| PROJECT | CUSTOMER | VEHICLE | |
|---|---|---|---|
| **Xtrapolis-PRASA** | **PRASA** | **283 – TC1 – VFT** | |

## RTR Vehicle Functional Static Testing TS283 TC1 Report
## GIB0000008201



| | CREATED | VERIFIED | APPROVED | DISTRIBUTION |
|---|---|---|---|---|
| **Name** | Vusumuzi ZULU | Lindani Ngubane | Kgomotso NKOANA | Confidentiality Category<br>*Restricted* ☐  *Project* ☐  *Normal* ☑ |
| **Date** | 26/5/2025 | 26/5/2025 | 26/5/2025 | Control Category<br>*Controlled* ☑  *Not Controlled* ☐ |
| **Signature** | | | | Language<br>**EN** |
| **This report has been automatically generated from TES version 1** | | | | |

## Table of modifications

| Rev | Date | Modifications Content | Writer |
|---|---|---|---|
| A0 | 26/5/2025 | Creation | Vusumuzi ZULU |

## Internal validations

| | Name | Function | Date | Signature |
|---|---|---|---|---|
| **Creator** | Vusumuzi ZULU | EPU Manager | 26/5/2025 | X (signature) Vusumuzi ZULU EPU Manager |
| **Verifier** | Lindani Ngubane | Serial Test Manager | 26/5/2025 | X (signature) Lindani Ngubane Serial Test Manager |
| **Approver** | Kgomotso NKOANA | Test Expert | 26/5/2025 | X (signature) Kgomotso NKOANA Test Expert |

## Execution Plan

| Start Date | 16/5/2025 |
|---|---|
| **End Date** | 20/5/2025 |

**Contents**

## Section 1 – Purpose / Objectives

1. Energy Distribution

Ensure the distribution of 110Vdc and 400Vac through the vehicle from the battery and Auxiliary converter

2. TCMS Network

Verify the working of the TCMS network and its core elements, i.e TRS, CRS.

3. Cabin Control

Verify the cabin control functions in both normal and backup modes, their commanding of the train lines, and the TCMS response to each function.

4. Internal Lighting

Verify the working of all internal lighting functions.

5. PACIS System

Verify power supply to all PACIS network equipment.

6. Dead Man

Verify the functioning of the dead man system, its associated components e.g buzzer, and its TCMS responses.

7. External Signalling

Ensure all external signalling functions on the TC car are working, this test excludes the pneumatic horn.

8. Rescue Mode and Emergency Disconnection

Verify the correct operation of the emergency disconnection function, as well as the correct activation of the Back-Up mode.

9. Driver Desk Illumination

Verify the correct operation of all driver desk indicators, as well as auxiliary systems such as the sunblind etc. that assist the driver.

10. Emergency Brake

Verify all electrical components of the Emergency braking system.

11. Service Brake

Verify all electrical components of the Service brake system.

12. Holding and Parking Brake

Verify all electrical components of the Parking/holding brake system.

13. Passenger Doors

Ensure proper operation of the train doors.

14. HVAC

Verify the voltage distribution to and correct operation of the HVAC system

15. Fire Protection

Verify the configuration of the fire detection units, as well as the presence of the safety resistor in the auxiliary converter.

16. Driving Command

Ensure the correct responses via train line and TCMS of all driving command signals.

17. Train-Ground Communication

Setup the Train-to-ground systems, and verify correct installation of the antennas by VSWR test.

18. Vehicle Normalization

Ensure that all connectors, panels, and covers are normalized.

## Section 2 – Energy Distribution

### 2.1 Instructions list

## 2.1.1 015_NRG-Energy Distribution

I - Information        A - Action        R - Result        NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 10001 | I | Energy Distribution (SPP=013/015/018) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10002 | I | Initial conditions | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10003 | I | Car should be de-prepared with non active cab | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10004 | I | Car should be without 400Vac shore supply | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10005 | I | All the Circuit Breakers should be OPEN | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10006 | I | Connector XBAT+ Positive and XBAT-2 Negative should not be connected to the battery | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10007 | I | Diodes | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10008 | I | Using a multimeter, check the presence and correct orientation of the diodes by doing the following continuity tests: 1.Continuity/Low resistance measured with Positive led of the multimeter on the Anode (L), and the negative on the Cathode (R) 2.No Continuity/Open circuit /infinite resistance measured with Negative led of the multimeter on the Anode(L), and the Positive on the Cathode(R) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10009 | R | Diode 15V1, between pins 6L and 7R of terminal block 93XT600 is present and correctly oriented | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10010 | R | Diode 18V3, between pins 1L and 1R of terminal block 93XT102 is present and correctly oriented | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10011 | R | Diode 18V1, between pins 2L and 2R of terminal block 93XT102 is present and correctly oriented | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10012 | R | Diode 18V2, between pins 3L and 3R of terminal block 93XT102 is present and correctly oriented | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10013 | I | Voltage Isolation | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10014 | A | Open the left side cover of the Static Converter (CVS) and check Visually that the cables are correctly connected to the points XBAT+(BCOF) and XBAT-1/ XBAT-2 (ISO_BCM) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10015 | R | Cables are correctly connected in the Power Bus XBAT+ Positive (BCOF) and XBAT-1/ XBAT-2 Negative (ISO_BCM) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10016 | A | Check Resistence (Ohm) between point XBAT+ Positive of the power bus (BCOF) and carbody | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10017 | R | Value (Ohm) Should be infinite. There is NO Continuity between point XBAT+ Positive of the power bus (BCOF) and carbody | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10018 | A | Check Resistence (Ohm) between point XBAT-1 Negative of the Power Bus (ISO_BCM) and carbody | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10019 | R | Value (Ohm) Should be about 0 Ohm. There is Continuity between point XBAT-1 Negative of the Power Bus (ISO_BCM) and carbody | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10020 | A | Check Resistence (Ohm) between point XBAT-2 Negative of the Power Bus (ISO_BCM) and carbody | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10021 | R | Value (Ohm) Should be about 0 Ohm. There is Continuity between point XBAT-1 Negative of the Power Bus (ISO_BCM) and carbody | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10022 | I | Close left side cover of the Static Converter (CVS) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10023 | A | Put Connector XBAT+ Positive and XBAT-2 Negative in the Battery. ENSURE BOTH SIDES OF THE TERMINALS ARE STURDY, CONNECTED CORRECTLY AND FASTENED | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10024 | R | Confirm the presence of battery voltage (above 80Vdc) between Circuit Breaker | | OK | | Hlawulani Nick Mabundzane 418320 | TC1 |

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|---|---|---|---|---|---|---|
| | | 15Q2 point 1 and carbody. (Permanent Line) | | | | 20.05.2025 | |
| 10025 | A | Close Circuit Breaker 15Q2 (Permanent Line) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10026 | A | Close Circuit Breaker 15Q4 (Permanent Line) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10027 | A | Close Circuit Breaker 15Q1 (Normal Line) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10028 | A | Close Circuit Breaker 15Q3 (Normal Line) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10029 | A | Close Circuit Breaker 13Q1 (230Vac) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10030 | A | Close Circuit Breaker 13Q3 (230Vac) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10031 | A | Close Circuit Breaker 13Q4 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10032 | I | Permanent and Normal Line | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10033 | A | Close Circuit Breaker 20Q1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10034 | A | Close Circuit Breaker 18Q1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10035 | A | Close Circuit Breaker 20Q2 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10036 | A | Close Circuit Breaker 18Q2 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10037 | A | Close Circuit Breaker 25Q6 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10038 | A | Close Circuit Breaker 27Q1 | | OK | | Hlawulani Nick Mabundzane 418320 | TC1 |

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| | | | | | | 20.05.2025 | |
| 10039 | A | Prior to Switching the car ON and Plugging the shore supply onto the CVS. Open the CVS Agate cover | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10040 | R | The AGATE is OFF | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10041 | I | MCE Software Upload | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10042 | A | Insert a USB programmed with the latest MCE Software into the MCE | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10043 | A | Close Circuit Breaker 40Q1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10044 | A | Wait about 8 minutes until the 6 yellow LEDs are blinking | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10045 | A | Open Circuit Breaker 40Q1, remove the USB and Close Circuit Breaker 40Q1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10046 | I | Low voltage watchdog and battery connection | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10047 | A | Turn the Backup Mode Switch 27S1 to "Back Up" position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10048 | I | Cab Selected On Train Train Line Dev4/1 = END2 90XP14 pin 3 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10049 | A | Force [NI] Dev4/1 = 1.0 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10049 | R | Force [NI] Dev4/1 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10050 | I | 110Vdc Permanent Train Line Dev5/40 = END2 90XP14 pin 29 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10051 | R | Read Defined Variable [NI] Dev5/40 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10052 | I | Cab Selected On Train Train Line<br>Dev4/1 = END2 90XP14 pin 3 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10053 | A | Force [NI] Dev4/1 = 0.0 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10053 | R | Force [NI] Dev4/1 = 0.0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10054 | A | Reset circuit breaker 15Q4 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10055 | R | Check that relay 15K2 is not active | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10056 | I | 110Vdc Permanent Train Line<br>Dev5/40 = END2 90XP14 pin 29 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10057 | R | Read Defined Variable [NI] Dev5/40 = 0.0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10058 | A | Turn key 30A1.S1 to Active Cabin Position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10059 | R | Relay 15K2 is active | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10060 | I | 110Vdc Permanent Train Line<br>Dev5/40 = END2 90XP14 pin 29 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10061 | R | Read Defined Variable [NI] Dev5/40 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10062 | A | Turn and Hold the Battery Contactor Switch 18S1 to ON Position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10063 | A | Wait only for TCMS to initialise | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10064 | A | Whilst PACIS is still initialising, turn and hold 18S1 to OFF position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10065 | R | Read Defined Variable [TT] (MPU1)li_nrg_tc1battoffreqr1__1 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10066 | R | Read Defined Variable [TT] (MPU1)li_nrg_tc1battoffreqr2__1 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10067 | A | Put Battery Contactor Switch 18S1 to normal position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10068 | I | Battery Connection Train Line Dev2/76 = Coupler pin 012 Dev2/80 = Coupler pin 112 Dev5/79 = END2 90XP14 pin 30 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10069 | R | Read Defined Variable [NI] Dev2/76 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10070 | R | Read Defined Variable [NI] Dev2/80 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10071 | R | Read Defined Variable [NI] Dev5/79 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10072 | I | Battery Disconnection Train Line Dev2/77 = Coupler pin 027 Dev2/40 = Coupler pin 127 Dev5/75 = END2 90XP14 pin 31 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10073 | R | Read Defined Variable [NI] Dev2/77 = 0.0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10074 | R | Read Defined Variable [NI] Dev2/40 = 0.0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10075 | R | Read Defined Variable [NI] Dev5/75 = 0.0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10076 | R | Confirm the presence of battery voltage on the Normal line, between pin 2 of terminal block 93XT600 and ground | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10077 | I | CVS Software Upload | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10078 | I | Perform the following steps to prepare for the software upload 1. Connect one side of the RS232 crossed cable to the Laptop and the other side to the Auxiliary Converter electronic at port | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

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|---|---|---|---|---|---|---|
| | | RS232<br>2. Configure the RS232 port of the laptop as Com1<br>3. Open the maintenance software FLASH 32 | | | | |
| 10079 | R | |  | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10080 | A | Click on Settings and replicate the image below. | | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10081 | A | |  | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10082 | A | After configuration above, click Apply | | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10083 | A | Click on Boot loader and follow the picture below<br>(untick the check box) | | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10084 | R | |  | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10085 | A | After configuration above, click Apply | | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10086 | A | Click on Flash Memory and follow the pictute below | | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10087 | R | |  | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10088 | A | After configuration above click Apply, then Ok | | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10089 | A | Click on File Open, according picture below | | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10090 | R | |  | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10091 | A | Select the File Prasa_3KV_FPGA.S3 | | OK | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| 10092 | A | |  | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10093 | A | Reset the 2 circuit breakers located close to Electronic (AA3S) on the CVS | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10094 | A | Timer 10.0 S | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10095 | A | Click on Program, according picture below | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10096 | R | |  | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10097 | R | |  | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10098 | R | Wait for the upload to complete to 100% , then Exit to close the program. | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10099 | I | AC address coding and Shore Supply Mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10100 | A | Use the AGATE to shutdown the train by resetting the circuit breakers CC(AL) and CC(ALS) in the AGATE apartment | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10101 | A | Remove connector -18XP11_1 from the Auxiliary Converter | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10102 | A | Check continuity between pins 51 and 63 ; and pins 52 and 64 on connector 18XP11_1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10103 | R | Pins 51 and 63 are continuos; and pins 52 and 63 are continuous | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10104 | A | Switch ON the IES Status on the test bench to make available the IES STATUS signal in the Auxiliary Converter | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10105 | R | Check continuity between point 65 and point 70 (IES STATUS) on connector -18XP11_1 from the Auxiliary Converter (ACU) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

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|---|---|---|---|---|---|---|---|
| 10106 | A | Return the connector -18XP11_1 into the Auxiliary Converter | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10107 | A | Turn Switch ¨27S1¨ (Backup Mode Position) to ˙Normal Mode˙ | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10108 | I | Turn the ACU Isolation Switch 18S3 to ¨Normal¨ position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10109 | A | Turn Battery Contactor Switch ¨18S1¨ to ON Position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10110 | I | In the LV Box, check the voltage on point 7 of terminal block 93XT600 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10111 | R | Voltage on point 7 of terminal block 93XT600 | | OK | 110 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10112 | I | NOTE: When shore supply is connected to Auxilliary Converter, BE CAREFUL not to touch connector -90XR53.X3/-90XR53.X2/-90XR53.X1 (3000Volts) and connector -90XR52.X1/--90XR52.X2/-90XR52.X3 (400Volts) located in the END 2 Intercar Connector of the car. | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10113 | A | Ensure shore supply power source is off. Input Shore Supply Connector on Auxiliary Converter and switch it on | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10114 | R | Auxiliary Converter is working | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10115 | R | In the LV Box, check the voltage on point 7 of terminal block 93XT600, compare with the value read before, and see that the new value is higher than before | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10116 | A | Perform a phase rotation measurement on Connector 90XR52 between phases U(X1),V(X2),W(X3) and ensure the rotation is in the correct direction | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10117 | R | Phase rotation between U,V,W is correct | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10118 | R | Check 230Vac between points L and N of the plug -13XT2 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10119 | R | Check 230Vac between points L and N of the plug -13XT3 | | OK | | Hlawulani Nick Mabundzane | TC1 |

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| | | | | | | 418320 20.05.2025 | |
| 10120 | A | Remove the external shore supply | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10121 | A | Switch OFF the IES Status on the test bench to normalize the lines of status signal (IES STATUS) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10122 | R | The battery is no longer being charged | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10123 | R | Check 0Vac between points L and N of the plug -13XT2 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10124 | R | Check 0Vac between points L and N of the plug -13XT3 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10125 | I | Battery Disconection | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10126 | A | Turn Battery Contactor Switch "18S1" to OFF Position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10127 | R | Battery is still connected to the Permanent Line | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10128 | A | Open the circuit breaker 40Q1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10129 | A | Turn Switch "27S1" (Backup Mode Position) to 'Back up Mode' | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10130 | A | Turn Battery Contactor Switch "18S1" to ON Position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10131 | A | Turn Driver's Master Key 30A1.S1 to Non Active Cabin | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10132 | R | Battery is still connected to the Normal Line | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10133 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Hlawulani Nick Mabundzane 418320 | TC1 |

| | | | | | | 20.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10134 | A | Disconnect wire 18204LD to the CVS at terminal block -93XT104_5 point 10 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10135 | A | Turn and Hold the Battery Contactor Switch "18S1" to OFF Position | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10136 | A | Close the circuit breaker 40Q1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10137 | I | Battery Disconnection Train Line<br>Dev2/77 = Coupler pin 027<br>Dev2/40 = Coupler pin 127<br>Dev5/75 = END2 90XP14 pin 31 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10138 | R | Read Defined Variable [NI] Dev2/77 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10139 | R | Read Defined Variable [NI] Dev2/40 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10140 | R | Read Defined Variable [NI] Dev5/75 = 1.0 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10141 | R | The Normal Line is disconnected from the battery | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10142 | I | Battery Connection Train Line<br>Dev2/76 = Coupler pin 012<br>Dev2/80 = Coupler pin 112<br>Dev5/79 = END2 90XP14 pin 30 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10143 | R | Read Defined Variable [NI] Dev2/76 = 0.0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10144 | R | Read Defined Variable [NI] Dev2/80 = 0.0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10145 | R | Read Defined Variable [NI] Dev5/79 = 0.0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10146 | A | Reconnect wire 18204LD to the CVS at terminal block -93XT104_5 point 10 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10147 | I | Shore Supply Power ON | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10148 | A | Turn the IES STATUS toggle switch on the Testbench into IES1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10149 | A | Ensure shore supply power source is off. Input Shore Supply Connector on Auxiliary Converter and switch it on | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10150 | I | End of test | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

**Section  3 – TCMS Network**

## 3.1 Instructions list

### 3.1.1  025_NET-TCMS Network

I - Information        A - Action        R - Result        NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | TCMS Network (SPP=25) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10002 | I | Initial conditions | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10003 | I | Backup Mode Switch 27S1 in "Normal" Position | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10004 | I | Car should be prepared (Battery contactor switch 18S1 in ON position) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10005 | I | Vehicle test bench should be configured as TC2: 1. TC2 Dataplugs 2. MCE switch set to TC2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10006 | I | The test bench should be connected to the vehicle | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10007 | I | Power supply to the 25A2 BRIOM 32/16 ETH 2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10008 | A | Close Circuit Breaker 25Q2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10009 | R | BRIOM 25A2 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10010 | A | Check visually that ground braid is connected to BRIOM | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10011 | I | Power supply to the 25A3 BRIOM 32/16 ETH 3 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10012 | A | Close Circuit Breaker 25Q3 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10013 | R | BRIOM 25A3 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10014 | A | Check visually that ground braid is connected to BRIOM | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10015 | I | Power supply to the 25A4 BRIOM 32/16 ETH 4 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10016 | A | Close Circuit Breaker 25Q4 | | OK | | Sinazo Mkhwa 529940 | TC1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | 19.05.2025 | |
| 10017 | R | BRIOM 25A4 is ON | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10018 | A | Check visually that ground braid is connected to BRIOM | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10019 | I | Power supply to the 25A5 BRIOM 32/16 ETH 5 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10020 | A | Close Circuit Breaker 25Q5 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10021 | R | BRIOM 25A5 is ON | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10022 | A | Check visually that ground braid is connected to BRIOM | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10023 | I | Power supply to the 25A6 BRIOM 32/16 ETH 6 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10024 | A | Close Circuit Breaker 25Q6 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10025 | R | BRIOM 25A6 is ON | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10026 | A | Check visually that ground braid is connected to BRIOM | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10027 | I | Power supply to the 25A7 BRIOM 32/16 ETH 7 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10028 | A | Close Circuit Breaker 25Q7 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10029 | R | BRIOM 25A7 is ON | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10030 | A | Check visually that ground braid is connected to BRIOM | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10031 | I | Power supply to the 25A11 SWITCH ETHERNET (CRS2) | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10032 | A | Close Circuit Breaker 25Q11 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10033 | R | CRS2 25A11 is ON | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10034 | I | Power supply to the 25A12 SWITCH ETHERNET (CRS3) | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |

| 10035 | A | Close Circuit Breaker 25Q12 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10036 | R | CRS3 25A12 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10037 | I | Power supply to the 25A15 TRAIN ROUTER SWITCH (TRS) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10038 | A | Close Circuit Breaker 25Q15 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10039 | R | TRS 25A15 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10040 | A | Close Circuit Breaker 25Q14 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10041 | A | Close Circuit Breaker 25Q13 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10042 | A | Close Circuit Breaker 25Q10 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10043 | I | Power supply to the 25A13 SWITCH ETHERNET (CRS4) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10044 | R | CRS4 25A13 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10045 | I | Power supply to the 25A10 SWITCH ETHERNET (CRS1) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10046 | R | CRS1 25A10 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10047 | I | Power supply to the 25A14 ETHERNET REPEATER (TBR) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10048 | R | TBR 25A17 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10049 | I | Power supply to the 25A17 DDU ACE | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10050 | A | Close Circuit Breaker 25Q17 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10051 | R | The DDU is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10052 | I | DDU Software Upload | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10053 | I | Perform the following procedure to upload software on the DDU |  | OK | | Sinazo Mkhwa 529940 | TC1 |

| | | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10054 | I | Ethernet Loop | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10055 | A | Check that the LED on ETH0 of the TBR is flashing | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10056 | R | The TBR has LED on port ETH0 flashing | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10057 | A | For each CRS, check that the LEDs on ports X3 and X4 are flashing | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10058 | R | CRS1 has LEDs on ports X3 and X4 flashing | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10059 | R | CRS4 has ONLY LED on port X4 flashing | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10060 | R | CRS2 has LEDs on ports X3 and X4 flashing | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10061 | R | CRS3 has LEDs on ports X3 and X4 flashing | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10062 | A | Check that the TRS has LEDs on ports ETH4 and ETH5 flashing | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10063 | R | The TRS has LEDs on ports ETH4 and ETH5 flashing | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10064 | R | Check on the DDU that all Router Switches are available on the network | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10065 | I | END OF TEST | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

