



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 - 1470

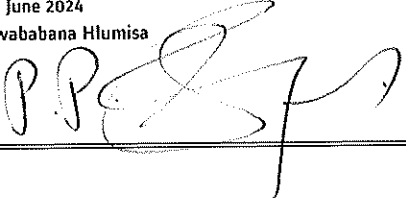
#### CONTENTS

- 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	24 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	1470		Alstom - Ubunye
Motor Bogie Frame	AR00000176080	1820		Alstom - Ubunye
Wheelset (Front)	AR000000177020	3380		Alstom - Ubunye
Axle with fitted gearbox	AR00000177072	3480		NGC
Wheel (Right)	AR00000174670	058	03.24	Bonatrans
Wheel (Left)	AR000000174670	114	03.24	Bonatrans
Wheelset (Rear)	AR00000178600	3381		Alstom - Ubunye
Axle with fitted gearbox	AR00000177072	3395		NGC
Wheel (Right)	AR00000174670	071	03.24	Bonatrans
Wheel (Left)	AR00000174670	072	03.24	Bonatrans
Pneumatic suspension (Right)	AR00000176127	2404003		Hutchinson
Pneumatic suspension (Left)	AR00000176127	2404011		Hutchinson
Brake unit with PB (Right rear)	AR00000174544	1862	06.24	WEBTEC
Brake unit without PB (Right front)	AR00000175185	5598	06.24	WEBTEC
Brake unit without PB (Left Front)	AR00000175185	5593	06.24	WEBTEC
Brake unit without PB (left rear)	AR00000175185	5595	06.24	WEBTEC
Motor (front)	AR00000168516	21703		GIBELA
Motor (Rear)	AR00000168516	21710		GIBELA



DATE VALIDATION

RESPONSABLE VALIDATION

PRASA

INSTRUCTION SHEET:

FAMILY:

PRESSING REPORT

LOAD TEST : MOTOR BOGIE

PROJECT:

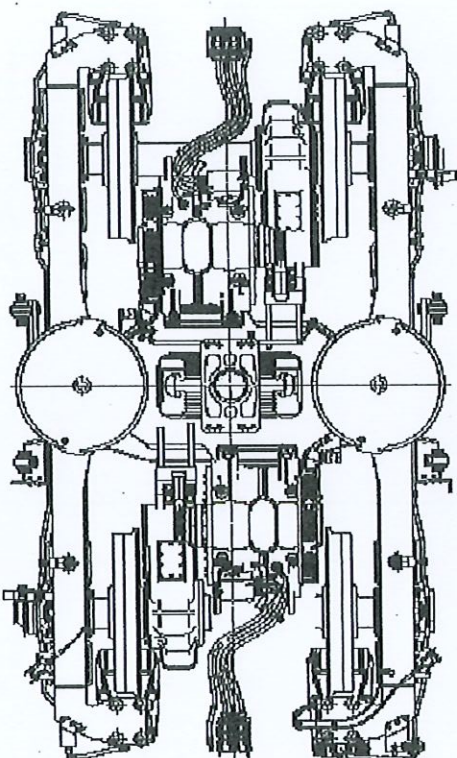
	THEORETICAL	MEASURED
WHEEL DIAMETER [mm]	MIN MAX	
GAP PRIMARY SUSPENSION [mm]	MIN 33.00 MAX 39.00	38.08 ✓
SHIM THICK [mm]		
WEIGHT ON WHEEL [Kg]	Q2	5591

SECONDARY SUSPENSION			
MEASURED [mm]	SHIM THICK [mm]	DIM. WITH SHIM [mm]	THEORETICAL [mm]
586.81	+	0.00	= 586.81
			MIN 585.00 MAX 587.50

RIGHT JACK LOAD	
7376	Kg

	THEORETICAL	MEASURED
WHEEL DIAMETER [mm]	MIN MAX	
GAP PRIMARY SUSPENSION [mm]	MIN 33.00 MAX 39.00	37.99 ✓
SHIM THICK [mm]		
WEIGHT ON WHEEL [Kg]	Q4	5561

