

EMU TOOLS AND MAINTENANCE INSTRUMENTS FOR ROLLING STOCK BRR USER REQUIREMENT SPECIFICATION

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Document details	
Compilation date	13 November 2024
Last edited date	23 June 2025
Document version	Version 1

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Compiler	Mr. Sihle Jali	20 March 2026	Page 1 of 10
Reviewer	Mr. Thabo Mokoena	20 March 2026	
Approver	Mr. Manekie Tapu	20 March 2026	

EMU TOOLS/INSTRUMENTS WOLMERTON



Doc. No. & Version	EMU/2025/07/001	Engineering Technician	Mr. Sihle Jali
Creation Date	2024-11-13	System Engineer	Mr. Thabo Mokoena
Last Edited Date	2024-06-23	Head Of Department	Mr. Manekie Tapu

1. Scope

- 1.1. The scope covers the procurement of EMU Maintenance Instruments.

2. Definitions.

- 2.1. **Metrorail:** Suburban commuter rail transport.
- 2.2. **EMU:** Electrical Multiple Units
- 2.3. **PRASA:** Passenger Rail Agency of South Africa.
- 2.4. **"Supply"** includes fabrication, installation, testing and commissioning and Certification of the equipment/Instruments/Tools.

3. Scope of the Supply.

The scope of a supplier is for providing PRASA Engineering with tools/Instruments as prescribed in the EMU Manual Instruction for proper and standard maintenance of EMU sets in line with Prasa requirements for Maintenance Best Practices, this includes and is not limited to the following:

Tool/Equipment Supply:

3.1. Quality Assurance:

- 3.1.1. **Standards Compliance:** Ensuring all tools and equipment meet relevant industry standards and specifications.
- 3.1.2. **Inspection and Testing:** Pre-delivery inspection and testing of tools and equipment to ensure they are in proper working condition.

3.2. After Sale Support:

 Warrantee, Spares, Technical service.

3.3. Technical Documentation:

- 3.3.1. **User Manuals:** Detailed manuals for all supplied tools and equipment.
- 3.3.2. **Standards Compliance:** Provide compliance certification

4. Requirements.

Suppliers are hereby invited to supply the following services to Prasa Braamfontein Metrorail Depot;

- 4.1. To supply and deliver tools and instruments for performing preventative and corrective maintenance on EMU fleet at the Wolmerton Maintenance Depot.

5. Technical Requirements.

Guarantee and Inherent Defects:

- 5.1. Until such time that equipment warrantee has expired (eg. 12 months), the approved supplier shall be entirely responsible for repairing all defects occurring within stipulated warrantee period.
- 5.2. Quality of work must be as set by Prasa requirements and relevant standards.
- 5.3. The approved supplier shall guarantee that when the equipment fails it will be repaired and returned to service within 10 (ten) working days, from the date of being notified of the defect.
- 5.4. **Document Management.**
 - 5.4.1. Standard certificate of compliance, calibration and guarantee should be submitted during the delivery.
 - 5.4.2. Technical and Service manuals should be submitted during the delivery.

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6. Pricing and delivery schedule**Definitions**

SANS – South African National Standard

ISO – International standard organization

	DESCRIPTION	QTY	UNIT OF PRICE	TOTAL (Including VAT)
1	Inclinometer	6	R	R
2	Pantograph calibration weights	4	R	R
3	Back-to-Back	2	R	R
4	ADD Test Tool	2	R	R
5	Laser Heigh Gauge	2	R	R
6	Leather strip wrench	2	R	R
7	Test Bars	5	R	R
8	RIC key	50	R	R
9	EMU Pannel keys	50	R	R
10	Rechargeable Headlight LED Torch	50	R	R
11	Rechargeable LED Torch	50	R	R
12	Old oil disposal tank.	1	R	R
13	Leaf chain wear gauge.	5	R	R
14	Engineering EMU download tools	6	R	R
15	Inter car walkway bridge	20	R	R
16	Inclinometer ERTMS	6	R	R
TOTAL				R

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7. Specification

	Name	Application	Description	Image				
1	Inclinometer	Inclinometer digital XUNTOP USB Charging Digital Level Box Angle Finder with Electronic Laser, 4-Side Strong Magnetic Angle Gauge IP54 Waterproof Inclinometer Level.	<ul style="list-style-type: none"> • Measuring Range: 4 x 90° • Resolution: 0.1° • Repeatability: ±0.2° • Operating Temperature: 0 ~ 40 °C • Operating Humidity: 40 ~ 80% • Dimensions: 55*16*55mm • 4 Magnetic sides • Or Equivalent 					
2	Pantograph calibration weights	Measuring the contact force, raising & lowering of a pantograph	<p>For testing pantographs. Features Stainless steel round weights with hooks and eyebolt.</p> <p>Technical data: 35 Newtons = 3.569 Kg (x2) 50 Newtons =5.098 Kg (x2)</p>					
	Back-to-Back	Electronic gauge is designed for measuring back-to-back distance of railway, metro and tram wheels in the course of checkup, examination, repair and formation of wheel sets. Measurements are made directly on rolling stock without wheel set roll-out.	<table border="1"> <tr> <td>Measurement range, mm</td> <td>L±25 (L — nominal distance)</td> </tr> <tr> <td>Measurement error, mm</td> <td>±0.1</td> </tr> </table>	Measurement range, mm	L±25 (L — nominal distance)	Measurement error, mm	±0.1	
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4	ADD Test Tool															

