PROJECT	CUSTOMER	VEHICLE
Xtrapolis-PRASA	**PRASA**	**240– TC2 – VFT**

RTR Vehicle Functional Static Testing TS240 TC2 Report

GIB0000007036

	CREATED	VERIFIED	APPROVED	DISTRIBUTION
Name	Neliswa MABUNDA	Sifiso LUKHELE	Kgomotso NKOANA	Confidentiality Category *Restricted* ☐ *Project* ☐ *Normal* ☑
Date	19/08/2024	19/08/2024	19/08/2024	Control Category *Controlled* ☑ *Not Controlled* ☐
Signature				Language **EN**

This report has been automatically generated from TES version 1

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number

© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Table of modifications

Rev	Date	Modifications Content	Writer
A0	19/08/2024	Creation	Neliswa MABUNDA

Internal validations

	Name	Function	Date	Signature
Creator	Neliswa MABUNDA	EPU Manager	19/08/2024	X Neliswa MABUNDA EPU Manager
Verifier	Sifiso LUKHELE	Serial Test Manager	19/08/2024	X Sifiso LUKHELE Serial Test Manager
Approver	Kgomotso NKOANA	Test Expert	19/08/2024	X Kgomotso NKOANA Test Expert

Execution Plan

Start Date	12/08/2024
End Date	18/08/2024

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number

© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Contents

Section 1 - Purpose / Objectives

Section 2 - Energy Distribution

2.1 Instructions list

Section 3 - TCMS Network

3.1 Instructions list

Section 4 - Cabin Control

4.1 Instructions list

Section 5 - Internal Lighting

5.1 Instructions list

Section 6 - PACIS System

6.1 Instructions list

Section 7 - Dead Man

7.1 Instructions list

Section 8 - External Signaling

8.1 Instructions list

Section 9 - Rescue Mode and Emergency Disconnection

9.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number

© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 10 - Driver Desk Illumination

10.1 Instructions list

Section 11 - Emergency Brake

11.1 Instructions list

Section 12 - Service Brake

12.1 Instructions list

Section 13 - Holding and Parking Brake

13.1 Instructions list

Section 14 - Passenger Doors

14.1 Instructions list

Section 15 - HVAC Air Conditioning

15.1 Instructions list

Section 16 - Fire Protection

16.1 Instructions list

Section 17 - Driving Command

17.1 Instructions list

Section 18 - Train-Ground Communication

18.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 19 - Vehicle Normalization

19.1 Instructions list

Section 20 - Report summaries

20.1 Results status

20.2 Tools used

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number

© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number

© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 2 – Energy Distribution

2.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Goitsemodimo Kgatitswe - 526511	TC2
10002	I	Initial conditions		OK		Goitsemodimo Kgatitswe - 526511	TC2
10003	I	Car should be de-prepared with non-active cab		OK		Goitsemodimo Kgatitswe - 526511	TC2
10004	I	Car should be without 400Vac shore supply		OK		Goitsemodimo Kgatitswe - 526511	TC2
10005	I	All the Circuit Breakers should be OPEN		OK		Goitsemodimo Kgatitswe - 526511	TC2
10006	I	Connector XBAT+ Positive and XBAT-2 Negative should not be connected to the battery		OK		Goitsemodimo Kgatitswe - 526511	TC2
10007	I	Voltage Isolation		OK		Goitsemodimo Kgatitswe - 526511	TC2
10008	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		Goitsemodimo Kgatitswe - 526511	TC2
10009	R	Cables are correctly connected in the Power Bus XBAT+ Positive (BCOF) and XBAT-1/ XBAT-2 Negative (ISO_BCM)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10010	A	Check Resistance (Ohm) between point XBAT+ Positive of the power bus (BCOF) and car body		OK		Goitsemodimo Kgatitswe - 526511	TC2
10011	R	Value (Ohm) Should be infinite. There is NO Continuity between point XBAT+ Positive of the power bus (BCOF) and car body		OK		Goitsemodimo Kgatitswe - 526511	TC2
10012	A	Check Resistance (Ohm) between point XBAT-1 Negative of the Power Bus (ISO_BCM) and car body		OK		Goitsemodimo Kgatitswe - 526511	TC2
10013	R	Value (Ohm) Should be about 0 Ohm. There is Continuity between point XBAT-1 Negative of the Power Bus (ISO_BCM) and car body		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10014	A	Check Resistance (Ohm) between point XBAT-2 Negative of the Power Bus (ISO_BCM) and car body		OK		Goitsemodimo Kgatitswe - 526511	TC2
10015	R	Value (Ohm) Should be about 0 Ohm. There is Continuity between point XBAT-1 Negative of the Power Bus (ISO_BCM) and car body		OK		Goitsemodimo Kgatitswe - 526511	TC2
10016	I	Close left side cover of the Static Converter (CVS)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10017	A	Put Connector XBAT+ Positive and XBAT-2 Negative in the Battery		OK		Goitsemodimo Kgatitswe - 526511	TC2
10018	R	Confirm the presence of battery voltage (above 80V dc) between Circuit Breaker 15Q2 point 1 and car body. (Permanent Line)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10019	A	Close Circuit Breaker 15Q2 (Permanent Line)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10020	A	Close Circuit Breaker 15Q4 (Permanent Line)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10021	A	Close Circuit Breaker 15Q1 (Normal Line)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10022	A	Close Circuit Breaker 15Q3 (Normal Line)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10023	I	230Vac and 400Vac Isolation		OK		Goitsemodimo Kgatitswe - 526511	TC2
10024	A	Close Circuit Breaker 13Q1 (230Vac)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10025	A	Close Circuit Breaker 13Q3 (230Vac)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10026	A	Close Circuit Breaker 13Q4		OK		Goitsemodimo Kgatitswe - 526511	TC2
10027	I	Permanent and Normal Line		OK		Goitsemodimo Kgatitswe - 526511	TC2
10028	A	Close Circuit Breaker 20Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10029	A	Close Circuit Breaker 18Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10030	A	Close Circuit Breaker 20Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10031	A	Close Circuit Breaker 18Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10032	A	Close Circuit Breaker 25Q6		OK		Goitsemodimo Kgatitswe - 526511	TC2
10033	A	Close Circuit Breaker 27Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10034	A	Prior to Switching the car ON and Plugging the shore supply onto the CVS. Open the CVS Agate cover		OK		Goitsemodimo Kgatitswe - 526511	TC2
10035	R	The AGATE is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10036	I	MCE Software Upload		OK		Goitsemodimo Kgatitswe - 526511	TC2
10037	A	Turn the Backup Mode Switch 27S1 to "Back Up" position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10038	A	Insert a USB programmed with the latest MCE Software into the MCE		OK		Goitsemodimo Kgatitswe - 526511	TC2
10039	A	Close Circuit Breaker 40Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10040	A	Turn Battery Contactor Switch 18S1 to ON Position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10041	A	Wait for about 12 minutes while the MCE is taking the software		OK		Goitsemodimo Kgatitswe - 526511	TC2
10042	A	Open Circuit Breaker 40Q1, remove the USB and Close Circuit Breaker 40Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10043	I	Low voltage watchdog and battery connection		OK		Goitsemodimo Kgatitswe - 526511	TC2
10044	A	Turn Battery Contactor Switch 18S1 to Off Position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10045	A	Turn Driver's Master Key 30A1.S1 to Non Active Cabin		OK		Goitsemodimo Kgatitswe - 526511	TC2
10046	A	Turn the Backup Mode Switch 27S1 to "Normal" position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10047	I	Cab Selected On Train Train Line Dev4/1 = END2 90XP14 pin 3		OK		Goitsemodimo Kgatitswe - 526511	TC2
10048	A	Force [NI] Dev4/1 = 1.0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10049	I	110Vdc Permanent Train Line Dev5/40 = END2 90XP14 pin 29		OK		Goitsemodimo Kgatitswe - 526511	TC2
10050	R	Read Defined Variable [NI] Dev5/40 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10051	I	Cab Selected On Train Train Line Dev4/1 = END2 90XP14 pin 3		OK		Goitsemodimo Kgatitswe - 526511	TC2
10052	A	Force [NI] Dev4/1 = 0.0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10053	A	Reset circuit breaker 15Q4		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10054	R	Check that relay 15K2 is not active		OK		Goitsemodimo Kgatitswe - 526511	TC2
10055	I	110Vdc Permanent Train Line Dev5/40 = END2 90XP14 pin 29		OK		Goitsemodimo Kgatitswe - 526511	TC2
10056	R	Read Defined Variable [NI] Dev5/40 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10057	A	Turn key 30A1.S1 to Active Cabin Position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10058	R	Relay 15K2 is active		OK		Goitsemodimo Kgatitswe - 526511	TC2
10059	I	110Vdc Permanent Train Line Dev5/40 = END2 90XP14 pin 29		OK		Goitsemodimo Kgatitswe - 526511	TC2
10060	R	Read Defined Variable [NI] Dev5/40 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10061	A	Turn Battery Contactor Switch 18S1 to ON Position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10062	A	Wait only for TCMS to initialize		OK		Goitsemodimo Kgatitswe - 526511	TC2
10063	A	Whilst PACIS is still initializing, turn and hold 18S1 to OFF position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10064	R	Read Defined Variable [TT] (MPU1)li_nrg_tc2battoffreqr1___1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10065	R	Read Defined Variable [TT] (MPU1)li_nrg_tc2battoffreqr2___1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10066	A	Put Battery Contactor Switch 18S1 to normal position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10067	I	Battery Connection Train Line Dev2/76 = Coupler pin 012 Dev2/80 = Coupler pin 112 Dev5/79 = END2 90XP14 pin 30		OK		Goitsemodimo Kgatitswe - 526511	TC2
10068	R	Read Defined Variable [NI] Dev2/76 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10069	R	Read Defined Variable [NI] Dev2/80 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10070	R	Read Defined Variable [NI] Dev5/79 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10071	I	Battery Disconnection Train Line Dev2/77 = Coupler pin 027 Dev2/40 = Coupler pin 127 Dev5/75 = END2 90XP14 pin 31		OK		Goitsemodimo Kgatitswe - 526511	TC2
10072	R	Read Defined Variable [NI] Dev2/77 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10073	R	Read Defined Variable [NI] Dev2/40 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10074	R	Read Defined Variable [NI] Dev5/75 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10075	I	AC address coding and Shore Supply Mode		OK		Goitsemodimo Kgatitswe - 526511	TC2
10076	A	Use the AGATE to shut down the train		OK		Goitsemodimo Kgatitswe - 526511	TC2
10077	A	Remove connector -18XP11_1 from the Auxiliary Converter		OK		Goitsemodimo Kgatitswe - 526511	TC2
10078	A	Check continuity between pins 51 and 52 ; and pins 63 and 64 on connector 18XP11_1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10079	R	Pins 51 and 52 are continuous; and pins 63 and 64 are continuous		OK		Goitsemodimo Kgatitswe - 526511	TC2
10080	A	Switch ON the IES Status on the test bench to make available the IES STATUS signal in the Auxiliary Converter		OK		Goitsemodimo Kgatitswe - 526511	TC2
10081	R	Check continuity between point 65 and point 70 (IES STATUS) on connector -18XP11_1 from the Auxiliary Converter (ACU)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10082	A	Return the connector -18XP11_1 into the Auxiliary Converter		OK		Goitsemodimo Kgatitswe - 526511	TC2
10083	A	Turn Switch "27S1'' (Backup Mode Position) to 'Normal Mode'		OK		Goitsemodimo Kgatitswe - 526511	TC2
10084	I	Turn the ACU Isolation Switch 18S3 to "Normal" position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10085	A	Turn Battery Contactor Switch "18S1" to ON Position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10086	I	In LV1 , check the voltage on point 2 of CB 18Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10087	R	Voltage on point 2 of CB 18Q1		OK	110	Goitsemodimo Kgatitswe - 526511	TC2
10088	I	NOTE: When shore supply is connected to Auxiliary 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		Goitsemodimo Kgatitswe - 526511	TC2
10089	A	Ensure shore supply power source is off. Input Shore Supply Connector on Auxiliary Converter and switch it on		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10090	R	Auxiliary Converter is working		OK		Goitsemodimo Kgatitswe - 526511	TC2
10091	R	In LV1 , check the voltage on point 2 of CB 18Q1, compare with the value read before, and see that the new value is higher than before		OK		Goitsemodimo Kgatitswe - 526511	TC2
10092	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		Goitsemodimo Kgatitswe - 526511	TC2
10093	R	Phase rotation between U,V,W is correct		OK		Goitsemodimo Kgatitswe - 526511	TC2
10094	R	Check 230Vac between points L and N of the plug -13XT2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10095	R	Check 230Vac between points L and N of the plug -13XT3		OK		Goitsemodimo Kgatitswe - 526511	TC2
10096	A	Switch off the shore supply power source and remove the external shore supply		OK		Goitsemodimo Kgatitswe - 526511	TC2
10097	A	Switch OFF the IES Status on the test bench to normalize the lines of status signal (IES STATUS)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10098	R	The battery is no longer being charged		OK		Goitsemodimo Kgatitswe - 526511	TC2
10099	R	Check 0Vac between points L and N of the plug -13XT2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10100	R	Check 0Vac between points L and N of the plug -13XT3		OK		Goitsemodimo Kgatitswe - 526511	TC2
10101	I	Battery Disconnection		OK		Goitsemodimo Kgatitswe - 526511	TC2
10102	A	Turn Driver's Master Key 30A1.S1 to Non Active Cabin		OK		Goitsemodimo Kgatitswe - 526511	TC2
10103	R	Battery is still connected to the Normal Line		OK		Goitsemodimo Kgatitswe - 526511	TC2
10104	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10105	A	Turn Switch "27S1'' (Backup Mode Position) to 'Back up Mode'		OK		Goitsemodimo Kgatitswe - 526511	TC2
10106	I	Battery Disconnection Train Line Dev4/75 = END2 90XP14 pin 31 Dev2/77 = Coupler pin 027 Dev2/40 = Coupler pin 127		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10107	A	Force [NI] Dev4/75 = 1.0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10108	R	Read Defined Variable [NI] Dev2/77 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10109	R	Read Defined Variable [NI] Dev2/40 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10110	R	The Normal Line is disconnected from the battery		OK		Goitsemodimo Kgatitswe - 526511	TC2
10111	I	Battery Disconnection Train Line Dev4/75 = END2 90XP14 pin 31 Dev2/77 = Coupler pin 027 Dev2/40 = Coupler pin 127		OK		Goitsemodimo Kgatitswe - 526511	TC2
10112	A	Force [NI] Dev4/75 = 0.0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10113	R	Read Defined Variable [NI] Dev2/77 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10114	R	Read Defined Variable [NI] Dev2/40 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10115	I	Battery Connection Train Line Dev2/76 = Coupler pin 012 Dev2/80 = Coupler pin 112 Dev5/79 = END2 90XP14 pin 30		OK		Goitsemodimo Kgatitswe - 526511	TC2
10116	R	Read Defined Variable [NI] Dev2/76 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10117	R	Read Defined Variable [NI] Dev2/80 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10118	R	Read Defined Variable [NI] Dev5/79 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10119	A	Turn Battery Contactor Switch 18S1 to ON Position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10120	I	Shore Supply Power ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10121	A	Turn the IES STATUS toggle switch on the Testbench into IES2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10122	A	Ensure shore supply power source is off. Input Shore Supply Connector on Auxiliary Converter and switch it on		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 3 – TCMS Network