BOGIE SERIAL N°	MB1-1470
BOGIE TYPE	MB
BOGIE WEIGHT UNDER LOAD [Kg]	22398
COMPLETE BOGIE WEIGHT [Kg]	7304
OPERATOR	DATE
EDWARD	6/19/2024



	THEORETICAL	MEASURED
LOAD DIFFERENCE ON FRONT AXLE [%]	MIN 0.00 MAX 0.00	-0.01 ✓
LOAD DIFFERENCE ON REAR AXLE [%]	MIN 0.00 MAX 0.00	0.83 ✓
LOAD DIFFERENCE FRONT AXLE AND REAR AXLE [%]	MIN 0.00 MAX 0.00	-0.15 ✓
LOAD DIFFERENCE ON RAILS [%]	MIN 0.00 MAX 0.00	0.41 ✓
LOAD DIFFERENCE ON DIAGONAL WHEELS [%]	MIN 0.00 MAX 0.00	0.42 ✓

OPERATOR STAMP

BF1-21

LEFT JACK LOAD

7376 Kg

	THEORETICAL	MEASURED
WHEEL DIAMETER [mm]	MIN MAX	
GAP PRIMARY SUSPENSION [mm]	MIN 33.00 MAX 39.00	37.85 ✓
SHIM THICK [mm]		
WEIGHT ON WHEEL [Kg]	Q1	5590

SECONDARY SUSPENSION			
MEASURED [mm]	SHIM THICK [mm]	DIM. WITH SHIM [mm]	THEORETICAL [mm]
587.30	+	0.00	= 587.30
			MIN 585.00 MAX 587.50

DIFFERENCE IN RIGHT AND LEFT SUSPENSION HEIGHTS [mm]		✓	THEORETICAL [mm]
-0.49			MIN -1.00 MAX 1.00

	THEORETICAL	MEASURED
WHEEL DIAMETER [mm]	MIN MAX	
GAP PRIMARY SUSPENSION [mm]	MIN 33.00 MAX 39.00	37.24 ✓
SHIM THICK [mm]		
WEIGHT ON WHEEL [Kg]	Q3	5654



## CERTIFICATION OF CONFORMITY

Inspection certificate according EN 10204-3.1

Product: Traction Motors 6 ECA 3022 B

Serial Number: N ° 21703

Client / Customer: ALSTOM UBUNYE (PTY) LTD

Project: PRASA

P O Number: 77225686

Status: QC PASS

Derogations / Concession / Waiver N °: 7072

Customer modification: N/A

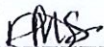
Missing parts: N/A

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: 2024/06/03

Function: Final Inspection

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

Signature:  \_\_\_\_\_



Gibela Rail  
02 Shosholozwa 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 ° 21710

Client / Customer: ALSTOM UBUNYE (PTY) LTD

Project: PRASA

P O Number: 77236528

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: 2024/05/17

Function: Final Inspection

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

Signature \_\_\_\_\_



Gibela Rail  
02 Shosholozu 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

21703

ALSTOM

GIBEL

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

Référence: TROS 916.216

Révision: 2

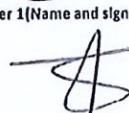

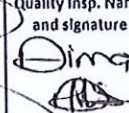

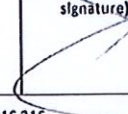
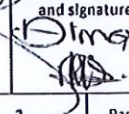
Documents de référence: AT00000325953 - AT00000325990

Assembly before test

Date: 30/04/24  
Name: Groebey

Assembly after test

Date:  
Name:

