F1   | Torque tightening to 4 x 22 Nm:                       | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK | check reference for the correct torque / absence of the motorised screwdriver | QC 1 X 22 Nm  | <input type="checkbox"/> OK <input type="checkbox"/> NOK            |          |  |  |  |
| Grease protection transport  |   |   |   |   |   |          |  |  |  |
| <input checked="" type="checkbox"/> S3   | 18g (0/+4.5) CC                                       | Mesured quantity: 18g   |   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK     |   |          |  |  |  |
| <input checked="" type="checkbox"/> S4   | 18g (0/+4.5) CC                                       | Mesured quantity: 18g   |   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK     |   |          |  |  |  |
| Final inspection following the check-list DTR0000452909 and DTR0000452910 (in the case of 100% inspection of the production) |   |   |   |   | <input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK |          |  |  |  |
|  |   |   |   | <b>Final Inspection</b><br>Quality Insp Name and Signature: <i>Dima</i> |   | Comments |  |  |  |
| OBSERVATIONS   |   |   |   |   |   |          |  |  |  |

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|--|--------------|---|------|
| FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA | TROS 916.216 | 2 | Page |
|  |              |   | 2    |







## CERTIFICATION OF CONFORMITY

Inspection certificate according EN 10204-3.1

Product: Traction Motors 6 ECA 3022 B

Serial Number: N ° 21644

Client / Customer: ALSTOM UBUNYE (PTY) LTD

Project: PRASA

P O Number: 77125894

Status: QC PASS

Derogations / Concession / Waiver N °: N/A

Customer modification: N/A


Missing parts: N/A

We hereby declare, barring exceptions, reservations or exemptions listed in this statement of conformity, that the listed supplies comply with the contract requirements and that, after completion of testing and verification, they completely satisfy all specified requirements, and applicable standards and regulations.

Date: 2024/05/12

Function: Final Inspection

Performed and signed off by: Name \_\_\_\_\_ Dimakatso Mohoalali

Signature \_\_\_\_\_ 



Gibela Rail  
02 Shosholora Avenue  
M07 Traction Motor  
1590

GIBELA RAIL

Compiled by M Kola

Date: 22/2/2022

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## CERTIFICATION OF CONFORMITY

Inspection certificate according EN 10204-3.1

Product: Traction Motors 6 ECA 3022 B

Serial Number: N ° 21623

Client / Customer: ALSTOM UBUNYE (PTY) LTD

Project: PRASA

P O Number: 77028292

Status: QC PASS

Derogations / Concession / Waiver N °: N/A

Customer modification: N/A

Missing parts: N/A

We hereby declare, barring exceptions, reservations or exemptions listed in this statement of conformity, that the listed supplies comply with the contract requirements and that, after completion of testing and verification, they completely satisfy all specified requirements, and applicable standards and regulations.

Date: 2024/05/16

Function: Final Inspection

Performed and signed off by: Name \_\_\_\_\_ Dimakatso Mohoalali

Signature \_\_\_\_\_



Gibela Rail  
02 Shosholoza Avenue  
M07 Traction Motor  
1590

GIBELA RAIL

Compiled by M Kola

Date: 22/2/2022

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