3.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Anthonia Mabowa - 494131	TC2
10002	I	Initial conditions		OK		Anthonia Mabowa - 494131	TC2
10003	I	Backup Mode Switch 27S1 in "Normal" Position		OK		Anthonia Mabowa - 494131	TC2
10004	I	Car should be prepared (Battery contactor switch 18S1 in ON position)		OK		Anthonia Mabowa - 494131	TC2
10005	I	Vehicle test bench should be configured as TC1: 1. TC1 Data plugs 2. MCE switch set to TC1		OK		Anthonia Mabowa - 494131	TC2
10006	I	The test bench should be connected to the vehicle		OK		Anthonia Mabowa - 494131	TC2
10007	I	Power supply to the 25A2 BRIOM 32/16 ETH 2		OK		Anthonia Mabowa - 494131	TC2
10008	A	Close Circuit Breaker 25Q2		OK		Anthonia Mabowa - 494131	TC2
10009	R	BRIOM 25A2 is ON		OK		Anthonia Mabowa - 494131	TC2
10010	A	Check visually that ground braid is connected to BRIOM		OK		Anthonia Mabowa - 494131	TC2
10011	I	Power supply to the 25A3 BRIOM 32/16 ETH 3		OK		Anthonia Mabowa - 494131	TC2
10012	A	Close Circuit Breaker 25Q3		OK		Anthonia Mabowa - 494131	TC2
10013	R	BRIOM 25A3 is ON		OK		Anthonia Mabowa - 494131	TC2
10014	A	Check visually that ground braid is connected to BRIOM		OK		Anthonia Mabowa - 494131	TC2
10015	I	Power supply to the 25A4 BRIOM 32/16 ETH 4		OK		Anthonia Mabowa - 494131	TC2
10016	A	Close Circuit Breaker 25Q4		OK		Anthonia Mabowa - 494131	TC2
10017	R	BRIOM 25A4 is ON		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10018	A	Check visually that ground braid is connected to BRIOM		OK		Anthonia Mabowa - 494131	TC2
10019	I	Power supply to the 25A5 BRIOM 32/16 ETH 5		OK		Anthonia Mabowa - 494131	TC2
10020	A	Close Circuit Breaker 25Q5		OK		Anthonia Mabowa - 494131	TC2
10021	R	BRIOM 25A5 is ON		OK		Anthonia Mabowa - 494131	TC2
10022	A	Check visually that ground braid is connected to BRIOM		OK		Anthonia Mabowa - 494131	TC2
10023	I	Power supply to the 25A6 BRIOM 32/16 ETH 6		OK		Anthonia Mabowa - 494131	TC2
10024	A	Close Circuit Breaker 25Q6		OK		Anthonia Mabowa - 494131	TC2
10025	R	BRIOM 25A6 is ON		OK		Anthonia Mabowa - 494131	TC2
10026	A	Check visually that ground braid is connected to BRIOM		OK		Anthonia Mabowa - 494131	TC2
10027	I	Power supply to the 25A7 BRIOM 32/16 ETH 7		OK		Anthonia Mabowa - 494131	TC2
10028	A	Close Circuit Breaker 25Q7		OK		Anthonia Mabowa - 494131	TC2
10029	R	BRIOM 25A7 is ON		OK		Anthonia Mabowa - 494131	TC2
10030	A	Check visually that ground braid is connected to BRIOM		OK		Anthonia Mabowa - 494131	TC2
10031	I	Power supply to the 25A11 SWITCH ETHERNET (CRS2)		OK		Anthonia Mabowa - 494131	TC2
10032	A	Close Circuit Breaker 25Q11		OK		Anthonia Mabowa - 494131	TC2
10033	R	CRS2 25A11 is ON		OK		Anthonia Mabowa - 494131	TC2
10034	I	Power supply to the 25A12 SWITCH ETHERNET (CRS3)		OK		Anthonia Mabowa - 494131	TC2
10035	A	Close Circuit Breaker 25Q12		OK		Anthonia Mabowa - 494131	TC2
10036	R	CRS3 25A12 is ON		OK		Anthonia Mabowa - 494131	TC2
10037	I	Power supply to the 25A15 TRAIN ROUTER SWITCH (TRS)		OK		Anthonia Mabowa - 494131	TC2
10038	A	Close Circuit Breaker 25Q15		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10039	R	TRS 25A15 is ON		OK		Anthonia Mabowa - 494131	TC2
10040	A	Close Circuit Breaker 25Q14		OK		Anthonia Mabowa - 494131	TC2
10041	A	Close Circuit Breaker 25Q10		OK		Anthonia Mabowa - 494131	TC2
10042	I	Power supply to the 25A10 SWITCH ETHERNET (CRS1)		OK		Anthonia Mabowa - 494131	TC2
10043	R	CRS1 25A10 is ON		OK		Anthonia Mabowa - 494131	TC2
10044	I	Power supply to the 25A14 ETHERNET REPEATER (TBR)		OK		Anthonia Mabowa - 494131	TC2
10045	R	TBR 25A14 is ON		OK		Anthonia Mabowa - 494131	TC2
10046	I	Power supply to the 25A17 DDU ACE		OK		Anthonia Mabowa - 494131	TC2
10047	A	Close Circuit Breaker 25Q17		OK		Anthonia Mabowa - 494131	TC2
10048	R	The DDU is ON		OK		Anthonia Mabowa - 494131	TC2
10049	I	DDU Software Upload		OK		Anthonia Mabowa - 494131	TC2
10050	I	Perform the following procedure to upload software on the DDU		OK		Anthonia Mabowa - 494131	TC2
10051	I	Ethernet Loop		OK		Anthonia Mabowa - 494131	TC2
10052	A	Check that the LED on ETH0 of the TBR is flashing		OK		Anthonia Mabowa - 494131	TC2
10053	R	The TBR has LED on port ETH0 flashing		OK		Anthonia Mabowa - 494131	TC2
10054	A	For each CRS, check that the LEDs on ports X3 and X4 are flashing		OK		Anthonia Mabowa - 494131	TC2
10055	R	CRS1 has LEDs on ports X3 and X4 flashing		OK		Anthonia Mabowa - 494131	TC2
10056	R	CRS2 has LEDs on ports X3 and X4 flashing		OK		Anthonia Mabowa - 494131	TC2
10057	R	CRS3 has LEDs on ports X3 and X4 flashing		OK		Anthonia Mabowa - 494131	TC2
10058	A	Check that the TRS has LEDs on ports ETH4 and ETH5 flashing		OK		Anthonia Mabowa - 494131	TC2
10059	R	The TRS has LEDs on ports ETH4 and ETH5 flashing		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10060	R	Check on the DDU that all Router Switches are available on the network		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 4 – Cabin Control

4.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Anthonia Mabowa - 494131	TC2
10002	I	Initial Conditions		OK		Anthonia Mabowa - 494131	TC2
10003	I	Vehicle test bench should be configured as TC1: 1. TC1 Data plugs 2. MCE should reflect as MPU1		OK		Anthonia Mabowa - 494131	TC2
10004	I	Shore Supply is connected and ON		OK		Anthonia Mabowa - 494131	TC2
10005	I	Car should be prepared		OK		Anthonia Mabowa - 494131	TC2
10006	I	Cabin should be active		OK		Anthonia Mabowa - 494131	TC2
10007	I	Use the voltage detector/ magnetic stick to check whether a relay is energized or not		OK		Anthonia Mabowa - 494131	TC2
10008	I	Normal Mode - Active Cabin		OK		Anthonia Mabowa - 494131	TC2
10009	R	Read Defined Variable [TT] (MPU1)li_cab_tc2masterkey___1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10010	I	Cab Active TC2 Train Line Dev5/2 = END2 90XP14 pin 4		OK		Anthonia Mabowa - 494131	TC2
10011	R	Read Defined Variable [NI] Dev5/2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10012	I	Master Key TC2 Train Line Dev5/17 = END2 90XP14 pin 17		OK		Anthonia Mabowa - 494131	TC2
10013	R	Read Defined Variable [NI] Dev5/17 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10014	R	Read Defined Variable [TT] (MPU1)li_cab_tc2keyrelayr1___1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10015	R	Read Defined Variable [TT] (MPU1)li_cab_tc2keyrelayr2___1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10016	R	Read Defined Variable [TT] (MPU1)li_cab_tc2keyrelayr3 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10017	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2KeyRelayR4 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10018	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10019	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10020	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR3 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10021	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR4 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10022	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR5 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10023	R	Read Defined Variable [TT] (MPU1)li_cab_tc2cabinactiveno = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10024	A	Force [TT] (MPU1)lo_cab_tc2cabdisconnectr1 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10025	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10026	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10027	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR3 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10028	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR4 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10029	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR5 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10030	R	Read Defined Variable [TT] (MPU1)li_cab_tc2cabinactiveno = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10031	I	Cab Active TC2 Train Line Dev5/2 = END2 90XP14 pin 4		OK		Anthonia Mabowa - 494131	TC2
10032	R	Read Defined Variable [NI] Dev5/2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10033	A	Force [TT] (MPU1)lo_cab_tc2cabdisconnectr1 = 0.0		OK		Anthonia Mabowa - 494131	TC2
10034	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10035	I	Normal Mode - Non-Active Cabin - 20K2 Memory		OK		Anthonia Mabowa - 494131	TC2
10036	A	Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10037	I	Master Key TC2 Train Line Dev5/17 = END2 90XP14 pin 17		OK		Anthonia Mabowa - 494131	TC2
10038	R	Read Defined Variable [NI] Dev5/17 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10039	R	Read Defined Variable [TT] (MPU1)li_cab_tc2masterkey___1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10040	R	Read Defined Variable [TT] (MPU1)li_cab_tc2keyrelayr1___1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10041	R	Read Defined Variable [TT] (MPU1)li_cab_tc2keyrelayr2___1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10042	R	Read Defined Variable [TT] (MPU1)li_cab_tc2keyrelayr3 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10043	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2KeyRelayR4 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10044	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10045	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10046	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR3 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10047	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR4 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10048	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR5 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10049	R	Read Defined Variable [TT] (MPU1)li_cab_tc2cabinactiveno = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10050	A	Force [TT] (MPU1)lo_cab_tc2cabdisconnectr2 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10051	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10052	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10053	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR3 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10054	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR4 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10055	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2CabinActiveR5 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10056	R	Read Defined Variable [TT] (MPU1)li_cab_tc2cabinactiveno = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10057	A	Release [TT] (MPU1)lo_cab_tc2cabdisconnectr1		OK		Anthonia Mabowa - 494131	TC2
10058	A	Release [TT] (MPU1)lo_cab_tc2cabdisconnectr2		OK		Anthonia Mabowa - 494131	TC2
10059	I	Other Cab Active		OK		Anthonia Mabowa - 494131	TC2
10060	R	Read Defined Variable [TT] (MPU1)li_cab_tc2othercabinactive___1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10061	I	Cab Selected on Train Line Dev4/1 = END2 90XP14 pin 3 Dev2/1 = COUPLER pin 040 Dev2/2 = COUPLER pin 140		OK		Anthonia Mabowa - 494131	TC2
10062	A	Force [NI] Dev4/1 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10063	R	Read Defined Variable [NI] Dev2/1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10064	R	Read Defined Variable [NI] Dev2/2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10065	R	Read Defined Variable [TT] (MPU1)li_cab_tc2othercabinactive___1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
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		Anthonia Mabowa - 494131	TC2
10067	A	Force [NI] Dev4/1 = 0.0		OK		Anthonia Mabowa - 494131	TC2
10068	R	Read Defined Variable [NI] Dev2/1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10069	R	Read Defined Variable [NI] Dev2/2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10070	R	Read Defined Variable [TT] (MPU1)li_cab_tc2othercabinactive___1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10071	I	Backup Mode - Active Cabin		OK		Anthonia Mabowa - 494131	TC2
10072	A	Turn Switch '27S1' (Backup Mode Position) to 'BACKUP Position		OK		Anthonia Mabowa - 494131	TC2
10073	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10074	I	Cab Selected on Train Train Line Dev5/1 = END2 90XP14 pin 3		OK		Anthonia Mabowa - 494131	TC2
10075	R	Read Defined Variable [NI] Dev5/1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10076	R	Check Relay "20K1" is Energized		OK		Anthonia Mabowa - 494131	TC2
10077	R	Check Relay "20K1a" is Energized		OK		Anthonia Mabowa - 494131	TC2
10078	R	Check Relay "20K1b" is Energized		OK		Anthonia Mabowa - 494131	TC2
10079	R	Check Relay "20K1c" is Energized		OK		Anthonia Mabowa - 494131	TC2
10080	R	Check Relay "20K2" is Energized		OK		Anthonia Mabowa - 494131	TC2
10081	R	Check Relay "20K11" is Energized		OK		Anthonia Mabowa - 494131	TC2
10082	R	Check Relay "20K12a" is Energized		OK		Anthonia Mabowa - 494131	TC2
10083	R	Check Relay "20K12b" is Energized		OK		Anthonia Mabowa - 494131	TC2
10084	R	Check Relay "20K10b" is Energized		OK		Anthonia Mabowa - 494131	TC2
10085	I	Backup Mode- Non-Active Cabin		OK		Anthonia Mabowa - 494131	TC2
10086	A	Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position		OK		Anthonia Mabowa - 494131	TC2
10087	I	Cab Selected on Train Train Line Dev5/1 = END2 90XP14 pin 3		OK		Anthonia Mabowa - 494131	TC2
10088	R	Read Defined Variable [NI] Dev5/1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10089	R	Check Relay "20K1" is De-energized		OK		Anthonia Mabowa - 494131	TC2
10090	R	Check Relay "20K1a" is De-energized		OK		Anthonia Mabowa - 494131	TC2
10091	R	Check Relay "20K1b" is De-energized		OK		Anthonia Mabowa - 494131	TC2
10092	R	Check Relay "20K1c" is De-energized		OK		Anthonia Mabowa - 494131	TC2
10093	R	Check Relay "20K2" is De-energized		OK		Anthonia Mabowa - 494131	TC2
10094	R	Check Relay "20K11" is De-energized		OK		Anthonia Mabowa - 494131	TC2
10095	R	Check Relay "20K12a" is De-energized		OK		Anthonia Mabowa - 494131	TC2
10096	R	Check Relay "20K12b" is De-energized		OK		Anthonia Mabowa - 494131	TC2
10097	R	Check Relay "20K10b" is De-energized		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10098	I	Automatic Start		OK		Anthonia Mabowa - 494131	TC2
10099	A	Turn Battery Contactor Switch 18S1" to OFF position		OK		Anthonia Mabowa - 494131	TC2
10100	A	Turn Switch '27S1' (Backup Mode Position) to 'Normal' Position		OK		Anthonia Mabowa - 494131	TC2
10101	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Anthonia Mabowa - 494131	TC2
10102	A	Turn Battery Contactor Switch 18S1" to ON position - Allow time for TCMS to start up		OK		Anthonia Mabowa - 494131	TC2
10103	A	Close Circuit Breaker 84Q1		OK		Anthonia Mabowa - 494131	TC2
10104	A	Press and hold the Automatic Start Pushbutton 20S1		OK		Anthonia Mabowa - 494131	TC2
10105	R	Read Defined Variable [TT] (MPU1)li_cab_tc2automaticstartr1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10106	R	Read Defined Variable [TT] (MPU1)li_cab_tc2automaticstartr2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10107	R	Read Defined Variable [TT] (MPU1)lo_cab_tc2automaticstartr1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10108	R	Read Defined Variable [TT] (MPU1)lo_cab_tc2automaticstartr2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10109	R	Check that the pushbutton lamp on 20S1 is ON		OK		Anthonia Mabowa - 494131	TC2
10110	A	Release the Automatic Start Pushbutton 20S1		OK		Anthonia Mabowa - 494131	TC2
10111	R	Read Defined Variable [TT] (MPU1)li_cab_tc2automaticstartr1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10112	R	Read Defined Variable [TT] (MPU1)li_cab_tc2automaticstartr2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10113	R	Read Defined Variable [TT] (MPU1)lo_cab_tc2automaticstartr1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10114	R	Read Defined Variable [TT] (MPU1)lo_cab_tc2automaticstartr2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10115	I	Standby Mode		OK		Anthonia Mabowa - 494131	TC2
10116	A	Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10117	A	Press and hold the Standby State pushbutton 20S2		OK		Anthonia Mabowa - 494131	TC2
10118	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2ISMR1___1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10119	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2ISMR2___1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10120	A	Release the Standby State pushbutton 20S2		OK		Anthonia Mabowa - 494131	TC2
10121	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2ISMR1___1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10122	R	Read Defined Variable [TT] (MPU1)Li_CAB_Tc2ISMR2___1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10123	A	Force [TT] (MPU1)lo_cab_tc2ismlamp = 1.0		OK		Anthonia Mabowa - 494131	TC2
10124	R	The Standby State pushbutton lamp 20S2 is ON		OK		Anthonia Mabowa - 494131	TC2
10125	A	Release [TT] (MPU1)lo_cab_tc2ismlamp		OK		Anthonia Mabowa - 494131	TC2
10126	R	The Standby State pushbutton lamp 20S2 is OFF		OK		Anthonia Mabowa - 494131	TC2
10127	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 5 – Internal Lighting