ROTOR S/N S4900282-103		STATOR S/N GIB-1705	
<p><b>Bearing lubrication - Security operation</b> Incorrect lubrication can lead to engine failure with a safety risk in service SRIL TROS 965.289</p>			
<p><b>INSULATED CERAMIC BEARING DRIVE END - Security operation</b> Incorrect assembly can lead to engine failure with a safety risk in service SRIL TROS 965.289 FAG: NU 214-E-XL-M1-P6-F1-H257A-J20AB-C4 or NU 214-E-M1-P6-F1-H257A-J20AA-C4 <del>SKE-NU 214 ECM/C4 VA3091</del> (cross out the references that have not been fitted)</p>			
N°: ROMANIA - 0097 09/23 81313 - 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 validation: </p>	
<p><b>INSULATED CERAMIC BEARING OPPOSITE DRIVE END side - Security operation</b> Incorrect assembly can lead to engine failure with a safety risk in service SRIL TROS 965.289 FAG: 6214-M-P6-J20AB-H257A-C4 or 6214-M-P6-J20AA-H257-C4 <del>SKE-6214-M/C4-VL0241</del> (cross out the references that have not been fitted)</p>			
Serial N°: GERMANY - 0200 X116 - 0975 04/23 810213			
<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>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: </p>	
Référence appareil: A52P14			
FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA		TROS 916.216 2	
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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)				6.42 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		<input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK		Device serial number		<input type="checkbox"/> OK <input type="checkbox"/> NOK	
Value: 0,01mm				A52P14			
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				A52P14			
sensor / toothed wheel play 0,7 (+/- 0,2):		<input type="checkbox"/> OK <input type="checkbox"/> NOK		Device serial number		<input type="checkbox"/> OK <input type="checkbox"/> NOK	
Sensor reference: DTR0000512252/DSD1830.19Q14HW		<input type="checkbox"/> OK <input type="checkbox"/> NOK		Device serial number		<input type="checkbox"/> OK <input type="checkbox"/> NOK	

Missing speed sensor Deviation #: 7072



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	match reference for the event of phase / absence of the motor (check the motor)	QC 1 X 61 Nm	<input type="checkbox"/>	<input checked="" 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	match reference for the event of phase / absence of the motor (check the motor)	QC 1 X 61 Nm	<input type="checkbox"/>	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> NOK	
<input checked="" type="checkbox"/> F3	Torque tightening to 4 x 44 Nm: Fold locking plate	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> NOK	match reference for the event of phase / absence of the motor (check the motor)	QC 1 X 37 Nm	<input type="checkbox"/>	<input checked="" 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	match reference for the event of phase / absence of the motor (check the motor)	QC 1 X 18 Nm	<input type="checkbox"/>	<input checked="" 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	match reference for the event of phase / absence of the motor (check the motor)	QC 1 X 18 Nm	<input type="checkbox"/>	<input checked="" 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	match reference for the event of phase / absence of the motor (check the motor)	QC 1 X 22 Nm	<input type="checkbox"/>	<input checked="" 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"/>	<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"/>	<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"/>	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> NOK	
					Final inspection Quality Insp Name and Signature:	Comments			
					Dima				
OBSERVATIONS									

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ALSTOM

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: 07/05/04

Name: XOLANT

Assembly after test

Date: 16/05/04

Name: XOLANT

THOMAS

ROTOR S/N MOR23-11-003		STATOR S/N G113-1728	
<p>Bearing lubrication - Security operation</p> <p>Incorrect lubrication can lead to engine failure with a safety risk in service</p> <p>SRIL TROS 965.289</p>			
<p>INSULATED CERAMIC BEARING DRIVE END - Security operation</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 09/03 SN399-1369794</p>			
<p>S2 Radial play after assembly (0,042 / 0,114): 0,07mm</p> <p><input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>		<p>S3 LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</p> <p>Min:144g - Max:149g</p> <p>Mesured quantity:</p> <p>Filter 1 (Name and signature)</p> <p>Filter 2 (Name and signature)</p> <p>Quality validation</p> <p>Quality Insp. Name and signature</p> <p>Dima</p> <p>AKS</p>	
<p>INSULATED CERAMIC BEARING OPPOSITE DRIVE END side - Security operation</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 X116-0948 04/03 SN0241</p>			
<p>S1 Radial play after assembly (0,021 / 0,067): 0,06mm</p> <p><input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK</p>		<p>S3 LUBRIFICATION WITH MOBILITH SHC 100 before cover assembly</p> <p>Min:159g Max:164g</p> <p>Mesured quantity:</p> <p>Filter 1 (Name and signature)</p> <p>Filter 2 (Name and signature)</p> <p>Quality validation</p> <p>Quality Insp. Name and signature</p> <p>Dima</p> <p>AKS</p>	
<p>Référence appareil: AMX620</p>		<p>TROS 916.216 2</p>	
<p>FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA</p>		<p>Page 1</p>	