## Section  4 – Cabin Control

### 4.1 Instructions list

### 4.1.1  020__CAB-Cabin Control

I - Information          A - Action          R - Result          NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Cabin Control (SPP=020) | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10002 | I | Initial Conditions | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10003 | I | Shore supply is connected and ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10004 | I | Car should be prepared | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10005 | I | Cabin should be active | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10006 | I | Use the voltage detector/ magnetic stick to check whether a relay is energised or not | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10007 | I | Normal Mode - Active Cabin | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10008 | I | Cab Active TC1 Train Line Dev5/2 = END2 90XP14 pin 4 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10009 | R | Read Defined Variable [NI] Dev5/2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10010 | I | Master Key TC1 Train Line Dev5/17 = END2 90XP14 pin 17 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10011 | R | Read Defined Variable [NI] Dev5/17 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10012 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1KeyRelayR1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10013 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1keyrelayr2 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10014 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1KeyRelayR3 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10015 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1KeyRelayR4 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10016 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

| 10017 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10018 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver3 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10019 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1CabinActiveR4 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10020 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1CabinActiveR5 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10021 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiveno = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10022 | A | Force [TT] (MPU1)lo_cab_tc1cabdisconnectr1 = 1.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10022 | R | Force [TT] (MPU1)lo_cab_tc1cabdisconnectr1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10023 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10024 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver2 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10025 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver3 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10026 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1CabinActiveR4 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10027 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1CabinActiveR5 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10028 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiveno = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10029 | I | Cab Active TC1 Train Line Dev5/2 = END2 90XP14 pin 4 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10030 | R | Read Defined Variable [NI] Dev5/2 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10031 | A | Force [TT] (MPU1)lo_cab_tc1cabdisconnectr1 = 0.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10031 | R | Force [TT] (MPU1)lo_cab_tc1cabdisconnectr1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10032 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10033 | I | Normal Mode - Non-Active Cabin | | OK | | Nokuzola Mdluli 491469 | TC1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | 19.05.2025 | |
| 10034 | A | Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10035 | I | Cab Active TC1 Train Line Dev5/2 = END2 90XP14 pin 4 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10036 | R | Read Defined Variable [NI] Dev5/2 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10037 | I | Master Key TC1 Train Line Dev5/17 = END2 90XP14 pin 17 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10038 | R | Read Defined Variable [NI] Dev5/17 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10039 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1masterkey__1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10040 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1KeyRelayR1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10041 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1keyrelayr2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10042 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1KeyRelayR3 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10043 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1KeyRelayR4 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10044 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10045 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10046 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver3 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10047 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1CabinActiveR4 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10048 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1CabinActiveR5 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10049 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiveno = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10050 | A | Force [TT] (MPU1)lo_cab_tc1cabdisconnectr2 = 1.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10050 | R | Force [TT] (MPU1)lo_cab_tc1cabdisconnectr2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

| 10051 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10052 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver2 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10053 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiver3 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10054 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1CabinActiveR4 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10055 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1CabinActiveR5 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10056 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1cabinactiveno = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10057 | A | Release [TT] (MPU1)lo_cab_tc1cabdisconnectr1 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10058 | A | Release [TT] (MPU1)lo_cab_tc1cabdisconnectr2 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10059 | I | Other Cab Active | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10060 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1othercabinactive___1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10061 | I | Cab Selected on Train, Train Line Dev4/1 = END2 90XP14 pin 3 Dev2/1 = COUPLER pin 040 Dev2/2 = COUPLER pin 140 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10062 | A | Force [NI] Dev4/1 = 1.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10062 | R | Force [NI] Dev4/1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10063 | R | Read Defined Variable [NI] Dev2/1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10064 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1othercabinactive___1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10065 | R | Read Defined Variable [NI] Dev2/2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10066 | I | Cab Selected on Train, Train Line Dev4/1 = END2 90XP14 pin 3 Dev2/1 = COUPLER pin 040 Dev2/2 = COUPLER pin 140 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10067 | A | Force [NI] Dev4/1 = 0.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

| 10067 | R | Force [NI] Dev4/1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10068 | R | Read Defined Variable [NI] Dev2/1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10069 | R | Read Defined Variable [NI] Dev2/2 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10070 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1othercabinactive__1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10071 | I | Backup Mode - Active Cabin | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10072 | A | Turn Switch ˙27S1˙ (Backup Mode Position) to ˙BACKUP Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10073 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10074 | I | Cab Selected on Train, Train Line Dev5/1 = END2 90XP14 pin 3 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10075 | R | Read Defined Variable [NI] Dev5/1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10076 | R | Check Relay "20K1a" is Energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10077 | R | Check Relay "20K1" is Energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10078 | R | Check Relay "20K1b" is Energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10079 | R | Check Relay "20K1c" is Energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10080 | R | Check Relay "20K2" is Energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10081 | R | Check Relay "20K12a" is Energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10082 | R | Check Relay "20K11" is Energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10083 | R | Check Relay "20K12b" is Energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10084 | R | Check Relay "20K10b" is Energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10085 | I | Backup Mode- Non-Active Cabin | | OK | | Nokuzola Mdluli 491469 | TC1 |

| | | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10086 | A | Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10087 | I | Cab Selected on Train, Train Line Dev5/1 = END2 90XP14 pin 3 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10088 | R | Read Defined Variable [NI] Dev5/1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10089 | R | Check Relay "20K1" is De-energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10090 | R | Check Relay "20K1a" is De-energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10091 | R | Check Relay "20K1b" is De-energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10092 | R | Check Relay "20K1c" is De-energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10093 | R | Check Relay "20K2" is De-energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10094 | R | Check Relay "20K11" is De-energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10095 | R | Check Relay "20K12a" is De-energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10096 | R | Check Relay "20K12b" is De-energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10097 | R | Check Relay "20K10b" is De-energized | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10098 | I | Automatic Start | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10099 | A | Turn Battery Contactor Switch 18S1" to OFF position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10100 | A | Turn Switch '27S1' (Backup Mode Position) to 'Normal' Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10101 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10102 | A | Turn Battery Contactor Switch 18S1" to ON position - Allow time for TCMS to start up | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10103 | A | Close Circuit Breaker 84Q1 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

| 10104 | A | Press and hold the Automatic Start Pushbutton 20S1 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10105 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1automaticstartr1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10106 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1automaticstartr2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10107 | R | Read Defined Variable [TT] (MPU1)lo_cab_tc1automaticstartr1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10108 | R | Read Defined Variable [TT] (MPU1)lo_cab_tc1automaticstartr2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10109 | R | Check that the pushbutton lamp on 20S1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10110 | A | Release the Automatic Start Pushbutton 20S1 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10111 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1automaticstartr1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10112 | R | Read Defined Variable [TT] (MPU1)li_cab_tc1automaticstartr2 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10113 | R | Read Defined Variable [TT] (MPU1)lo_cab_tc1automaticstartr1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10114 | R | Read Defined Variable [TT] (MPU1)lo_cab_tc1automaticstartr2 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10115 | I | Standby Mode | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10116 | A | Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10117 | A | Press and hold the Standby State pushbutton 20S2 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10118 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1ISMR1___1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10119 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1ISMR2__1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10120 | A | Release the Standby State pushbutton 20S2 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10121 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1ISMR1___1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10122 | R | Read Defined Variable [TT] (MPU1)Li_CAB_Tc1ISMR2__1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 19.05.2025 | |
| 10123 | A | Force [TT] (MPU1)lo_cab_tc1ismlamp = 1.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10123 | R | Force [TT] (MPU1)lo_cab_tc1ismlamp = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10124 | R | The Standby State pushbutton lamp 20S2 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10125 | A | Release [TT] (MPU1)lo_cab_tc1ismlamp | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10126 | R | The Standby State pushbutton lamp 20S2 is OFF | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10127 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10128 | I | END OF TEST | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

## Section  5 – Internal Lighting

### 5.1 Instructions list

### 5.1.1 052_LGT-Internal Lighting

I - Information          A - Action          R - Result          NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Internal Lighting (SPP=52) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10002 | I | Initial Conditions | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10003 | I | Car should be prepared | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10004 | I | Key 30A1.S1 should be in Active Cabin position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10005 | I | Circuit Breakers | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10006 | A | Close Circuit Breaker 52Q1 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10007 | A | Close Circuit Breaker 52Q2 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10008 | A | Close Circuit Breaker 52Q3 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10009 | A | Close Circuit Breaker 52Q4 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10010 | A | Close Circuit Breaker 52Q5 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10011 | A | Close Circuit Breaker 52Q6 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10012 | I | Cab Ceiling Lighting | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10013 | A | Turn battery contactor switch 18S1 to OFF position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10014 | A | Wait 3 minutes for cab lights to switch off | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10015 | R | All cabin ceiling lights are OFF (52U40, 52U41,52U42) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10016 | R | Both cab ceiling light pushbutton lamps are OFF (52S3 Left and 52S4 Right) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |

| 10017 | A | Push the cab lighting LEFT side button (52S3) | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10018 | I | Wait 3 minutes for the lights to turn off. Continue with the following steps while waiting | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10019 | R | Cabin ceiling light 52U40 is ON | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10020 | R | Cabin ceiling light 52U41 is ON | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10021 | R | Cabin ceiling light 52U42 is ON | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10022 | R | Left pushbutton lamp 52S3 is ON | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10023 | R | Right pushbutton lamp 52S4 is ON | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10024 | A | Press and hold the cab lighting LEFT side button (52S3) | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10025 | R | The intensity of cabin ceiling light 52U40 decreases | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10026 | R | The intensity of cabin ceiling light 52U41 decreases | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10027 | R | The intensity of cabin ceiling light 52U42 decreases | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10028 | A | Release cab lighting LEFT side button (52S3) | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10029 | I | After the 180s (3 min) timer is expired | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10030 | R | Cabin ceiling light 52U40 is OFF | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10031 | R | Cabin ceiling light 52U41 is OFF | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10032 | R | Cabin ceiling light 52U42 is OFF | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10033 | R | Left pushbutton lamp 52S3 is OFF | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10034 | R | Right pushbutton lamp 52S4 is OFF | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10035 | A | Push the cab lighting RIGHT side button (52S4) | | OK | | Mlungisi Madela<br>529927 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 19.05.2025 | |
| 10036 | R | Cabin ceiling light 52U40 is ON | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10037 | R | Cabin ceiling light 52U41 is ON | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10038 | R | Cabin ceiling light 52U42 is ON | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10039 | R | Right pushbutton lamp 52S4 is ON | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10040 | A | Wait 3 minutes for the light to switch off | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10041 | R | Cabin ceiling light 52U40 is OFF | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10042 | R | Cabin ceiling light 52U41 is OFF | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10043 | R | Cabin ceiling light 52U42 is OFF | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10044 | R | Right pushbutton lamp 52S4 is OFF | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10045 | I | Turn battery contactor switch 18S1 to ON position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10046 | R | In the saloon, all right-side emergency lights are "ON" on all light modules | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10047 | R | In the saloon, all LEFT side emergency lights are "ON" on all light modules | | OK | | Nokuzola Mdluli 491469 28.05.2025 | TC1 |
| 10048 | R | Both cab ceiling light pushbutton lamps are ON (52S3 Left and 52S4 Right) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10049 | A | Press and hold the cab lighting RIGHT side button (52S4) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10050 | R | The intensity of cabin ceiling light 52U40 decreases | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10051 | R | The intensity of cabin ceiling light 52U41 decreases | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10052 | R | The intensity of cabin ceiling light 52U42 decreases | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10053 | A | Release cab lighting RIGHT side button (52S4) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10054 | A | Open Circuit Breaker 52Q6 | | OK | | Nokuzola Mdluli 491469 28.05.2025 | TC1 |
| 10055 | A | Press and hold the Lamp Test pushbutton 84S1 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10056 | R | Both cab ceiling light pushbutton lamps are ON (52S3 Left and 52S4 Right) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10057 | A | Release the Lamp Test pushbutton 84S1 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10058 | R | Both cab ceiling light pushbutton lamps are OFF (52S3 Left and 52S4 Right) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10059 | A | Close Circuit Breaker 52Q6 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10060 | I | Cleaning Lighting Command | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10061 | I | Turn battery contactor switch 18S1 to OFF position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10062 | A | Turn Cleaning Staff Lights Switch 52S6 to ON position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10063 | R | The saloon RIGHT side emergency lights (low intensity) are "ON" on all light modules | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10064 | R | The saloon LEFT side emergency lights (low intensity) are "ON" on all light modules | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10065 | A | Open Circuit Breaker 52Q5 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10066 | R | The saloon RIGHT side emergency lights (low intensity) are OFF on all light modules | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10067 | R | The saloon LEFT side emergency lights (low intensity) are OFF on all light modules | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10068 | A | Close Circuit Breaker 52Q5 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10069 | I | Main Lighting Command | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10070 | A | Turn Cleaning Staff Lights Switch 52S6 to ON position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10071 | R | All saloon emergency lights (low intensity) are "ON" on all light modules (Left & right) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10072 | I | Turn battery contactor switch 18S1 to ON position - allow time for TCMS to initialize | | OK | | Mlungisi Madela 529927 | TC1 |

| | | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10073 | A | Force [TT] (MPU1)lo_lgt_tc1mainlgtcmd = 1.0 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10073 | R | Force [TT] (MPU1)lo_lgt_tc1mainlgtcmd = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10074 | R | The saloon RIGHT side main lighting (high intensity) is "ON" on all light modules | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10075 | R | The saloon LEFT side main lighting (high intensity) is O"N" on all light modules | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10076 | A | Release [TT] (MPU1)lo_lgt_tc1mainlgtcmd | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10077 | R | All saloon emergency lights (low intensity) are "ON" on all light modules (Left & Right) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10078 | I | END OF TEST | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |

| | Serial Tests Report | Document Reference | Emission date |
| --- | --- | --- | --- |
| | TS283 – TC1 – VFT | GIB0000008201 | 26/5/2025 |
| | RTR Vehicle Functional Static Testing Report | Version: A0 | |

44 of 191

| Serial Tests Report | Document Reference | Emission date |
| TS283 – TC1 – VFT | GIB0000008201 | 26/5/2025 |
| RTR Vehicle Functional Static Testing Report | Version: A0 | |

Section 6 – PACIS System

45 of 191

## 6.1 Instructions list

### 6.1.1  054__PIS-PACIS System

I - Information          A - Action          R - Result          NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | PACIS System (SPP=054) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10002 | I | Initial conditions | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10003 | I | Car must be prepared - battery contactor 18S1 closed | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10004 | I | Circuit Breakers | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10005 | A | Close Circuit Breaker 54Q1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10006 | A | Close Circuit Breaker 54Q2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10007 | A | Close Circuit Breaker 54Q3 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10008 | A | Close Circuit Breaker 54Q10 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10009 | A | Close Circuit Breaker 54Q11 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10010 | A | Close Circuit Breaker 54Q13 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10011 | A | Close Circuit Breaker 54Q15 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10012 | A | Close Circuit Breaker 55Q1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10013 | A | Close Circuit Breaker 55Q2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10014 | A | Close Circuit Breaker 55Q3 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10015 | I | Train Router Switch 'TRS' | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10016 | R | TRS1 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

| 10017 | I | Power Supply to UMC Rack | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10018 | R | All cards on the UMC Rack are ON - PS, EBM, DPC-IOC, NVR, Media Server | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10019 | I | Driver Control Panel | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10020 | R | Driver Control Panel is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10021 | I | Ethernet Switch ˈCRS1ˈ | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10022 | R | CRS1 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10023 | I | DPAI-1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10024 | R | DPAI-1 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10025 | I | DPAI-2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10026 | R | DPAI-2 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10027 | I | Impedance of Loudspeaker | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10028 | I | Saloon Speakers Commanded by DPAI-1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10029 | A | Measure the impedance on connector ˈ54XP1_X4ˈ between pins: z32(+) and z30 (-) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10030 | R | ImpedanceResult Max : x <= 24 () | | OK | 22.5 | Dilikani Ngubane 526515 28.05.2025 | TC1 |
| 10031 | I | Saloon Speakers Commanded by DPAI-2 | | OK | | Dilikani Ngubane 526515 28.05.2025 | TC1 |
| 10032 | A | Measure the impedance on connector ˈ54XP2_X4ˈ between pins: z32(+) and z30 (-) | | OK | | Dilikani Ngubane 526515 28.05.2025 | TC1 |
| 10033 | R | ImpedanceResult Max : x <= 32 () | | OK | 31.4 | Dilikani Ngubane 526515 28.05.2025 | TC1 |
| 10034 | I | Front Display ˈFRT1ˈ | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10035 | R | The PWR (power) LED is ˈONˈ on the Front Display FRT1 | | OK | | Sinazo Mkhwa 529940 | TC1 |

| | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | | | | | | 19.05.2025 | |
| 10036 | I | Lateral Display 'LAT1' | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10037 | R | The PWR (power) LED is "ON" on the Lateral Display LAT1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10038 | I | Lateral Display 'LAT2' | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10039 | R | The PWR (power) LED is "ON" on the Lateral Display LAT2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10040 | I | Interior Display 'INT1' | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10041 | R | The PWR (power) LED is "ON" on the Interior Display INT1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10042 | I | Interior Display 'INT2' | | OK | | Dilikani Ngubane 526515 28.05.2025 | TC1 |
| 10043 | R | The PWR (power) LED is "ON" on the Interior Display INT2 | | OK | | Nokuzola Mdluli 491469 28.05.2025 | TC1 |
| 10044 | I | END OF TEST | | OK | | Nokuzola Mdluli 491469 28.05.2025 | TC1 |

**Section  7 – Dead Man**

## 7.1 Instructions list

### 7.1.1 060_DSD-Dead Man

I - Information    A - Action    R - Result    NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Dead Man (SPP=60) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10002 | I | Initial conditions | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10003 | I | TC car is in service and cabin should be active | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10004 | A | Position the "Dead Man Override" switch to "Normal" position. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10005 | I | Circuit Breakers | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10006 | A | Close Circuit Breaker 60Q1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10007 | A | Close Circuit Breaker 30Q3 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10008 | I | Buzzer 60W1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10009 | A | Force [TT] (MPU1)lo_dsd_tc1dmbuzzerr1 = 1.0 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10009 | R | Force [TT] (MPU1)lo_dsd_tc1dmbuzzerr1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10010 | R | The buzzer 60W1 is ON. A noise coming from the buzzer can be clearly heard in the cabin. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10011 | A | Release [TT] (MPU1)lo_dsd_tc1dmbuzzerr1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10012 | R | The buzzer 60W1 is OFF. No noise coming from buzzer. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10013 | A | Force [TT] (MPU1)lo_dsd_tc1dmbuzzerr2 = 1.0 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10013 | R | Force [TT] (MPU1)lo_dsd_tc1dmbuzzerr2 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10014 | R | The buzzer 60W1 is ON. A noise coming from the buzzer can be clearly heard in the cabin. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

| 10015 | A | Release [TT]<br>(MPU1)lo_dsd_tc1dmbuzzerr2 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10016 | R | The buzzer 60W1 is OFF.<br>No noise coming from buzzer. | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10017 | I | Dead Man Lamp | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10018 | A | Position the Running Direction switch to "FORWARD" | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10019 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc1ebdeadmanrelayr1 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10020 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc1ebdeadmanrelayr2 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10021 | A | Position the Running Direction switch 30A1.S1 in "Neutral" | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10022 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc1ebdeadmanrelayr1 = 0.0 | | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10023 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc1ebdeadmanrelayr2 = 0.0 | | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10024 | R | On the alarm module, check the Dead man deactivated symbol is OFF. | DM | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10025 | A | Force [TT]<br>(MPU1)lo_dsd_tc1deadmanlampr1 = 1.0 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10025 | R | Force [TT]<br>(MPU1)lo_dsd_tc1deadmanlampr1 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10026 | R | On the alarm module, check the Dead man deactivated symbol is ON | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10027 | A | Release [TT]<br>(MPU1)lo_dsd_tc1deadmanlampr1 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10028 | R | On the alarm module, check the Dead man deactivated symbol is OFF. | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10029 | A | Force [TT]<br>(MPU1)lo_dsd_tc1deadmanlampr2 = 1.0 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10029 | R | Force [TT]<br>(MPU1)lo_dsd_tc1deadmanlampr2 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10030 | R | On the alarm module, check the Dead man deactivated symbol is ON | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10031 | A | Release [TT]<br>(MPU1)lo_dsd_tc1deadmanlampr2 | | OK | | Sinazo Mkhwa<br>529940 | TC1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | 19.05.2025 | |
| 10032 | R | On the alarm module, check the Dead man deactivated symbol is OFF. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10033 | I | DSD function | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10034 | A | Position the Running Direction switch to "FORWARD" | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10035 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10036 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr2 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10037 | A | Timer 5.0 S | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10038 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10039 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr2 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10040 | R | On alarm module, check the Dead Man deactivated symbol is ON | DM | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10041 | A | Press and hold the dead man button 60S3 on the driver desk | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10042 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10043 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanr1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10044 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanr2 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10045 | R | On alarm module, check the Dead man deactivated symbol is OFF. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10046 | A | Release the dead man button 60S3 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10047 | A | Timer 5.0 S | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10048 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10049 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanr1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

| 10050 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanr2 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10051 | R | On alarm module, check the Dead man deactivated symbol is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10052 | A | Press and hold the dead man switch, which is positioned on master controller. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10053 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10054 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanr1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10055 | R | On the alarm module, check the Dead man deactivated symbol is OFF. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10056 | A | Release the dead man button on the master controller | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10057 | A | Timer 5.0 S | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10058 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10059 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanr1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10060 | R | On alarm module, check the Dead Man deactivated symbol is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10061 | I | DSD Override indication | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10062 | R | On the alarm module, verify that the Dead Man override (60H2) symbol is OFF. | DMI | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10063 | A | Press and hold dead man button 60S3 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10064 | A | Position the "Dead Man Override" switch to "Override" position (do not release the dead man device actuated in the previous step). | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10065 | R | On the alarm module, verify that the Dead Man override (60H2) symbol is ON | DMI | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10066 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10067 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanoverridr1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

| 10068 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanoverridr2 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10069 | A | Release the dead man button | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10070 | A | Position the "Dead Man Override" switch to "Normal" position. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10071 | R | On the alarm module, verify that the Dead Man override (60H2) symbol is OFF | DM | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10072 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanoverridr1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10073 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1deadmanoverridr2 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10074 | R | On alarm module, check the Dead man deactivated (60H1)symbol is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10075 | A | Position the Running Direction switch 30A1.S1 in "Neutral" | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10076 | R | On alarm module, check the Dead man deactivated symbol is OFF | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10077 | I | END OF TEST | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