5.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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=052)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10002	I	Initial Conditions		OK		Goitsemodimo Kgatitswe - 526511	TC2
10003	I	Car should be prepared		OK		Goitsemodimo Kgatitswe - 526511	TC2
10004	I	Key 30A1.S1 should be in Active Cabin position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10005	I	Circuit Breakers		OK		Goitsemodimo Kgatitswe - 526511	TC2
10006	A	Close Circuit Breaker 52Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10007	A	Close Circuit Breaker 52Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10008	A	Close Circuit Breaker 52Q3		OK		Goitsemodimo Kgatitswe - 526511	TC2
10009	A	Close Circuit Breaker 52Q4		OK		Goitsemodimo Kgatitswe - 526511	TC2
10010	A	Close Circuit Breaker 52Q5		OK		Goitsemodimo Kgatitswe - 526511	TC2
10011	A	Close Circuit Breaker 52Q6		OK		Goitsemodimo Kgatitswe - 526511	TC2
10012	I	Cab Ceiling Lighting		OK		Goitsemodimo Kgatitswe - 526511	TC2
10013	A	Turn battery contactor switch 18S1 to OFF position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10014	A	Wait 3 minutes for cab lights to switch off		OK		Goitsemodimo Kgatitswe - 526511	TC2
10015	R	All cabin ceiling lights are OFF (52U40, 52U41,52U42)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10016	R	Both cab ceiling light pushbutton lamps are OFF (52S3 Left and 52S4 Right)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10017	A	Push the cab lighting LEFT side button (52S3)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10018	I	Wait 3 minutes for the lights to turn off. Continue with the following steps while waiting		OK		Goitsemodimo Kgatitswe - 526511	TC2
10019	R	Cabin ceiling light 52U40 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10020	R	Cabin ceiling light 52U41 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10021	R	Cabin ceiling light 52U42 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10022	R	Left pushbutton lamp 52S3 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10023	R	Right pushbutton lamp 52S4 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10024	A	Press and hold the cab lighting LEFT side button (52S3)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10025	R	The intensity of cabin ceiling light 52U40 decreases		OK		Goitsemodimo Kgatitswe - 526511	TC2
10026	R	The intensity of cabin ceiling light 52U41 decreases		OK		Goitsemodimo Kgatitswe - 526511	TC2
10027	R	The intensity of cabin ceiling light 52U42 decreases		OK		Goitsemodimo Kgatitswe - 526511	TC2
10028	A	Release cab lighting LEFT side button (52S3)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10029	I	After the 180s (3 min) timer is expired		OK		Goitsemodimo Kgatitswe - 526511	TC2
10030	R	Cabin ceiling light 52U40 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10031	R	Cabin ceiling light 52U41 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10032	R	Cabin ceiling light 52U42 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10033	R	Left pushbutton lamp 52S3 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10034	R	Right pushbutton lamp 52S4 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10035	A	Push the cab lighting RIGHT side button (52S4)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10036	R	Cabin ceiling light 52U40 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10037	R	Cabin ceiling light 52U41 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10038	R	Cabin ceiling light 52U42 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10039	R	Right pushbutton lamp 52S4 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10040	A	Push the cab lighting RIGHT side button (52S4)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10041	R	Cabin ceiling light 52U40 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10042	R	Cabin ceiling light 52U41 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10043	R	Cabin ceiling light 52U42 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10044	R	Right pushbutton lamp 52S4 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10045	I	Turn battery contactor switch 18S1 to ON position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10046	R	In the saloon, all RIGHT side emergency lights are ON on all light modules		OK		Goitsemodimo Kgatitswe - 526511	TC2
10047	R	In the saloon, all LEFT side emergency lights are ON on all light modules		OK		Goitsemodimo Kgatitswe - 526511	TC2
10048	R	Both cab ceiling light pushbutton lamps are OFF (52S3 Left and 52S4 Right)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10049	A	Press and hold the cab lighting RIGHT side button (52S4)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10050	R	The intensity of cabin ceiling light 52U40 decreases		OK		Goitsemodimo Kgatitswe - 526511	TC2
10051	R	The intensity of cabin ceiling light 52U41 decreases		OK		Goitsemodimo Kgatitswe - 526511	TC2
10052	R	The intensity of cabin ceiling light 52U42 decreases		OK		Goitsemodimo Kgatitswe - 526511	TC2
10053	A	Release cab lighting LEFT side button (52S4)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10054	A	Open Circuit Breaker 52Q6		OK		Goitsemodimo Kgatitswe - 526511	TC2
10055	A	Press and hold the Lamp Test pushbutton 84S1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10056	R	Both cab ceiling light pushbutton lamps are ON (52S3 Left and 52S4 Right)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10057	A	Release the Lamp Test pushbutton 84S1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10058	R	Both cab ceiling light pushbutton lamps are OFF (52S3 Left and 52S4 Right)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10059	A	Close Circuit Breaker 52Q6		OK		Goitsemodimo Kgatitswe - 526511	TC2
10060	I	Cleaning Light Command		OK		Goitsemodimo Kgatitswe - 526511	TC2
10061	I	Turn battery contactor switch 18S1 to OFF position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10062	A	Turn Cleaning Staff Lights Switch 52S6 to ON position		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10063	I	Lighting 33% Train Line Dev5/8 = END2 90XP15 pin 27		OK		Goitsemodimo Kgatitswe - 526511	TC2
10064	R	Read Defined Variable [NI] Dev5/8 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10065	R	The saloon RIGHT side emergency lights (low intensity) are ON on all light modules		OK		Goitsemodimo Kgatitswe - 526511	TC2
10066	R	The saloon LEFT side emergency lights (low intensity) are ON on all light modules		OK		Goitsemodimo Kgatitswe - 526511	TC2
10067	A	Open Circuit Breaker 52Q5		OK		Goitsemodimo Kgatitswe - 526511	TC2
10068	I	Lighting 33% Train Line Dev5/8 = END2 90XP15 pin 27		OK		Goitsemodimo Kgatitswe - 526511	TC2
10069	R	Read Defined Variable [NI] Dev5/8 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10070	R	The saloon RIGHT side emergency lights (low intensity) are OFF on all light modules		OK		Goitsemodimo Kgatitswe - 526511	TC2
10071	R	The saloon LEFT side emergency lights (low intensity) are OFF on all light modules		OK		Goitsemodimo Kgatitswe - 526511	TC2
10072	A	Close Circuit Breaker 52Q5		OK		Goitsemodimo Kgatitswe - 526511	TC2
10073	I	Main Light Command		OK		Goitsemodimo Kgatitswe - 526511	TC2
10074	A	Turn Cleaning Staff Lights Switch 52S6 to ON position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10075	I	Lighting 33% Train Line Dev5/8 = END2 90XP15 pin 27		OK		Goitsemodimo Kgatitswe - 526511	TC2
10076	R	Read Defined Variable [NI] Dev5/8 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10077	R	All saloon emergency lights (low intensity) are ON on all light modules (Left+Right)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10078	I	Turn battery contactor switch 18S1 to ON position - allow time for TCMS to initialize		OK		Goitsemodimo Kgatitswe - 526511	TC2
10079	A	Force [TT] (MPU1)Io_lgt_tc2mainlgtcmd = 1.0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10080	I	Lighting 33% Train Line Dev5/8 = END2 90XP15 pin 27		OK		Goitsemodimo Kgatitswe - 526511	TC2
10081	R	Read Defined Variable [NI] Dev5/8 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10082	I	Main Lighting Command Train Line Dev5/24 = END2 90XP15 pin 26		OK		Goitsemodimo Kgatitswe - 526511	TC2
10083	R	Read Defined Variable [NI] Dev5/24 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10084	R	The saloon RIGHT side main lighting (high intensity) is ON on all light modules		OK		Goitsemodimo Kgatitswe - 526511	TC2
10085	R	The saloon LEFT side main lighting (high intensity) is ON on all light modules		OK		Goitsemodimo Kgatitswe - 526511	TC2
10086	A	Release [TT] (MPU1)lo_lgt_tc2mainlgtcmd		OK		Goitsemodimo Kgatitswe - 526511	TC2
10087	I	Main Lighting Command Train Line Dev5/24 = END2 90XP15 pin 26		OK		Goitsemodimo Kgatitswe - 526511	TC2
10088	R	Read Defined Variable [NI] Dev5/24 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10089	I	Lighting 33% Train Line Dev5/8 = END2 90XP15 pin 27		OK		Goitsemodimo Kgatitswe - 526511	TC2
10090	R	Read Defined Variable [NI] Dev5/8 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10091	R	All saloon emergency lights (low intensity) are ON on all light modules (Left+Right)		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 6 – PACIS System

6.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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	TC2
10002	I	Initial conditions		OK		Sinazo Mkhwa - 529940	TC2
10003	I	Car must be prepared - battery contactor 18S1 closed		OK		Sinazo Mkhwa - 529940	TC2
10004	I	Circuit Breakers		OK		Sinazo Mkhwa - 529940	TC2
10005	A	Close Circuit Breaker 54Q1		OK		Sinazo Mkhwa - 529940	TC2
10006	A	Close Circuit Breaker 54Q2		OK		Sinazo Mkhwa - 529940	TC2
10007	A	Close Circuit Breaker 54Q3		OK		Sinazo Mkhwa - 529940	TC2
10008	A	Close Circuit Breaker 54Q10		OK		Sinazo Mkhwa - 529940	TC2
10009	A	Close Circuit Breaker 54Q11		OK		Sinazo Mkhwa - 529940	TC2
10010	A	Close Circuit Breaker 54Q13		OK		Sinazo Mkhwa - 529940	TC2
10011	A	Close Circuit Breaker 54Q15		OK		Sinazo Mkhwa - 529940	TC2
10012	A	Close Circuit Breaker 55Q1		OK		Sinazo Mkhwa - 529940	TC2
10013	A	Close Circuit Breaker 55Q2		OK		Sinazo Mkhwa - 529940	TC2
10014	A	Close Circuit Breaker 55Q3		OK		Sinazo Mkhwa - 529940	TC2
10015	I	Train Router Switch 'TRS'		OK		Sinazo Mkhwa - 529940	TC2
10016	R	TRS1 is ON		OK		Sinazo Mkhwa - 529940	TC2
10017	I	Power Supply to UMC Rack		OK		Sinazo Mkhwa - 529940	TC2
10018	R	All cards on the UMC Rack are ON - PS, EBM, DPC-IOC, NVR, Media Server		OK		Sinazo Mkhwa - 529940	TC2
10019	I	Driver Control Panel		OK		Sinazo Mkhwa - 529940	TC2
10020	R	Driver Control Panel is ON		OK		Sinazo Mkhwa - 529940	TC2
10021	I	Ethernet Switch 'CRS1'		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10022	R	CRS1 is ON		OK		Sinazo Mkhwa - 529940	TC2
10023	I	DPAI-1		OK		Sinazo Mkhwa - 529940	TC2
10024	R	DPAI-1 is ON		OK		Sinazo Mkhwa - 529940	TC2
10025	I	DPAI-2		OK		Sinazo Mkhwa - 529940	TC2
10026	R	DPAI-2 is ON		OK		Sinazo Mkhwa - 529940	TC2
10027	I	Impedance of Loudspeaker		OK		Sinazo Mkhwa - 529940	TC2
10028	I	Saloon Speakers Commanded by DPAI-1		OK		Sinazo Mkhwa - 529940	TC2
10029	A	Measure the impedance on connector '54XP1_X4' between pins: z 32 (+) and z30 (-)		OK		Sinazo Mkhwa - 529940	TC2
10030	R	Impedance Result Max : x <= 24 ()		OK	22.9	Sinazo Mkhwa - 529940	TC2
10031	I	Saloon Speakers Commanded by DPAI-2		OK		Sinazo Mkhwa - 529940	TC2
10032	A	Measure the impedance on connector '54XP2_X4' between pins: z32(+) and z30 (-)		OK		Sinazo Mkhwa - 529940	TC2
10033	R	Impedance Result Max : x <= 32 ()		OK	30.1	Sinazo Mkhwa - 529940	TC2
10034	I	Front Display 'FRT1'		OK		Sinazo Mkhwa - 529940	TC2
10035	R	The PWR (power) LED is ON on the Front Display FRT1		OK		Sinazo Mkhwa - 529940	TC2
10036	I	Lateral Display 'LAT1'		OK		Sinazo Mkhwa - 529940	TC2
10037	R	The PWR (power) LED is ON on the Lateral Display LAT1		OK		Sinazo Mkhwa - 529940	TC2
10038	I	Lateral Display 'LAT2'		OK		Sinazo Mkhwa - 529940	TC2
10039	R	The PWR (power) LED is ON on the Lateral Display LAT2		OK		Sinazo Mkhwa - 529940	TC2
10040	I	Interior Display 'INT1'		OK		Sinazo Mkhwa - 529940	TC2
10041	R	The PWR (power) LED is ON on the Interior Display INT1		OK		Sinazo Mkhwa - 529940	TC2
10042	I	Interior Display 'INT2		OK		Sinazo Mkhwa - 529940	TC2
10043	R	The PWR (power) LED is ON on the Interior Display INT2		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10044	I	Data plugs		OK		Sinazo Mkhwa - 529940	TC2
10045	A	Insert and secure data plugs in the TRS and CRS'		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 7 – Dead Man

7.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Goitsemodimo Kgatitswe - 526511	TC2
10002	I	Initial conditions		OK		Goitsemodimo Kgatitswe - 526511	TC2
10003	I	TC car is in service and cabin should be active		OK		Goitsemodimo Kgatitswe - 526511	TC2
10004	A	Position the "Dead Man Override" switch to "Normal" position.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10005	I	Circuit Breakers		OK		Goitsemodimo Kgatitswe - 526511	TC2
10006	A	Close Circuit Breaker 60Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10007	A	Close Circuit Breaker 30Q3		OK		Goitsemodimo Kgatitswe - 526511	TC2
10008	I	Buzzer 60W1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10009	A	Force [TT] (MPU1)lo_dsd_tc2dmbuzzerr1 = 1.0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10010	R	The buzzer 60W1 is ON. A noise coming from the buzzer can be clearly heard in the cabin.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10011	A	Release [TT] (MPU1)lo_dsd_tc2dmbuzzerr1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10012	R	The buzzer 60W1 is OFF. No noise coming from buzzer.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10013	A	Force [TT] (MPU1)lo_dsd_tc2dmbuzzerr2 = 1.0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10014	R	The buzzer 60W1 is ON. A noise coming from the buzzer can be clearly heard in the cabin.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10015	A	Release [TT] (MPU1)lo_dsd_tc2dmbuzzerr2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10016	R	The buzzer 60W1 is OFF. No noise coming from buzzer.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10017	I	Dead Man Lamp		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10018	A	Position the Running Direction switch to "FORWARD"		OK		Goitsemodimo Kgatitswe - 526511	TC2
10019	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10020	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr2 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10021	A	Position the Running Direction switch 30A1.S1 in "Neutral"		OK		Goitsemodimo Kgatitswe - 526511	TC2
10022	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10023	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr2 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10024	R	On the alarm module, check the Dead man deactivated symbol is OFF.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10025	A	Force [TT] (MPU1)lo_dsd_tc2deadmanlampr1 = 1.0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10026	R	On the alarm module, check the Dead man deactivated symbol is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10027	A	Release [TT] (MPU1)lo_dsd_tc2deadmanlampr1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10028	R	On the alarm module, check the Dead man deactivated symbol is OFF.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10029	A	Force [TT] (MPU1)lo_dsd_tc2deadmanlampr2 = 1.0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10030	R	On the alarm module, check the Dead man deactivated symbol is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10031	A	Release [TT] (MPU1)lo_dsd_tc2deadmanlampr2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10032	R	On alarm module, check the Dead man deactivated symbol is OFF.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10033	I	DSD function		OK		Goitsemodimo Kgatitswe - 526511	TC2
10034	A	Position the Running Direction switch to "FORWARD"		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10035	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10036	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr2 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10037	A	Timer 5.0 S		OK		Goitsemodimo Kgatitswe - 526511	TC2
10038	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10039	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr2 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10040	R	On alarm module, check the Dead man deactivated symbol is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10041	A	Press and hold the dead man button 60S3 on the driver desk		OK		Goitsemodimo Kgatitswe - 526511	TC2
10042	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10043	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanr1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10044	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanr2 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10045	R	On the alarm module, check the Dead man deactivated symbol is OFF.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10046	A	Release the dead man button 60S3		OK		Goitsemodimo Kgatitswe - 526511	TC2
10047	A	Timer 5.0 S		OK		Goitsemodimo Kgatitswe - 526511	TC2
10048	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10049	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanr1 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10050	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanr2 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10051	R	On alarm module, check the Dead Man deactivated symbol is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number

© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10052	A	Press and hold the dead man switch, which is positioned on master controller.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10053	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10054	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanr1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10055	R	On the alarm module, check the Dead man deactivated symbol is OFF.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10056	A	Release the dead man button on the master controller		OK		Goitsemodimo Kgatitswe - 526511	TC2
10057	A	Timer 5.0 S		OK		Goitsemodimo Kgatitswe - 526511	TC2
10058	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10059	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanr1 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10060	R	On alarm module, check the Dead Man deactivated symbol is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10061	I	DSD Override indication		OK		Goitsemodimo Kgatitswe - 526511	TC2
10062	R	On the alarm module, verify that the Dead Man override (60H2) symbol is OFF.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10063	A	Press and hold dead man button 60S3		OK		Goitsemodimo Kgatitswe - 526511	TC2
10064	A	Position the "Dead Man Override" switch to "Override" position (do not release the dead man device actuated in the previous step).		OK		Goitsemodimo Kgatitswe - 526511	TC2
10065	R	On the alarm module, verify that the Dead Man override (60H2) symbol is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10066	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10067	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanoverridr1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10068	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanoverridr2 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10069	A	Release the dead man button		OK		Goitsemodimo Kgatitswe - 526511	TC2
10070	R	On the alarm module, verify that the Dead Man override (60H2) symbol is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10071	A	Position the "Dead Man Override" switch to "Normal" position.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10072	R	On the alarm module, verify that the Dead Man override (60H2) symbol is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10073	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanoverridr1 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10074	R	Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanoverridr2 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10075	R	On alarm module, check the Dead man deactivated (60H1)symbol is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10076	A	Position the Running Direction switch 30A1.S1 in "Neutral"		OK		Goitsemodimo Kgatitswe - 526511	TC2
10077	R	On alarm module, check the Dead man deactivated symbol is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 8 – External Signaling