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5	Laser Height Gauge	Used to measure distance, calculate area and volume, it has Pythagoras functions and a built-in angle slope meter.	<p>Features</p> <p>Working range : 0.05 to 100 m</p> <p>Accuracy : ±1.5 mm</p> <p>Minimum unit of measurement : 1 mm</p> <p>Laser class : 2</p> <p>Laser type : 620-690 nm, < 1 mW</p> <p>Automatic shut-off : 180 sec</p> <p>Battery : 2x AAA /1.5</p> <p>Dimensions : 113x47x25mm</p> <p>Weight : ±105 g</p> <ul style="list-style-type: none"> • Or Equivalent 									
6	Leather strip wrench	Filter removal MASU (Main air supply unit).	<p>Technica Data Specification</p> <table border="1"> <thead> <tr> <th>Capacity inch</th> <th>Strap width inch</th> </tr> </thead> <tbody> <tr> <td>1/8~2</td> <td>2-Jan</td> </tr> <tr> <td>1/8~2</td> <td>1~1/8</td> </tr> <tr> <td>1~5</td> <td>1~3/4</td> </tr> </tbody> </table>	Capacity inch	Strap width inch	1/8~2	2-Jan	1/8~2	1~1/8	1~5	1~3/4	
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1~5	1~3/4											
7	Test Bars		<p>Test bar 30 mm x 60 mm</p> <p>Test bar 10 mm x 50 mm</p>									
8	RIC Key	Driver's key	Sample will be provided will be provided to the appointed supplier									

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9	EMU Panel keys	Multifunctional Twin Square Key for opening and closing of panels	<ul style="list-style-type: none"> Capacity, square: 5 / 6 - 7 / 8 - 9 / 10 - 11 mm Capacity, triangular: 7 - 8 / 9 - 10 / 11 - 12 mm Capacity, two-way key bit: 3-5 mm Capacity, half-moon: 6 mm Step-like square: 6 - 9 mm 																											
10	Rechargeable Headlamp LED (With USB charging cable)	ENG, QA, PM and CM Maintainers	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Feature</td> <td style="width: 50%;">Specification</td> </tr> <tr> <td>Luminance</td> <td>NA</td> </tr> <tr> <td>Torch Type</td> <td>LED</td> </tr> <tr> <td>LED Sources</td> <td>1 PCS</td> </tr> <tr> <td>Life Span</td> <td>NA</td> </tr> <tr> <td>Lens Diameter</td> <td>38 MM</td> </tr> <tr> <td>Settings</td> <td>Zoom</td> </tr> <tr> <td>Battery Life</td> <td>4 Hours</td> </tr> <tr> <td>Charge Time</td> <td>NA</td> </tr> <tr> <td>Voltage</td> <td>3.7 V @ 2 200â€³3 800 M</td> </tr> <tr> <td>Rated Wattage</td> <td>NA</td> </tr> <tr> <td>Rated Current</td> <td>500 MA</td> </tr> <tr> <td>Rechargeable Battery:</td> <td>Lithium-ion or nickel-metal hydride Battery- 2000mAh (3xAAA Batteries)</td> </tr> </table>	Feature	Specification	Luminance	NA	Torch Type	LED	LED Sources	1 PCS	Life Span	NA	Lens Diameter	38 MM	Settings	Zoom	Battery Life	4 Hours	Charge Time	NA	Voltage	3.7 V @ 2 200â€³3 800 M	Rated Wattage	NA	Rated Current	500 MA	Rechargeable Battery:	Lithium-ion or nickel-metal hydride Battery- 2000mAh (3xAAA Batteries)	
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11	Rechargeable LED torch (With USB charging cable)	<p>ENG, QA, PM and CM Maintainers</p> <p>Magnesium alloy casing: Hard & Tough, waterproof and corrosion resistant. LED mini semiconductor light-emitting, energy-efficient light source. Extended lifetime. Excellent range up to 800 m. Ideal for emergency use such as SOS signals. CREE super high-power LED lamp chip. DC/DC control technology. Casing fitted with rubber gaskets, waterproof</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Feature</td> <td style="width: 50%;">Specification</td> </tr> <tr> <td>Colour:</td> <td>Black</td> </tr> <tr> <td>Fitting Material:</td> <td>Plastic</td> </tr> <tr> <td>Shade Lens Color:</td> <td>Clear</td> </tr> <tr> <td>Shade Lens Material:</td> <td>Plastic</td> </tr> <tr> <td>Lamp Type:</td> <td>INCL 1 LED INTEGRATED</td> </tr> <tr> <td>IP Rating:</td> <td>20</td> </tr> <tr> <td>Wattage:</td> <td>3w</td> </tr> <tr> <td>Voltage:</td> <td>220 - 240V</td> </tr> <tr> <td>Lumens:</td> <td>130lm</td> </tr> <tr> <td>Rechargeable Battery:</td> <td>Lithium-ion or nickel-metal hydride Battery- 2000mAh (3xAAA Batteries)</td> </tr> </table>	Feature	Specification	Colour:	Black	Fitting Material:	Plastic	Shade Lens Color:	Clear	Shade Lens Material:	Plastic	Lamp Type:	INCL 1 LED INTEGRATED	IP Rating:	20	Wattage:	3w	Voltage:	220 - 240V	Lumens:	130lm	Rechargeable Battery:	Lithium-ion or nickel-metal hydride Battery- 2000mAh (3xAAA Batteries)					
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12	Leaf chain wear gauge.	The gauge is used to measure the wear rate of a chain	The basic structure is shown on the picture on the right-hand side of the table.																											