## Section  8 – External Signalling

### 8.1 Instructions list

### 8.1.1  070_SIG-External Signalling

I - Information        A - Action        R - Result        NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | External Signalling (SPP=70) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10002 | I | Use the image below for reference throughout the procedure |  | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10003 | I | Initial Conditions | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10004 | A | Turn IES switch on Test bench to ON position | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10005 | I | Shore Supply is connected to the car | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10006 | I | TC1 car prepared and cab active | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10007 | A | Check if the mirrors do not have cracks or is not chipped. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10008 | I | Circuit Breakers | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10009 | A | Close Circuit Breaker 70Q1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10010 | A | Close Circuit Breaker 70Q2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10011 | A | Close Circuit Breaker 70Q3 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10012 | A | Close Circuit Breaker 72Q4 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10013 | A | Close Circuit Breaker 75Q1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10014 | A | Close Circuit Breaker 72Q2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10015 | I | Left Platform and Head Lights | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10016 | A | Check that the following external lights on the LEFT are ON: | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

| 10017 | R | Platform lights 70H12 white LEDs | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10018 | R | Platform lights 70H5 while light | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10019 | R | Head lights 70H3 white light | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10020 | I | Right Platform and Head Lights | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10021 | A | Check that the following external lights on the RIGHT are on: | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10022 | R | Platform lights 70H11 white LEDs | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10023 | R | Platform lights 70H6 while light | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10024 | R | Head lights 70H4 white light | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10025 | I | Back Lights | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10026 | A | Turn key 30A1.S1 to Non-Active Cabin Position | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10027 | A | Reset Circuit Breaker 20Q2 (On and Off) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10028 | R | All white lights, on the LEFT and Right side are OFF | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10029 | R | Left red light 70H7 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10030 | R | Right red light 70H9 is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10031 | R | Red LEDs on Platform light 70H11 are ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10032 | I | Main lights and dimming | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10033 | A | Switch the External lights switch 70S2 to "Bright Light" position | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10034 | R | The External lights switch 70S2 lamp is ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10035 | R | Read Defined Variable [TT] (MPU1)li_sgl_tc1headlight1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 | TC1 |

| | | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10036 | R | Read Defined Variable [TT] (MPU1)li_sgl_tc1headlight2 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10037 | R | The headlights 70H3 and 70H4 are in bright light configuration | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10038 | A | Switch the External lights switch 70S2 to "Normal" or "Dimmed" position | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10039 | R | Read Defined Variable [TT] (MPU1)li_sgl_tc1headlight1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10040 | R | Read Defined Variable [TT] (MPU1)li_sgl_tc1headlight2 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10041 | R | The External lights switch lamp 70S2 is OFF | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10042 | R | The headlights 70H3 and 70H4 are in normal/dimmed configuration | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10043 | I | Sunshade adjustment settings | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10044 | I | To set the limits, it must be done using the appropriate tool (square torx/ screwdriver). The white nut moves the limit down and the red one moves up. |  | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10045 | A | Look at the picture below for upper limit and the lower limit. The yellow line represents the upper limit, and the green one represents the lower limit. |  | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10046 | A | Rotate the red nut with a square torx either clockwise or ant-clockwise until the upper limit is set to the desired position as shown on the picture above. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10047 | A | Turn the Sunshade Control Switch 72S3 to position 1 (Up) and maintain it | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10048 | R | The sunshade stops at the upper position that was set above. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10049 | A | Rotate the white nut with a square torx either clockwise or anti-clockwise until the lower limit is set to the desired position as shown on the picture above. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10050 | A | Turn the Sunshade Control Switch 72S3 to position 2 (down) and maintain it | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10051 | R | The sunshade stops at the lower position that was set above. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10052 | I | Coupled train | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

| 10053 | A | Turn key 30A1.S1 to Active cabin Position | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10054 | R | All white lights are "ON", and red lights are OFF. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10055 | I | Coupling Relay Train Line Dev1/62 = Coupler Pin 103 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10056 | A | Force [NI] Dev1/62 = 1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10056 | R | Force [NI] Dev1/62 = 1 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10057 | R | All External lights are "OFF". | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10058 | I | Coupling Relay Train Line Dev1/62 = Coupler Pin 103 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10059 | R | All White lights are "NO", and red Lights are OFF. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10060 | A | Force [NI] Dev1/62 = 0 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10060 | R | Force [NI] Dev1/62 = 0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10061 | I | END OF TEST | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

### 8.1.2 070_SIG_2-Warning Hooters

I - Information          A - Action          R - Result          NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Warning Hooters SPP=071 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10002 | I | Initial Conditions | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10003 | I | The air in the main pipe should be at least 4 bar | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10004 | I | For this test wear earplugs. | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10005 | I | Start of Test | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10006 | R | The pressure setting of point H1.12 must be 4 barResult Min/Max : 4<= x<= 8 (Bar) | | OK | 6 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10007 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningHootersR1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10008 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningHootersR2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10009 | A | Press the foot pedal 57A13.S1 to actuate the horn and maintain it | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10010 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningHootersR1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10011 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningHootersR2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10012 | I | The pressure setting of point H1.12 remain at 4 bar | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10013 | A | Release the foot heater pedal | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10014 | R | Horn sound can be heard at 100m distance from the cab | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10015 | A | Release the foot heater pedal | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10016 | R | Horn sound stops | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10017 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningHootersR1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10018 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningHootersR2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10019 | A | Actuate the low pitch horn by pressing down the valve H1.3.1 under the driver's desk | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10020 | R | The horn sound can be heard in low pitch | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10021 | A | Release the valve H1.3.1 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10022 | R | Horn sound stops | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10023 | I | Electric Horn Test | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10024 | A | Press the button 71S1 and maintain it | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10025 | R | The sound of the whistle can be heard at least 20m from the cab | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10026 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningWhistleR1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10027 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningWhistleR2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10028 | A | Release the button 71S1 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10029 | R | Whistle sound stops | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10030 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningWhistleR1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10031 | R | Read Defined Variable [TT] (MPU1)Li_SGL_Tc1WarningWhistleR2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10032 | I | END OF TEST | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

**Section 9 – Rescue Mode and Emergency Disconnection**

## 9.1 Instructions list

### 9.1.1  027_ERM-Rescue Mode and Emergency Disconnection

I - Information        A - Action        R - Result        NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Rescue Mode and Emergency Disconnection (SPP=27) | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10002 | I | Initial Conditions | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10003 | I | Car is powered OFF | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10004 | I | Backup Mode | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10005 | A | Turn Switch '27S1' (Backup Mode Position) to 'BACKUP Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10006 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10007 | A | Turn Battery contactor Switch 18S1 to ON position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10008 | I | Backup Mode Train Lines Dev5/33 = END2 90XP15 pin 23 Dev2/67 = Coupler pin 007 Dev2/25 = Coupler pin 107 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10009 | R | Read Defined Variable [NI] Dev5/33 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10010 | R | Read Defined Variable [NI] Dev2/25 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10011 | R | Read Defined Variable [NI] Dev2/67 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10012 | R | Relay 27K1 is energised | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10013 | R | Relay 27K2 is De-energised | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10014 | A | Timer 30.0 S | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10015 | R | Relay 27K2 is De-energised | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10016 | A | Timer 30.0 S | | OK | | Nokuzola Mdluli 491469 | TC1 |

| | | | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|---|---|
| 10017 | R | Relay 27K2 is energised | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10018 | I | Check that the Backup mode LED 27H2 is ON | TSMS | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10019 | A | Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10020 | I | Backup Mode Train Lines Dev5/33 = END2 90XP15 pin 23 Dev2/67 = Coupler pin 007 Dev2/25 = Coupler pin 107 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10021 | R | Read Defined Variable [NI] Dev5/33 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10022 | R | Read Defined Variable [NI] Dev2/25 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10023 | R | Read Defined Variable [NI] Dev2/67 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10024 | R | Relay 27K1 is De-energised | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10025 | R | Relay 27K2 is De-energised | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10026 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10027 | A | Turn Battery contactor Switch 18S1 to OFF position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10028 | I | Turn ERTMS Isolation Switch 62S1 to Normal position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10029 | A | Turn Switch '27S1' (Backup Mode Position) to Normal Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10030 | A | Turn Battery contactor Switch 18S1 to ON position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10031 | A | Check continuity between point 20 on Backup State Switch 27S1 and ground | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10032 | R | The points are continuous | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10033 | I | Backup Mode Train Line Dev5/33 = END2 90XP15 pin 23 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |
| 10034 | R | Read Defined Variable [NI] Dev5/33 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | | TC1 |

| 10035 | I | Emergency Disconnection | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10036 | I | Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 Dev2/79 = Coupler pin 019 Dev2/75 = Coupler pin 119 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10037 | R | Read Defined Variable [NI] Dev5/34 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10038 | R | Read Defined Variable [NI] Dev2/79 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10039 | R | Read Defined Variable [NI] Dev2/75 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10040 | I | Emergency Brake ERTMS 1 Train Line Dev4/88 = END2 90XP14 pin 18 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10041 | A | Force [NI] Dev4/88 = 1.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10041 | R | Force [NI] Dev4/88 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10042 | I | Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 Dev2/79 = Coupler pin 019 Dev2/75 = Coupler pin 119 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10043 | R | Read Defined Variable [NI] Dev5/34 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10044 | R | Read Defined Variable [NI] Dev2/79 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10045 | R | Read Defined Variable [NI] Dev2/75 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10046 | I | Emergency Brake ERTMS 2 Train Line Dev4/80 = END2 90XP14 pin 20 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10047 | A | Force [NI] Dev4/80 = 1.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10047 | R | Force [NI] Dev4/80 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10048 | I | Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 Dev2/79 = Coupler pin 019 Dev2/75 = Coupler pin 119 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10049 | R | Read Defined Variable [NI] Dev5/34 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10050 | R | Read Defined Variable [NI] Dev2/79 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 | TC1 |

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| 10051 | R | Read Defined Variable [NI] Dev2/75 = 0.0 | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10052 | I | Emergency Brake ERTMS 1 Train Line Dev4/88 = END2 90XP14 pin 18 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10053 | A | Force [NI] Dev4/88 = 0.0 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10053 | R | Force [NI] Dev4/88 = 0.0 | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10054 | I | Emergency Brake ERTMS 2 Train Line Dev4/80 = END2 90XP14 pin 20 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10055 | A | Force [NI] Dev4/80 = 0.0 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10055 | R | Force [NI] Dev4/80 = 0.0 | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10056 | I | Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10057 | R | Read Defined Variable [NI] Dev5/34 = 1.0 | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10058 | I | V<3km/h Train Line Dev4/39 = END2 90XP15 pin 29 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10059 | A | Force [NI] Dev4/39 = 1.0 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10059 | R | Force [NI] Dev4/39 = 1.0 | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10060 | I | Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10061 | R | Read Defined Variable [NI] Dev5/34 = 0.0 | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10062 | I | V<3km/h Train Line Dev4/39 = END2 90XP15 pin 29 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10063 | A | Force [NI] Dev4/39 = 0.0 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10063 | R | Force [NI] Dev4/39 = 0.0 | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10064 | I | Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

| 10065 | R | Read Defined Variable [NI] Dev5/34 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10066 | A | Place ERTMS Isolation Switch in "Isolation" position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10067 | R | Read Defined Variable [TT] (MPU1)li_erm_tc1noemerdiscr1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10068 | R | Read Defined Variable [TT] (MPU1)li_erm_tc1noemerdiscr2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10069 | I | Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10070 | R | Read Defined Variable [NI] Dev5/34 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10071 | A | Push the blue "Emergency Pantograph Down" pushbutton | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10072 | R | Read Defined Variable [TT] (MPU1)li_erm_tc1noemerdiscr1 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10073 | R | Read Defined Variable [TT] (MPU1)li_erm_tc1noemerdiscr2 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10074 | I | Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10075 | R | Read Defined Variable [NI] Dev5/34 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10076 | A | Release the "Emergency Pantograph Down" pushbutton | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10077 | R | Read Defined Variable [TT] (MPU1)li_erm_tc1noemerdiscr1 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10078 | R | Read Defined Variable [TT] (MPU1)li_erm_tc1noemerdiscr2 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10079 | I | Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10080 | R | Read Defined Variable [NI] Dev5/34 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10081 | I | END OF TEST | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

## Section 10 – Driver Desk Illumination

### 10.1 Instructions list

### 10.1.1  084_DDK-Driver Desk Illumination

I - Information          A - Action          R - Result          NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Driver Desk Illumination (SPP=084) | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10002 | I | Initial Conditions: | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10003 | I | Car is prepared and cab is active | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10004 | A | Close Circuit Breaker 81Q1 | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10005 | I | Indicator Modules | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10006 | R | Check that the Line Indicator Module 81A1 is ON | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10007 | R | Check that the Pressure gauge 84P1 is ON | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10008 | R | Check that the light of the Speed Indicator 61A2 is ON | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10009 | I | Lamp Test | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10010 | A | Press and hold the Lamp Test pushbutton 84S1 | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10011 | R | Check that the White Lamp Test pushbutton Lamp 84S1 is ON | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10012 | R | Check that the White Automatic Start pushbutton lamp 20S1 is ON | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10013 | R | Check that the orange Standby State pushbutton lamp 20S2 is ON | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10014 | R | Check that the White Pantograph Up/Down pushbutton lamp 21S1 is ON | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10015 | R | Check that the White Close Main Circuit Breaker pushbutton lamp 22S11 is ON | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |
| 10016 | R | Check that the Red Open Main Circuit Breaker pushbutton lamp 22S12 is ON | | OK | | Nokuzola Mdluli<br>491469<br>19.05.2025 | TC1 |

| 10017 | R | Check that the White Reduced Power lamp 30S2 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10018 | R | Check that the Red Override Passenger Emergency Alarm pushbutton lamp 44S5 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10019 | R | Check that the Yellow Door Auth Left pushbutton lamp 50S5 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10020 | R | Check that the Yellow Door Auth Right pushbutton lamp 50S6 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10021 | R | Check that the White Door Open Left pushbutton lamp 50S1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10022 | R | Check that the White Door Open Right pushbutton lamp 50S2 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10023 | R | Check that the Blue Door Close Left pushbutton lamp 50S3 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10024 | R | Check that the Blue Door Close Right pushbutton lamp 50S4 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10025 | R | Check that the White Cab Lighting Left Side pushbutton lamp 52S3 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10026 | R | Check that the White Cab Lighting Right Side pushbutton lamp 52S4 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10027 | R | Check that the White Foot Heater pushbutton lamp 57S3 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10028 | R | Check that the Red Front CCTV Event pushbutton lamp 66S1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10029 | R | Check that the White Windscreen Demister pushbutton lamp 72S2 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10030 | I | Use the following image to verify the train status LEDs 84A1 |  | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10031 | R | Check that 31H1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10032 | R | Check that 60H1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10033 | R | Check that 18H1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10034 | R | Check that 44H4 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10035 | R | Check that 44H1 is ON | | OK | | Nokuzola Mdluli 491469 | TC1 |

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| | | | | | | 19.05.2025 | |
| 10036 | R | Check that 51H1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10037 | R | Check that 45H2 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10038 | R | Check that 40H2 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10039 | R | Check that 40H1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10040 | R | Check that 41H1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10041 | R | Check that 60H2 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10042 | R | Check that 27H2 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10043 | R | Check that 62H1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10044 | R | Check that 44H5 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10045 | R | Check that 31H2 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10046 | R | Check that 67H1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10047 | A | Release the Lamp Test pushbutton 84S1 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10048 | I | Dimmer Switch Adjustment | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10049 | I | Open the driver desk plate on which the dimmer switch 84S2 is located to access the bottom of the dimmer switch. Use the image below to identify the trimmer screw which is used to adjust the limits of the dimmer |  | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10050 | A | Adjust the trimmer (potentiometer) to increase the lower limit of the dimmer- allowing the cab lights to dim to a minimum lighting that is still visible and not zero. Then, reassemble the driver desk plate in location | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10051 | A | Press the Lamp Test pushbutton 84S1 and maintain it | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

| 10052 | A | While pressing 84S1, turn the dimmer switch and observe that the brightness of all the following lamps increases and decreases accordingly | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10053 | R | Check that 61A2 (Speed Indicator) can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10054 | R | Check that the Line Indicator Module 81A1 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10055 | R | Check that the Pressure gauge 84P1 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10056 | R | Check that the Train Status LEDs 84A1 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10057 | R | Check that 84S1 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10058 | R | Check that 20S1 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10059 | R | Check that 20S2 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10060 | R | Check that 21S1 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10061 | R | Check that 22S11 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10062 | R | Check that 22S12 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10063 | R | Check that 30S2 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10064 | R | Check that 44S5 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10065 | R | Check that 50S5 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10066 | R | Check that 50S6 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10067 | R | Check that 50S1 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10068 | R | Check that 50S2 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10069 | R | Check that 50S3 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10070 | R | Check that 50S4 can be dimmed | | OK | | Nokuzola Mdluli | TC1 |

| | | | | | | 491469 19.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10071 | R | Check that 52S3 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10072 | R | Check that 52S4 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10073 | R | Check that 57S3 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10074 | R | Check that 66S1 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10075 | R | Check that 67S1 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10076 | R | Check that 72S2 can be dimmed | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10077 | I | END OF TEST | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

## Section  11 – Emergency Brake

### 11.1 Instructions list

### 11.1.1  044_UBK-Emergency Brake

I - Information          A - Action          R - Result          NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Emergency Brake (SPP=044) | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10002 | I | Initial Conditions | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10003 | I | No air connected to the vehicle OR main pipe pressure below 6Bar | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10004 | I | No PEAs are activated | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10005 | I | Battery Contactor Switch 18S1 in ON position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10006 | A | Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10007 | I | Direction Switch 30A1.S2 in "Neutral" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10008 | A | Open and Close (Reset) Circuit breaker 20Q2 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10009 | I | Back Up mode switch 27S1 in Normal position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10010 | I | Visual Inspection | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10011 | A | Physically and visually inspect all the Disk Break Units (DBU) and brake pads, to ensure they are securely fitted |  | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10012 | R | All the brake DBUs are correctly installed, and all the brake pads are correctly installed and locked | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10013 | A | Check the piping installation | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10014 | R | All the pipes are installed on the vehicle | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10015 | A | Check all the Passenger Emergency Alarm handles, and ensure they are connected to their respective connectors | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10016 | R | All the PEAs are installed and connected | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10017 | I | Circuit Breakers | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10018 | A | Close Circuit Breaker 44Q1 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10019 | A | Close Circuit Breaker 44Q2 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10020 | A | Close Circuit Breaker 44Q3 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10021 | A | Close Circuit Breaker 44Q4 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10022 | I | Emergency Brake Loop | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10023 | I | Emergency Brake Loop Train Line Dev2/3 = coupler pin 005 Dev2/4 = coupler pin 105 Dev5/5 = END2 90XP14 pin 8 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10024 | R | Read Defined Variable [NI] Dev2/3 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10025 | R | Read Defined Variable [NI] Dev2/4 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10026 | R | Read Defined Variable [NI] Dev5/5 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10027 | A | Close the Isolation cock to the coupler F2.1/1; and connect the air supply to the vehicle coupling flexible hose F3/1.Turn on the air supply and allow the pressure to reach 7Bar. Check the pressure on test point C 1.1 test point: BRTP | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10028 | R | The pressure on test point C 1.1 >=7 Bar | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10029 | I | Emergency Brake Loop Train Line Dev5/5 = END2 90XP14 pin 8 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10030 | R | Read Defined Variable [NI] Dev5/5 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10031 | A | Push the Emergency Brake Mushroom 44S1 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10032 | I | Emergency Brake Loop Train Line Dev2/4 = coupler pin 105 Dev5/5 = END2 90XP14 pin 8 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10033 | R | Read Defined Variable [NI] Dev2/4 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10034 | R | Read Defined Variable [NI] Dev5/5 = 0.0 | | OK | 0 | Tshembhani Khosa | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 446920<br>19.05.2025 | |
| 10035 | A | Release the Emergency Brake Mushroom 44S1 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10036 | I | Emergency Brake Loop Train Line<br>Dev5/5 = END2 90XP14 pin 8 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10037 | R | Read Defined Variable [NI] Dev5/5 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10038 | I | Coupling | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10039 | I | Coupling Relay Train Line<br>Dev1/62 = coupler pin 103 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10040 | A | Force [NI] Dev1/62 = 1.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10040 | R | Force [NI] Dev1/62 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10041 | R | Read Defined Variable [TT]<br>(MPU1)Li_CPM_Tc1CoupDetec1 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10042 | I | Emergency Brake Loop Train Line<br>Dev2/3 = coupler pin 005<br>Dev2/4 = coupler pin 105<br>Dev5/5 = END2 90XP14 pin 8 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10043 | R | Read Defined Variable [NI] Dev2/3 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10044 | R | Read Defined Variable [NI] Dev2/4 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10045 | R | Read Defined Variable [NI] Dev5/5 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10046 | I | Coupling Relay Train Line<br>Dev1/62 = coupler pin 103 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10047 | A | Force [NI] Dev1/62 = 0.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10047 | R | Force [NI] Dev1/62 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10048 | R | Read Defined Variable [TT]<br>(MPU1)Li_CPM_Tc1CoupDetec1 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10049 | I | Emergency Brake Loop Train Line<br>Dev2/4 = coupler pin 105<br>Dev5/5 = END2 90XP14 pin 8 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10050 | R | Read Defined Variable [NI] Dev2/4 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920 | TC1 |