8.1 Instructions list

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		Goitsemodimo Kgatitswe - 526511	TC2
10002	I	Initial Conditions		OK		Goitsemodimo Kgatitswe - 526511	TC2
10003	I	The air in the main pipe should be at least 4 bar		OK		Goitsemodimo Kgatitswe - 526511	TC2
10004	I	Start of Test		OK		Goitsemodimo Kgatitswe - 526511	TC2
10005	I	The pressure setting of point H1.12 must be set to 4 bar		OK		Goitsemodimo Kgatitswe - 526511	TC2
10006	R	Enter the value measured above		OK	4.223	Goitsemodimo Kgatitswe - 526511	TC2
10007	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningHootersR1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10008	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningHootersR2 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10009	A	Press the foot pedal 57A13.S1 to actuate the horn and maintain it		OK		Goitsemodimo Kgatitswe - 526511	TC2
10010	R	Horn sound can be heard at 100m distance from the cab		OK		Goitsemodimo Kgatitswe - 526511	TC2
10011	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningHootersR1 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10012	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningHootersR2 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10013	A	Release the foot heater pedal		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10014	R	Horn sound stops		OK		Goitsemodimo Kgatitswe - 526511	TC2
10015	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningHootersR1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10016	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningHootersR2 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10017	A	Actuate the low pitch horn by pressing down the valve H1.3.1 under the driver's desk		OK		Goitsemodimo Kgatitswe - 526511	TC2
10018	R	The horn sound can be heard in low pitch		OK		Goitsemodimo Kgatitswe - 526511	TC2
10019	A	Release the valve H1.3.1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10020	R	Horn sound stops		OK		Goitsemodimo Kgatitswe - 526511	TC2
10021	I	Electric Horn Test		OK		Goitsemodimo Kgatitswe - 526511	TC2
10022	A	Press the button 71S1 and maintain it		OK		Goitsemodimo Kgatitswe - 526511	TC2
10023	R	The sound of the whistle can be heard at least 20m from the cab		OK		Goitsemodimo Kgatitswe - 526511	TC2
10024	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningWhistleR1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10025	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningWhistleR2 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10026	A	Release the button 71S1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10027	R	Whistle sound stops		OK		Goitsemodimo Kgatitswe - 526511	TC2
10028	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningWhistleR1 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10029	R	Read Defined Variable [TT] (MPU1)Li_SGL_Tc2WarningWhistleR2 = 0.0		OK	0	Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

8.1.1 070_SIG-External Signaling

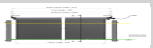
I - Information A - Action R - Result NE - Not Executed

N°	Type	Instruction	File	Result status	Result value	Operator	Vehicle
10001	I	External Signalling (SPP=70)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10002	I	Use the image below for reference throughout the procedure		OK		Goitsemodimo Kgatitswe - 526511	TC2
10003	I	Initial Conditions		OK		Goitsemodimo Kgatitswe - 526511	TC2
10004	A	Turn IES switch on Test bench to ON position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10005	I	Shore Supply is connected to the car		OK		Goitsemodimo Kgatitswe - 526511	TC2
10006	I	TC1 car prepared and cab active		OK		Goitsemodimo Kgatitswe - 526511	TC2
10007	I	Circuit Breakers		OK		Goitsemodimo Kgatitswe - 526511	TC2
10008	A	Close Circuit Breaker 70Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10009	A	Close Circuit Breaker 70Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10010	A	Close Circuit Breaker 70Q3		OK		Goitsemodimo Kgatitswe - 526511	TC2
10011	A	Close Circuit Breaker 72Q4		OK		Goitsemodimo Kgatitswe - 526511	TC2
10012	A	Close Circuit Breaker 75Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10013	A	Close Circuit Breaker 72Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10014	I	Left Platform and Head Lights		OK		Goitsemodimo Kgatitswe - 526511	TC2
10015	A	Check that the following external lights on the LEFT are ON:		OK		Goitsemodimo Kgatitswe - 526511	TC2
10016	R	Platform lights 70H12 white LEDs		OK		Goitsemodimo Kgatitswe - 526511	TC2
10017	R	Platform lights 70H5 while light		OK		Goitsemodimo Kgatitswe - 526511	TC2
10018	R	Head lights 70H3 white light		OK		Goitsemodimo Kgatitswe - 526511	TC2
10019	I	Right Platform and Head Lights		OK		Goitsemodimo Kgatitswe - 526511	TC2
10020	A	Check that the following external lights on the RIGHT are on:		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10021	R	Platform lights 70H11 white LEDs		OK		Goitsemodimo Kgatitswe - 526511	TC2
10022	R	Platform lights 70H6 while light		OK		Goitsemodimo Kgatitswe - 526511	TC2
10023	R	Head lights 70H4 white light		OK		Goitsemodimo Kgatitswe - 526511	TC2
10024	I	Back Lights		OK		Goitsemodimo Kgatitswe - 526511	TC2
10025	A	Turn key 30A1.S1 to Non-Active Cabin Position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10026	A	Reset Circuit Breaker 20Q2 (On and Off)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10027	R	All white lights, on the LEFT and Right side are OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10028	R	Left red light 70H7 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10029	R	Right red light 70H9 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10030	R	Red LEDs on Platform light 70H11 are ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10031	I	Coupled Train		OK		Goitsemodimo Kgatitswe - 526511	TC2
10032	A	Turn key 30A1.S1 to Activate Cabin		OK		Goitsemodimo Kgatitswe - 526511	TC2
10033	R	All white lights are ON, and red lights are OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10034	I	Coupling Relay Train Line Dev 1/2 = coupler pin 103		OK		Goitsemodimo Kgatitswe - 526511	TC2
10035	A	Force [NI] Dev1/62 = 1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10036	R	All External lights are OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10037	I	Coupling Relay Train Line Dev 1/62 = coupler 103		OK		Goitsemodimo Kgatitswe - 526511	TC2
10038	A	Force [NI] Dev1/62 = 0		OK		Goitsemodimo Kgatitswe - 526511	TC2
10039	R	All white lights are ON, and red lights		OK		Goitsemodimo Kgatitswe - 526511	TC2
10040	I	Main lights and Dimming		OK		Goitsemodimo Kgatitswe - 526511	TC2
10041	A	Switch the External lights switch 70S2 to "Bright Light" position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10042	R	The External lights switch 70S2 lamp is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10043	R	Read Defined Variable [TT] (MPU1)li_sgl_tc2headlight1 = 0.00		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10044	R	Read Defined Variable [TT] (MPU1)li_sgl_tc2headlight2 = 0.00		OK	0	Goitsemodimo Kgatitswe - 526511	TC2
10045	R	The headlights 70H3 and 70H4 are in bright light configuration		OK		Goitsemodimo Kgatitswe - 526511	TC2
10046	A	Switch the External lights switch 70S2 to "Normal" or "Dimmed" position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10047	R	Read Defined Variable [TT] (MPU1)li_sgl_tc2headlight1 = 1.00		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10048	R	Read Defined Variable [TT] (MPU1)li_sgl_tc2headlight2 = 1.00		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10049	R	The External lights switch lamp 70S2 is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10050	R	The headlights 70H3 and 70H4 are in normal/dimmed configuration		OK		Goitsemodimo Kgatitswe - 526511	TC2
10051	I	Sunshade adjustment settings		OK		Goitsemodimo Kgatitswe - 526511	TC2
10052	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		Goitsemodimo Kgatitswe - 526511	TC2
10053	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		Goitsemodimo Kgatitswe - 526511	TC2
10054	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		Goitsemodimo Kgatitswe - 526511	TC2
10055	A	Turn the Sunshade Control Switch 72S3 to position 1 (Up) and maintain it		OK		Goitsemodimo Kgatitswe - 526511	TC2
10056	R	The sunshade stops at the upper position that was set above.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10057	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		Goitsemodimo Kgatitswe - 526511	TC2
10058	A	Turn the Sunshade Control Switch 72S3 to position 2 (down) and maintain it		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10059	R	The sunshade stops at the lower position that was set above.		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 9 – Rescue Mode and Emergency Disconnection

9.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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=027)		OK		Sinazo Mkhwa - 529940	TC2
10002	I	Initial Conditions		OK		Sinazo Mkhwa - 529940	TC2
10003	I	Car is powered OFF		OK		Sinazo Mkhwa - 529940	TC2
10004	I	Circuit breaker 61Q1 must be off		OK		Sinazo Mkhwa - 529940	TC2
10005	I	Backup Mode		OK		Sinazo Mkhwa - 529940	TC2
10006	A	Turn Switch 27S1 (Backup Mode Position) to 'BACKUP Position		OK		Sinazo Mkhwa - 529940	TC2
10007	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Sinazo Mkhwa - 529940	TC2
10008	A	Turn Battery contactor Switch 18S1 to ON position		OK		Sinazo Mkhwa - 529940	TC2
10009	I	Backup Mode Train Lines Dev5/33 = END2 90XP15 pin 23 Dev2/67 = Coupler pin 007 Dev2/25 = Coupler pin 107		OK		Sinazo Mkhwa - 529940	TC2
10010	R	Read Defined Variable [NI] Dev5/33 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10011	R	Read Defined Variable [NI] Dev2/25 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10012	R	Read Defined Variable [NI] Dev2/67 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10013	R	Relay 27K1 is energized		OK		Sinazo Mkhwa - 529940	TC2
10014	R	Relay 27K2 is De-energized		OK		Sinazo Mkhwa - 529940	TC2
10015	A	Timer 30.0 S		OK		Sinazo Mkhwa - 529940	TC2
10016	R	Relay 27K2 is energized		OK		Sinazo Mkhwa - 529940	TC2
10017	I	Check that the Backup mode LED 27H2 is ON		OK		Sinazo Mkhwa - 529940	TC2
10018	A	Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10019	I	Backup Mode Train Lines Dev5/33 = END2 90XP15 pin 23 Dev2/67 = Coupler pin 007 Dev2/25 = Coupler pin 107		OK		Sinazo Mkhwa - 529940	TC2
10020	R	Read Defined Variable [NI] Dev5/33 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10021	R	Read Defined Variable [NI] Dev2/25 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10022	R	Read Defined Variable [NI] Dev2/67 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10023	R	Relay 27K1 is De-energized		OK		Sinazo Mkhwa - 529940	TC2
10024	R	Relay 27K2 is De-energized		OK		Sinazo Mkhwa - 529940	TC2
10025	R	Check that the Backup mode LED 27H2 is OFF		OK		Sinazo Mkhwa - 529940	TC2
10026	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Sinazo Mkhwa - 529940	TC2
10027	A	Turn Battery contactor Switch 18S1 to OFF position		OK		Sinazo Mkhwa - 529940	TC2
10028	A	Turn Switch '27S1' (Backup Mode Position) to Normal Position		OK		Sinazo Mkhwa - 529940	TC2
10029	I	Turn ERTMS Isolation Switch 62S1 to Normal position		OK		Sinazo Mkhwa - 529940	TC2
10030	A	Turn Battery contactor Switch 18S1 to ON position		OK		Sinazo Mkhwa - 529940	TC2
10031	A	Check continuity between point 20 on Backup State Switch 27S1 and ground		OK		Sinazo Mkhwa - 529940	TC2
10032	R	The points are continuous.		OK		Sinazo Mkhwa - 529940	TC2
10033	I	Backup Mode Train Line Dev5/33 = END2 90XP15 pin 23		OK		Sinazo Mkhwa - 529940	TC2
10034	R	Read Defined Variable [NI] Dev5/33 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10035	A	Force [TT] (BCU2)LO_SPEED_THRSLD1 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10036	I	Emergency Disconnection		OK		Sinazo Mkhwa - 529940	TC2
10037	I	Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 Dev2/79 = Coupler pin 019 Dev2/75 = Coupler pin 119		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10038	R	Read Defined Variable [NI] Dev5/34 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10039	R	Read Defined Variable [NI] Dev2/79 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10040	R	Read Defined Variable [NI] Dev2/75 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10041	I	Emergency Brake ERTMS 1 Train Line Dev4/88 = END2 90XP14 pin 18		OK		Sinazo Mkhwa - 529940	TC2
10042	A	Force [NI] Dev4/88 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10043	I	Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 Dev2/79 = Coupler pin 019 Dev2/75 = Coupler pin 119		OK		Sinazo Mkhwa - 529940	TC2
10044	R	Read Defined Variable [NI] Dev5/34 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10045	R	Read Defined Variable [NI] Dev2/79 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10046	R	Read Defined Variable [NI] Dev2/75 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10047	I	Emergency Brake ERTMS 2 Train Line Dev4/80 = END2 90XP14 pin 20		OK		Sinazo Mkhwa - 529940	TC2
10048	A	Force [NI] Dev4/80 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10049	I	Emergency Disconnection Train Lines Dev5/34 = END2 90XP15 pin 24 Dev2/79 = Coupler pin 019 Dev2/75 = Coupler pin 119		OK		Sinazo Mkhwa - 529940	TC2
10050	R	Read Defined Variable [NI] Dev5/34 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10051	R	Read Defined Variable [NI] Dev2/79 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10052	R	Read Defined Variable [NI] Dev2/75 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10053	I	Emergency Brake ERTMS 1 Train Line Dev4/88 = END2 90XP14 pin 18		OK		Sinazo Mkhwa - 529940	TC2
10054	A	Force [NI] Dev4/88 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10055	I	Emergency Brake ERTMS 2 Train Line Dev4/80 = END2 90XP14 pin 20		OK		Sinazo Mkhwa - 529940	TC2
10056	A	Force [NI] Dev4/80 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10057	I	Emergency Disconnection Train Line Dev5/34 = END2 90XP15 pin 24		OK		Sinazo Mkhwa - 529940	TC2
10058	R	Read Defined Variable [NI] Dev5/34 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10059	I	V<3km/h Train Line Dev4/39 = END2 90XP15 pin 29		OK		Sinazo Mkhwa - 529940	TC2
10060	A	Force [NI] Dev4/39 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10061	I	Emergency Disconnection Train Line Dev5/34 = END2 90XP15 pin 24		OK		Sinazo Mkhwa - 529940	TC2
10062	R	Read Defined Variable [NI] Dev5/34 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10063	I	V<3km/h Train Line Dev4/39 = END2 90XP15 pin 29		OK		Sinazo Mkhwa - 529940	TC2
10064	A	Force [NI] Dev4/39 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10065	I	Emergency Disconnection Train Line Dev5/34 = END2 90XP15 pin 24		OK		Sinazo Mkhwa - 529940	TC2
10066	R	Read Defined Variable [NI] Dev5/34 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10067	R	Read Defined Variable [TT] (MPU1)li_erm_tc2noemerdiscr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10068	R	Read Defined Variable [TT] (MPU1)li_erm_tc2noemerdiscr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10069	I	Place ERTMS Isolation Switch in "Isolation" position		OK		Sinazo Mkhwa - 529940	TC2
10070	I	Emergency Disconnection Train Line Dev5/34 = END2 90XP15 pin 24		OK		Sinazo Mkhwa - 529940	TC2
10071	R	Read Defined Variable [NI] Dev5/34 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10072	A	Release [TT] (BCU2)LO_SPEED_THRSLD1		OK		Sinazo Mkhwa - 529940	TC2
10073	A	Push the blue "Emergency Pantograph Down" pushbutton		OK		Sinazo Mkhwa - 529940	TC2
10074	R	Read Defined Variable [TT] (MPU1)li_erm_tc2noemerdiscr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10075	R	Read Defined Variable [TT] (MPU1)li_erm_tc2noemerdiscr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10076	I	Emergency Disconnection Train Line Dev5/34 = END2 90XP15 pin 24		OK		Sinazo Mkhwa - 529940	TC2
10077	R	Read Defined Variable [NI] Dev5/34 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10078	A	Release the "Emergency Pantograph Down" pushbutton		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10079	R	Read Defined Variable [TT] (MPU1)li_erm_tc2noemerdiscr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10080	R	Read Defined Variable [TT] (MPU1)li_erm_tc2noemerdiscr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10081	I	Emergency Disconnection Train Line Dev5/34 = END2 90XP15 pin 24		OK		Sinazo Mkhwa - 529940	TC2
10082	R	Read Defined Variable [NI] Dev5/34 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number

© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 10 – Driver Desk Illumination