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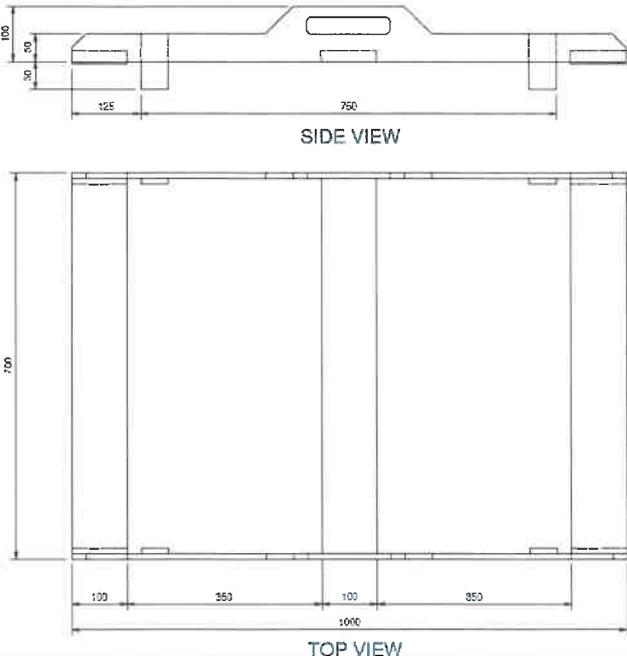
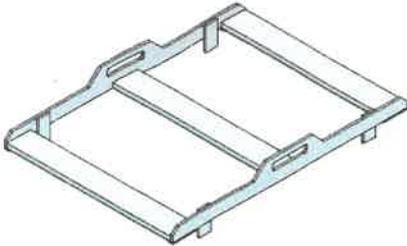
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13	Steel Bunded Waste Oil Tank	It is a tank that is specifically used to contain or store used oil after maintenance activities.	<p>Designed for the safe storage of waste oil our Steel Bunded Waste Oil Tanks meet with the Oil Storage Regulations.</p> <ul style="list-style-type: none"> • The tanks must be all steel fabrication with a total bund capacity of 110%. • Bulk storage of waste oil • Ideally suited for the food processing, vehicle servicing and engineering industries. • A safe, strong and secure bunded tank. • Capacities 2000 liters. • It must be vented, weather resistant, double wall tank design and • It must have a drain coupling and debris strainer basket • Or Equivalent 	
14	Engineering EMU download tools	CCTV Footage download	<ul style="list-style-type: none"> • Intel® Core™ Ultra 5 125U (12 cores, up to 4.3 GHz, 15 W) • Windows 11 Pro • Intel® Core™ Ultra 5 125U (12 MB cache, 12 cores, up to 4.30 GHz, 15W), Intel Integrated Graphics • 8GB: 1 X 8 GB, DDR5, 5600, Non-ECC, SoDIMM • 256 GB, M.2 2230, PCIe NVMe, SSD 	

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15	Intercar walkway bridge		 <p style="text-align: center;">SIDE VIEW</p> <p style="text-align: center;">TOP VIEW</p>	 <ul style="list-style-type: none"> ➤ Alluminum frame with fibreglass grating ➤ Top part to be cotted with anti-slip rubber material ➤ Bottom part for maximum grip, it must have a rubber material for it not to slip.
16	Inclinometer ERTMS		<ul style="list-style-type: none"> • Max. error 1' + 1 digit at 15" / 1.5' + 1 digit at 30" / 2' + 1 digit at 45" • Resolution: 0.02mm/m • Power supply: 1 AA 1.5V battery • Operating time 130 hours • Anodised aluminium case 100x30xH75mm • Weight: 485g • Operating temperature 0 + 40°C • 4 Magnetic sides • Or Equivalent 	

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