ALSTOM

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)		135 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: 0,02mm		AMX620		
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	
0,03mm		AMX620		
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		G1131001		
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	
		G032100187		

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	watch reference for the event of failure / absence of the motor (see table)	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	watch reference for the event of failure / absence of the motor (see table)	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: Fold locking plate	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> NOK	watch reference for the event of failure / absence of the motor (see table)	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	watch reference for the event of failure / absence of the motor (see table)	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	watch reference for the event of failure / absence of the motor (see table)	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	watch reference for the event of failure / absence of the motor (see table)	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> Quality Insp Name and Signature: <i>Dima</i>		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 MB1  
 DTR0009706804

**SERIAL NUMBER** MB1 - 1471

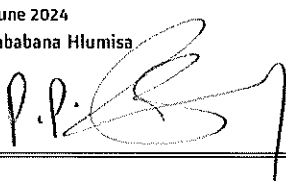
#### CONTENTS

- 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"/>

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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	24 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	1471		Alstom - Ubunye
Motor Bogie Frame	AR00000176080	1830		Alstom - Ubunye
Wheelset (Front)	AR000000177020	3385		Alstom - Ubunye
Axle with fitted gearbox	AR00000177072	3478		NGC
Wheel (Right)	AR00000174670	144	03.24	Bonatrans
Wheel (Left)	AR000000174670	143	03.24	Bonatrans
Wheelset (Rear)	AR00000178600	3386		Alstom - Ubunye
Axle with fitted gearbox	AR00000177072	3464		NGC
Wheel (Right)	AR00000174670	011	03.24	Bonatrans
Wheel (Left)	AR00000174670	044	03.24	Bonatrans
Pneumatic suspension (Right)	AR00000176127	2404001		Hutchinson
Pneumatic suspension (Left)	AR00000176127	2404009		Hutchinson
Brake unit with PB (Right rear)	AR00000174544	1861	06.24	WEBTEC
Brake unit without PB (Right front)	AR00000175185	5605	06.24	WEBTEC
Brake unit without PB (Left Front)	AR00000175185	5594	06.24	WEBTEC
Brake unit without PB (left rear)	AR00000175185	502	06.24	WEBTEC
Motor (front)	AR00000168516	21733		GIBELA
Motor (Rear)	AR00000168516	21750		GIBELA



DATE VALIDATION

RESPONSABLE VALIDATION

PRASA  
INSTRUCTION SHEET:

FAMILY:

LOAD TEST : MOTOR BOGIE

PROJECT:

	THEORETICAL	MEASURED
WHEEL DIAMETER [mm]	MIN MAX	
GAP PRIMARY SUSPENSION [mm]	MIN 33.00 MAX 39.00	36.44 ✓
SHIM THICK [mm]		
WEIGHT ON WHEEL [Kg]	Q2	5608

SECONDARY SUSPENSION ✓			
MEASURED [mm]	SHIM THICK [mm]	DIM. WITH SHIM [mm]	THEORETICAL [mm]
585.17	+	1.00	= 586.17
			MIN 585.00 MAX 587.50

RIGHT JACK LOAD	
7376	Kg

	THEORETICAL	MEASURED
WHEEL DIAMETER [mm]	MIN MAX	
GAP PRIMARY SUSPENSION [mm]	MIN 33.00 MAX 39.00	36.85 ✓
SHIM THICK [mm]		
WEIGHT ON WHEEL [Kg]	Q4	5566