10.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Goitsemodimo Kgatitswe - 526511	TC2
10002	I	Initial Conditions:		OK		Goitsemodimo Kgatitswe - 526511	TC2
10003	I	Car is prepared and cab is active		OK		Goitsemodimo Kgatitswe - 526511	TC2
10004	A	Close Circuit Breaker 81Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10005	I	Indicator Modules		OK		Goitsemodimo Kgatitswe - 526511	TC2
10006	R	Check that the Line Indicator Module 81A1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10007	R	Check that the Pressure gauge 84P1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10008	R	Check that the light of the Speed Indicator 61A2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10009	I	Lamp Test		OK		Goitsemodimo Kgatitswe - 526511	TC2
10010	A	Press and hold the Lamp Test pushbutton 84S1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10011	R	Check that the White Lamp Test pushbutton Lamp 84S1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10012	R	Check that the White Automatic Start pushbutton lamp 20S1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10013	R	Check that the Orange Standby State pushbutton lamp 20S2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10014	R	Check that the White Pantograph Up/Down pushbutton lamp 21S1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10015	R	Check that the White Close Main Circuit Breaker pushbutton lamp 22S11 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10016	R	Check that the Red Open Main Circuit Breaker pushbutton lamp 22S12 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10017	R	Check that the White Reduced Power lamp 30S2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10018	R	Check that the Red Override Passenger Emergency Alarm pushbutton lamp 44S5 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10019	R	Check that the Yellow Door Auth Left pushbutton lamp 50S5 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10020	R	Check that the Yellow Door Auth Right pushbutton lamp 50S6 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10021	R	Check that the White Door Open Left pushbutton lamp 50S1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10022	R	Check that the White Door Open Right pushbutton lamp 50S2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10023	R	Check that the Blue Door Close Left pushbutton lamp 50S3 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10024	R	Check that the Blue Door Close Right pushbutton lamp 50S4 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10025	R	Check that the White Cab Lighting Left Side pushbutton lamp 52S3 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10026	R	Check that the White Cab Lighting Right Side pushbutton lamp 52S4 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10027	R	Check that the White Foot Heater pushbutton lamp 57S3 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10028	R	Check that the Red Front CCTV Event pushbutton lamp 66S1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10029	R	Check that the White Windscreen Demister pushbutton lamp 72S2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10030	I	Use the following image to verify the train status LEDs 84A1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10031	R	Check that 31H1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10032	R	Check that 60H1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10033	R	Check that 18H1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10034	R	Check that 44H4 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10035	R	Check that 44H1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10036	R	Check that 51H1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10037	R	Check that 45H2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10038	R	Check that 40H2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10039	R	Check that 40H1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10040	R	Check that 41H1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10041	R	Check that 60H2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10042	R	Check that 27H2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10043	R	Check that 62H1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10044	R	Check that 44H5 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10045	R	Check that 31H2 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10046	R	Check that 67H1 is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10047	A	Release the Lamp Test pushbutton 84S1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10048	I	Dimmer Switch Adjustment		OK		Goitsemodimo Kgatitswe - 526511	TC2
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 to identify the trimmer screw which is used to adjust the limits of the dimmer		OK		Goitsemodimo Kgatitswe - 526511	TC2
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		Goitsemodimo Kgatitswe - 526511	TC2
10051	A	Press the Lamp Test pushbutton 84S1 and maintain it		OK		Goitsemodimo Kgatitswe - 526511	TC2
10052	A	While pressing 84S1, turn the dimmer switch and observe that the brightness of all the following lamps increases and decreases accordingly		OK		Goitsemodimo Kgatitswe - 526511	TC2
10053	R	Check that 61A2 (Speed Indicator) can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10054	R	Check that the Line Indicator Module 81A1 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10055	R	Check that the Pressure gauge 84P1 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10056	R	Check that the Train Status LEDs 84A1 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10057	R	Check that 84S1 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10058	R	Check that 20S1 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10059	R	Check that 20S2 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10060	R	Check that 21S1 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10061	R	Check that 22S11 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10062	R	Check that 22S12 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10063	R	Check that 30S2 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10064	R	Check that 44S5 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10065	R	Check that 50S5 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10066	R	Check that 50S6 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10067	R	Check that 50S1 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10068	R	Check that 50S2 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10069	R	Check that 50S3 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10070	R	Check that 50S4 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10071	R	Check that 52S3 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10072	R	Check that 52S4 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10073	R	Check that 57S3 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10074	R	Check that 66S1 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10075	R	Check that 67S1 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2
10076	R	Check that 72S2 can be dimmed		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 11 – Emergency Brake

11.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Siphesihle Mchunu - 491465	TC2
10002	I	Initial Conditions		OK		Siphesihle Mchunu - 491465	TC2
10003	I	No air connected to the vehicle OR main pipe pressure below 6Bar		OK		Siphesihle Mchunu - 491465	TC2
10004	I	No PEAs are activated		OK		Siphesihle Mchunu - 491465	TC2
10005	I	Battery Contactor Switch 18S1 in ON position		OK		Siphesihle Mchunu - 491465	TC2
10006	A	Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position		OK		Siphesihle Mchunu - 491465	TC2
10007	A	Open and Close (Reset) Circuit breaker 20Q2		OK		Siphesihle Mchunu - 491465	TC2
10008	I	Back Up mode switch 27S1 in Normal position		OK		Siphesihle Mchunu - 491465	TC2
10009	I	Direction Switch 30A1.S2 in "Neutral" position		OK		Siphesihle Mchunu - 491465	TC2
10010	I	Visual Inspection		OK		Siphesihle Mchunu - 491465	TC2
10011	A	Physically and visually inspect all the Disk Break Units (DBU) and brake pads, to ensure they are securely fitted		OK		Siphesihle Mchunu - 491465	TC2
10012	R	All the brake DBUs are correctly installed and all the brake pads are correctly installed and locked		OK		Siphesihle Mchunu - 491465	TC2
10013	A	Check the pipe installation		OK		Siphesihle Mchunu - 491465	TC2
10014	R	All the pipes are installed on the vehicle		OK		Siphesihle Mchunu - 491465	TC2
10015	A	Check all the Passenger Emergency Alarm handles, and ensure they are connected to their respective connectors		OK		Siphesihle Mchunu - 491465	TC2
10016	R	All the PEAs are installed and connected		OK		Siphesihle Mchunu - 491465	TC2
10017	I	Circuit Breakers		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10018	A	Close Circuit Breaker 44Q1		OK		Siphesihle Mchunu - 491465	TC2
10019	A	Close Circuit Breaker 44Q2		OK		Siphesihle Mchunu - 491465	TC2
10020	A	Close Circuit Breaker 44Q3		OK		Siphesihle Mchunu - 491465	TC2
10021	A	Close Circuit Breaker 44Q4		OK		Siphesihle Mchunu - 491465	TC2
10022	I	Emergency Brake Loop		OK		Siphesihle Mchunu - 491465	TC2
10023	I	Emergency Brake Loop Train Line Dev2/3 = coupler pin 005 Dev2/4 = coupler pin 105 Dev5/5 = END2 90XP14 pin 8		OK		Siphesihle Mchunu - 491465	TC2
10024	R	Read Defined Variable [NI] Dev2/3 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10025	R	Read Defined Variable [NI] Dev2/4 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10026	R	Read Defined Variable [NI] Dev5/5 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
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 C1.1 test point: BRTP		OK		Siphesihle Mchunu - 491465	TC2
10028	R	The pressure on test point C 1.1 >=7 Bar		OK		Siphesihle Mchunu - 491465	TC2
10029	I	Emergency Brake Loop Train Line Dev5/5 = END2 90XP14 pin 8		OK		Siphesihle Mchunu - 491465	TC2
10030	R	Read Defined Variable [NI] Dev5/5 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10031	A	Push the Emergency Brake Mushroom 44S1		OK		Siphesihle Mchunu - 491465	TC2
10032	I	Emergency Brake Loop Train Line Dev2/4 = coupler pin 105 Dev5/5 = END2 90XP14 pin 8		OK		Siphesihle Mchunu - 491465	TC2
10033	R	Read Defined Variable [NI] Dev2/4 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10034	R	Read Defined Variable [NI] Dev5/5 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10035	A	Release the Emergency Brake Mushroom 44S1		OK		Siphesihle Mchunu - 491465	TC2
10036	I	Emergency Brake Loop Train Line Dev5/5 = END2 90XP14 pin 8		OK		Siphesihle Mchunu - 491465	TC2
10037	R	Read Defined Variable [NI] Dev5/5 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10038	I	Coupling		OK		Siphesihle Mchunu - 491465	TC2
10039	I	Coupling Relay Train Line Dev1/62 = coupler pin 103		OK		Siphesihle Mchunu - 491465	TC2
10040	A	Force [NI] Dev1/62 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10041	R	Read Defined Variable [TT] (MPU1)Li_CPM_Tc2CoupDetec1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10042	I	Emergency Brake Loop Train Line Dev2/3 = coupler pin 005 Dev2/4 = coupler pin 105 Dev5/5 = END2 90XP14 pin 8		OK		Siphesihle Mchunu - 491465	TC2
10043	R	Read Defined Variable [NI] Dev2/3 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10044	R	Read Defined Variable [NI] Dev2/4 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10045	R	Read Defined Variable [NI] Dev5/5 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10046	I	Coupling Relay Train Line Dev1/62 = coupler pin 103		OK		Siphesihle Mchunu - 491465	TC2
10047	A	Force [NI] Dev1/62 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10048	R	Read Defined Variable [TT] (MPU1)Li_CPM_Tc2CoupDetec1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10049	I	Emergency Brake Loop Train Line Dev2/4 = coupler pin 105 Dev5/5 = END2 90XP14 pin 8		OK		Siphesihle Mchunu - 491465	TC2
10050	R	Read Defined Variable [NI] Dev2/4 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10051	R	Read Defined Variable [NI] Dev5/5 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10052	I	Loop Override		OK		Siphesihle Mchunu - 491465	TC2
10053	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2ebloopoverrider1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10054	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2ebloopoverrider2 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10055	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Siphesihle Mchunu - 491465	TC2
10056	A	Turn the Emergency Braking Loop Override Switch 44S2 to "Override/Bypass" position		OK		Siphesihle Mchunu - 491465	TC2
10057	A	Check that the Emergency Braking Loop Override Lamp 44H5 is ON		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10058	I	Emergency Brake Loop Override Train Line Dev5/6 = END2 90XP14 pin 9		OK		Siphesihle Mchunu - 491465	TC2
10059	R	Read Defined Variable [NI] Dev5/6 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10060	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2ebloopoverrider1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10061	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2ebloopoverrider2 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10062	A	Return the Emergency Braking Loop Override Switch 44S2 to "Normal" position		OK		Siphesihle Mchunu - 491465	TC2
10063	R	Check that the Emergency Braking Loop Override Lamp 44H5 is OFF		OK		Siphesihle Mchunu - 491465	TC2
10064	I	Emergency Brake Loop Override Train Line Dev5/6 = END2 90XP14 pin 9		OK		Siphesihle Mchunu - 491465	TC2
10065	R	Read Defined Variable [NI] Dev5/6 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10066	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2ebloopoverrider1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10067	I	Reset Emergency Brake		OK		Siphesihle Mchunu - 491465	TC2
10068	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10069	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr2 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10070	I	Turn Direction Switch 30A1.S2 to "Forward" position		OK		Siphesihle Mchunu - 491465	TC2
10071	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10072	I	Emergency Brake Train Line		OK		Siphesihle Mchunu - 491465	TC2
10073	I	Emergency Brake Loop Train Line Dev4/5 = END2 90XP14 pin 8		OK		Siphesihle Mchunu - 491465	TC2
10074	A	Force [NI] Dev4/5 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10075	A	Force [TT] (MPU1)lo_ubk_tc2emergbraker1 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10076	A	Press and hold the Dead Man pushbutton 60S3		OK		Siphesihle Mchunu - 491465	TC2
10077	R	Read Defined Variable [TT]		OK	0	Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