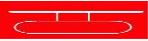| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | 19.05.2025 | |
| 10051 | R | Read Defined Variable [NI] Dev5/5 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10052 | I | Loop Override | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10053 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10054 | A | Force [TT] (BCU2)li_mp_ps_ok = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10054 | R | Force [TT] (BCU2)li_mp_ps_ok = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10055 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1ebloopoverrider1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10056 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1ebloopoverrider2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10057 | A | Turn the Emergency Braking Loop Override Switch 44S2 to "Override/Bypass" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10058 | R | Check that the Emergency Braking Loop Override Lamp 44H5 is ON | EB | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10059 | I | Emergency Brake Loop Override Train Line Dev5/6 = END2 90XP14 pin 9 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10060 | R | Read Defined Variable [NI] Dev5/6 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10061 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1ebloopoverrider1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10062 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1ebloopoverrider2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10063 | A | Return the Emergency Braking Loop Override Switch 44S2 to "Normal" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10064 | R | Check that the Emergency Braking Loop Override Lamp 44H5 is OFF | EB | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10065 | I | Emergency Brake Loop Override Train Line Dev5/6 = END2 90XP14 pin 9 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10066 | R | Read Defined Variable [NI] Dev5/6 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10067 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1ebloopoverrider1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10068 | I | Reset Emergency Brake | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10069 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1rearmebrelayr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10070 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1rearmebrelayr2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10071 | I | Turn Direction Switch 30A1.S2 to "Forward" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10072 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1rearmebrelayr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10073 | I | Emergency Brake Train Line | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10074 | I | Emergency Brake Loop Train Line Dev4/5 = END2 90XP14 pin 8 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10075 | A | Force [NI] Dev4/5 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10075 | R | Force [NI] Dev4/5 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10076 | A | Force [TT] (MPU1)lo_ubk_tc1emergbraker1 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10076 | R | Force [TT] (MPU1)lo_ubk_tc1emergbraker1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10077 | A | Press and hold the Dead Man pushbutton 60S3 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10078 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc1ebdeadmanrelayr1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10079 | A | Ensure the Master Controller S3.3 (3.4) is NOT in Emergency Brake position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10080 | I | Emergency Brake ERTMS1 Train Line Dev4/88 = END2 90XP14 pin 18 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10081 | A | Force [NI] Dev4/88 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10081 | R | Force [NI] Dev4/88 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10082 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1emergrelay1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10083 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1emergrelay2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 19.05.2025 | |
| 10084 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1rearmebrelayr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10085 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1rearmebrelayr2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10086 | I | Emergency Brake ERTMS2 Train Line Dev4/80 = END2 90XP14 pin 20 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10087 | R | Force [NI] Dev4/80 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10087 | A | Force [NI] Dev4/80 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10088 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1emergrelay1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10089 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1emergrelay2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10090 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1rearmebrelayr1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10091 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1rearmebrelayr2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10092 | I | Emergency Brake Train Line Dev2/84 = coupler pin 038 Dev2/85 = coupler pin 138 Dev5/61 = END2 90XP15 pin 67 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10093 | R | Read Defined Variable [NI] Dev2/84 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10094 | R | Read Defined Variable [NI] Dev2/85 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10095 | R | Read Defined Variable [NI] Dev5/61 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10096 | R | Check that the Emergency Brake Loop Lamp 44H4 is OFF | E B | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10097 | A | Measure the voltage across Resistor 44R1 between pins 8A and 8B of terminal block 93XT202 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10098 | R | Battery Voltage (above 80Vdc) is measured across Resistor 44R1 between pins 8A and 8B of terminal block 93XT202 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10099 | R | Read Defined Variable [TT] (BCU1)LI_NEB = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10100 | R | Force [TT] (MPU1)lo_ubk_tc1emergbraker1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10100 | A | Force [TT]<br>(MPU1)lo_ubk_tc1emergbraker1 = 0.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10101 | I | Emergency Brake Train Line<br>Dev2/84 = coupler pin 038<br>Dev2/85 = coupler pin 138<br>Dev5/61 = END2 90XP15 pin 67 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10102 | R | Read Defined Variable [NI] Dev2/84 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10103 | R | Read Defined Variable [NI] Dev2/85 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10104 | R | Read Defined Variable [NI] Dev5/61 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10105 | R | Check that the Emergency Brake Loop<br>Lamp 44H4 is ON | <span style="background:red;color:white">E B</span> | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10106 | R | Force [TT]<br>(MPU1)lo_ubk_tc1emergbraker2 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10106 | A | Force [TT]<br>(MPU1)lo_ubk_tc1emergbraker2 = 1.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10107 | I | Emergency Brake Train Line<br>Dev5/61 = END2 90XP15 pin 67 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10108 | R | Read Defined Variable [NI] Dev5/61 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10109 | A | Release the Dead Man pushbutton 60S3 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10110 | I | Emergency Brake ERTMS1 Train Line<br>Dev4/88 = END2 90XP14 pin 18 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10111 | R | Force [NI] Dev4/88 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10111 | A | Force [NI] Dev4/88 = 0.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10112 | I | Emergency Brake ERTMS2 Train Line<br>Dev4/80 = END2 90XP14 pin 20 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10113 | R | Force [NI] Dev4/80 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10113 | A | Force [NI] Dev4/80 = 0.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10114 | I | Emergency Brake Train Line<br>Dev5/61 = END2 90XP15 pin 67 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10115 | R | Read Defined Variable [NI] Dev5/61 = 0.0 | | OK | 0 | Tshembhani Khosa | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 446920 19.05.2025 | |
| 10116 | A | Turn the ERTMS Isolation switch 62S1 to "Isolation" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10117 | A | Turn the Dead Man Override switch 60S1 to "Override" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10118 | I | Emergency Brake Train Line Dev5/61 = END2 90XP15 pin 67 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10119 | R | Read Defined Variable [NI] Dev5/61 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10120 | I | Emergency Brake Pushbutton | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10121 | A | Push the Emergency Brake Mushroom 44S1 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10122 | I | Emergency Brake Train Line Dev5/61 = END2 90XP15 pin 67 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10123 | R | Read Defined Variable [NI] Dev5/61 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10124 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1emgcybrkpbr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10125 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1emgcybrkpbr2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10126 | A | Check continuity between 93XT104_5 pin 36 and 93XT103 pin 28 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10127 | A | The points are continuous | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10128 | A | Release the Emergency Brake Mushroom 44S1 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10129 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1emgcybrkpbr1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10130 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1emgcybrkpbr2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10131 | R | Force [TT] (MPU1)lo_ubk_tc1emergbraker2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10131 | A | Force [TT] (MPU1)lo_ubk_tc1emergbraker2 = 0.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10132 | A | Return the Dead Man Override switch 60S1 to "Normal" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10133 | A | Return the ERTMS Isolation switch 62S1 to "Normal" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10134 | I | Emergency Brake Loop Train Line Dev4/5 = END2 90XP14 pin 8 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10135 | R | Force [NI] Dev4/5 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10135 | A | Force [NI] Dev4/5 = 0.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10136 | A | Turn the Emergency Braking Loop Override Switch 44S2 to "Override/Bypass" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10137 | A | Press and hold the Dead Man pushbutton 60S3 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10138 | I | Emergency Brake Train Line Dev5/61 = END2 90XP15 pin 67 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10139 | R | Read Defined Variable [NI] Dev5/61 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10140 | A | Release the Dead Man pushbutton 60S3 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10141 | A | Return the Emergency Braking Loop Override Switch 44S2 to "Normal" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10142 | A | Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10143 | I | Emergency Brake Train Line Dev4/61 = END2 90XP15 pin 67 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10144 | R | Force [NI] Dev4/61 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10144 | A | Force [NI] Dev4/61 = 1.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10145 | A | Measure the voltage on terminal block 93XT104_2 at pin 34, and pin 35 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10146 | R | Battery voltage (above 80Vdc) measured on terminal block 93XT104_2 at pin 34, and pin 35 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10147 | I | Emergency Brake Train Line Dev4/61 = END2 90XP15 pin 67 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10148 | R | Force [NI] Dev4/61 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10148 | A | Force [NI] Dev4/61 = 0.0 | | OK | | Tshembhani Khosa<br>446920 | TC1 |

| | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|
| 10149 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10150 | I | Return the Direction Switch 30A1.S2 to "Neutral" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10151 | I | PEA Loop | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10152 | A | Check all the Passenger Emergency Alarm handles, and ensure they are connected to their respective connectors | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10153 | R | All the PEAs are installed and connected | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10154 | A | Open and Close (Reset) Circuit breaker 20Q2 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10155 | I | PEA Loop Train Lines Dev2/58 = coupler pin 017 Dev2/59 = coupler pin 117 Dev5/62 = END2 90XP15 pin 95 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10156 | R | Read Defined Variable [NI] Dev2/58 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10157 | R | Read Defined Variable [NI] Dev2/59 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10158 | R | Read Defined Variable [NI] Dev5/62 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10159 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10160 | R | Check that the PEA Lamp 44H1 is ON |  | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10161 | I | PEA Loop Train Lines Dev5/62 = END2 90XP15 pin 95 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10162 | R | Read Defined Variable [NI] Dev5/62 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10163 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1pealoop = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10164 | I | PEA Loop OTDR Train Line Dev5/7 = END2 90XP14 pin 10 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10165 | R | Read Defined Variable [NI] Dev5/7 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10166 | I | PEA Loop Train Lines Dev4/62 = END2 90XP15 pin 95 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10167 | A | Force [NI] Dev4/62 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10167 | R | Force [NI] Dev4/62 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10168 | I | PEA Loop Train Lines Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10169 | R | Read Defined Variable [NI] Dev2/58 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10170 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1pealoop = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10171 | I | PEA Loop OTDR Train Line Dev5/7 = END2 90XP14 pin 10 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10172 | R | Read Defined Variable [NI] Dev5/7 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10173 | R | Check that the PEA Lamp 44H1 is OFF | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10174 | I | PEA Reset | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10175 | A | Activate the PEA on door 1 (44S11) | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10176 | I | PEA Loop Train Lines Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10177 | R | Read Defined Variable [NI] Dev2/58 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10178 | R | Read Defined Variable [TT] (MPU1)Li_UBK_Tc1StateResetPea = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10179 | A | Turn and hold the PEA Reset Switch 44S6 in Reset position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10180 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1restpeaswitch = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10181 | R | Read Defined Variable [TT] (MPU1)lo_ubk_tc1resetpea = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10182 | R | Read Defined Variable [TT] (MPU1)Li_UBK_Tc1StateResetPea = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10183 | A | Release the PEA Reset Switch 44S6 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10184 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1restpeaswitch = 0.0 | | OK | 0 | Tshembhani Khosa 446920 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 19.05.2025 | |
| 10185 | A | Timer 5.0 S | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10186 | R | Read Defined Variable [TT] (MPU1)Li_UBK_Tc1StateResetPea = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10187 | R | Read Defined Variable [TT] (MPU1)lo_ubk_tc1resetpea = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10188 | I | PEA Loop Train Lines Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10189 | R | Read Defined Variable [NI] Dev2/58 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10190 | A | Activate the PEA on door 2 (44S12) | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10191 | I | PEA Loop Train Lines Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10192 | R | Read Defined Variable [NI] Dev2/58 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10193 | A | Turn the PEA Reset Switch 44S6 to Reset position, and release it | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10194 | I | PEA Loop Train Lines Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10195 | R | Read Defined Variable [NI] Dev2/58 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10196 | A | Activate the PEA on door 3 (44S13) | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10197 | I | PEA Loop Train Lines Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10198 | R | Read Defined Variable [NI] Dev2/58 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10199 | A | Turn the PEA Reset Switch 44S6 to Reset position, and release it | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10200 | I | PEA Loop Train Lines Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10201 | R | Read Defined Variable [NI] Dev2/58 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10202 | A | Activate the PEA on door 4 (44S14) | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10203 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10204 | R | Read Defined Variable [NI] Dev2/58 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10205 | A | Turn the PEA Reset Switch 44S6 to Reset position, and release it | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10206 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10207 | R | Read Defined Variable [NI] Dev2/58 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10208 | A | Activate the PEA on door 5 (44S15) | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10209 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10210 | R | Read Defined Variable [NI] Dev2/58 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10211 | A | Turn the PEA Reset Switch 44S6 to Reset position, and release it | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10212 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10213 | R | Read Defined Variable [NI] Dev2/58 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10214 | A | Activate the PEA on door 6 (44S16) | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10215 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10216 | R | Read Defined Variable [NI] Dev2/58 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10217 | A | Turn the PEA Reset Switch 44S6 to Reset position, and release it | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10218 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10219 | R | Read Defined Variable [NI] Dev2/58 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10220 | I | PEA Loop Train Lines<br>Dev4/64 = END2 90XP15 pin 95 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10221 | A | Force [NI] Dev4/62 = 0.0 | | OK | | Tshembhani Khosa<br>446920 | TC1 |

| | | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10221 | R | Force [NI] Dev4/62 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10222 | I | PEA Override | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10223 | A | Press and hold the Override PEA pushbutton 44S5 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10224 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1peaoverridebuttr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10225 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1peaoverridebuttr2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10226 | R | Read Defined Variable [TT] (MPU1)lo_ubk_tc1peaoverrider1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10227 | R | Read Defined Variable [TT] (MPU1)lo_ubk_tc1peaoverrider2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10228 | R | Check that the Override PEA pushbutton lamp 44S5 turns ON | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10229 | A | Release the Override PEA pushbutton 44S5 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10230 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1peaoverridebuttr1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10231 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc1peaoverridebuttr2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10232 | A | Force [TT] (MPU1)lo_ubk_tc1peaoverrider1 = 0.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10232 | R | Force [TT] (MPU1)lo_ubk_tc1peaoverrider1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10233 | A | Force [TT] (MPU1)lo_ubk_tc1peaoverrider2 = 0.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10233 | R | Force [TT] (MPU1)lo_ubk_tc1peaoverrider2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10234 | R | Check that the Override PEA pushbutton lamp 44S5 turns OFF | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10235 | I | END OF TEST | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

## Section  12 – Service Brake

### 12.1 Instructions list

### 12.1.1  040_SBK-Service Brake

I - Information        A - Action        R - Result        NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Service Brake (SPP = 040) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10002 | I | Initial Conditions | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10003 | I | No air supply to the vehicle - pressure in tank <6Bar | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10004 | I | All brake panel cocks are in normal position (not isolated) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10005 | I | The Service Brake Isolation Switch 40S2 should be in Normal position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10006 | I | Circuit Breakers | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10007 | A | Close Circuit Breaker 40Q2 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10008 | A | Close Circuit Breaker 40Q3 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10009 | A | Close Circuit Breaker 40Q4 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10010 | A | Close Circuit Breaker 40Q5 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10011 | I | Brake Air Supply and Brake Application | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10012 | I | EB Reduced Train Lines Dev2/78 = Coupler pin 031 Dev2/81 = Coupler pin 131 Dev5/51 = END2 90XP15 pin 60 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10013 | R | Read Defined Variable [NI] Dev2/78 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10014 | R | Read Defined Variable [NI] Dev2/81 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10015 | R | Read Defined Variable [NI] Dev5/51 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10016 | I | Brake Applied Train Lines Dev2/36 = Coupler pin 010 | | OK | | Mlungisi Madela 529927 | TC1 |

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|---|---|---|---|---|---|---|
| | | Dev2/37 = Coupler pin 110<br>Dev5/49 = END2 90XP15 pin 50 | | | | 19.05.2025 |
| 10017 | R | Read Defined Variable [NI] Dev2/36 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10018 | R | Read Defined Variable [NI] Dev2/37 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10019 | R | Read Defined Variable [NI] Dev5/49 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10020 | R | Read Defined Variable [TT]<br>(MPU1)li_sbk_tc1brakeairsuppokr1 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10021 | R | Read Defined Variable [TT]<br>(MPU1)li_sbk_tc1brakeairsuppokr2 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10022 | R | Read Defined Variable [TT]<br>(BCU1)LI_BRPS_NOK = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10023 | R | Read Defined Variable [TT]<br>(BCU1)LI_BRAKE_NOT_APPLED = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10024 | R | The Reduced Brake Lamp 40H2 on the indicator module 84A1 is ON |  | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10025 | A | Close/Isolate the coupler Isolation cock F2.1/1 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10026 | A | Open the Isolation cock F2.2/1 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10027 | A | Connect the air supply to the vehicle main pipe coupling flexible hose F3/1, and switch the supply ON | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10028 | I | Take note of any air leaks in the pipes or valves | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10029 | A | Allow the pressure to go above 6 bar. The pressure can be checked at the BRTP test point | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10030 | R | BRTP pressure is measured >=6 Bar | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10031 | I | EB Reduced Train Lines<br>Dev2/78 = Coupler pin 031<br>Dev2/81 = Coupler pin 131<br>Dev5/51 = END2 90XP15 pin 60 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10032 | R | Read Defined Variable [NI] Dev2/78 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10033 | R | Read Defined Variable [NI] Dev2/81 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10034 | R | Read Defined Variable [NI] Dev5/51 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927 | TC1 |

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|---|---|---|---|---|---|---|---|
| 10035 | I | Brake Applied Train Lines<br>Dev2/36 = Coupler pin 010<br>Dev2/37 = Coupler pin 110<br>Dev5/49 = END2 90XP15 pin 50 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10036 | R | Read Defined Variable [NI] Dev2/36 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10037 | R | Read Defined Variable [NI] Dev2/37 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10038 | R | Read Defined Variable [NI] Dev5/49 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10039 | R | Read Defined Variable [TT]<br>(MPU1)li_sbk_tc1brakeairsuppokr1 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10040 | R | Read Defined Variable [TT]<br>(MPU1)li_sbk_tc1brakeairsuppokr2 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10041 | R | Read Defined Variable [TT]<br>(BCU1)LI_BRPS_NOK = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10042 | R | Read Defined Variable [TT]<br>(BCU1)LI_BRAKE_NOT_APPLED = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10043 | R | The Reduced Brake Lamp 40H2 on the indicator module 84A1 is OFF | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10044 | A | Put the Master controller in 100% Traction position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10045 | I | V>5km/h Train Line<br>Dev4/38 = END2 90XP15 pin 28 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10046 | A | Force [NI] Dev4/38 = 1.0 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10046 | R | Force [NI] Dev4/38 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10047 | R | Lamp 40H1 on the indicator module 84A1 is ON | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10048 | A | Return the Master controller to Normal position (Coasting) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10049 | I | V>5km/h Train Line<br>Dev4/38 = END2 90XP15 pin 28 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10050 | R | Force [NI] Dev4/38 = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10050 | A | Force [NI] Dev4/38 = 0.0 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |

| 10051 | R | Lamp 40H1 on the Indicator module 84A1 is OFF | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10052 | I | Remote Isolation | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10053 | A | Turn the key 30A1.S1 to Non-active cab position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10054 | R | Read Defined Variable [TT] (BCU1)LI_BRAKE_ISO = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10055 | I | Remote Isolation Train Lines Dev4/50 = END2 90XP15 pin 59 Dev2/38 = Coupler pin 025 Dev2/39 = Coupler pin 125 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10056 | A | Force [NI] Dev4/50 = 1.0 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10056 | R | Force [NI] Dev4/50 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10057 | R | Read Defined Variable [NI] Dev2/38 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10058 | R | Read Defined Variable [NI] Dev2/39 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10059 | I | Remote Isolation Train Lines Dev4/50 = END2 90XP15 pin 59 Dev2/38 = Coupler pin 025 Dev2/39 = Coupler pin 125 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10060 | A | Force [NI] Dev4/50 = 0.0 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10060 | R | Force [NI] Dev4/50 = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10061 | R | Read Defined Variable [NI] Dev2/38 = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10062 | R | Read Defined Variable [NI] Dev2/39 = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10063 | A | Turn the key 30A1.S1 to Active cab position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10064 | A | Turn the Service Brake Isolation Switch 40S2 to Isolation position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10065 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc1remoteisoswitchr1 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10066 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc1remoteisoswitchr2 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |

| 10067 | I | EB Reduced Train Lines<br>Dev5/51 = END2 90XP15 pin 60 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10068 | R | Read Defined Variable [NI] Dev5/51 = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10069 | A | Force [TT] (MPU1)lo_sbk_tc1isobrake = 1.0 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10069 | R | Force [TT] (MPU1)lo_sbk_tc1isobrake = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10070 | R | Read Defined Variable [TT]<br>(BCU1)LI_BRAKE_ISO = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10071 | I | Remote Isolation Train Lines<br>Dev5/50 = END2 90XP15 pin 59<br>Dev2/39 = Coupler pin 125 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10072 | R | Read Defined Variable [NI] Dev2/39 = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10073 | R | Read Defined Variable [NI] Dev5/50 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10074 | R | The Remote Isolation relay valve C1.1_SERC is actuated, and the service brake is isolated (confirm that air is released from the valve) | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10075 | A | Release [TT] (MPU1)lo_sbk_tc1isobrake | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10076 | A | Turn the Service Brake Isolation Switch 40S2 to Normal position | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10077 | I | EB Reduced Train Lines<br>Dev5/51 = END2 90XP15 pin 60 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10078 | R | Read Defined Variable [NI] Dev5/51 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10079 | I | Manual Isolation | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10080 | A | Turn the Manual Isolation Cock C1.3.1 to Isolated position | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10081 | I | EB Reduced Train Lines<br>Dev5/51 = END2 90XP15 pin 60 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10082 | R | Read Defined Variable [NI] Dev5/51 = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10083 | R | Read Defined Variable [TT]<br>(MPU1)li_sbk_tc1servicebrakedc = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |

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|---|---|---|---|---|---|---|---|
| 10084 | R | Read Defined Variable [TT] (BCU1)LI_SERVICE_BR_DC = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10085 | A | Turn the Manual Isolation Cock C1.3.1 to Normal position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10086 | I | EB Reduced Train Lines Dev5/51 = END2 90XP15 pin 60 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10087 | R | Read Defined Variable [NI] Dev5/51 = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10088 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc1servicebrakedc = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10089 | R | Read Defined Variable [TT] (BCU1)LI_SERVICE_BR_DC = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10090 | I | MCE Fault | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10091 | A | Force [TT] (BCU1)LO_BRK_FLT = 1.0 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10091 | R | Force [TT] (BCU1)LO_BRK_FLT = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10092 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc1bcufault = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10093 | A | Force [TT] (BCU1)LO_BRK_FLT = 0.0 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10093 | R | Force [TT] (BCU1)LO_BRK_FLT = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10094 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc1bcufault = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10095 | A | Release [TT] (BCU1)LO_BRK_FLT | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10096 | I | Speed sensor TC1 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10097 | A | All connectors from speed sensor (one per axle) are connected to its axle in TC1 car. | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10098 | R | Read Defined Variable [TT] (MPU1)bcu1_bcuspdsenswsp1flt = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10099 | R | Read Defined Variable [TT] (MPU1)bcu1_bcuspdsenswsp2flt = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10100 | R | Read Defined Variable [TT] (MPU1)bcu1_bcuspdsenswsp3flt = 0.0 | | OK | 0 | Mlungisi Madela 529927 | TC1 |

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|---|---|---|---|---|---|---|---|
| 10101 | R | Read Defined Variable [TT] (MPU1)bcu1_bcuspdsenswsp4flt = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10102 | I | End of test | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |

## Section 13 – Holding and Parking Brake

### 13.1 Instructions list

### 13.1.1 045_PBK-Holding and Parking Brake

I - Information    A - Action    R - Result    NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Holding and Parking Brake (SPP = 045) | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10002 | I | Initial Conditions | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10003 | A | Using the tools list on the side of your screen, record the serial number of the manometer that will be used during this test | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10004 | I | Confirm the presence of air supply to the vehicle. The pressure can be checked at test point BRTP > 4.8 Bar | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10005 | I | Ensure that the Parking Brake Switch 45S1 is in "Normal" position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10006 | I | Parking Brake Pressure Switch | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10007 | A | Turn the key 30A1.S1 to Active cab position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10008 | R | Check that the pressure on test point C1.11/1 is >4.8 BarResult Min : 4.8<= x () | | OK | 4.8 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10009 | R | Read Defined Variable [TT] (BCU1)LI_PARK_BR_RELEASE = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10010 | R | Read Defined Variable [TT] (BCU1)LI_PARK_BR_DC = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10011 | R | Read Defined Variable [TT] (MPU1)bcu1_parkbrakerelease = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10012 | R | Read Defined Variable [TT] (MPU1)bcu1_parkbrakeisoldc = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10013 | I | Parking Brake Applied Train Lines Dev2/74 = Coupler pin 018 Dev2/49 = Coupler pin 118 Dev5/58 = END2 90XP15 pin 77 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10014 | R | Read Defined Variable [NI] Dev2/74 = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10015 | R | Read Defined Variable [NI] Dev2/49 = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10016 | R | Read Defined Variable [NI] Dev5/58 = 0.0 | | OK | 0 | Mlungisi Madela | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 529927 19.05.2025 | |
| 10017 | R | Check that the Parking Brake Applied Lamp 45H2 on the indicator module 84A1 is OFF | ((P)) | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10018 | I | Remote Parking Brake Command | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10019 | A | Turn the Parking Brake Switch 45S1 to "Parking Brake" position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10020 | R | Confirm that the parking brake is applied, and air is released from electro valve C1.5 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10021 | I | Remote Parking Brake Command Train lines Dev2/86 = Coupler pin 030 Dev2/87 = Coupler pin 130 Dev5/57 = END2 90XP15 pin 68 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10022 | R | Read Defined Variable [NI] Dev2/86 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10023 | R | Read Defined Variable [NI] Dev2/87 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10024 | R | Read Defined Variable [NI] Dev5/57 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10025 | A | Allow the air to reach below 4.8 Bar - verify on test point C1.11/1 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10026 | R | Read Defined Variable [TT] (BCU1)LI_PARK_BR_RELEASE = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10027 | R | Read Defined Variable [TT] (MPU1)bcu1_parkbrakerelease = 0.0 | | OK | 0 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10028 | I | Parking Brake Applied Train Lines Dev2/74 = Coupler pin 018 Dev2/49 = Coupler pin 118 Dev5/58 = END2 90XP15 pin 77 | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10029 | R | Read Defined Variable [NI] Dev2/74 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10030 | R | Read Defined Variable [NI] Dev2/49 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10031 | R | Read Defined Variable [NI] Dev5/58 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10032 | R | Check that the Parking Brake Applied Lamp 45H2 on the indicator module 84A1 turns ON | ((P)) | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10033 | A | Turn the Parking Brake Switch 45S1 to "Normal" position | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |

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|---|---|---|---|---|---|---|---|
| 10034 | I | Remote Parking Brake Command Train lines<br>Dev2/86 = Coupler pin 030<br>Dev2/87 = Coupler pin 130<br>Dev5/57 = END2 90XP15 pin 68 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10035 | R | Read Defined Variable [NI] Dev2/86 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10036 | R | Read Defined Variable [NI] Dev2/87 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10037 | R | Read Defined Variable [NI] Dev5/57 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10038 | I | Parking Brake Manual Isolation | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10039 | A | Turn the Parking Brake Isolation cock C1.3.2 to "Isolated" position | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10040 | R | Read Defined Variable [TT]<br>(BCU1)LI_PARK_BR_DC = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10041 | R | Read Defined Variable [TT]<br>(MPU1)bcu1_parkbrakeisoldc = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10042 | R | Read Defined Variable [TT]<br>(MPU1)li_pbk_tc1parkbrakeisol = 1.0 | | OK | 1 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10043 | I | Parking Brake Applied Train Lines<br>Dev2/74 = Coupler pin 018<br>Dev2/49 = Coupler pin 118<br>Dev5/58 = END2 90XP15 pin 77 | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10044 | R | Read Defined Variable [NI] Dev2/74 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10045 | R | Read Defined Variable [NI] Dev2/49 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10046 | R | Read Defined Variable [NI] Dev5/58 = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10047 | A | Return the Parking Brake Isolation cock C1.3.2 to "Normal" position | | OK | | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10048 | R | Read Defined Variable [TT]<br>(BCU1)LI_PARK_BR_DC = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10049 | R | Read Defined Variable [TT]<br>(MPU1)bcu1_parkbrakeisoldc = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10050 | R | Read Defined Variable [TT]<br>(MPU1)li_pbk_tc1parkbrakeisol = 0.0 | | OK | 0 | Mlungisi Madela<br>529927<br>19.05.2025 | TC1 |
| 10051 | I | Parking Brake Applied Train Lines<br>Dev2/74 = Coupler pin 018 | | OK | | Mlungisi Madela<br>529927 | TC1 |

| | | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10052 | R | Read Defined Variable [NI] Dev2/74 = 1.0 | | OK | 1 | Mlungisi Madela 529927 19.05.2025 | TC1 |
| 10053 | I | END OF TEST | | OK | | Mlungisi Madela 529927 19.05.2025 | TC1 |

## Section  14 – Passenger Doors

### 14.1 Instructions list

### 14.1.1  050_DOR-Passenger Doors

I - Information     A - Action     R - Result     NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Passenger Doors (SPP=050) | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10002 | I | Initial Conditions: | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10003 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10004 | I | Car Should be Prepared (closed battery contacts) | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10005 | I | Cab door windows should be closed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10006 | I | Cab doors should be closed and unlocked | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10007 | I | Cab Door Windows | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10008 | A | Open and close both the LEFT and RIGHT cab door windows | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10009 | R | The LEFT cab door window opens and closes correctly | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10010 | R | The RIGHT cab door window opens and closes correctly | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10011 | I | Cabin Doors | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10012 | A | Open all 3 cab doors (LEFT, RIGHT, and saloon access) and close them | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10013 | R | The LEFT cab door can open fully and close shut | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10014 | R | The RIGHT cab door can open fully and close shut | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10015 | R | The saloon access door can open fully and close shut | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10016 | A | Lock the 3 doors with their respective keys | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10017 | R | The LEFT cab door is locked, the lock is functioning correctly, and the door cannot be opened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10018 | R | The RIGHT cab door is locked, the lock is functioning correctly, and the door cannot be opened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10019 | R | The Saloon access door is locked, the lock is functioning correctly, and the door cannot be opened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10020 | A | Unlock the doors with their respective keys | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10021 | A | Repeat the open, close and lock operations from the outside of the vehicle | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10022 | R | Both cab doors can be opened, closed and locked from the outside | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10023 | I | External access locks | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10024 | I | Ensure Door 1 and Door 2 are closed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10025 | A | Insert a square key into the external access lock of Door 1, and unlock the door | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10026 | A | The door is unlocked and can be opened freely. | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10027 | A | Close the door, and lock the external access lock with the square key | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10028 | R | The door is locked and can no longer be opened manually | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10029 | A | Insert a square key into the external access lock of Door 2, and unlock the door | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10030 | R | The door is unlocked and can be opened freely | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10031 | A | Close the door, and lock the external access lock with the square key | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10032 | R | The door is locked and can no longer be opened manually | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10033 | I | Circuit Breakers | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10034 | A | Close Circuit Breaker 50Q1 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10035 | R | DCU 1 is powered ON | | OK | | Nqobile Chirwa 484648 | TC1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | 20.05.2025 | |
| 10036 | R | Check on the DDU that DCU1 is online | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10037 | A | Close Circuit Breaker 50Q2 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10038 | R | DCU 2 is powered ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10039 | R | Check on the DDU that DCU2 is online | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10040 | A | Close Circuit Breaker 50Q3 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10041 | R | DCU 3 is powered ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10042 | R | Check on the DDU that DCU3 is online | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10043 | A | Close Circuit Breaker 50Q4 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10044 | R | DCU 4 is powered ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10045 | R | Check on the DDU that DCU4 is online | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10046 | A | Close Circuit Breaker 50Q5 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10047 | R | DCU 5 is powered ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10048 | R | Check on the DDU that DCU5 is online | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10049 | A | Close Circuit Breaker 50Q6 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10050 | R | DCU 6 is powered ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10051 | R | Check on the DDU that DCU6 is online | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10052 | A | Close Circuit Breaker 50Q7 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10053 | I | Car ID Code | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10054 | A | Using the Door Status screen on the DDU, check that all the doors on TC1 are available - as in the picture below |  | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10055 | R | All doors are available | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10056 | I | Left Side Doors | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10057 | I | Ensure that all doors are CLOSED before proceeding to the next steps | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10058 | I | Door Authorization | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10059 | I | V<3km/h Train Line Dev4/39 = END2 90XP15 pin 29 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10060 | A | Force [NI] Dev4/39 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10060 | R | Force [NI] Dev4/39 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10061 | A | Switch Door Authorization Selector 50S7 to DRIVER | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10062 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1ertmsauthdoorr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10063 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1ertmsauthdoorr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10064 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1authdoorpbleft = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10065 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdleftr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10066 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdleftr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10067 | I | Door Auth Left Train Lines Dev2/56 = Coupler pin 009 Dev2/57 = Coupler pin 124 Dev5/64 = END2 90XP15 pin 85 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10068 | R | Read Defined Variable [NI] Dev2/56 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10069 | R | Read Defined Variable [NI] Dev2/57 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10070 | R | Read Defined Variable [NI] Dev5/64 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10071 | A | Press the Doors LEFT Side Authorization button 50S5 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10072 | R | Check that the YELLOW LEFT Side Authorization pushbutton lamp 50S5 turns ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10073 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1authdoorpbleft = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10074 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdleftr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10075 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdleftr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10076 | I | Door Auth Left Train Lines Dev2/56 = Coupler pin 009 Dev2/57 = Coupler pin 124 Dev5/64 = END2 90XP15 pin 85 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10077 | R | Read Defined Variable [NI] Dev2/56 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10078 | R | Read Defined Variable [NI] Dev2/57 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10079 | R | Read Defined Variable [NI] Dev5/64 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10080 | A | Turn Driver's Master Key 30A1.S1 to NON-Active Cabin Position | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10081 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdleftr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10082 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10083 | I | Door Open | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10084 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1opendoorpbleftr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10085 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1opendoorpbleftr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10086 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorlgtleftr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10087 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorlgtleftr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10088 | A | Press and hold the LEFT side Door Open pushbutton 50S1 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10089 | R | Check that the WHITE LEFT Side Door Open pushbutton lamp 50S1 turns ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10090 | R | Check that door 1, 3 and 5 (LEFT SIDE) open | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10091 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorleft = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10092 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1opendoorpbleftr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10093 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1opendoorpbleftr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10094 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorlgtleftr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10095 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorlgtleftr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10096 | A | Release the LEFT side Door Open pushbutton 50S1 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10097 | I | Door Closing | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10098 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorpbleftr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10099 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorpbleftr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10100 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1closedoorlgtleftr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10101 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1closedoorlgtleftr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10102 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorlineleft = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10103 | I | Door Close Left Train Lines Dev2/50 = Coupler pin 004 Dev2/51 = Coupler pin 137 Dev5/60 = END2 90XP15 pin 79 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10104 | R | Read Defined Variable [NI] Dev2/50 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10105 | R | Read Defined Variable [NI] Dev2/51 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10106 | R | Read Defined Variable [NI] Dev5/60 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10107 | A | Press and hold the LEFT side Door Close pushbutton 50S3 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10108 | R | Check that the BLUE LEFT Side Door Close pushbutton lamp 50S3 turns ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10109 | R | Check that door 1, 3 and 5 (LEFT SIDE) close | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10110 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorpbleftr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10111 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorpbleftr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10112 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1closedoorlgtleftr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10113 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1closedoorlgtleftr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10114 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorlineleft = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10115 | I | Door Close Left Train Lines Dev2/50 = Coupler pin 004 Dev2/51 = Coupler pin 137 Dev5/60 = END2 90XP15 pin 79 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10116 | R | Read Defined Variable [NI] Dev2/50 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10117 | R | Read Defined Variable [NI] Dev2/51 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10118 | R | Read Defined Variable [NI] Dev5/60 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10119 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdleftr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10120 | A | Release the LEFT side Door Close pushbutton 50S3 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10121 | I | Right Side Doors | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10122 | I | Door Authorization | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10123 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1authdoorpbright = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10124 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdrightr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10125 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdrightr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10126 | I | Door Auth Right Train Lines Dev2/54 = Coupler pin 024 Dev2/64 = Coupler pin 109 Dev5/56 = END2 90XP15 pin 84 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10127 | R | Read Defined Variable [NI] Dev2/54 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10128 | R | Read Defined Variable [NI] Dev2/64 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10129 | R | Read Defined Variable [NI] Dev5/56 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10130 | A | Press and hold the Doors RIGHT Side Authorization button 50S6 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10131 | R | Check that the YELLOW RIGHT Side Authorization pushbutton lamp 50S6 turns ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10132 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1authdoorpbright = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10133 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdrightr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10134 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdrightr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10135 | I | Door Auth Right Train Lines Dev2/54 = Coupler pin 024 Dev2/64 = Coupler pin 109 Dev5/56 = END2 90XP15 pin 84 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10136 | R | Read Defined Variable [NI] Dev2/54 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10137 | R | Read Defined Variable [NI] Dev2/64 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10138 | R | Read Defined Variable [NI] Dev5/56 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10139 | A | Release the Doors RIGHT Side Authorization button 50S6 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10140 | A | Turn Driver's Master Key 30A1.S1 to NON-Active Cabin Position | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10141 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1doorauthdrightr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10142 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10143 | I | Door Open | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10144 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1opendoorpbrightr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10145 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1opendoorpbrightr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10146 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorlgtrightr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10147 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorlgtrightr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10148 | A | Press and hold the right-side Door Open pushbutton 50S2 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10149 | R | Check that the WHITE right-side Door Open pushbutton lamp 50S2 turns ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10150 | R | Check that door 2, 4 and 6 (RIGHT SIDE) open | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10151 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorright = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10152 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1opendoorpbrightr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10153 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1opendoorpbrightr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10154 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorlgtrightr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10155 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1opendoorlgtrightr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10156 | A | Release the right-side Door Open pushbutton 50S2 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10157 | I | Door Closing | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10158 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorpbrightr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10159 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorpbrightr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10160 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1closedoorlgtrightr1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10161 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1closedoorlgtrightr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10162 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorlineright = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10163 | I | Door Close Right Train Lines Dev2/52 = Coupler pin 037 Dev2/53 = Coupler pin 104 Dev5/59 = END2 90XP15 pin 78 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10164 | R | Read Defined Variable [NI] Dev2/52 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10165 | R | Read Defined Variable [NI] Dev2/53 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10166 | R | Read Defined Variable [NI] Dev5/59 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10167 | A | Press and hold the right-side Door Close pushbutton 50S4 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10168 | R | Check that the BLUE RIGHT Side Door Close pushbutton lamp 50S4 turns ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10169 | R | Check that door 2, 4 and 6 (RIGHT SIDE) close | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10170 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorpbrightr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10171 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorpbrightr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10172 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1closedoorlgtrightr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10173 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc1closedoorlgtrightr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10174 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1closedoorlineright = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10175 | I | Door Close Right Train Lines Dev2/52 = Coupler pin 037 Dev2/53 = Coupler pin 104 Dev5/59 = END2 90XP15 pin 78 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10176 | R | Read Defined Variable [NI] Dev2/52 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10177 | R | Read Defined Variable [NI] Dev2/53 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10178 | R | Read Defined Variable [NI] Dev5/59 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10179 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc1doorauthdrightr1 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10180 | A | Release the right-side Door Close<br>pushbutton 50S4 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10181 | I | Closing Conditions | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10182 | A | Press the Doors LEFT Side Authorization<br>button 50S5 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10183 | I | Door Close Left Train Line<br>Dev5/60 = END2 90XP15 pin 79 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10184 | R | Read Defined Variable [NI] Dev5/60 = 0.0 | | OK | 0 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10185 | A | Press the Doors right-side Authorization<br>button 50S6 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10186 | I | Door Close Right Train Lines<br>Dev5/59 = END2 90XP15 pin 78 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10187 | R | Read Defined Variable [NI] Dev5/59 = 0.0 | | OK | 0 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10188 | A | Press the LEFT side Door Open<br>pushbutton 50S1 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10189 | A | Press the right-side Door Open<br>pushbutton 50S2 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10190 | I | V>5km/h Train Line<br>Dev4/38 = END2 90XP15 pin 28 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10191 | A | Force [NI] Dev4/38 = 1.0 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10191 | R | Force [NI] Dev4/38 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10192 | R | Read Defined Variable [TT]<br>(MPU1)li_rec_tc1thresholdfive1 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10193 | R | Read Defined Variable [TT]<br>(MPU1)li_rec_tc1thresholdfive2 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10194 | I | Door Close Left Train Line<br>Dev5/60 = END2 90XP15 pin 79 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10195 | R | Read Defined Variable [NI] Dev5/60 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10196 | I | Door Close Right Train Lines<br>Dev5/59 = END2 90XP15 pin 78 | | OK | | Nqobile Chirwa<br>484648 | TC1 |

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|---|---|---|---|---|---|---|
| 10197 | R | Read Defined Variable [NI] Dev5/59 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10198 | R | Check that all the Doors Close | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10199 | I | V>5km/h Train Line Dev4/38 = END2 90XP15 pin 28 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10200 | A | Force [NI] Dev4/38 = 0.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10200 | R | Force [NI] Dev4/38 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10201 | R | Read Defined Variable [TT] (MPU1)li_rec_tc1thresholdfive1 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10202 | R | Read Defined Variable [TT] (MPU1)li_rec_tc1thresholdfive2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10203 | I | ERTMS Control | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10204 | A | Switch Door Authorization Selector 50S7 to ERTMS | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10205 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1ertmsauthdoorr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10206 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1ertmsauthdoorr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10207 | I | Left Doors | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10208 | I | ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10209 | A | Force [NI] Dev4/86 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10209 | R | Force [NI] Dev4/86 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10210 | R | Check that the YELLOW LEFT Side Authorization pushbutton lamp 50S5 turns ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10211 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr1 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10211 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10212 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr2 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10212 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10213 | A | Force [TT] (MPU1)lo_dor_tc1opendoorleft = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10213 | R | Force [TT] (MPU1)lo_dor_tc1opendoorleft = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10214 | R | Check that door 1, 3 and 5 (LEFT SIDE) open | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10215 | A | Release [TT] (MPU1)lo_dor_tc1opendoorleft | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10216 | R | Check that door 1, 3 and 5 (LEFT SIDE) close | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10217 | A | Press the LEFT side Door Open pushbutton 50S1 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10218 | R | Check that door 1, 3 and 5 (LEFT SIDE) open | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10219 | I | ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10220 | A | Force [NI] Dev4/86 = 0.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10220 | R | Force [NI] Dev4/86 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10221 | A | Press the LEFT side Door Close pushbutton 50S3 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10222 | R | Check that door 1, 3 and 5 (LEFT SIDE) close | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10223 | A | Release [TT] (MPU1)lo_dor_tc1distertmsauthleftr1 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10224 | A | Release [TT] (MPU1)lo_dor_tc1distertmsauthleftr2 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10225 | I | Right Doors | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10226 | I | ERTMS Auth Right Train Line Dev4/87 = END2 90XP15 pin 47 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10227 | A | Force [NI] Dev4/87 = 1.0 | | OK | | Nqobile Chirwa 484648 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 20.05.2025 | |
| 10227 | R | Force [NI] Dev4/87 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10228 | R | Check that the YELLOW RIGHT Side Authorization pushbutton lamp 50S6 turns ON | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10229 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthrightr1 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10229 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthrightr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10230 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthrightr2 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10230 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthrightr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10231 | A | Force [TT] (MPU1)lo_dor_tc1opendoorright = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10231 | R | Force [TT] (MPU1)lo_dor_tc1opendoorright = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10232 | R | Check that door 2, 4 and 6 (RIGHT SIDE) open | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10233 | A | Release [TT] (MPU1)lo_dor_tc1opendoorright | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10234 | R | Check that door 2, 4 and 6 (RIGHT SIDE) close | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10235 | A | Press the RIGHT side Door Open pushbutton 50S2 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10236 | R | Check that door 2, 4 and 6 (RIGHT SIDE) open | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10237 | I | ERTMS Auth Right Train Line Dev4/87 = END2 90XP15 pin 47 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10238 | A | Force [NI] Dev4/87 = 0.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10238 | R | Force [NI] Dev4/87 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10239 | A | Press the RIGHT side Door Close pushbutton 50S4 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10240 | R | Check that door 2, 4 and 6 (RIGHT SIDE) close | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10241 | A | Release [TT]<br>(MPU1)lo_dor_tc1distertmsauthrightr1 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10242 | A | Release [TT]<br>(MPU1)lo_dor_tc1distertmsauthrightr2 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10243 | I | Opening Gap, Safety Loop and Obstacle Detection | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10244 | A | Close Circuit Breaker 51Q1 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10245 | A | Check that the Door Safety Loop Indicator lamp 51H1 is ON |  | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10246 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc1alldoorsclosedr1 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10247 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc1alldoorsclosedr2 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10248 | I | Safety Doors Loop Train Line<br>Dev2/60 = Coupler pin 016<br>Dev2/61 = Coupler pin 116 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10249 | R | Read Defined Variable [NI] Dev2/60 = 0.0 | | OK | 0 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10250 | R | Read Defined Variable [NI] Dev2/61 = 0.0 | | OK | 0 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10251 | I | Doors Open Train Line<br>Dev2/82 = Coupler pin 029<br>Dev2/83 = Coupler pin 129<br>Dev5/55 = END2 90XP15 pin 66 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10252 | R | Read Defined Variable [NI] Dev2/82 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10253 | R | Read Defined Variable [NI] Dev2/83 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10254 | R | Read Defined Variable [NI] Dev5/55 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10255 | I | Safety Doors Loop Train Line<br>Dev4/89 = END2 90XP25 pin 96 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10256 | A | Force [NI] Dev4/89 = 1.0 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10256 | R | Force [NI] Dev4/89 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10257 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc1alldoorsclosedr1 = 0.0 | | OK | 0 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |

| 10258 | R | Read Defined Variable [TT] (MPU1)li_dor_tc1alldoorsclosedr2 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10259 | I | Safety Doors Loop Train Line Dev2/60 = Coupler pin 016 Dev2/61 = Coupler pin 116 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10260 | R | Read Defined Variable [NI] Dev2/60 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10261 | R | Read Defined Variable [NI] Dev2/61 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10262 | I | Doors Open Train Line Dev2/82 = Coupler pin 029 Dev2/83 = Coupler pin 129 Dev5/55 = END2 90XP15 pin 66 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10263 | R | Read Defined Variable [NI] Dev2/82 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10264 | R | Read Defined Variable [NI] Dev2/83 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10265 | R | Read Defined Variable [NI] Dev5/55 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10266 | A | Check that the Door Safety Loop Indicator lamp 51H1 is OFF |  | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10267 | I | Door 1 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10268 | I | ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10269 | A | Force [NI] Dev4/86 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10269 | R | Force [NI] Dev4/86 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10270 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr1 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10270 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10271 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr2 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10271 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10272 | A | Force [TT] (MPU1)lo_dor_tc1opendoorleft = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10272 | R | Force [TT]<br>(MPU1)lo_dor_tc1opendoorleft = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10273 | R | Check if ALL Left doors opens in 3 sec (+1/-0) | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10274 | R | Check that the GREEN LEDS on both sides of the door blink while the door opens [Safety Request: Prasa8-05] | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10275 | I | Doors Open Train Line<br>Dev2/82 = Coupler pin 029 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10276 | R | Read Defined Variable [NI] Dev2/82 = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10277 | I | Door Opening Gap | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10278 | A | Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door). | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10279 | R | Door 1 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1390 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10280 | A | Measure the opening gap of the door. (The measurement must be done at the TOP of the door). | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10281 | R | Door 1 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1409 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10282 | A | Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door). | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10283 | R | Door 1 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1398 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10284 | I | Door 3 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10285 | I | Door Opening Gap | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10286 | A | Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door). | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10287 | R | Door 3 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1396 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10288 | A | Measure the opening gap of the door. (The measurement must be done at the TOP of the door). | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10289 | R | Door 3 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1410 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |

| 10290 | A | Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10291 | R | Door 3 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1398 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10292 | I | Door 5 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10293 | I | Door Opening Gap | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10294 | A | Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10295 | R | Door 5 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1408 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10296 | A | Measure the opening gap of the door. (The measurement must be done at the TOP of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10297 | R | Door 5 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1410 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10298 | A | Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10299 | R | Door 5 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1407 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10300 | A | Release [TT] (MPU1)lo_dor_tc1opendoorleft | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10301 | R | Check if ALL left doors closes in 3 sec (+1/-0) | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10302 | R | Check that the RED leds on both sides of the door blink while the door closes [Safety Request: Prasa8-05] | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10303 | I | Doors Open Train Line Dev2/82 = Coupler pin 029 | | OK | | Dilikani Ngubane 526515 28.05.2025 | TC1 |
| 10304 | R | Read Defined Variable [NI] Dev2/82 = 0.0 | | OK | 0 | Dilikani Ngubane 526515 28.05.2025 | TC1 |
| 10305 | I | ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10306 | A | Force [NI] Dev4/86 = 0.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10306 | R | Force [NI] Dev4/86 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10307 | A | Release [TT] (MPU1)lo_dor_tc1distertmsauthleftr1 | | OK | | Nqobile Chirwa 484648 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 20.05.2025 | |
| 10308 | A | Release [TT] (MPU1)lo_dor_tc1distertmsauthleftr2 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10309 | I | Door 2 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10310 | I | ERTMS Auth Right Train Line Dev4/87 = END2 90XP15 pin 47 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10311 | A | Force [NI] Dev4/87 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10311 | R | Force [NI] Dev4/87 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10312 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthrightr1 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10312 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthrightr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10313 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthrightr2 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10313 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthrightr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10314 | A | Force [TT] (MPU1)lo_dor_tc1opendoorright = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10314 | R | Force [TT] (MPU1)lo_dor_tc1opendoorright = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10315 | R | Check if ALL right doors open in 3 sec (+1/-0) | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10316 | R | Check that the GREEN LEDS on both sides of the door blink while the door opens. [Safety Request: Prasa8-05] | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10317 | R | Once completely opened, check that the LEDS are steady RED | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10318 | I | Doors Open Train Line Dev2/82 = Coupler pin 029 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10319 | R | Read Defined Variable [NI] Dev2/82 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10320 | I | Door Opening Gap | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10321 | A | Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10322 | R | Door 2 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1406 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10323 | A | Measure the opening gap of the door. (The measurement must be done at the TOP of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10324 | R | Door 2 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1409 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10325 | A | Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10326 | R | Door 2 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1403 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10327 | I | Door 4 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10328 | I | Door Opening Gap | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10329 | A | Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10330 | R | Door 4 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1402 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10331 | A | Measure the opening gap of the door. (The measurement must be done at the TOP of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10332 | R | Door 4 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1409 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10333 | A | Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10334 | R | Door 4 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1401 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10335 | I | Door 6 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10336 | I | Door Opening Gap | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10337 | A | Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10338 | R | Door 6 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1401 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10339 | A | Measure the opening gap of the door. (The measurement must be done at the TOP of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10340 | R | Door 6 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1409 | Nqobile Chirwa 484648 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 20.05.2025 | |
| 10341 | A | Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door). | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10342 | R | Door 6 gapResult Min/Max : 1390.00<= x<= 1410.00 (mm) | | OK | 1401 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10343 | I | Obstacle Detection | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10344 | I | ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10345 | A | Force [NI] Dev4/86 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10345 | R | Force [NI] Dev4/86 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10346 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr1 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10346 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr1 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10347 | A | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr2 = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10347 | R | Force [TT] (MPU1)lo_dor_tc1distertmsauthleftr2 = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10348 | A | Force [TT] (MPU1)lo_dor_tc1opendoorleft = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10348 | R | Force [TT] (MPU1)lo_dor_tc1opendoorleft = 1.0 | | OK | 1 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10349 | A | Position an obstacle on the floor in the centre of each and every door closing line | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10350 | A | Release [TT] (MPU1)lo_dor_tc1opendoorright | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10351 | A | Release [TT] (MPU1)lo_dor_tc1opendoorleft | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10352 | R | All doors will hit the obstacles, reopen and try to close again 3 times. On the third attempt ALL doors will stop and stand ajar - free to be opened manually | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10353 | A | Force [TT] (MPU1)lo_dor_tc1opendoorright = 1.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10353 | R | Force [TT]<br>(MPU1)lo_dor_tc1opendoorright = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10354 | A | Force [TT]<br>(MPU1)lo_dor_tc1opendoorleft = 1.0 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10354 | R | Force [TT]<br>(MPU1)lo_dor_tc1opendoorleft = 1.0 | | OK | 1 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10355 | A | Remove ALL the obstacles | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10356 | A | Release [TT]<br>(MPU1)lo_dor_tc1opendoorright | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10357 | A | Release [TT]<br>(MPU1)lo_dor_tc1opendoorleft | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10358 | R | Check if ALL doors close in 3 sec (+1/-0) | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10359 | R | Check that the RED LEDS on both sides of the door blink while the door closes [Safety Request: Prasa8-05] | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10360 | I | Doors Open Train Line<br>Dev2/82 = Coupler pin 029 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10361 | R | Read Defined Variable [NI] Dev2/82 = 0.0 | | OK | 0 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10362 | I | ERTMS Auth Train Line<br>Dev4/87 = END2 90XP15 pin 47 (Right)<br>Dev4/86 = END2 90XP15 pin 44 (Left) | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10363 | A | Force [NI] Dev4/86 = 0.0 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10363 | R | Force [NI] Dev4/86 = 0.0 | | OK | 0 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10364 | A | Force [NI] Dev4/87 = 0.0 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10364 | R | Force [NI] Dev4/87 = 0.0 | | OK | 0 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10365 | I | Safety Doors Loop Train Line<br>Dev4/89 = END2 90XP15 pin 96 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10366 | A | Force [NI] Dev4/89 = 0.0 | | OK | | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10366 | R | Force [NI] Dev4/89 = 0.0 | | OK | 0 | Nqobile Chirwa<br>484648<br>20.05.2025 | TC1 |
| 10367 | A | Release [TT]<br>(MPU1)lo_dor_tc1distertmsauthrightr1 | | OK | | Nqobile Chirwa<br>484648 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 20.05.2025 | |
| 10368 | A | Release [TT] (MPU1)lo_dor_tc1distertmsauthrightr2 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10369 | A | Release [TT] (MPU1)lo_dor_tc1distertmsauthleftr1 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10370 | A | Release [TT] (MPU1)lo_dor_tc1distertmsauthleftr2 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10371 | I | V<3km/h Train Line Dev4/39 = END2 90XP15 pin 29 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10372 | A | Force [NI] Dev4/39 = 0.0 | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10372 | R | Force [NI] Dev4/39 = 0.0 | | OK | 0 | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10373 | A | Switch Door Authorization Selector 50S7 to DRIVER | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10374 | I | END OF TEST | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

## Section 15 – HVAC Air Conditioning

### 15.1 Instructions list

### 15.1.1  057_HVA-HVAC_TK

I - Information    A - Action    R - Result    NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 10001 | I | HVA_057 Air Conditioning | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10002 | I | Initial conditions | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10003 | A | Car Should be Prepared | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10004 | I | Power Supply | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10005 | A | Close Circuit Breaker 57Q1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10006 | A | Close Circuit Breaker 57Q2 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10007 | I | HVAC Electronic Power Supply | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10008 | R | The HVAC electronic is ON | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10009 | I | Software Upload | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10010 | A | Close Circuit Breaker F1 on the HVAC Panel | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10011 | A | Turn the control switch to AUTO position on the HVAC Panel | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10012 | I | Follow the procedure in the document below to upload software onto the HVAC electronic | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10013 | A |  | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10014 | I | Checking 400Vac | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10015 | A | Ensure that the 400Vac Shore Supply is connected to the vehicle, else connect it | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10016 | A | Disconnect connector 57XP4_X5 and use a multimeter to measure 400Vac between phases a1, a2 and b1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10017 | R | 400Vac is measured between each of the phases | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10018 | A | On the same connector, with a phasemeter, check the correct Phase Rotation between L1- Phase a1, L2- Phase a2, L3- Phase b1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10019 | R | The phase rotation is correct between all three phases | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10020 | A | Normalize connector 57XP4_X5 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10021 | I | HVAC 50% restriction | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10022 | A | Force [TT] NRG_HvacTc150Cmd = 0 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10022 | R | Force [TT] NRG_HvacTc150Cmd = 0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10023 | A | Force [TT] NRG_HvacTc1Cab50Cmd = 0 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10023 | R | Force [TT] NRG_HvacTc1Cab50Cmd = 0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10024 | I | HVAC inhib | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10025 | A | Force [TT]<br>(MPU1)lo_hva_tc1hvacinhibr1___1 = 1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10025 | R | Force [TT]<br>(MPU1)lo_hva_tc1hvacinhibr1___1 = 1 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10026 | A | Force [TT]<br>(MPU1)lo_hva_tc1hvacinhibr2___1 = 1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10026 | R | Force [TT]<br>(MPU1)lo_hva_tc1hvacinhibr2___1 = 1 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10027 | R | HVAC unit turns ON and starts to work | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10028 | I | Emergency Ventilation | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10029 | A | Force [TT]<br>(MPU1)lo_hva_tc1emergventil___1 = 1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10029 | R | Force [TT]<br>(MPU1)lo_hva_tc1emergventil___1 = 1 | | OK | 1 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10030 | A | All saloon HVAC units are in ventilation mode, not heating/cooling | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10031 | A | Connect the laptop to the HVAC maintenance software using HCU Finder and verify that main mode changed to Emergency |  | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10032 | A | Release [TT]<br>(MPU1)lo_hva_tc1emergventil___1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10033 | I | Forced Mode (Saloon HVAC) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10034 | I | In the maintenance software, select the 'Forced' tab, and use the "Required working mode" drop down box to force the following modes: | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10035 | A | For the next sections, walk through the whole car and physically check (feel) that the HVAC is functioning as desired | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10036 | A | Force Ventilation mode on the Saloon HVAC | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10037 | I | Ventilation mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10038 | R | All saloon HVAC units work in Ventilation mode. Not heating/cooling | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10039 | I | Cooling Mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10040 | A | Force Cooling mode on the Saloon HVAC | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10041 | R | All saloon HVAC units work in Cooling mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10042 | I | Heating Mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10043 | A | Force Heating mode on the Saloon HVAC | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10044 | R | All saloon HVAC units work in Heating mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10045 | I | Automatic Mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10046 | A | Force Self-Test on the Saloon HVAC | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10047 | R | All saloon HVAC units work according to the mode described in the "Actual working mode" | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10048 | R | The Exhaust fans are Turned OFF | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10049 | I | Cabin Footrest Heater Test | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10050 | I | Use the tools list to record the serial number of the Infrared Thermometer that will be used in the next section | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10051 | A | Close Circuit Breaker 57Q3 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10052 | R | The Foot Heater pushbutton white lamp 57S3 is OFF | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10053 | R | Foot Heater is Off (UDM) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10054 | A | Press the Foot Heater Pushbutton 57S3 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10055 | R | The Foot Heater pushbutton white lamp 57S3 is ON | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10056 | R | Read Defined Variable [TT] (MPU1)li_hva_tc1footheaterfault___1 = 0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10057 | R | Foot Heater is ON (allow some time for it to heat up and confirm with Infrared Thermometer that it is heating up) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10058 | A | Once verified working, press the Foot Heater Pushbutton 57S3 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10059 | R | The Foot Heater pushbutton white lamp 57S3 is OFF | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10060 | R | Read Defined Variable [TT] (MPU1)li_hva_tc1footheaterfault___1 = 0 | | OK | 0 | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10061 | R | Foot Heater is OFF (allow some time for it to cool down and confirm with Infrared Thermometer that it is cooling down) | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10062 | A | Check that the Footrest can go up by slightly pressing the adjusting pedal. | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10063 | R | The Footrest is adjustable, it can go up. | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10064 | A | Check that the Footrest can go down by pressing the adjusting pedal. Ensure the other foot applies force on the Footrest | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10065 | R | The Footrest is adjustable, it can go down. | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10066 | I | Forced Mode (Cabin HVAC) |  | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10067 | I | In the maintenance software, select the 'Forced' tab, and use the "Required working mode" drop down box to force the following modes: | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10068 | I | Ventilation Mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10069 | A | Force Ventilation mode on the Cab HVAC | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10070 | R | The Cab HVAC works in Ventilation mode. Not heating/cooling | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10071 | I | Cooling Mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10072 | A | Force Cooling mode on the Cab HVAC | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10073 | R | The Cab HVAC works in Cooling mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10074 | I | Heating Mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10075 | A | Force Heating mode on the Cab HVAC | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10076 | R | The Cab HVAC works in Heating mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10077 | I | Automatic Mode | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

| 10078 | A | Force Automatic mode on the Cab HVAC | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10079 | R | The Cab HVAC works in Automatic mode - according to the mode described in the "Actual working mode" | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10080 | I | HVAC Faults | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10081 | A | In the maintenance software, select the "Alarms / Warnings" tab | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10082 | A | Ensure there are no active faults on the HVAC |  | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10083 | R | No active faults identified on the HVAC unit | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10084 | I | Air Flow Measure | | OK | | Nokuzola Mdluli 491469 29.05.2025 | TC1 |
| 10085 | A | Check that the windshield air outlet is open | | OK | | Nokuzola Mdluli 491469 29.05.2025 | TC1 |
| 10086 | A | On the left side diffuser, put the anemometer in the middle of the air diffuser directly in contact with the grill | | OK | | Nokuzola Mdluli 491469 29.05.2025 | TC1 |
| 10087 | A | Record average speed over 30 s | | OK | | Nokuzola Mdluli 491469 29.05.2025 | TC1 |
| 10088 | R | Average air speedRead Undefined Value : x () | | OK | 2 | Nokuzola Mdluli 491469 29.05.2025 | TC1 |
| 10089 | A | On the right diffuser, put the anemometer in the middle of the air diffuser directly in contact with the grill | | OK | | Nokuzola Mdluli 491469 29.05.2025 | TC1 |
| 10090 | A | Record average speed over 30 s | | OK | | Nokuzola Mdluli 491469 29.05.2025 | TC1 |
| 10091 | R | Average air speedRead Undefined Value : x () | | OK | 2.59 | Nokuzola Mdluli 491469 29.05.2025 | TC1 |
| 10092 | A | Compare the two recorded air speeds, left and right. The values should be within 15% of each other.  If the difference is greater than 15%, check if the flexible duct going to the windshield diffuser is not loose or squeezed. | | OK | | Nokuzola Mdluli 491469 29.05.2025 | TC1 |
| 10093 | R | The difference between left and right air flow is less than 15% | | OK | | Nokuzola Mdluli 491469 | TC1 |

| | | | | | | 29.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10094 | A | Release [TT] (MPU1)lo_hva_tc1hvacinhibr1__1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10095 | A | Release [TT] (MPU1)lo_hva_tc1hvacinhibr2__1 | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10096 | A | Release [TT] NRG_HvacTc150Cmd | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10097 | A | Release [TT] NRG_HvacTc1Cab50Cmd | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |
| 10098 | I | End of Test | | OK | | Hlawulani Nick Mabundzane 418320 20.05.2025 | TC1 |

### 15.1.2 057_HVA_SME-HVAC_SME

I - Information        A - Action        R - Result        NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 10001 | I | HVA_057 Air Conditioning | | NE | | | TC1 |
| 10002 | I | Initial conditions | | NE | | | TC1 |
| 10003 | A | Car Should be Prepared with CVS running and 400V ac available in the car | | NE | | | TC1 |
| 10004 | I | HVAC Electronic Power Supply | | NE | | | TC1 |
| 10005 | A | Close Circuit Breaker 13Q1 and 13Q5 | | NE | | | TC1 |
| 10006 | I | Checking 400Vac | | NE | | | TC1 |
| 10007 | A | Close Circuit Breaker 57Q1 | | NE | | | TC1 |
| 10008 | A | Disconnect connector 57XP4_X5 and Measure 400Vac between all 3 phases which are a1, a2 and b1 | | NE | | | TC1 |
| 10009 | R | 400Vac measured between all phases | | NE | | | TC1 |
| 10010 | A | On same connector 54XP4_X5, with a phasemeter, check the correct Phase Rotation between points a1- Phase L1, a2- Phase L2 and b1- Phase L3. | | NE | | | TC1 |
| 10011 | R | The phase rotation is correct between all three phases | | NE | | | TC1 |
| 10012 | A | Normalize connector 57XP4_X5 | | NE | | | TC1 |
| 10013 | I | HVAC controller power supply | | NE | | | TC1 |
| 10014 | A | Close Circuit Breaker 57Q2 | | NE | | | TC1 |
| 10015 | A | Allow the HVAC to initialize and check on the DDU if the HVAC is online | | NE | | | TC1 |

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|---|---|---|---|---|---|---|---|
| 10016 | R | HVAC unit turns ON and starts to work | | NE | | | TC1 |
| 10017 | I | HVAC inhib | | NE | | | TC1 |
| 10018 | A | Force [TT] (MPU1)lo_hva_tc1hvacinhibr1___1 = 1.0 | | NE | | | TC1 |
| 10019 | A | Force [TT] (MPU1)lo_hva_tc1hvacinhibr2___1 = 1.0 | | NE | | | TC1 |
| 10020 | I | HVAC 50% restriction | | NE | | | TC1 |
| 10021 | A | Force [TT] NRG_HvacTc150Cmd = 0 | | NE | | | TC1 |
| 10022 | A | Force [TT] NRG_HvacTc1Cab50Cmd = 0 | | NE | | | TC1 |
| 10023 | I | Saloon HVAC | | NE | | | TC1 |
| 10024 | I | HVAC web portal | | NE | | | TC1 |
| 10025 | A | The attached document is a procedure on how to navigate around the maintenance software. |  | NE | | | TC1 |
| 10026 | I | Connect the laptop to the HVAC maintenance software using web browser. Enter the following IP address on the web browser 10.136.xxx.27 xxx represents the train number Login: maint Password: maint |  | NE | | | TC1 |
| 10027 | R | On status tab, Active mode is off for both cab and saloon |  | NE | | | TC1 |
| 10028 | A | Go to Alarms tab and clear all the alarms for saloon and cabin | | NE | | | TC1 |
| 10029 | I | Full "Self test" saloon | | NE | | | TC1 |
| 10030 | I | For the following tests make sure on the webHMI tab you change contoller to be controlled by webHMI and not MPU |  | NE | | | TC1 |
| 10031 | A | Before running the full test, please click on reset test to reset the previous results. | | NE | | | TC1 |
| 10032 | A | Select Full-Test on the Saloon HVAC |  | NE | | | TC1 |

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|---|---|---|---|---|---|---|---|
| 10033 | R | All saloon HVAC units work according to the mode described in the "ACTIVE MODE" on the status tab | | NE | | | TC1 |
| 10034 | R | When the test is complete, please check if the status is showing as "TEST PASS" and the test took 3 mins +/- 2 seconds for each mode. | | NE | | | TC1 |
| 10035 | I | Forced Mode (Saloon HVAC) | | NE | | | TC1 |
| 10036 | I | During all tests Walk through the whole car and physically check (feel) that the HVAC is functioning as desired | | NE | | | TC1 |
| 10037 | I | Go to maintenance tab to force the following modes |  | NE | | | TC1 |
| 10038 | I | Cooling Mode | | NE | | | TC1 |
| 10039 | A | Select forced Cooling mode on the Saloon HVAC and let it run for 5 mins | | NE | | | TC1 |
| 10040 | R | All HVAC units are cooling | | NE | | | TC1 |
| 10041 | I | Heating Mode | | NE | | | TC1 |
| 10042 | A | Select forced Heating mode on the Saloon HVAC and let it run for 5 mins | | NE | | | TC1 |
| 10043 | R | All HVAC units are heating | | NE | | | TC1 |
| 10044 | I | Cabin Footrest Heater Test | | NE | | | TC1 |
| 10045 | I | Use the tools list to record the serial number of the Infrared Thermometer that will be used in the next section | | NE | | | TC1 |
| 10046 | A | Close Circuit Breaker 57Q3 | | NE | | | TC1 |
| 10047 | R | The Foot Heater pushbutton white lamp 57S3 is OFF | | NE | | | TC1 |
| 10048 | R | Foot Heater is Off (UDM) | | NE | | | TC1 |
| 10049 | A | Press the Foot Heater Pushbutton 57S3 | | NE | | | TC1 |
| 10050 | R | The Foot Heater pushbutton white lamp 57S3 is ON | | NE | | | TC1 |