BOGIE SERIAL N°	MB1-1471
-----------------	----------

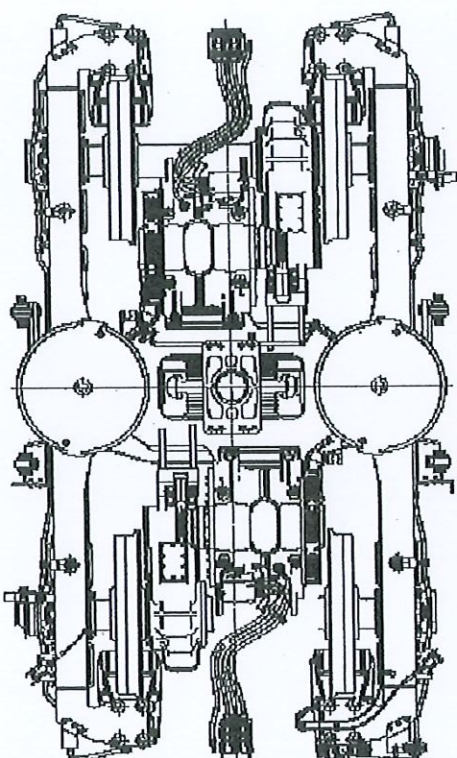
BOGIE TYPE	MB
------------	----

BOGIE WEIGHT UNDER LOAD [Kg]	22375
------------------------------	-------

COMPLETE BOGIE WEIGHT [Kg]	7272
----------------------------	------

OPERATOR	DATE
EDWARD	6/19/2024

OPERATOR STAMP
BFI-21



LEFT JACK LOAD	
7376	Kg

SECONDARY SUSPENSION ✓			
MEASURED [mm]	SHIM THICK [mm]	DIM. WITH SHIM [mm]	THEORETICAL [mm]
586.41	+	0.00	= 586.41
			MIN 585.00 MAX 587.50

DIFFERENCE IN RIGHT AND LEFT SUSPENSION HEIGHTS [mm]		✓	THEORETICAL [mm]
-0.24			MIN -1.00 MAX 1.00

	THEORETICAL	MEASURED
LOAD DIFFERENCE ON FRONT AXLE [%]	MIN 0.00 MAX 0.00	-0.42 ✓
LOAD DIFFERENCE ON REAR AXLE [%]	MIN 0.00 MAX 0.00	0.67 ✓
LOAD DIFFERENCE FRONT AXLE AND REAR AXLE [%]	MIN 0.00 MAX 0.00	-0.17 ✓
LOAD DIFFERENCE ON RAILS [%]	MIN 0.00 MAX 0.00	0.13 ✓
LOAD DIFFERENCE ON DIAGONAL WHEELS [%]	MIN 0.00 MAX 0.00	0.55 ✓

	THEORETICAL	MEASURED
WHEEL DIAMETER [mm]	MIN MAX	
GAP PRIMARY SUSPENSION [mm]	MIN 33.00 MAX 39.00	37.03 ✓
SHIM THICK [mm]		
WEIGHT ON WHEEL [Kg]	Q1	5561

	THEORETICAL	MEASURED
WHEEL DIAMETER [mm]	MIN MAX	
GAP PRIMARY SUSPENSION [mm]	MIN 33.00 MAX 39.00	36.10 ✓
SHIM THICK [mm]		
WEIGHT ON WHEEL [Kg]	Q3	5641



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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: 16/05/04  
Name: XOLANT

Assembly after test  
Date: 04/06/04  
Name: XOLANT & JACQUES

ROTOR S/N <b>MCD03-11-116</b>		STATOR S/N <b>CUTS-1738</b>	
<p><b>Bearing lubrication - Security operation</b> Incorrect lubrication can lead to engine failure with a safety risk in service SRIL TROS 965.289</p>			
<p><b>INSULATED CERAMIC BEARING DRIVE END -- Security operation</b> Incorrect assembly can lead to engine failure with a safety risk in service SRIL TROS 965.289 FAG: NU 214-E-XL-M1-P6-F1-H257A-J20AB-C4 or NU 214-E-M1-P6-F1-H257A-J20AA-C4 SKF-NU 214-ECM/C4-VA3091 (cross out the references that have not been fitted)</p>			
N°: <b>Romania 007 09/23</b>		<b>SN 224 SF</b>	
<p><b>S2</b> Radial play after assembly (0,042 / 0,114): <b>0,06mm</b></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>Filter 1 (Name and signature): <b>[Signature]</b></p> <p>Filter 2 (Name and signature): <b>[Signature]</b></p> <p>Mesured quantity: <b>[Signature]</b></p> <p>Quality validation: <b>Bulm</b></p>	
<p><b>INSULATED CERAMIC BEARING OPPOSITE DRIVE END side -- Security operation</b> Incorrect assembly can lead to engine failure with a safety risk in service SRIL TROS 965.289 FAG: 6214-M-P6-J20AB-H257A-C4 or 6214-M-P6-J20AA-H257-C4 SKF 6214-M/C4-VL 0241 (cross out the references that have not been fitted)</p>			
Serial N°: <b>Austria 095W</b>			
<p><b>S1</b> Radial play after assembly (0,021 / 0,067): <b>0,04mm</b></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>Filter 1 (Name and signature): <b>[Signature]</b></p> <p>Filter 2 (Name and signature): <b>[Signature]</b></p> <p>Mesured quantity: <b>[Signature]</b></p> <p>Quality validation: <b>Bulm</b></p>	
<p>AMXG00</p>			
FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA		TROS 916.216 2 Page 1	