		(MPU1)li_dsd_tc2ebdeadmanrelayr1 = 0.0					
10078	A	Ensure the Master Controller S3.3 (3.4) is NOT in Emergency Brake position		OK		Siphesihle Mchunu - 491465	TC2
10079	I	Emergency Brake ERTMS1 Train Line Dev4/88 = END2 90XP14 pin 18		OK		Siphesihle Mchunu - 491465	TC2
10080	A	Force [NI] Dev4/88 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10081	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2emergrelay1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10082	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2emergrelay2 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10083	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10084	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr2 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10085	I	Emergency Brake ERTMS2 Train Line Dev4/80 = END2 90XP14 pin 20		OK		Siphesihle Mchunu - 491465	TC2
10086	A	Force [NI] Dev4/80 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10087	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2emergrelay1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10088	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2emergrelay2 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10089	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10090	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr2 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10091	I	Emergency Brake Train Line Dev2/84 = coupler pin 038 Dev2/85 = coupler pin 138 Dev5/61 = END2 90XP15 pin 67		OK		Siphesihle Mchunu - 491465	TC2
10092	R	Read Defined Variable [NI] Dev5/61 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10093	R	Read Defined Variable [NI] Dev2/84 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10094	R	Read Defined Variable [NI] Dev2/85 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10095	R	Check that the Emergency Brake Loop Lamp 44H4 is OFF		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10096	R	Read Defined Variable [TT] (BCU2)LI_NEB = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10097	A	Force [TT] (MPU1)lo_ubk_tc2emergbraker1 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10098	I	Emergency Brake Train Line Dev2/84 = coupler pin 038 Dev2/85 = coupler pin 138 Dev5/61 = END2 90XP15 pin 67		OK		Siphesihle Mchunu - 491465	TC2
10099	R	Read Defined Variable [NI] Dev5/61 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10100	R	Read Defined Variable [NI] Dev2/84 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10101	R	Read Defined Variable [NI] Dev2/85 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10102	R	Check that the Emergency Brake Loop Lamp 44H4 is ON		OK		Siphesihle Mchunu - 491465	TC2
10103	A	Force [TT] (MPU1)lo_ubk_tc2emergbraker2 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10104	I	Emergency Brake Train Line Dev5/61 = END2 90XP15 pin 67		OK		Siphesihle Mchunu - 491465	TC2
10105	R	Read Defined Variable [NI] Dev5/61 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10106	A	Release the Dead Man pushbutton 60S3		OK		Siphesihle Mchunu - 491465	TC2
10107	I	Emergency Brake ERTMS1 Train Line Dev4/88 = END2 90XP14 pin 18		OK		Siphesihle Mchunu - 491465	TC2
10108	A	Force [NI] Dev4/88 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10109	I	Emergency Brake ERTMS2 Train Line Dev4/80= END2 90XP14 pin 20		OK		Siphesihle Mchunu - 491465	TC2
10110	A	Force [NI] Dev4/80 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10111	I	Emergency Brake Train Line Dev5/61 = END2 90XP15 pin 67		OK		Siphesihle Mchunu - 491465	TC2
10112	R	Read Defined Variable [NI] Dev5/61 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10113	A	Turn the ERTMS Isolation switch 62S1 to "Isolation" position		OK		Siphesihle Mchunu - 491465	TC2
10114	A	Turn the Dead Man Override switch 60S1 to "Override" position		OK		Siphesihle Mchunu - 491465	TC2
10115	I	Emergency Brake Train Line Dev5/61 = END2 90XP15 pin 67		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10116	R	Read Defined Variable [NI] Dev5/61 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10117	I	Emergency Brake Pushbutton		OK		Siphesihle Mchunu - 491465	TC2
10118	A	Push the Emergency Brake Mushroom 44S1		OK		Siphesihle Mchunu - 491465	TC2
10119	I	Emergency Brake Train Line Dev5/61 = END2 90XP15 pin 67		OK		Siphesihle Mchunu - 491465	TC2
10120	R	Read Defined Variable [NI] Dev5/61 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10121	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2emgcybrkpbr1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10122	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2emgcybrkpbr2 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10123	A	Check continuity between 93XT104_5 pin 36 and 93XT103 pin 28		OK		Siphesihle Mchunu - 491465	TC2
10124	A	The points are continuous		OK		Siphesihle Mchunu - 491465	TC2
10125	A	Release the Emergency Brake Mushroom 44S1		OK		Siphesihle Mchunu - 491465	TC2
10126	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2emgcybrkpbr1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10127	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2emgcybrkpbr2 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10128	A	Force [TT] (MPU1)lo_ubk_tc2emergbraker2 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10129	A	Return the Dead Man Override switch 60S1 to "Normal" position		OK		Siphesihle Mchunu - 491465	TC2
10130	A	Return the ERTMS Isolation switch 62S1 to "Normal" position		OK		Siphesihle Mchunu - 491465	TC2
10131	I	Emergency Brake Loop Train Line Dev4/5 = END2 90XP14 pin 8		OK		Siphesihle Mchunu - 491465	TC2
10132	A	Force [NI] Dev4/5 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10133	A	Turn the Emergency Braking Loop Override Switch 44S2 to "Override/Bypass" position		OK		Siphesihle Mchunu - 491465	TC2
10134	A	Press and hold the Dead Man pushbutton 60S3		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10135	I	Emergency Brake Train Line Dev5/61 = END2 90XP15 pin 67		OK		Siphesihle Mchunu - 491465	TC2
10136	R	Read Defined Variable [NI] Dev5/61 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10137	A	Release the Dead Man pushbutton 60S3		OK		Siphesihle Mchunu - 491465	TC2
10138	A	Return the Emergency Braking Loop Override Switch 44S2 to "Normal" position		OK		Siphesihle Mchunu - 491465	TC2
10139	A	Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position		OK		Siphesihle Mchunu - 491465	TC2
10140	I	Emergency Brake Train Line Dev4/61 = END2 90XP15 pin 67		OK		Siphesihle Mchunu - 491465	TC2
10141	A	Force [NI] Dev4/61 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10142	A	Measure the voltage on terminal block 93XT104_2 at pin 34, and pin 35		OK		Siphesihle Mchunu - 491465	TC2
10143	R	110Vdc measured on terminal block 93XT104_2 at pin 34, and pin 35		OK		Siphesihle Mchunu - 491465	TC2
10144	I	Emergency Brake Train Line Dev4/61 = END2 90XP15 pin 67		OK		Siphesihle Mchunu - 491465	TC2
10145	A	Force [NI] Dev4/61 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10146	I	PEA Loop		OK		Siphesihle Mchunu - 491465	TC2
10147	A	Check all the Passenger Emergency Alarm handles, and ensure they are connected to their respective connectors		OK		Siphesihle Mchunu - 491465	TC2
10148	R	All the PEAs are installed and connected		OK		Siphesihle Mchunu - 491465	TC2
10149	A	Open and Close (Reset) Circuit breaker 20Q2		OK		Siphesihle Mchunu - 491465	TC2
10150	I	PEA Loop Train Lines Dev2/58 = coupler pin 017 Dev2/59 = coupler pin 117 Dev5/62 = END2 90XP15 pin 95		OK		Siphesihle Mchunu - 491465	TC2
10151	R	Read Defined Variable [NI] Dev2/58 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10152	R	Read Defined Variable [NI] Dev2/59 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10153	R	Read Defined Variable [NI] Dev5/62 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10154	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Siphesihle Mchunu - 491465	TC2
10155	R	Check that the PEA Lamp 44H1 is ON		OK		Siphesihle Mchunu - 491465	TC2
10156	I	PEA Loop Train Lines Dev5/62 = END2 90XP15 pin 95		OK		Siphesihle Mchunu - 491465	TC2
10157	R	Read Defined Variable [NI] Dev5/62 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10158	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2pealoop = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10159	I	PEA Loop OTDR Train Line Dev5/7 = END2 90XP14 pin 10		OK		Siphesihle Mchunu - 491465	TC2
10160	R	Read Defined Variable [NI] Dev5/7 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10161	I	PEA Loop Train Lines Dev4/62 = END2 90XP15 pin 95		OK		Siphesihle Mchunu - 491465	TC2
10162	A	Force [NI] Dev4/62 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10163	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10164	R	Read Defined Variable [NI] Dev2/58 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10165	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2pealoop = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10166	I	PEA Loop OTDR Train Line Dev5/7 = END2 90XP14 pin 10		OK		Siphesihle Mchunu - 491465	TC2
10167	R	Read Defined Variable [NI] Dev5/7 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10168	R	Check that the PEA Lamp 44H1 is OFF		OK		Siphesihle Mchunu - 491465	TC2
10169	I	PEA Reset		OK		Siphesihle Mchunu - 491465	TC2
10170	A	Activate the PEA on door 1 (44S11)		OK		Siphesihle Mchunu - 491465	TC2
10171	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10172	R	Read Defined Variable [NI] Dev2/58 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10173	R	Read Defined Variable [TT] (MPU1)Li_UBK_Tc2StateResetPea = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10174	A	Turn and hold the PEA Reset Switch 44S6 in Reset position		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10175	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2restpeaswitch = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10176	R	Read Defined Variable [TT] (MPU1)lo_ubk_tc2resetpea = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10177	R	Read Defined Variable [TT] (MPU1)Li_UBK_Tc2StateResetPea = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10178	A	Release the PEA Reset Switch 44S6		OK		Siphesihle Mchunu - 491465	TC2
10179	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2restpeaswitch = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10180	A	Timer 5.0 S		OK		Siphesihle Mchunu - 491465	TC2
10181	R	Read Defined Variable [TT] (MPU1)Li_UBK_Tc2StateResetPea = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10182	R	Read Defined Variable [TT] (MPU1)lo_ubk_tc2resetpea = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10183	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10184	R	Read Defined Variable [NI] Dev2/58 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10185	A	Activate the PEA on door 2 (44S12)		OK		Siphesihle Mchunu - 491465	TC2
10186	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10187	R	Read Defined Variable [NI] Dev2/58 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10188	A	Turn the PEA Reset Switch 44S6 to Reset position, and release it		OK		Siphesihle Mchunu - 491465	TC2
10189	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10190	R	Read Defined Variable [NI] Dev2/58 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10191	A	Activate the PEA on door 3 (44S13)		OK		Siphesihle Mchunu - 491465	TC2
10192	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10193	R	Read Defined Variable [NI] Dev2/58 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10194	A	Turn the PEA Reset Switch 44S6 to Reset position, and release it		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10195	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10196	R	Read Defined Variable [NI] Dev2/58 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10197	A	Activate the PEA on door 4 (44S14)		OK		Siphesihle Mchunu - 491465	TC2
10198	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10199	R	Read Defined Variable [NI] Dev2/58 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10200	A	Turn the PEA Reset Switch 44S6 to Reset position, and release it		OK		Siphesihle Mchunu - 491465	TC2
10201	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10202	R	Read Defined Variable [NI] Dev2/58 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10203	A	Activate the PEA on door 5 (44S15)		OK		Siphesihle Mchunu - 491465	TC2
10204	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10205	R	Read Defined Variable [NI] Dev2/58 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10206	A	Turn the PEA Reset Switch 44S6 to Reset position, and release it		OK		Siphesihle Mchunu - 491465	TC2
10207	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10208	R	Read Defined Variable [NI] Dev2/58 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10209	A	Activate the PEA on door 6 (44S16)		OK		Siphesihle Mchunu - 491465	TC2
10210	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10211	R	Read Defined Variable [NI] Dev2/58 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10212	A	Turn the PEA Reset Switch 44S6 to Reset position, and release it		OK		Siphesihle Mchunu - 491465	TC2
10213	I	PEA Loop Train Lines Dev2/58 = coupler pin 017		OK		Siphesihle Mchunu - 491465	TC2
10214	R	Read Defined Variable [NI] Dev2/58 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10215	I	PEA Loop Train Lines Dev4/62 = END2 90XP15 pin 95		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10216	A	Force [NI] Dev4/62 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10217	I	PEA Override		OK		Siphesihle Mchunu - 491465	TC2
10218	A	Press and hold the Override PEA pushbutton 44S5		OK		Siphesihle Mchunu - 491465	TC2
10219	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2peaoverridebuttr1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10220	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2peaoverridebuttr2 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10221	R	Read Defined Variable [TT] (MPU1)lo_ubk_tc2peaoverrider1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10222	R	Read Defined Variable [TT] (MPU1)lo_ubk_tc2peaoverrider2 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10223	R	Check that the Override PEA pushbutton lamp 44S5 turns ON		OK		Siphesihle Mchunu - 491465	TC2
10224	A	Release the Override PEA pushbutton 44S5.		OK		Siphesihle Mchunu - 491465	TC2
10225	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2peaoverridebuttr1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10226	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2peaoverridebuttr2 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10227	A	Force [TT] (MPU1)lo_ubk_tc2peaoverrider1 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10228	A	Force [TT] (MPU1)lo_ubk_tc2peaoverrider2 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10229	R	Check that the Override PEA pushbutton lamp 44S5 turns OFF		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 12 – Service Brake

12.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Sinazo Mkhwa - 529940	TC2
10002	I	Initial Conditions		OK		Sinazo Mkhwa - 529940	TC2
10003	I	No air supply to the vehicle - pressure in tank <6Bar		OK		Sinazo Mkhwa - 529940	TC2
10004	I	All brake panel cocks are in normal position (not isolated)		OK		Sinazo Mkhwa - 529940	TC2
10005	I	The Service Brake Isolation Switch 40S1 should be in Normal position		OK		Sinazo Mkhwa - 529940	TC2
10006	I	Circuit Breakers		OK		Sinazo Mkhwa - 529940	TC2
10007	A	Close Circuit Breaker 40Q2		OK		Sinazo Mkhwa - 529940	TC2
10008	A	Close Circuit Breaker 40Q3		OK		Sinazo Mkhwa - 529940	TC2
10009	A	Close Circuit Breaker 40Q4		OK		Sinazo Mkhwa - 529940	TC2
10010	A	Close Circuit Breaker 40Q5		OK		Sinazo Mkhwa - 529940	TC2
10011	I	Brake Air Supply and Brake Application		OK		Sinazo Mkhwa - 529940	TC2
10012	I	EB Reduced Train Lines Dev2/78 = Coupler pin 031 Dev2/81 = Coupler pin 131 Dev5/51 = END2 90XP15 pin 60		OK		Sinazo Mkhwa - 529940	TC2
10013	R	Read Defined Variable [NI] Dev2/78 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10014	R	Read Defined Variable [NI] Dev2/81 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10015	R	Read Defined Variable [NI] Dev5/51 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10016	I	Brake Applied Train Lines Dev2/36 = Coupler pin 010 Dev2/37 = Coupler pin 110 Dev5/49 = END2 90XP15 pin 50		OK		Carol Gumede - 425280	TC2
10017	R	Read Defined Variable [NI] Dev2/36 = 0.0		OK	0	Carol Gumede - 425280	TC2
10018	R	Read Defined Variable [NI] Dev2/37 = 0.0		OK	0	Carol Gumede - 425280	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10019	R	Read Defined Variable [NI] Dev5/49 = 0.0		OK	0	Carol Gumede - 425280	TC2
10020	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2brakeairsuppokr1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10021	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2brakeairsuppokr2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10022	R	Read Defined Variable [TT] (BCU2)LI_BRPS_NOK = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10023	R	Read Defined Variable [TT] (BCU2)LI_BRAKE_NOT_APPLED = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10024	R	The Reduced Brake Lamp 40H2 on the Indicator module 84A1 is ON		OK		Anthonia Mabowa - 494131	TC2
10025	A	Close/Isolate the coupler Isolation cock F2.1/1		OK		Anthonia Mabowa - 494131	TC2
10026	A	Open the Isolation cock F2.2/1		OK		Anthonia Mabowa - 494131	TC2
10027	A	Connect the air supply to the vehicle main pipe coupling flexible hose F3/1, and switch the supply ON		OK		Sinazo Mkhwa - 529940	TC2
10028	I	Take note of any air leaks in the pipes or valves		OK		Sinazo Mkhwa - 529940	TC2
10029	A	Allow the pressure to go above 6 bar. The pressure can be checked at the BRTP test point		OK		Sinazo Mkhwa - 529940	TC2
10030	R	BRTP pressure is measured >=6 Bar		OK		Sinazo Mkhwa - 529940	TC2
10031	I	EB Reduced Train Lines Dev2/78 = Coupler pin 031 Dev2/81 = Coupler pin 131 Dev5/51 = END2 90XP15 pin 60		OK		Sinazo Mkhwa - 529940	TC2
10032	R	Read Defined Variable [NI] Dev2/78 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10033	R	Read Defined Variable [NI] Dev2/81 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10034	R	Read Defined Variable [NI] Dev5/51 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10035	I	Brake Applied Train Lines Dev2/36 = Coupler pin 010 Dev2/37 = Coupler pin 110 Dev5/49 = END2 90XP15 pin 50		OK		Sinazo Mkhwa - 529940	TC2
10036	R	Read Defined Variable [NI] Dev2/36 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10037	R	Read Defined Variable [NI] Dev2/37 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10038	R	Read Defined Variable [NI] Dev5/49 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10039	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2brakeairsuppokr1 = 1.0		OK	1	Goitsemodimo Kgatitswe - 526511	TC2
10040	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2brakeairsuppokr2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10041	R	Read Defined Variable [TT] (BCU2)LI_BRPS_NOK = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10042	R	Read Defined Variable [TT] (BCU2)LI_BRAKE_NOT_APPLED = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10043	R	The Reduced Brake Lamp 40H2 on the Indicator module 84A1 is OFF		OK		Sinazo Mkhwa - 529940	TC2
10044	A	Put the Master controller in 100% Traction position		OK		Sinazo Mkhwa - 529940	TC2
10045	I	V>5km/h Train Line Dev4/38 = END2 90XP15 pin 28		OK		Sinazo Mkhwa - 529940	TC2
10046	A	Force [NI] Dev4/38 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10047	R	Lamp 40H1 on the Indicator module 84A1 is ON		OK		Sinazo Mkhwa - 529940	TC2
10048	A	Return the Master controller to Normal position (Coasting)		OK		Sinazo Mkhwa - 529940	TC2
10049	I	V>5km/h Train Line Dev4/38 = END2 90XP15 pin 28		OK		Sinazo Mkhwa - 529940	TC2
10050	A	Force [NI] Dev4/38 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10051	R	Lamp 40H1 on the Indicator module 84A1 is OFF		OK		Sinazo Mkhwa - 529940	TC2
10052	I	Remote Isolation		OK		Sinazo Mkhwa - 529940	TC2
10053	A	Turn the key 30A1.S1 to Non-active cab position		OK		Sinazo Mkhwa - 529940	TC2
10054	R	Read Defined Variable [TT] (BCU2)LI_BRAKE_ISO = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10055	I	Remote Isolation Train Lines Dev4/50 = END2 90XP15 pin 59 Dev2/38 = Coupler pin 025 Dev2/39 = Coupler pin 125		OK		Sinazo Mkhwa - 529940	TC2
10056	A	Force [NI] Dev4/50 = 1.0		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10057	R	Read Defined Variable [NI] Dev2/38 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10058	R	Read Defined Variable [NI] Dev2/39 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10059	I	Remote Isolation Train Lines Dev4/50 = END2 90XP15 pin 59 Dev2/38 = Coupler pin 025 Dev2/39 = Coupler pin 125		OK		Sinazo Mkhwa - 529940	TC2
10060	A	Force [NI] Dev4/50 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10061	R	Read Defined Variable [NI] Dev2/38 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10062	R	Read Defined Variable [NI] Dev2/39 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10063	A	Turn the key 30A1.S1 to Active cab position		OK		Sinazo Mkhwa - 529940	TC2
10064	A	Turn the Service Brake Isolation Switch 40S2 to Isolation position		OK		Sinazo Mkhwa - 529940	TC2
10065	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2remoteisoswitchr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10066	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2remoteisoswitchr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10067	I	EB Reduced Train Lines Dev5/51 = END2 90XP15 pin 60		OK		Sinazo Mkhwa - 529940	TC2
10068	R	Read Defined Variable [NI] Dev5/51 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10069	A	Force [TT] (MPU1)lo_sbk_tc2isobrake = 1.0		OK		Anthonia Mabowa - 494131	TC2
10070	R	Read Defined Variable [TT] (BCU2)LI_BRAKE_ISO = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10071	I	Remote Isolation Train Lines Dev2/39 = Coupler pin 125 Dev5/50 = END2 90XP15 pin 59		OK		Sinazo Mkhwa - 529940	TC2
10072	R	Read Defined Variable [NI] Dev2/39 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10073	R	Read Defined Variable [NI] Dev5/50 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
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		Anthonia Mabowa - 494131	TC2
10075	A	Release [TT] (MPU1)lo_sbk_tc2isobrake		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10076	A	Turn the Service Brake Isolation Switch 40S2 to Normal position		OK		Anthonia Mabowa - 494131	TC2
10077	I	EB Reduced Train Lines Dev5/51 = END2 90XP15 pin 60		OK		Anthonia Mabowa - 494131	TC2
10078	R	Read Defined Variable [NI] Dev5/51 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10079	I	Manual Isolation		OK		Anthonia Mabowa - 494131	TC2
10080	A	Turn the Manual Isolation Cock C1.3.1 to Isolated position		OK		Sinazo Mkhwa - 529940	TC2
10081	I	EB Reduced Train Lines Dev5/51 = END2 90XP15 pin 60		OK		Sinazo Mkhwa - 529940	TC2
10082	R	Read Defined Variable [NI] Dev5/51 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10083	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2servicebrakedc = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10084	R	Read Defined Variable [TT] (BCU2)LI_SERVICE_BR_DC = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10085	A	Turn the Manual Isolation Cock C1.3.1 to Normal position		OK		Sinazo Mkhwa - 529940	TC2
10086	I	EB Reduced Train Lines Dev5/51 = END2 90XP15 pin 60		OK		Sinazo Mkhwa - 529940	TC2
10087	R	Read Defined Variable [NI] Dev5/51 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10088	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2servicebrakedc = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10089	R	Read Defined Variable [TT] (BCU2)LI_SERVICE_BR_DC = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10090	I	MCE Fault		OK		Goitsemodimo Kgatitswe - 526511	TC2
10091	A	Force [TT] (BCU2)LO_BRK_FLT = 1.0		OK		Carol Gumede - 425280	TC2
10092	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2bcufault = 1.0		OK	1	Carol Gumede - 425280	TC2
10093	A	Force [TT] (BCU2)LO_BRK_FLT = 0.0		OK		Carol Gumede - 425280	TC2
10094	R	Read Defined Variable [TT] (MPU1)li_sbk_tc2bcufault = 0.0		OK	0	Carol Gumede - 425280	TC2
10095	A	Release [TT] (BCU2)LO_BRK_FLT		OK		Carol Gumede - 425280	TC2
10096	I	Speed sensor test for TC2		OK		Carol Gumede - 425280	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10097	A	All connectors from speed sensor (one per axle) is connected to its axle in TC2 car.		OK		Carol Gumede - 425280	TC2
10098	R	Read Defined Variable [TT] (MPU1)BCU2_BcuSpdSensWSP1Flt = 0.0		OK	0	Carol Gumede - 425280	TC2
10099	R	Read Defined Variable [TT] (MPU1)BCU2_BcuSpdSensWSP2Flt = 0.0		OK	0	Carol Gumede - 425280	TC2
10100	R	Read Defined Variable [TT] (MPU1)BCU2_BcuSpdSensWSP3Flt = 0.0		OK	0	Carol Gumede - 425280	TC2
10101	R	Read Defined Variable [TT] (MPU1)BCU2_BcuSpdSensWSP4Flt = 0.0		OK	0	Carol Gumede - 425280	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 13 – Holding and Parking Brake