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|---|---|---|---|---|---|---|---|
| 10051 | R | Read Defined Variable [TT] (MPU1)li_hva_tc1footheaterfault___1 = 0.0 | | NE | | | TC1 |
| 10052 | R | Foot Heater is ON (allow some time for it to heat up and confirm with Infrared Thermometer that it is heating up) | | NE | | | TC1 |
| 10053 | A | Once verified working, press the Foot Heater Pushbutton 57S3 | | NE | | | TC1 |
| 10054 | R | The Foot Heater pushbutton white lamp 57S3 is OFF | | NE | | | TC1 |
| 10055 | R | Read Defined Variable [TT] (MPU1)li_hva_tc1footheaterfault___1 = 0.0 | | NE | | | TC1 |
| 10056 | R | Foot Heater is OFF (allow some time for it to cool down and confirm with Infrared Thermometer that it is cooling down) | | NE | | | TC1 |
| 10057 | A | Check that the Footrest can go up by slightly pressing the adjusting pedal. | | NE | | | TC1 |
| 10058 | R | The Footrest is adjustable, it can go up. | | NE | | | TC1 |
| 10059 | A | Check that the Footrest can go down by pressing the adjusting pedal. Ensure the other foot applies force on the Footrest | | NE | | | TC1 |
| 10060 | R | The Footrest is adjustable, it can go down. | | NE | | | TC1 |
| 10061 | I | Cab Hvac | | NE | | | TC1 |
| 10062 | I | Full "Self test" Cab | | NE | | | TC1 |
| 10063 | A | Before running the full test, please click on reset test to reset the previous results. | | NE | | | TC1 |
| 10064 | A | Select Full test on the Cab HVAC | | NE | | | TC1 |
| 10065 | R | The cab HVAC works according to the mode described in the "ACTIVE MODE" on the status tab | | NE | | | TC1 |
| 10066 | R | When the test is complete, please check if the status is showing as "TEST PASS" and the test took 3 mins +/- 2 seconds for each mode. | | NE | | | TC1 |
| 10067 | I | Forced Mode (Cabin HVAC) | | NE | | | TC1 |
| 10068 | I | For the coming test, check(feel) that the air coming through the supply air duct in | | NE | | | TC1 |

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|---|---|---|---|---|---|---|---|
| | | the cabin is as desired "VENT/COOl or HEAT" | | | | | |
| 10069 | I | Go to maintenance tab to force the following modes | | NE | | | TC1 |
| 10070 | I | Cooling Mode | | NE | | | TC1 |
| 10071 | A | Select forced Cooling mode on the Cabin HVAC and let it run for 5 mins | | NE | | | TC1 |
| 10072 | R | All HVAC ducts in the cab are cooling | | NE | | | TC1 |
| 10073 | I | Heating Mode | | NE | | | TC1 |
| 10074 | R | Select forced heating mode on the Cabin HVAC and let it run for 5 mins | | NE | | | TC1 |
| 10075 | R | All HVAC ducts in the cab are heating | | NE | | | TC1 |
| 10076 | I | HVAC Faults | | NE | | | TC1 |
| 10077 | A | In the maintenance software, select the "Alarms" tab | | NE | | | TC1 |
| 10078 | A | Ensure there are no active faults on the HVAC for Cabin and Saloon. Use the highlighted drop down to navigate between saloon and cabin. | | NE | | | TC1 |
| 10079 | R | No active faults identified on the HVAC unit | | NE | | | TC1 |
| 10080 | I | Air Flow Measure | | NE | | | TC1 |
| 10081 | A | Turn the cab ventilation control switch 57S1 to high speed position | | NE | | | TC1 |
| 10082 | A | Check that the windshield air outlet is open | | NE | | | TC1 |
| 10083 | A | On the left side diffuser, put an anemometer in the middle of the air diffuser directly in contact with the grill | | NE | | | TC1 |
| 10084 | A | Record the average air speed over 30 s | | NE | | | TC1 |
| 10085 | R | Average air speedRead Undefined Value : x (m/s) | | NE | | | TC1 |

| 10086 | A | On the right side diffuser, put the anemometer in the middle of air diffuser directly in contact with the grill | | NE | | | TC1 |
| 10087 | A | Record the average air speed over 30s | | NE | | | TC1 |
| 10088 | R | Average air speedRead Undefined Value : x (m/s) | | NE | | | TC1 |
| 10089 | A | Compare the two recorded air speeds, left and right. the values should be within 15% of each other.<br><br>If the difference is greater than 15%, check that the flexible duct going to windshield diffuser is not squeezed. | | NE | | | TC1 |
| 10090 | R | Difference between left-right air flow is within 15% | | NE | | | TC1 |
| 10091 | A | Turn the Cab Ventilation Control Switch 57S1 to OFF position | | NE | | | TC1 |
| 10092 | R | Cabin HVAC turned OFF | | NE | | | TC1 |
| 10093 | I | Variable release | | NE | | | TC1 |
| 10094 | A | Release [TT] (MPU1)lo_hva_tc1hvacinhibr1__1 | | NE | | | TC1 |
| 10095 | A | Release [TT] (MPU1)lo_hva_tc1hvacinhibr2__1 | | NE | | | TC1 |
| 10096 | A | Release [TT] NRG_HvacTc150Cmd | | NE | | | TC1 |
| 10097 | A | Release [TT] NRG_HvacTc1Cab50Cmd | | NE | | | TC1 |
| 10098 | I | End of test | | NE | | | TC1 |

## Section 16 – Fire Protection

### 16.1 Instructions list

#### 16.1.1 067_FSD-Fire Protection

I - Information          A - Action          R - Result          NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Fire Protection System (SPP=067) | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10002 | I | Initial conditions | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10003 | I | Car Should be Prepared | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10004 | I | Power Supply | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10005 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10006 | A | Close Circuit Breaker 67Q1 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10007 | R | Check that the Control Fire Detection Unit 67A1 is ON | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10008 | I | Fire Detection Control and Reset | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10009 | I | Fire Detection Train Lines Dev4/76 = END2 90XP14 pin 21 Dev2/7 = END1 Coupler pin 008 Dev2/33 = END1 Coupler pin 108 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10010 | A | Force [NI] Dev4/76 = 1.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10010 | R | Force [NI] Dev4/76 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10011 | R | Read Defined Variable [NI] Dev2/7 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10012 | R | Read Defined Variable [NI] Dev2/33 = 1.0 | | OK | 1 | Nokuzola Mdluli 491469 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 19.05.2025 | |
| 10013 | A | Check on the Alarm Module that the fire alarm 67H1 is illuminated | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10014 | I | Fire Detection Train Lines Dev4/76 = END2 90XP14 pin 21 Dev2/7 = END1 Coupler pin 008 Dev2/33 = END1 Coupler pin 108 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10015 | A | Force [NI] Dev4/76 = 0.0 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10015 | R | Force [NI] Dev4/76 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10016 | R | Read Defined Variable [NI] Dev2/7 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10017 | R | Read Defined Variable [NI] Dev2/33 = 0.0 | | OK | 0 | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10018 | R | The Fire Alarm Reset Pushbutton lamp 67H1 is OFF | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10019 | I | Control Fire Detection Unit Configuration | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10020 | A | Open Circuit Breaker 67Q1 | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10021 | A | Place a bridge piece between: From: [67A1(local: +LV2 connector -67XP1_C2 (pin 3))] to: [ -67A1 (local: +LV2 connector -67XP1_C2 pin 1)] | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10022 | A | Place a bridge piece between: From: [67A1(local: +LV2 connector -67XP1_C2 (pin 6))] to: [ -67A1 (local: +LV2 connector -67XP1_C2 pin 4)] | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10023 | A | Check the continuity between the two provided points of the line below | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10024 | A | From: [(local: +END2 connector -90XP13.b (pin 4))] to: [ (local: +END2 connector -90XP13.a (pin 7))] | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10025 | A | From: [(local: +END2 connector -90XP13.b (pin 5))] to: [ (local: +END2 connector -90XP13.a (pin 8))] | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10026 | A | Remove a bridge piece between: From: [67A1(local: +LV2 connector -67XP1_C2 (pin 3+))] to: [ -67A1 (local: +LV2 connector -67XP1_C2 pin 1)] | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |
| 10027 | A | Remove a bridge piece between: From: [67A1(local: +LV2 connector - | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | 67XP1_C2(pin 6))] to: [ -67A1 (local: +LV2 connector -67XP1_C2 pin 4)] | | | | | |
| 10028 | I | END OF TEST | | OK | | Nokuzola Mdluli 491469 19.05.2025 | TC1 |

## Section  17 – Driving Command

### 17.1 Instructions list

### 17.1.1 030_DRC-Driving Command

I - Information        A - Action        R - Result        NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Driving Command (SPP=30/31) | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10002 | I | Initial conditions | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10003 | I | Cabin should be active | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10004 | A | Ensure all the doors are closed | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10005 | A | Ensure that there is air connected to the main pipe | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10006 | R | Force [TT] (BCU2)li_mp_ps_ok = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10006 | A | Force [TT] (BCU2)li_mp_ps_ok = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10007 | I | Circuit Breakers | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10008 | A | Close Circuit Breaker "30Q1" | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10009 | A | Close Circuit Breaker "30Q2" | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10010 | A | Close Circuit Breaker "30Q3" | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10011 | A | Close Circuit Breaker "31Q1" | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10012 | I | Direction Selector Switch | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10013 | I | Set the Running Direction Switch 30A1.S2 to "Neutral" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10014 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsnozeror1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10015 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsnozeror2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10016 | I | Set the Running Direction Switch 30A1.S2 to "Reverse" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10017 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsnozeror1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10018 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsnozeror2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10019 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsreverser1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10020 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsreverser2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10021 | I | Reverse Train lines Dev2/28 = coupler pin 011 Dev2/29 = coupler pin 132 Dev5/78 = END2 90XP15 pin 30 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10022 | R | Read Defined Variable [NI] Dev2/28 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10023 | R | Read Defined Variable [NI] Dev2/29 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10024 | R | Read Defined Variable [NI] Dev5/78 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10025 | I | Set the Running Direction Switch 30A1.S2 to "Forward" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10026 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsnozeror1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10027 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsreverser1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10028 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsreverser2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10029 | I | Reverse Train lines Dev2/28 = coupler pin 011 Dev2/29 = coupler pin 132 Dev5/78 = END2 90XP15 pin 30 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10030 | R | Read Defined Variable [NI] Dev2/28 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10031 | R | Read Defined Variable [NI] Dev2/29 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10032 | R | Read Defined Variable [NI] Dev5/78 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10033 | I | Forward Train lines Dev2/26 = coupler pin 032 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

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|---|---|---|---|---|---|---|
| | | Dev2/27 = coupler pin 111<br>Dev5/35 = END2 90XP15 pin 25 | | | | |
| 10034 | R | Read Defined Variable [NI] Dev2/26 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10035 | R | Read Defined Variable [NI] Dev2/27 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10036 | R | Read Defined Variable [NI] Dev5/35 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10037 | I | Set the Running Direction Switch 30A1.S2 to "Neutral" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10038 | I | Forward Train lines<br>Dev2/26 = coupler pin 032<br>Dev2/27 = coupler pin 111<br>Dev5/35 = END2 90XP15 pin 25 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10039 | R | Read Defined Variable [NI] Dev2/26 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10040 | R | Read Defined Variable [NI] Dev2/27 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10041 | R | Read Defined Variable [NI] Dev5/35 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10042 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsnozeror1 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10043 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dsreverser1 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10044 | I | Driving Mode | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10045 | A | Turn the Driving Mode Switch 30S1 to "Speed" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10046 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit1r1 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10047 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit1r2 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10048 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit2r1 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10049 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit2r2 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10050 | A | Turn the Driving Mode Switch 30S1 to "Effort" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10051 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit1r1 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920 | TC1 |

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| | | | | | | 19.05.2025 | |
| 10052 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit3r1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10053 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit2r1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10054 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit2r2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10055 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit4r1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10056 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit4r2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10057 | A | Turn the Driving Mode Switch 30S1 to "Depot" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10058 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit1r1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10059 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit1r2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10060 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit2r1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10061 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit3r1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10062 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit4r1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10063 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit4r2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10064 | A | Turn the Driving Mode Switch 30S1 to "Couple/Wash" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10065 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit1r1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10066 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit2r1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10067 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit3r1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10068 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit3r2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10069 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit4r1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10070 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1dmodebit4r2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10071 | I | Reduced Power | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10072 | A | Press and hold the Reduced Power Pushbutton 30S2 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10073 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1reducedpowerr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10074 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1reducedpowerr2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10075 | A | Release the Reduced Power Pushbutton 30S2 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10076 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1reducedpowerr1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10077 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1reducedpowerr2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10078 | A | Force [TT] (MPU1)lo_drc_tc1reducedlampr1 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10078 | R | Force [TT] (MPU1)lo_drc_tc1reducedlampr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10079 | R | Check that the Reduced Power Pushbutton lamp is ON | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10080 | A | Release [TT] (MPU1)lo_drc_tc1reducedlampr1 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10081 | R | Check that the Reduced Power Pushbutton lamp is OFF | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10082 | A | Force [TT] (MPU1)lo_drc_tc1reducedlampr2 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10082 | R | Force [TT] (MPU1)lo_drc_tc1reducedlampr2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10083 | R | Check that the Reduced Power Pushbutton lamp is ON | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10084 | A | Release [TT] (MPU1)lo_drc_tc1reducedlampr2 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10085 | R | Check that the Reduced Power Pushbutton lamp is OFF | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10086 | I | Master Controller Traction / No Brake | | OK | | Tshembhani Khosa 446920 | TC1 |

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| 10087 | I | The Master Controller should be in "OFF" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10088 | R | Read Min/Max [TT] (MPU1)ai_drc_tc1mcpositionch1 : 5479<= x <= 6369 | | OK | 5984 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10089 | R | Read Min/Max [TT] (MPU1)ai_drc_tc1mcpositionch2 : 5479<= x <= 6369 | | OK | 5968 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10090 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcnocoastr1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10091 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcnocoastr2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10092 | I | No Brake Train lines Dev2/32 = coupler pin 039 Dev2/8 = coupler pin 139 Dev5/82 = 90XP15 pin 32 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10093 | R | Read Defined Variable [NI] Dev2/32 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10094 | R | Read Defined Variable [NI] Dev5/82 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10095 | R | Read Defined Variable [NI] Dev2/8 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10096 | R | Read Defined Variable [TT] (MPU1)bcu1_bcutlnobr = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10097 | I | Ensure that the blue mushroom is released | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10098 | A | Turn Emergency Braking Loop Override Switch 44S2 to BYPASS | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10099 | I | Emergency Brake Train Line Dev 4/61 = 90XP15 pin 67 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10100 | A | Force [NI] Dev4/61 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10100 | R | Force [NI] Dev4/61 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10101 | R | Read Defined Variable [NI] Dev2/84 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10102 | R | Read Defined Variable [NI] Dev2/85 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10103 | A | Turn the Traction Interlock Override Switch 31S1 to "Override" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10104 | R | Check that the indicator lamp 31H1 is ON | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10105 | I | Emergency Brake Train Line<br>Dev 4/61 = 90XP15 pin 67 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10106 | A | Force [NI] Dev4/61 = 0.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10106 | R | Force [NI] Dev4/61 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10107 | R | Read Defined Variable [NI] Dev2/84 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10108 | R | Read Defined Variable [NI] Dev2/85 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10109 | A | Check that the indicator lamp 31H1 is OFF | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10110 | A | Turn Emergency Braking Loop Override Switch 44S2 to Normal | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10111 | A | Place the Master Controller in "100% Traction" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10112 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc1mcpositionch1 :<br>29183<= x <= 31102 | | OK | 30880 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10113 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc1mcpositionch2 :<br>29183<= x <= 31102 | | OK | 30800 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10114 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1mctractionr1 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10115 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1mctractionr2 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10116 | I | No Brake Train line<br>Dev5/82 = 90XP15 pin 32 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10117 | R | Read Defined Variable [NI] Dev5/82 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10118 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1mcnocoastr1 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10119 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1mcnocoastr2 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10120 | I | Traction Train lines<br>Dev2/30 = coupler pin 026<br>Dev2/31 = coupler pin 126<br>Dev5/81 = END2 90XP15 pin 31 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10121 | R | Read Defined Variable [NI] Dev5/81 = 1.0 | | OK | 1 | Tshembhani Khosa | TC1 |

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| 10122 | R | Read Defined Variable [NI] Dev2/30 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10123 | R | Read Defined Variable [NI] Dev2/31 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10124 | R | Read Defined Variable [TT] (MPU1)bcu1_bcutlnobr = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10125 | R | Read Defined Variable [TT] (MPU1)bcu1_bcutltract = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10126 | A | Place the Master Controller in "100% Service Brake" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10127 | R | Read Min/Max [TT] (MPU1)ai_drc_tc1mcpositionch1 : 29183<= x <= 31102 | | OK | 30880 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10128 | R | Read Min/Max [TT] (MPU1)ai_drc_tc1mcpositionch2 : 29183<= x <= 31102 | | OK | 30800 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10129 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcbraker1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10130 | I | No Brake Train lines Dev2/32 = coupler pin 039 Dev2/8 = coupler pin 139 Dev5/82 = 90XP15 pin 32 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10131 | R | Read Defined Variable [NI] Dev2/32 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10132 | R | Read Defined Variable [NI] Dev2/8 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10133 | R | Read Defined Variable [NI] Dev5/82 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10134 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcbraker2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10135 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mctractionr1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10136 | I | Traction Train lines Dev2/30 = coupler pin 026 Dev2/31 = coupler pin 126 Dev5/81 = END2 90XP15 pin 31 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10137 | R | Read Defined Variable [NI] Dev2/30 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10138 | R | Read Defined Variable [NI] Dev2/31 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10139 | R | Read Defined Variable [NI] Dev5/81 = 0.0 | | OK | 0 | Tshembhani Khosa | TC1 |

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| | | | | | 446920 19.05.2025 | |
| 10140 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mctractionr2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10141 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcnocoastr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10142 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcemergencybraker1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10143 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcemergencybraker2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10144 | R | Read Defined Variable [TT] (MPU1)bcu1_bcutltract = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10145 | R | Read Defined Variable [TT] (MPU1)bcu1_bcutlnobr = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10146 | A | Place the Master Controller in "Emergency Brake" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10147 | R | Read Min/Max [TT] (MPU1)ai_drc_tc1mcpositionch1 : 29183<= x <= 31102 | | OK | 30880 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10148 | R | Read Min/Max [TT] (MPU1)ai_drc_tc1mcpositionch2 : 29183<= x <= 31102 | | OK | 30800 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10149 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcbraker1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10150 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcbraker2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10151 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcnocoastr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10152 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcemergencybraker1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10153 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcemergencybraker2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10154 | A | Place the Master Controller in "OFF" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10155 | R | Read Min/Max [TT] (MPU1)ai_drc_tc1mcpositionch1 : 5479<= x <= 6369 | | OK | 5984 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10156 | R | Read Min/Max [TT] (MPU1)ai_drc_tc1mcpositionch2 : 5479<= x <= 6369 | | OK | 5968 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10157 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1mcnocoastr1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |

| 10158 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1mcbraker2 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10159 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1mcbraker1 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10160 | I | Traction Interlock | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10161 | I | Traction Interlock Override | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10162 | I | Traction Interlock Train lines<br>Dev2/34 = coupler pin 006<br>Dev2/35 = coupler pin 106<br>Dev5/83 = END2 90XP15 pin 41 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10163 | R | Read Defined Variable [NI] Dev2/34 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10164 | R | Read Defined Variable [NI] Dev2/35 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10165 | R | Read Defined Variable [NI] Dev5/83 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10166 | I | Traction Interlock Bypass Train Line<br>Dev5/4 = END2 90XP14 pin 6 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10167 | R | Read Defined Variable [NI] Dev5/4 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10168 | R | Read Defined Variable [TT]<br>(BCU1)LI_NOT_INHIB = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10169 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1tractintoverrider1 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10170 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1tractintoverrider2 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10171 | R | Check that the Indicator Lamp 31H2 is ON  | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10172 | A | Turn the Traction Interlock Override Switch 31S1 to "Normal" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10173 | I | Traction Interlock Train lines<br>Dev2/34 = coupler pin 006<br>Dev2/35 = coupler pin 106<br>Dev5/83 = END2 90XP15 pin 41 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10174 | R | Read Defined Variable [NI] Dev2/34 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10175 | R | Read Defined Variable [NI] Dev2/35 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |

| 10176 | R | Read Defined Variable [NI] Dev5/83 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10177 | I | Traction Interlock Bypass Train Line Dev5/4 = END2 90XP14 pin 6 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10178 | R | Read Defined Variable [NI] Dev5/4 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10179 | R | Read Defined Variable [TT] (BCU1)LI_NOT_INHIB = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10180 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1tractintoverrider1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10181 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1tractintoverrider2 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10182 | R | Check that the Indicator Lamp 31H2 is OFF |  | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10183 | I | Traction Interlock Relay | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10184 | A | Open Circuit Breaker "30Q1" | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10185 | A | Open Circuit Breaker "30Q2" | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10186 | I | Safety Doors Loop Train Line Dev4/89 = END2 90XP15 pin 96 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10187 | A | Force [NI] Dev4/89 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10187 | R | Force [NI] Dev4/89 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10188 | I | Set the Running Direction Switch 30A1.S2 to "Forward" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10189 | A | Force [TT] (MPU1)lo_drc_tc1tractionloopr1 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10189 | R | Force [TT] (MPU1)lo_drc_tc1tractionloopr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10190 | I | Emergency Brake Loop Train Line Dev4/5 = END2 90XP14 pin 9 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10191 | A | Force [NI] Dev4/5 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10191 | R | Force [NI] Dev4/5 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 | TC1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | 19.05.2025 | |
| 10192 | R | Force [TT]<br>(MPU1)lo_ubk_tc1emergbraker1 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10192 | A | Force [TT]<br>(MPU1)lo_ubk_tc1emergbraker1 = 1.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10193 | A | Turn the Dead Man Override Switch 60S1 to "Override" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10194 | A | Turn the ERTMS Isolation switch 62S1 to "Isolation" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10195 | I | Traction Interlock Train lines<br>Dev5/83 = END2 90XP15 pin 41 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10196 | R | Read Defined Variable [NI] Dev5/83 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10197 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc1emergrelay1 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10198 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1tractionauthorr1 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10199 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1tractionauthorr2 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10200 | R | Check that the indicator lamp 31H1 is ON | TA | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10201 | A | Press and activate the mushroom switch 44S1 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10202 | R | Check that the indicator lamp 31H1 is OFF | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10203 | A | Release the mushroom switch 44S1 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10204 | R | Check that the indicator lamp 31H1 is ON | TA | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10205 | A | Place the Master Controller in "100% Traction" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10206 | I | Traction Train lines<br>Dev5/81 = END2 90XP15 pin 31 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10207 | R | Read Defined Variable [NI] Dev5/81 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10208 | A | Place the Master Controller in "Neutral" position | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |

| 10209 | A | Close Circuit Breaker "30Q1" | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10210 | A | Close Circuit Breaker "30Q2" | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10211 | I | Set the Running Direction Switch 30A1.S2 to "Neutral" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10212 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1tractionauthorr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10213 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1tractionauthorr2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10214 | I | Traction Interlock Train lines Dev5/83 = END2 90XP15 pin 41 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10215 | R | Read Defined Variable [NI] Dev5/83 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10216 | R | Check Indicator Lamp 31H1 is OFF | TA | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10217 | A | Release [TT] (MPU1)lo_drc_tc1tractionloopr1 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10218 | A | Force [TT] (MPU1)lo_drc_tc1tractionloopr2 = 1.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10218 | R | Force [TT] (MPU1)lo_drc_tc1tractionloopr2 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10219 | I | Set the Running Direction Switch 30A1.S2 to "Reverse" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10220 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1tractionauthorr1 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10221 | R | Check Indicator Lamp 31H1 is ON | TA | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10222 | I | Traction Authorization at V>5km/h | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10223 | I | Safety Doors Loop Train Line Dev4/89 = END2 90XP15 pin 96 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10224 | A | Force [NI] Dev4/89 = 0.0 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10224 | R | Force [NI] Dev4/89 = 0.0 | | OK | 0 | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10225 | R | Read Defined Variable [TT] (MPU1)li_drc_tc1tractionauthorr1 = 1.0 | | OK | 1 | Tshembhani Khosa 446920 | TC1 |

| | | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10226 | I | V>5km/h Train Line<br>Dev4/38 = END2 90XP15 pin 28 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10227 | R | Force [NI] Dev4/38 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10227 | A | Force [NI] Dev4/38 = 1.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10228 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1tractionauthorr1 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10229 | I | PEA Loop Train Line<br>Dev4/62 = END2 90XP15 pin 95 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10230 | A | Force [NI] Dev4/62 = 1.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10230 | R | Force [NI] Dev4/62 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10231 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc1tractionauthorr1 = 1.0 | | OK | 1 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10232 | I | PEA Loop Train Line<br>Dev4/62 = END2 90XP15 pin 95 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10233 | A | Force [NI] Dev4/62 = 0.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10233 | R | Force [NI] Dev4/62 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10234 | I | V>5km/h Train Line<br>Dev4/38 = END2 90XP15 pin 28 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10235 | A | Force [NI] Dev4/38 = 0.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10235 | R | Force [NI] Dev4/38 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10236 | I | Emergency Brake Loop Train Line<br>Dev4/5 = END2 90XP14 pin 8 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10237 | A | Force [NI] Dev4/5 = 0.0 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10237 | R | Force [NI] Dev4/5 = 0.0 | | OK | 0 | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |
| 10238 | A | Release [TT]<br>(MPU1)lo_ubk_tc1emergbraker1 | | OK | | Tshembhani Khosa<br>446920<br>19.05.2025 | TC1 |

| 10239 | A | Release [TT] (MPU1)lo_drc_tc1tractionloopr2 | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10240 | I | Set the Running Direction Switch 30A1.S2 to "Normal" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10241 | A | Turn the Dead Man Override Switch 60S1 to "Normal" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10242 | A | Turn the ERTMS Isolation switch 62S1 to "Normal" position | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |
| 10243 | I | END OF TEST | | OK | | Tshembhani Khosa 446920 19.05.2025 | TC1 |