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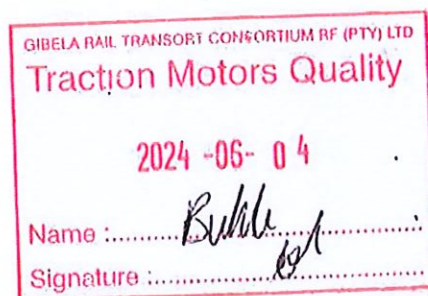
## FINAL ASSEMBLY REPORT FOR THE MOTOR 6 ECA 3022 B - PRASA

Record the value of the insulation resistance of the bearings to TROS 915.069 (> 50 kΩ)		<b>17,6MΩ</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 Value: <b>0,02mm</b>	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK	Device serial number <b>AMXG00</b>	<input type="checkbox"/> OK <input type="checkbox"/> NOK	
Out of round on toothed wheel 0,1 max: <b>0,02mm</b>	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK	Device serial number <b>AMXC700</b>	<input type="checkbox"/> OK <input type="checkbox"/> NOK	
sensor / toothed wheel play 0,7 (+/- 0,2):	<input type="checkbox"/> OK <input type="checkbox"/> NOK	Device serial number	<input type="checkbox"/> OK <input type="checkbox"/> NOK	
Sensor reference: DTR0000512252/DSD1830.19Q14HW	<input type="checkbox"/> OK <input type="checkbox"/> NOK	Device serial number	<input type="checkbox"/> OK <input type="checkbox"/> NOK	

Missing speed sensor Deviation #1 70-72

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	watch reference (in the event of false absence of the motorized screw driver) <b>NCC 5887</b> watch reference (in the event of false absence of the motorized screw driver) <b>NCC 5887</b> watch reference (in the event of false absence of the motorized screw driver) <b>NCC 5887</b> watch reference (in the event of false absence of the motorized screw driver) <b>NCC 5887</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		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: Fold locking plate		<input type="checkbox"/> OK <input type="checkbox"/> NOK		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		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		QC 1 X 18 Nm	<input type="checkbox"/> OK <input type="checkbox"/> NOK			
<b>Finishing</b>									
<input checked="" type="checkbox"/> F1	Torque tightening to 4 x 22 Nm:		<input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK	watch reference (in the event of false absence of the motorized screw driver) <b>NCC 5887</b>	QC 1 X 22 Nm	<input type="checkbox"/> OK <input type="checkbox"/> NOK			
<b>Grease protection transport</b>									
<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> Quality Insp Name and Signature: <i>Buhle</i>		Comments			
OBSERVATIONS									

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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: 18/05/24  
Name: POLANE