13.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Carol Gumede - 425280	TC2
10002	I	Initial Conditions		OK		Carol Gumede - 425280	TC2
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		Carol Gumede - 425280	TC2
10004	I	Confirm the presence of air supply to the vehicle. The pressure can be checked at test point BRTP > 4.8 Bar		OK		Carol Gumede - 425280	TC2
10005	I	Ensure that the Parking Brake Switch 45S1 is in "Normal" position		OK		Carol Gumede - 425280	TC2
10006	I	Parking Brake Pressure Switch		OK		Carol Gumede - 425280	TC2
10007	A	Turn the key 30A1.S1 to Active cab position		OK		Carol Gumede - 425280	TC2
10008	A	Check that the pressure on test point C1.11/1 is >4.8 Bar		OK		Carol Gumede - 425280	TC2
10009	R	Read Defined Variable [TT] (BCU2)LI_PARK_BR_RELEASE = 1.0		OK	1	Carol Gumede - 425280	TC2
10010	R	Read Defined Variable [TT] (MPU1)BCU2_ParkBrakeRelease = 1.0		OK	1	Carol Gumede - 425280	TC2
10011	R	Read Defined Variable [TT] (BCU2)LI_PARK_BR_DC = 0.0		OK	0	Carol Gumede - 425280	TC2
10012	R	Read Defined Variable [TT] (MPU1)BCU2_ParkBrakeIsolDC = 0.0		OK	0	Carol Gumede - 425280	TC2
10013	I	Parking Brake Applied Train Lines Dev2/74 = Coupler pin 018 Dev2/49 = Coupler pin 118 Dev5/58 = END2 90XP15 pin 77		OK		Carol Gumede - 425280	TC2
10014	R	Read Defined Variable [NI] Dev2/74 = 0.0		OK	0	Carol Gumede - 425280	TC2
10015	R	Read Defined Variable [NI] Dev2/49 = 0.0		OK	0	Carol Gumede - 425280	TC2
10016	R	Read Defined Variable [NI] Dev5/58 = 0.0		OK	0	Carol Gumede - 425280	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10017	R	Check that the Parking Brake Applied Lamp 45H2 on the indicator module 84A1 is OFF		OK		Carol Gumede - 425280	TC2
10018	I	Remote Parking Brake Command		OK		Carol Gumede - 425280	TC2
10019	A	Turn the Parking Brake Switch 45S1 to "Parking Brake" position		OK		Carol Gumede - 425280	TC2
10020	R	Confirm that the parking brake is applied, and air is released from electro valve C1.5		OK		Carol Gumede - 425280	TC2
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		Carol Gumede - 425280	TC2
10022	R	Read Defined Variable [NI] Dev2/86 = 1.0		OK	1	Carol Gumede - 425280	TC2
10023	R	Read Defined Variable [NI] Dev2/87 = 1.0		OK	1	Carol Gumede - 425280	TC2
10024	R	Read Defined Variable [NI] Dev5/57 = 1.0		OK	1	Carol Gumede - 425280	TC2
10025	A	Allow the air to reach below 4.8 Bar - verify on test point C1.11/1		OK		Carol Gumede - 425280	TC2
10026	R	Read Defined Variable [TT] (BCU2)LI_PARK_BR_RELEASE = 0.0		OK	0	Carol Gumede - 425280	TC2
10027	R	Read Defined Variable [TT] (MPU1)BCU2_ParkBrakeRelease = 0.0		OK	0	Carol Gumede - 425280	TC2
10028	I	Parking Brake Applied Train Lines Dev2/74 = Coupler pin 018 Dev2/49 = Coupler pin 118 Dev5/58 = END2 90XP15 pin 77		OK		Carol Gumede - 425280	TC2
10029	R	Read Defined Variable [NI] Dev2/74 = 1.0		OK	1	Carol Gumede - 425280	TC2
10030	R	Read Defined Variable [NI] Dev2/49 = 1.0		OK	1	Carol Gumede - 425280	TC2
10031	R	Read Defined Variable [NI] Dev5/58 = 1.0		OK	1	Carol Gumede - 425280	TC2
10032	R	Check that the Parking Brake Applied Lamp 45H2 on the indicator module 84A1 turns ON		OK		Carol Gumede - 425280	TC2
10033	A	Turn the Parking Brake Switch 45S1 to "Normal" position		OK		Carol Gumede - 425280	TC2
10034	I	Remote Parking Brake Command Train lines Dev2/86 = Coupler pin 030 Dev2/87 = Coupler pin 130		OK		Carol Gumede - 425280	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

		Dev5/57 = END2 90XP15 pin 68					
10035	R	Read Defined Variable [NI] Dev2/86 = 0.0		OK	0	Carol Gumede - 425280	TC2
10036	R	Read Defined Variable [NI] Dev2/87 = 0.0		OK	0	Carol Gumede - 425280	TC2
10037	R	Read Defined Variable [NI] Dev5/57 = 0.0		OK	0	Carol Gumede - 425280	TC2
10038	I	Parking Brake Manual Isolation		OK		Carol Gumede - 425280	TC2
10039	A	Turn the Parking Brake Isolation cock C1.3.2 to "Isolated" position		OK		Carol Gumede - 425280	TC2
10040	R	Read Defined Variable [TT] (BCU2)LI_PARK_BR_DC = 1.0		OK	1	Carol Gumede - 425280	TC2
10041	R	Read Defined Variable [TT] (MPU1)BCU2_ParkBrakeIsolDC = 1.0		OK	1	Carol Gumede - 425280	TC2
10042	R	Read Defined Variable [TT] (MPU1)li_pbk_tc2parkbrakeisol = 1.0		OK	1	Carol Gumede - 425280	TC2
10043	I	Parking Brake Applied Train Lines Dev2/74 = Coupler pin 018 Dev2/49 = Coupler pin 118 Dev5/58 = END2 90XP15 pin 77		OK		Carol Gumede - 425280	TC2
10044	R	Read Defined Variable [NI] Dev2/74 = 0.0		OK	0	Carol Gumede - 425280	TC2
10045	R	Read Defined Variable [NI] Dev2/49 = 0.0		OK	0	Carol Gumede - 425280	TC2
10046	R	Read Defined Variable [NI] Dev5/58 = 0.0		OK	0	Carol Gumede - 425280	TC2
10047	A	Return the Parking Brake Isolation cock C1.3.2 to "Normal" position		OK		Carol Gumede - 425280	TC2
10048	R	Read Defined Variable [TT] (BCU2)LI_PARK_BR_DC = 0.0		OK	0	Carol Gumede - 425280	TC2
10049	R	Read Defined Variable [TT] (MPU1)BCU2_ParkBrakeIsolDC = 0.0		OK	0	Carol Gumede - 425280	TC2
10050	R	Read Defined Variable [TT] (MPU1)li_pbk_tc2parkbrakeisol = 0.0		OK	0	Carol Gumede - 425280	TC2
10051	I	Parking Brake Applied Train Lines Dev2/74 = Coupler pin 018		OK		Carol Gumede - 425280	TC2
10052	R	Read Defined Variable [NI] Dev2/74 = 1.0		OK	1	Carol Gumede - 425280	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 14 – Passenger Doors

14.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Anthonia Mabowa - 494131	TC2
10002	I	Initial Conditions:		OK		Anthonia Mabowa - 494131	TC2
10003	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Anthonia Mabowa - 494131	TC2
10004	I	Car Should be Prepared (closed battery contacts)		OK		Anthonia Mabowa - 494131	TC2
10005	I	Cab door windows should be closed		OK		Anthonia Mabowa - 494131	TC2
10006	I	Cab doors should be closed and unlocked		OK		Sinazo Mkhwa - 529940	TC2
10007	I	Cab Door Windows		OK		Sinazo Mkhwa - 529940	TC2
10008	A	Open and close both the LEFT and RIGHT cab door windows		OK		Sinazo Mkhwa - 529940	TC2
10009	R	The LEFT cab door window opens and closes correctly		OK		Sinazo Mkhwa - 529940	TC2
10010	R	The RIGHT cab door window opens and closes correctly		OK		Sinazo Mkhwa - 529940	TC2
10011	I	Cabin Doors		OK		Sinazo Mkhwa - 529940	TC2
10012	A	Open all 3 cab doors (LEFT, RIGHT, and saloon access) and close them		OK		Sinazo Mkhwa - 529940	TC2
10013	R	The LEFT cab door can open fully and close shut		OK		Sinazo Mkhwa - 529940	TC2
10014	R	The RIGHT cab door can open fully and close shut		OK		Sinazo Mkhwa - 529940	TC2
10015	R	The saloon access door can open fully and close shut		OK		Sinazo Mkhwa - 529940	TC2
10016	A	Lock the 3 doors		OK		Sinazo Mkhwa - 529940	TC2
10017	R	The LEFT cab door lock is functioning correctly and the door cannot be opened		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10018	R	The RIGHT cab door lock is functioning correctly and the door cannot be opened		OK		Sinazo Mkhwa - 529940	TC2
10019	R	The Saloon access door lock is functioning correctly and the door cannot be opened		OK		Sinazo Mkhwa - 529940	TC2
10020	A	Unlock the doors		OK		Sinazo Mkhwa - 529940	TC2
10021	A	Repeat the open, close and lock operations from the outside of the vehicle		OK		Sinazo Mkhwa - 529940	TC2
10022	R	Both cab doors can be opened, closed and locked from the outside		OK		Sinazo Mkhwa - 529940	TC2
10023	I	External access locks		OK		Sinazo Mkhwa - 529940	TC2
10024	I	Ensure Door 1 and Door 2 are closed		OK		Sinazo Mkhwa - 529940	TC2
10025	A	Insert a square key into the external access lock of Door 1, and unlock the door		OK		Sinazo Mkhwa - 529940	TC2
10026	R	The door is unlocked and can be opened freely		OK		Sinazo Mkhwa - 529940	TC2
10027	A	Close the door, and lock the external access lock with the square key		OK		Sinazo Mkhwa - 529940	TC2
10028	R	The door is locked and can no longer be opened manually		OK		Sinazo Mkhwa - 529940	TC2
10029	A	Insert a square key into the external access lock of Door 2, and unlock the door		OK		Sinazo Mkhwa - 529940	TC2
10030	R	The door is unlocked and can be opened freely		OK		Sinazo Mkhwa - 529940	TC2
10031	A	Close the door, and lock the external access lock with the square key		OK		Sinazo Mkhwa - 529940	TC2
10032	R	The door is locked and can no longer be opened manually		OK		Sinazo Mkhwa - 529940	TC2
10033	I	Circuit Breakers		OK		Sinazo Mkhwa - 529940	TC2
10034	A	Close Circuit Breaker 50Q1		OK		Sinazo Mkhwa - 529940	TC2
10035	R	DCU 1 is powered ON		OK		Sinazo Mkhwa - 529940	TC2
10036	R	Check on the DDU that DCU1 is online		OK		Sinazo Mkhwa - 529940	TC2
10037	A	Close Circuit Breaker 50Q2		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10038	R	DCU 2 is powered ON		OK		Sinazo Mkhwa - 529940	TC2
10039	R	Check on the DDU that DCU2 is online		OK		Sinazo Mkhwa - 529940	TC2
10040	A	Close Circuit Breaker 50Q3		OK		Sinazo Mkhwa - 529940	TC2
10041	R	DCU 3 is powered ON		OK		Sinazo Mkhwa - 529940	TC2
10042	R	Check on the DDU that DCU3 is online		OK		Sinazo Mkhwa - 529940	TC2
10043	A	Close Circuit Breaker 50Q4		OK		Sinazo Mkhwa - 529940	TC2
10044	R	DCU 4 is powered ON		OK		Sinazo Mkhwa - 529940	TC2
10045	R	Check on the DDU that DCU4 is online		OK		Sinazo Mkhwa - 529940	TC2
10046	A	Close Circuit Breaker 50Q5		OK		Sinazo Mkhwa - 529940	TC2
10047	R	DCU 5 is powered ON		OK		Sinazo Mkhwa - 529940	TC2
10048	R	Check on the DDU that DCU5 is online		OK		Sinazo Mkhwa - 529940	TC2
10049	A	Close Circuit Breaker 50Q6		OK		Sinazo Mkhwa - 529940	TC2
10050	R	DCU 6 is powered ON		OK		Sinazo Mkhwa - 529940	TC2
10051	R	Check on the DDU that DCU6 is online		OK		Sinazo Mkhwa - 529940	TC2
10052	A	Close Circuit Breaker 50Q7		OK		Sinazo Mkhwa - 529940	TC2
10053	I	Car ID Code		OK		Sinazo Mkhwa - 529940	TC2
10054	A	Using the Door Status screen on the DDU, check that all the doors on TC2 are available - as in the picture below		OK		Sinazo Mkhwa - 529940	TC2
10055	R	All doors are available		OK		Sinazo Mkhwa - 529940	TC2
10056	I	Left Side Doors		OK		Sinazo Mkhwa - 529940	TC2
10057	I	Door Authorization		OK		Sinazo Mkhwa - 529940	TC2
10058	I	V<3km/h Train Line Dev4/39 = END2 90XP15 pin 29		OK		Sinazo Mkhwa - 529940	TC2
10059	A	Force [NI] Dev4/39 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10060	A	Switch Door Authorization Selector 50S7 to DRIVER		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10061	R	Read Defined Variable [TT] (MPU1)li_dor_tc2ertmsauthdoorr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10062	R	Read Defined Variable [TT] (MPU1)li_dor_tc2ertmsauthdoorr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10063	R	Read Defined Variable [TT] (MPU1)li_dor_tc2authdoorpbleft = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10064	R	Read Defined Variable [TT] (MPU1)li_dor_tc2dorauthdleftr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10065	R	Read Defined Variable [TT] (MPU1)li_dor_tc2dorauthdleftr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10066	I	Door Auth Left Train Lines Dev2/56 = Coupler pin 009 Dev2/57 = Coupler pin 124 Dev5/64 = END2 90XP15 pin 85		OK		Sinazo Mkhwa - 529940	TC2
10067	R	Read Defined Variable [NI] Dev2/56 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10068	R	Read Defined Variable [NI] Dev2/57 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10069	R	Read Defined Variable [NI] Dev5/64 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10070	A	Press the Doors LEFT Side Authorization button 50S5		OK		Sinazo Mkhwa - 529940	TC2
10071	R	Check that the YELLOW LEFT Side Authorization pushbutton lamp 50S5 turns ON		OK		Sinazo Mkhwa - 529940	TC2
10072	R	Read Defined Variable [TT] (MPU1)li_dor_tc2authdoorpbleft = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10073	R	Read Defined Variable [TT] (MPU1)li_dor_tc2dorauthdleftr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10074	R	Read Defined Variable [TT] (MPU1)li_dor_tc2dorauthdleftr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10075	I	Door Auth Left Train Lines Dev2/56 = Coupler pin 009 Dev2/57 = Coupler pin 124 Dev5/64 = END2 90XP15 pin 85		OK		Sinazo Mkhwa - 529940	TC2
10076	R	Read Defined Variable [NI] Dev2/56 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10077	R	Read Defined Variable [NI] Dev2/57 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10078	R	Read Defined Variable [NI] Dev5/64 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10079	A	Turn Driver's Master Key 30A1.S1 to NON-Active Cabin Position		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10080	R	Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdleftr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10081	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Sinazo Mkhwa - 529940	TC2
10082	I	Door Open		OK		Sinazo Mkhwa - 529940	TC2
10083	R	Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpbleftr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10084	R	Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpbleftr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10085	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorlgtleftr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10086	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorlgtleftr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10087	A	Press the LEFT side Door Open pushbutton 50S1		OK		Sinazo Mkhwa - 529940	TC2
10088	R	Check that the WHITE LEFT Side Door Open pushbutton lamp 50S1 turns ON		OK		Sinazo Mkhwa - 529940	TC2
10089	R	Check that doors 1, 3 and 5 (LEFT SIDE) open		OK		Sinazo Mkhwa - 529940	TC2
10090	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorleft = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10091	R	Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpbleftr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10092	R	Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpbleftr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10093	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorlgtleftr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10094	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorlgtleftr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10095	I	Door Closing		OK		Sinazo Mkhwa - 529940	TC2
10096	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbleftr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10097	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbleftr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10098	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2closedoorlgtleftr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10099	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2closedoorlgtleftr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10100	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorlineleft = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10101	I	Door Close Left Train Lines Dev2/50 = Coupler pin 004 Dev2/51 = Coupler pin 137 Dev5/60 = END2 90XP15 pin 79		OK		Sinazo Mkhwa - 529940	TC2
10102	R	Read Defined Variable [NI] Dev2/50 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10103	R	Read Defined Variable [NI] Dev2/51 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10104	R	Read Defined Variable [NI] Dev5/60 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10105	A	Press the LEFT side Door Close pushbutton 50S3		OK		Sinazo Mkhwa - 529940	TC2
10106	R	Check that the BLUE LEFT Side Door Close pushbutton lamp 50S3 turns ON		OK		Sinazo Mkhwa - 529940	TC2
10107	R	Check that doors 1, 3 and 5 (LEFT SIDE) close		OK		Sinazo Mkhwa - 529940	TC2
10108	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbleftr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10109	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbleftr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10110	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2closedoorlgtleftr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10111	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2closedoorlgtleftr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10112	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorlineleft = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10113	I	Door Close Left Train Lines Dev2/50 = Coupler pin 004 Dev2/51 = Coupler pin 137 Dev5/60 = END2 90XP15 pin 79		OK		Sinazo Mkhwa - 529940	TC2
10114	R	Read Defined Variable [NI] Dev2/50 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10115	R	Read Defined Variable [NI] Dev2/51 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10116	R	Read Defined Variable [NI] Dev5/60 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10117	R	Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdleftr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10118	I	Right Side Doors		OK		Sinazo Mkhwa - 529940	TC2
10119	I	Door Authorization		OK		Sinazo Mkhwa - 529940	TC2
10120	R	Read Defined Variable [TT] (MPU1)li_dor_tc2authdoorpbright = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10121	R	Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrightr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10122	R	Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrightr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10123	I	Door Auth Right Train Lines Dev2/54 = Coupler pin 024 Dev2/64 = Coupler pin 109 Dev5/56 = END2 90XP15 pin 84		OK		Sinazo Mkhwa - 529940	TC2
10124	R	Read Defined Variable [NI] Dev2/54 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10125	R	Read Defined Variable [NI] Dev2/64 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10126	R	Read Defined Variable [NI] Dev5/56 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10127	A	Press the Doors RIGHT Side Authorization button 50S6		OK		Sinazo Mkhwa - 529940	TC2
10128	R	Check that the YELLOW RIGHT Side Authorization pushbutton lamp 50S6 turns ON		OK		Sinazo Mkhwa - 529940	TC2
10129	R	Read Defined Variable [TT] (MPU1)li_dor_tc2authdoorpbright = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10130	R	Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrightr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10131	R	Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrightr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10132	I	Door Auth Right Train Lines Dev2/54 = Coupler pin 024 Dev2/64 = Coupler pin 109 Dev5/56 = END2 90XP15 pin 84		OK		Sinazo Mkhwa - 529940	TC2
10133	R	Read Defined Variable [NI] Dev2/54 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10134	R	Read Defined Variable [NI] Dev2/64 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10135	R	Read Defined Variable [NI] Dev5/56 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10136	A	Turn Driver's Master Key 30A1.S1 to NON-Active Cabin Position		OK		Sinazo Mkhwa - 529940	TC2
10137	R	Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrightr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10138	A	Turn Driver's Master Key 30A1.S1 to Active Cabin Position		OK		Sinazo Mkhwa - 529940	TC2
10139	I	Door Open		OK		Sinazo Mkhwa - 529940	TC2
10140	R	Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpbrightr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10141	R	Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpbrightr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10142	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorlgtrightr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10143	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorlgtrightr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10144	A	Press the RIGHT side Door Open pushbutton 50S2		OK		Sinazo Mkhwa - 529940	TC2
10145	R	Check that the WHITE RIGHT Side Door Open pushbutton lamp 50S2 turns ON		OK		Sinazo Mkhwa - 529940	TC2
10146	R	Check that doors 2, 4 and 6 (RIGHT SIDE) open		OK		Sinazo Mkhwa - 529940	TC2
10147	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorright = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10148	R	Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpbrightr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10149	R	Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpbrightr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10150	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorlgtrightr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10151	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2opendoorlgtrightr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10152	I	Door Closing		OK		Sinazo Mkhwa - 529940	TC2
10153	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbrightr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10154	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbrightr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10155	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2closedoorlgtrightr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10156	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2closedoorlgtrightr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10157	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorlineright = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10158	I	Door Close Right Train Lines Dev2/52 = Coupler pin 037 Dev2/53 = Coupler pin 104 Dev5/59 = END2 90XP15 pin 78		OK		Sinazo Mkhwa - 529940	TC2
10159	R	Read Defined Variable [NI] Dev2/52 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10160	R	Read Defined Variable [NI] Dev2/53 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10161	R	Read Defined Variable [NI] Dev5/59 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10162	A	Press the RIGHT side Door Close pushbutton 50S4		OK		Sinazo Mkhwa - 529940	TC2
10163	R	Check that the BLUE RIGHT Side Door Close pushbutton lamp 50S4 turns ON		OK		Sinazo Mkhwa - 529940	TC2
10164	R	Check that doors 2, 4 and 6 (RIGHT SIDE) close		OK		Sinazo Mkhwa - 529940	TC2
10165	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbrightr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10166	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbrightr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10167	R	Read Defined Variable [TT]		OK	1	Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