## Section 18 – Train-Ground Communication

### 18.1 Instructions list

### 18.1.1 063_065_COM-Train-Ground Communication

I - Information      A - Action      R - Result      NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Train-Ground Communication (SPP=063; 065) | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10002 | A | Turn Driver Key 30A1.S1 to Active Cab position | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10003 | I | UHF Radio | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10004 | I | Using the tool list on the side of your screen, note the serial number of the antenna cable tester used in this procedure | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10005 | I | Antenna Cable | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10006 | A | Using the Antenna cable tester, recall a set for the UHF Radio antenna cable | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10007 | A | Ensure the frequency range is 450MHz - 470MHz; Connect the UHF antenna cable to the measuring cable and note the resulting waveform | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10008 | R | The maximum peak of the waveform is =Result Max : x <= 1.5 () | | OK | 1.01 | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10009 | A | Save the waveform result with the following name: TS#(#-Train number)_TC1_ UHF | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10010 | A | Normalize UHF antenna cable | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10011 | I | Power Supply | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10012 | A | Close Circuit Breaker 63Q2 | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10013 | R | Check that the UHF Radio is ON | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10014 | R | Check that the UHF hand-held is ON | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10015 | A | press the volume buttons '+' and '-' on the top of the radio, and endure that the sound level increases and decreases accordingly | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |

| 10016 | A | Open Circuit Breaker 63Q2 | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10017 | R | Check that the UHF Radio is OFF | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10018 | A | Close Circuit Breaker 63Q1 | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10019 | A | Turn the UHF Radio Emergency Supply switch 63S1 to the "Emergency" position, and release it | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10020 | R | Check that the UHF Radio is ON | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10021 | I | After 10 minutes, the UHF Radio should go OFF. Proceed to the next set of steps and validate the next line after 10 minutes. When the Radio goes off, Close 63Q2 to switch on the radio, then continue with the test | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10022 | R | After 10 minutes the UHF Radio turns OFF | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10023 | I | GSMR Radio | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10024 | I | Power Supply GSM_RADIO | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10025 | A | Close Circuit Breaker 65Q2 | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10026 | R | Check that the GSM Radio is ON | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10027 | A | Open Circuit Breaker 65Q2 | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10028 | R | Check that the GSM Radio is OFF | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10029 | A | Close Circuit Breaker 65Q1 | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10030 | A | Turn the GSM Radio Emergency Supply switch 65S1 to the "Emergency" position, and release it | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10031 | R | Check that the GSM Radio is ON | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10032 | I | After 10 minutes, the GSM Radio should go OFF. Proceed to the next set of steps and validate the next line after 10 minutes. | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |

| 10033 | R | After 10 minutes the GSM Radio turns OFF | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10034 | I | Antenna Cable | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10035 | A | Using the Antenna cable tester, recall a set for the GSM Radio antenna cable | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10036 | A | Ensure the frequency range is 876MHz - 960MHz; Connect the GSMR antenna cable to the measuring cable and note the resulting waveform | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10037 | R | The maximum peak of the waveform is =Result Max : x <= 2 () | | OK | 1 | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10038 | A | Save the waveform result with the following name: TS#(#-Train number)_TC1_ GSMR | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10039 | A | Normalize GSMR antenna cable | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10040 | I | HMI Power On | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10041 | I | Proceed with the following steps after the Radio has turned OFF | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10042 | A | Close Circuit Breaker 65Q2 - allow time for the Radio to turn ON | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10043 | A | Turn Driver Key 30A1.S1 to Non-Active Cab position | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10044 | A | Reset (Off then On) Circuit Breaker 20Q2 | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10045 | R | The GSMR HMI Screen turns OFF | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10046 | A | Turn the GSM Radio Emergency Supply switch 65S1 to the "Emergency" position, and release it | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10047 | R | The GSMR HMI Screen turns ON | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10048 | A | Open Circuit Breaker 65Q1 | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10049 | A | Turn Driver Key 30A1.S1 to Active Cab position | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10050 | R | The GSMR turns ON | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10051 | A | Close Circuit Breaker 65Q1 | | OK | | Mlungisi Madela | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 529927 20.05.2025 | |
| 10052 | I | Handset and loud-speaker volume | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10053 | A | Pick up the GSM-R handset. On the GSM-R, press the "11" key | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10054 | R | On the GSM-R MMI, volume symbol flashes above the "11" key. | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10055 | A | Adjust the volume using the arrow upward (louder) or arrow downward (quieter) | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10056 | R | The sound change is audible (in the handset and visible on MMI) immediately | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10057 | A | On the GSM-R, press the "11" key. | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10058 | R | On the GSM-R MMI, volume symbol is no longer flashing above the "11" key. | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10059 | A | Hang up the GSM-R handset. On GSM-R M, Press the "11" key. | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10060 | R | On the GSM-R MMI, volume symbol flashes above the "11" key. | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10061 | A | Adjust the volume using the arrow upward (louder) or arrow downward (quieter) | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10062 | R | The sound change is audible (in the loudspeaker located in the ceiling and visible on MMI) immediately | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10063 | A | On the GSM-R, press the "11" key. | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10064 | R | On the GSM-R M, volume symbol is no longer flashing above the "11" key. | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |
| 10065 | I | END OF TEST | | OK | | Mlungisi Madela 529927 20.05.2025 | TC1 |

## 18.1.2  062_ETC-ERTMS

I - Information        A - Action        R - Result        NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | ERTMS (SPP = 062) | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10002 | I | Ensure Circuit Breaker 62Q1 is OPEN | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10003 | I | DMI Power Supply | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10004 | A | Use the following procedure to perform Electrical Check on the DMI power supply *[17-35-42-280823_ Electrical Check for TC1.pdf]* | PDF | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10005 | A | Close Circuit Breaker 62Q1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10006 | R | The ERTMS Display Unit (MMI) is powered ON | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10007 | A | Place the ERTMS Isolation Switch 62S1 is in Isolation position | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10008 | R | The ERTMS Display Unit (MMI) is powered OFF | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10009 | I | DMI Software Upload | | OK | | Nokuzola Mdluli 491469 28.05.2025 | TC1 |
| 10010 | A | Use the following procedure to upload the DMI software:  *[17-38-29-280824_ DMI Software Upload Procedure.pdf]* | PDF | OK | | Nokuzola Mdluli 491469 28.05.2025 | TC1 |
| 10011 | I | Emergency Brake By ERTMS | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10012 | I | Emergency Brake ERTMS Train lines Dev4/88 =END2 Emergency Brake ERTMS 1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10013 | A | Force [NI] Dev4/88 = 1.0 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10013 | R | Force [NI] Dev4/88 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10014 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk1r1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10015 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk1r2 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 | TC1 |

| | | | | | | 19.05.2025 | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 10016 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk2r1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10017 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk2r2 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10018 | I | Emergency Brake ERTMS Train lines Dev4/80 =END2 Emergency Brake ERTMS 2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10019 | A | Force [NI] Dev4/80 = 1.0 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10019 | R | Force [NI] Dev4/80 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10020 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk1r1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10021 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk1r2 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10022 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk2r1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10023 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk2r2 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10024 | I | Emergency Brake ERTMS Train lines Dev4/88 =END2 Emergency Brake ERTMS 1 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10025 | A | Force [NI] Dev4/88 = 0.0 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10025 | R | Force [NI] Dev4/88 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10026 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk1r1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10027 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk1r2 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10028 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk2r1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10029 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk2r2 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10030 | I | Emergency Brake ERTMS Train lines Dev4/80 =END2 Emergency Brake ERTMS 2 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10031 | A | Force [NI] Dev4/80 = 0.0 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

| 10031 | R | Force [NI] Dev4/80 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10032 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk1r1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10033 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk1r2 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10034 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk2r1 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10035 | R | Read Defined Variable [TT] (MPU1)li_ets_tc1ertmsebk2r2 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10036 | I | ERTMS Bypass/Reset | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10037 | I | ERTMS Bypass Train Lines Dev2/5 = coupler pin 036 Dev2/6 = coupler pin 136 Dev5/37 = END2 train line | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10038 | R | Read Defined Variable [NI] Dev2/5 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10039 | R | Read Defined Variable [NI] Dev2/6 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10040 | R | Read Defined Variable [NI] Dev5/37 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10041 | A | Turn the cab key 30A1.S1 to non-active cab | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10042 | I | ERTMS Bypass Train Lines Dev2/5 = coupler pin 036 Dev2/6 = coupler pin 136 Dev5/37 = END2 train line | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10043 | R | Read Defined Variable [NI] Dev2/5 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10044 | R | Read Defined Variable [NI] Dev2/6 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10045 | R | Read Defined Variable [NI] Dev5/37 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10046 | A | Turn cab key 30A1.S1 to active cab position | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10047 | I | Place the ERTMS switch 62S1 to Normal position | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10048 | I | ERTMS Bypass Train Lines Dev2/5 = coupler pin 036 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Dev2/6 = coupler pin 136<br>Dev5/37 = END2 train line | | | | | |
| 10049 | R | Read Defined Variable [NI] Dev2/5 = 0.0 | | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10050 | R | Read Defined Variable [NI] Dev5/37 = 0.0 | | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10051 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc1ertmsbypassr1 = 0.0 | | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10052 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc1ertmsbypassr2 = 0.0 | | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10053 | R | The indicator Lamp 62H1 is OFF | ERTMS | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10054 | A | Place the ERTMS isolation switch 62S1 in isolation position | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10055 | I | ERTMS Bypass Train Lines<br>Dev2/5 = coupler pin 036<br>Dev2/6 = coupler pin 136<br>Dev5/37 = END2 train line | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10056 | R | Read Defined Variable [NI] Dev2/5 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10057 | R | Read Defined Variable [NI] Dev2/6 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10058 | R | Read Defined Variable [NI] Dev5/37 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10059 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc1ertmsbypassr2 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10060 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc1ertmsbypassr1 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10061 | R | The indicator Lamp 62H1 is ON | ERTMS | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10062 | I | Place the ERTMS switch 62S1 to Normal position | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10063 | A | Force [TT] (MPU1)lo_ets_tc1rstertmsr2 = 1.0 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10063 | R | Force [TT] (MPU1)lo_ets_tc1rstertmsr2 = 1.0 | | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10064 | A | Force [TT] (MPU1)lo_ets_tc1rstertmsr1 = 0.0 | | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10064 | R | Force [TT] (MPU1)lo_ets_tc1rstertmsr1 = 0.0 | | OK | 0 | Sinazo Mkhwa<br>529940 | TC1 |

| | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|
| | | | | | | |
| 10065 | I | ERTMS Bypass Train Lines<br>Dev2/5 = coupler pin 036<br>Dev2/6 = coupler pin 136<br>Dev5/37 = END2 train line | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10066 | R | Read Defined Variable [NI] Dev2/5 = 0.0 | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10067 | R | Read Defined Variable [NI] Dev2/6 = 0.0 | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10068 | R | Read Defined Variable [NI] Dev5/37 = 0.0 | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10069 | A | Force [TT] (MPU1)lo_ets_tc1rstertmsr2 = 0.0 | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10069 | R | Force [TT] (MPU1)lo_ets_tc1rstertmsr2 = 0.0 | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10070 | A | Force [TT] (MPU1)lo_ets_tc1rstertmsr1 = 1.0 | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10070 | R | Force [TT] (MPU1)lo_ets_tc1rstertmsr1 = 1.0 | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10071 | I | ERTMS Bypass Train Lines<br>Dev2/5 = coupler pin 036<br>Dev2/6 = coupler pin 136<br>Dev5/37 = END2 train line | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10072 | R | Read Defined Variable [NI] Dev2/5 = 0.0 | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10073 | R | Read Defined Variable [NI] Dev2/6 = 0.0 | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10074 | R | Read Defined Variable [NI] Dev5/37 = 0.0 | OK | 0 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10075 | A | Force [TT] (MPU1)lo_ets_tc1rstertmsr2 = 1.0 | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10075 | R | Force [TT] (MPU1)lo_ets_tc1rstertmsr2 = 1.0 | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10076 | A | Force [TT] (MPU1)lo_ets_tc1rstertmsr1 = 1.0 | OK | | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10076 | R | Force [TT] (MPU1)lo_ets_tc1rstertmsr1 = 1.0 | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10077 | R | Read Defined Variable [NI] Dev2/5 = 1.0 | OK | 1 | Sinazo Mkhwa<br>529940<br>19.05.2025 | TC1 |
| 10078 | R | Read Defined Variable [NI] Dev2/6 = 1.0 | OK | 1 | Sinazo Mkhwa<br>529940 | TC1 |

| | | | | | | 19.05.2025 | |
|---|---|---|---|---|---|---|---|
| 10079 | R | Read Defined Variable [NI] Dev5/37 = 1.0 | | OK | 1 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10080 | R | The indicator Lamp 62H1 is ON | ERIMS | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10081 | A | Force [TT] (MPU1)lo_ets_tc1rstertmsr2 = 0.0 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10081 | R | Force [TT] (MPU1)lo_ets_tc1rstertmsr2 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10082 | A | Force [TT] (MPU1)lo_ets_tc1rstertmsr1 = 0.0 | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10082 | R | Force [TT] (MPU1)lo_ets_tc1rstertmsr1 = 0.0 | | OK | 0 | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10083 | I | Eurobalise Antenna Cable | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10084 | I | Use the multimeter for continuity test | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10085 | A | Refer to the picture below to test the Eurobalise antenna cables. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10086 | R | ALL the points are continuous from the antenna to End 2. | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |
| 10087 | I | END OF TEST | | OK | | Sinazo Mkhwa 529940 19.05.2025 | TC1 |

## Section 19 – Vehicle Normalization

### 19.1 Instructions list

### 19.1.1 NORM-Vehicle Normalization

I - Information      A - Action      R - Result      NE - Not Executed

| N° | Type | Instruction | File | Result status | Result value | Operator | Vehicle |
|---|---|---|---|---|---|---|---|
| 10001 | I | Initial Conditions | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10002 | I | The VFT procedures are all completed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10003 | I | Vehicle Normalization Check | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10004 | R | On LV1 all Circuit Breakers are installed and secured | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10005 | R | On LV1 all Switches and Buttons are installed properly | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10006 | R | On LV1 all Relays and Timers are installed and secured | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10007 | R | On LV1 all Dataplugs are installed, tightened and earth braids are fastened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10008 | R | On LV1 BRIOMs are properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10009 | R | On LV1 all UMC Rack cards are installed properly | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10010 | R | On LV1 all Connectors are tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10011 | R | On LV1 there are no missing components, device, wiring or connectors. | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10012 | R | On LV2 the MCE is installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10013 | R | On LV2 the GSMR-Radio is installed and properly tightened, and its connectors are tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10014 | R | On LV2 the UHF-Radio is installed and properly tightened, and its connectors are tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10015 | R | On LV2 the FDCU is installed and properly tightened and its connectors are tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10016 | R | On LV2 all Circuit Breakers are installed and secured | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |

| 10017 | R | On LV2 all Connectors are tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|
| 10018 | R | On LV2 there are no missing components, device, wiring or connectors. | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10019 | A | On the Driver's Desk, all Switches and Buttons are installed properly. Refer to the image below. | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10020 | R | On the Driver's Desk, DDU is installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10021 | R | On the Driver's Desk, ERTMS HMI is installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10022 | R | On the Driver's Desk, GSMR HMI and Handset are installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10023 | R | On the Driver's Desk, Speedometer is installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10024 | R | On the Driver's Desk, Pressure Gauge is installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10025 | R | On the Driver's Desk, Alarm Module is installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10026 | R | On the Driver's Desk, Voltage/Traction Indicator is installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10027 | R | On the Driver's Desk, Master Controller is installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10028 | R | On the UDM, all connectors are tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10029 | R | On the UDR, Wiper Controller is properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10030 | R | On the UDL, BRIOMs are properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10031 | R | CPM is properly installed and secured | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10032 | R | Driver Foot Heater is properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10033 | R | On the Cab Ceiling, Lights are all properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10034 | R | On the Cab Ceiling, Speakers are all properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10035 | R | On the Cab Ceiling, Fire Detector is properly installed and secured | | OK | | Nqobile Chirwa 484648 | TC1 |

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|---|---|---|---|---|---|---|---|
| | | | | | | 20.05.2025 | |
| 10036 | R | On the Cab Ceiling, Frontal Camera is properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10037 | R | All DCUs are properly installed and secured | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10038 | R | All Internal Displays are properly installed and secured | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10039 | R | All Light Covers are properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10040 | R | All Saloon Cameras are properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10041 | R | All PEAs and PEIs are properly installed | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10042 | R | On LV7 all Dataplugs are installed, tightened and earth braids are fastened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10043 | R | On HC Cubicle the Controller is installed and properly tightened and its connectors are tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10044 | R | On the LVB, all Relays and Timers are installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10045 | R | On the LVB, all Circuit Breakers are installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10046 | R | On the Underframe, CVS Agate is installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10047 | R | On the Underframe, Speed Sensors are installed and properly tightened | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10048 | R | On the Underframe, Battery Box cables are properly connected | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10049 | R | ALL underframe covers are normalised | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10050 | R | On END1 the Octopus cables are disconnected from the coupler and properly stored. | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10051 | R | On END2 the Octopus cables are disconnected from the car and properly stored. | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10052 | R | The Test Bench is switched OFF and Octopus is disconnected and properly stored | | OK | | Nqobile Chirwa 484648 20.05.2025 | TC1 |
| 10053 | R | ALL P.Os of this car are closed | | OK | | Nokuzola Mdluli 491469 28.05.2025 | TC1 |

| 10054 | I | End Of Test | | OK | | Nokuzola Mdluli<br>491469<br>28.05.2025 | TC1 |
|---|---|---|---|---|---|---|---|

# Section 20 – Report summaries

## 20.2 Results status

| Test Instruction Sheet | Compliant | Incomplete | Non-compliant |
| --- | --- | --- | --- |
| Energy Distribution | X | | |
| TCMS Network | X | | |
| Cabin Control | X | | |
| Internal Lighting | X | | |
| PACIS System | X | | |
| Dead Man | X | | |
| External Signalling | X | | |
| Rescue Mode and Emergency Disconnection | X | | |
| Driver Desk Illumination | X | | |
| Emergency Brake | X | | |
| Service Brake | X | | |
| Holding and Parking Brake | X | | |
| Passenger Doors | X | | |
| HVAC Air Conditioning | X | | |
| Fire Protection | X | | |
| Driving Command | X | | |
| Train-Ground Communication | X | | |
| Vehicle Normalization | X | | |

## 20.1 Tools used

| Function | Tool name | Tool number | Next Calibration date |
| --- | --- | --- | --- |
| 040_SBK | Manometer | Manometer | 8/30/2025 |
| 045_PBK | Manometer | Manometer | 8/30/2025 |

| 057_HVA | Phasemeter | Phasemeter | 9/30/2025 |
|---|---|---|---|
| 057_HVA | Anemometer | Anemometer 1 | 9/30/2025 |
| 062_ETC | Multimeter | Multimeter 4 | 9/30/2025 |
| 063_065_COM | GSM-R - tester | Radio Analyser | 11/10/2025 |

| Vehicle | Equipment | Expected version | Version loaded |
|---|---|---|---|
| 104771007-104771637-283-265 | | | |