Assembly after test

Date: 01/06/24  
Name: POLANE, THOMAS, GODFREY & LAMA

ROTOR S/N <b>5U900872-012</b>		STATOR S/N <b>GIB-1745</b>	
<p><b>Bearing lubrication - Security operation</b> Incorrect lubrication can lead to engine failure with a safety risk in service SRIL TROS 965.289</p>			
<p><b>INSULATED CERAMIC BEARING DRIVE END -- Security operation</b> Incorrect assembly can lead to engine failure with a safety risk in service SRIL TROS 965.289 <b>FAG: NU 214-E-XL-M1-P6-F1-H257A-J20AB-C4 or NU 214-E-M1-P6-F1-H257A-J20AA-C4.</b> <b>SKE: NU 214-ECM/C4-VA3091</b> (cross out the references that have not been fitted)</p>			
N°: <b>ROMANIA 0097 05/23 61223 -1085122</b>			
<p><b>S2</b> Radial play after assembly (0,042 / 0,114): <b>0,06mm</b></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: <b>148g</b></p> <p>Filter 1 (Name and signature): <b>[Signature]</b></p> <p>Filter 2 (Name and signature): <b>[Signature]</b></p> <p>Quality validation: <b>[Signature]</b></p>	
<p><b>INSULATED CERAMIC BEARING OPPOSITE DRIVE END side -- Security operation</b> Incorrect assembly can lead to engine failure with a safety risk in service SRIL TROS 965.289 <b>FAG: 6214-M-P6-J20AB-H257A-C4 or 6214-M-P6-J20AA-H257-C4</b> <b>SKE 6214-M/C4-VL 0241</b> (cross out the references that have not been fitted)</p>			
Serial N°: <b>AUSTRIA: 095W</b>			
<p><b>S1</b> Radial play after assembly (0,021 / 0,067): <b>0,05mm</b></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>Measured quantity: <b>162g</b></p> <p>Filter 1 (Name and signature): <b>[Signature]</b></p> <p>Filter 2 (Name and signature): <b>[Signature]</b></p> <p>Quality validation: <b>[Signature]</b></p>	
Référence appareil: <b>AMXG80</b>			
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) <b>90,6 MΩ</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 Value <b>0mm</b>	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK	Device serial number <b>AMXG80</b>	<input type="checkbox"/> OK <input type="checkbox"/> NOK
Out of round on toothed wheel 0,1 max: <b>0,05mm</b>	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK	Device serial number <b>AMXG80</b>	<input type="checkbox"/> OK <input type="checkbox"/> NOK
sensor / toothed wheel play 0,7 (+/- 0,2):	<input type="checkbox"/> OK <input type="checkbox"/> NOK	Device serial number	<input type="checkbox"/> OK <input type="checkbox"/> NOK
Sensor reference: DTR0000512252/DS1830.19Q14HW	<input type="checkbox"/> OK <input type="checkbox"/> NOK	Device serial number	<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	search reference (in the event of phase / absence of the motorised strand drive)	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	search reference (in the event of phase / absence of the motorised strand drive)	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:		<input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK	search reference (in the event of phase / absence of the motorised strand drive)	QC 1 X 37 Nm	<input type="checkbox"/>	OK	<input type="checkbox"/>	NOK
	Fold locking plate								
<input checked="" type="checkbox"/> F4	Torque tightening to 4 x 22 Nm:		<input checked="" type="checkbox"/> OK <input type="checkbox"/> NOK	search reference (in the event of phase / absence of the motorised strand drive)	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	search reference (in the event of phase / absence of the motorised strand drive)	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	search reference (in the event of phase / absence of the motorised strand drive)	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> Quality Insp Name and Signature:		Comments		
					 				
OBSERVATIONS									

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 ° 21750

Client / Customer: ALSTOM UBUNYE (PTY) LTD

Project: PRASA

P O Number: 77333978

Status: QC PASS

Derogations / Concession / Waiver N °: 7072

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: 2024/06/03

Function: Final Inspection

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

Signature \_\_\_\_\_



Gibela Rail  
02 Shosholozwa 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 ° 21733

Client / Customer: ALSTOM UBUNYE (PTY) LTD

Project: PRASA

P O Number: 77314079

Status: QC PASS

Derogations / Concession / Waiver N °: 7072

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: 2024/06/12

Function: Final Inspection

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

Signature \_\_\_\_\_



Gibela Rail  
02 Shosholozwa Avenue  
M07 Traction Motor  
1590

GIBELA RAIL

Compiled by M Kola

Date: 22/2/2022

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