		(MPU1)lo_dor_tc2closedoorlgtrightr1 = 1.0					
10168	R	Read Defined Variable [TT] (MPU1)lo_dor_tc2closedoorlgtrightr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10169	R	Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorlineright = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10170	I	Door Close Right Train Lines Dev2/52 = Coupler pin 037 Dev2/53 = Coupler pin 104 Dev5/59 = END2 90XP15 pin 78		OK		Sinazo Mkhwa - 529940	TC2
10171	R	Read Defined Variable [NI] Dev2/52 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10172	R	Read Defined Variable [NI] Dev2/53 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10173	R	Read Defined Variable [NI] Dev5/59 = 1.0		OK	1	Ntobeko Ndlovu - 421595	TC2
10174	R	Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrightr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10175	I	Closing Conditions		OK		Sinazo Mkhwa - 529940	TC2
10176	A	Press the Doors LEFT Side Authorization button 50S5		OK		Sinazo Mkhwa - 529940	TC2
10177	I	Door Close Left Train Line Dev5/60 = END2 90XP15 pin 79		OK		Sinazo Mkhwa - 529940	TC2
10178	R	Read Defined Variable [NI] Dev5/60 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10179	A	Press the Doors RIGHT Side Authorization button 50S4		OK		Sinazo Mkhwa - 529940	TC2
10180	I	Door Close Right Train Lines Dev5/59 = END2 90XP15 pin 78		OK		Sinazo Mkhwa - 529940	TC2
10181	R	Read Defined Variable [NI] Dev5/59 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10182	A	Press the LEFT side Door Open pushbutton 50S1		OK		Sinazo Mkhwa - 529940	TC2
10183	A	Press the RIGHT side Door Open pushbutton 50S2		OK		Sinazo Mkhwa - 529940	TC2
10184	I	V>5km/h Train Line Dev4/38 = END2 90XP15 pin 28		OK		Sinazo Mkhwa - 529940	TC2
10185	A	Force [NI] Dev4/38 = 1.0		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10186	R	Read Defined Variable [TT] (MPU1)li_rec_tc2thresholdfive1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10187	R	Read Defined Variable [TT] (MPU1)li_rec_tc2thresholdfive2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10188	I	Door Close Right Train Lines Dev5/59 = END2 90XP15 pin 78		OK		Sinazo Mkhwa - 529940	TC2
10189	R	Read Defined Variable [NI] Dev5/59 = 1.0		OK	1	Ntobeko Ndlovu - 421595	TC2
10190	I	Door Close Left Train Line Dev5/60 = END2 90XP15 pin 79		OK		Sinazo Mkhwa - 529940	TC2
10191	R	Read Defined Variable [NI] Dev5/60 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10192	R	Check that all the Doors Close		OK		Sinazo Mkhwa - 529940	TC2
10193	I	V>5km/h Train Line Dev4/38 = END2 90XP15 pin 28		OK		Sinazo Mkhwa - 529940	TC2
10194	A	Force [NI] Dev4/38 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10195	R	Read Defined Variable [TT] (MPU1)li_rec_tc2thresholdfive1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10196	R	Read Defined Variable [TT] (MPU1)li_rec_tc2thresholdfive2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10197	I	ERTMS Control		OK		Sinazo Mkhwa - 529940	TC2
10198	A	Switch Door Authorization Selector 50S7 to ERTMS		OK		Sinazo Mkhwa - 529940	TC2
10199	R	Read Defined Variable [TT] (MPU1)li_dor_tc2ertmsauthdoorr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10200	R	Read Defined Variable [TT] (MPU1)li_dor_tc2ertmsauthdoorr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10201	I	Left Doors		OK		Sinazo Mkhwa - 529940	TC2
10202	I	ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44		OK		Sinazo Mkhwa - 529940	TC2
10203	A	Force [NI] Dev4/86 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10204	R	Check that the YELLOW LEFT Side Authorization pushbutton lamp 50S5 turns ON		OK		Sinazo Mkhwa - 529940	TC2
10205	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthleftr1 = 1.0		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10206	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthleftr2 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10207	A	Force [TT] (MPU1)lo_dor_tc2opendoorleft = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10208	R	Check that doors 1, 3 and 5 (LEFT SIDE) open		OK		Sinazo Mkhwa - 529940	TC2
10209	A	Release [TT] (MPU1)lo_dor_tc2opendoorleft		OK		Sinazo Mkhwa - 529940	TC2
10210	R	Check that doors 1, 3 and 5 (LEFT SIDE) close		OK		Sinazo Mkhwa - 529940	TC2
10211	A	Press the LEFT side Door Open pushbutton 50S1		OK		Sinazo Mkhwa - 529940	TC2
10212	R	Check that doors 1, 3 and 5 (LEFT SIDE) open		OK		Sinazo Mkhwa - 529940	TC2
10213	I	ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44		OK		Sinazo Mkhwa - 529940	TC2
10214	A	Force [NI] Dev4/86 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10215	A	Press the LEFT side Door Close pushbutton 50S3		OK		Sinazo Mkhwa - 529940	TC2
10216	R	Check that doors 1, 3 and 5 (LEFT SIDE) close		OK		Sinazo Mkhwa - 529940	TC2
10217	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthleftr1		OK		Sinazo Mkhwa - 529940	TC2
10218	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthleftr2		OK		Sinazo Mkhwa - 529940	TC2
10219	I	Right Doors		OK		Sinazo Mkhwa - 529940	TC2
10220	I	ERTMS Auth Right Train Line Dev4/87 = END2 90XP15 pin 47		OK		Sinazo Mkhwa - 529940	TC2
10221	A	Force [NI] Dev4/87 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10222	R	Check that the YELLOW RIGHT Side Authorization pushbutton lamp 50S6 turns ON		OK		Sinazo Mkhwa - 529940	TC2
10223	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthrightr1 = 1.0		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10224	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthrightr2 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10225	A	Force [TT] (MPU1)lo_dor_tc2opendoorright = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10226	R	Check that doors 2, 4 and 6 (RIGHT SIDE) open		OK		Sinazo Mkhwa - 529940	TC2
10227	A	Release [TT] (MPU1)lo_dor_tc2opendoorright		OK		Sinazo Mkhwa - 529940	TC2
10228	R	Check that doors 2, 4 and 6 (RIGHT SIDE) close		OK		Sinazo Mkhwa - 529940	TC2
10229	A	Press the RIGHT side Door Open pushbutton 50S2		OK		Sinazo Mkhwa - 529940	TC2
10230	R	Check that doors 2, 4 and 6 (RIGHT SIDE) open		OK		Sinazo Mkhwa - 529940	TC2
10231	I	ERTMS Auth Right Train Line Dev4/87 = END2 90XP15 pin 47		OK		Sinazo Mkhwa - 529940	TC2
10232	A	Force [NI] Dev4/87 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10233	R	Check that doors 2, 4 and 6 (RIGHT SIDE) close		OK		Sinazo Mkhwa - 529940	TC2
10234	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthrightr1		OK		Sinazo Mkhwa - 529940	TC2
10235	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthrightr2		OK		Sinazo Mkhwa - 529940	TC2
10236	I	Opening Gap, Safety Loop and Obstacle Detection		OK		Sinazo Mkhwa - 529940	TC2
10237	A	Close Circuit Breaker 51Q1		OK		Sinazo Mkhwa - 529940	TC2
10238	A	Check that the Door Safety Loop Indicator lamp 51H1 is ON		OK		Sinazo Mkhwa - 529940	TC2
10239	R	Read Defined Variable [TT] (MPU1)li_dor_tc2alldoorsclosedr1 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10240	R	Read Defined Variable [TT] (MPU1)li_dor_tc2alldoorsclosedr2 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10241	I	Safety Doors Loop Train Line Dev2/60 = Coupler pin 016 Dev2/61 = Coupler pin 116		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10242	R	Read Defined Variable [NI] Dev2/60 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10243	R	Read Defined Variable [NI] Dev2/61 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10244	I	Doors Open Train Line Dev2/82 = Coupler pin 029 Dev2/83 = Coupler pin 129 Dev5/55 = END2 90XP15 pin 66		OK		Sinazo Mkhwa - 529940	TC2
10245	R	Read Defined Variable [NI] Dev2/82 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10246	R	Read Defined Variable [NI] Dev2/83 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10247	R	Read Defined Variable [NI] Dev5/55 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10248	I	Safety Doors Loop Train Line Dev4/89 = END2 90XP25 pin 96		OK		Sinazo Mkhwa - 529940	TC2
10249	A	Force [NI] Dev4/89 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10250	R	Read Defined Variable [TT] (MPU1)li_dor_tc2alldoorsclosedr1 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10251	R	Read Defined Variable [TT] (MPU1)li_dor_tc2alldoorsclosedr2 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10252	I	Safety Doors Loop Train Line Dev2/60 = Coupler pin 016 Dev2/61 = Coupler pin 116		OK		Sinazo Mkhwa - 529940	TC2
10253	R	Read Defined Variable [NI] Dev2/60 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10254	R	Read Defined Variable [NI] Dev2/61 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10255	I	Doors Open Train Line Dev2/82 = Coupler pin 029 Dev2/83 = Coupler pin 129 Dev5/55 = END2 90XP15 pin 66		OK		Sinazo Mkhwa - 529940	TC2
10256	R	Read Defined Variable [NI] Dev2/82 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10257	R	Read Defined Variable [NI] Dev2/83 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10258	R	Read Defined Variable [NI] Dev5/55 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10259	A	Check that the Door Safety Loop Indicator lamp 51H1 is OFF		OK		Sinazo Mkhwa - 529940	TC2
10260	I	Door 1		OK		Sinazo Mkhwa - 529940	TC2
10261	I	ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44		OK		Sinazo Mkhwa - 529940	TC2
10262	A	Force [NI] Dev4/86 = 1.0		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10263	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthleftr1 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10264	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthleftr2 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10265	A	Force [TT] (MPU1)lo_dor_tc2opendoorleft = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10266	R	Check that the door opens in 3 sec (+1/-0)		OK		Sinazo Mkhwa - 529940	TC2
10267	R	Check that the GREEN leds on both sides of the door blink while the door opens [Safety Request: Prasa8-05]		OK		Sinazo Mkhwa - 529940	TC2
10268	I	Doors Open Train Line Dev2/82 = Coupler pin 029		OK		Sinazo Mkhwa - 529940	TC2
10269	R	Read Defined Variable [NI] Dev2/82 = 1.0		OK	1	Sinazo Mkhwa - 529940	TC2
10270	I	Door Opening Gap		OK		Sinazo Mkhwa - 529940	TC2
10271	A	Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door).		OK		Sinazo Mkhwa - 529940	TC2
10272	R	Door 1 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1393	Sinazo Mkhwa - 529940	TC2
10273	A	Measure the opening gap of the door. (The measurement must be done at the TOP of the door).		OK		Sinazo Mkhwa - 529940	TC2
10274	R	Door 1 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1402	Sinazo Mkhwa - 529940	TC2
10275	A	Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door).		OK		Sinazo Mkhwa - 529940	TC2
10276	R	Door 1 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1397	Sinazo Mkhwa - 529940	TC2
10277	I	Door 3		OK		Sinazo Mkhwa - 529940	TC2
10278	I	Door Opening Gap		OK		Sinazo Mkhwa - 529940	TC2
10279	A	Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door).		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10280	R	Door 3 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1394	Sinazo Mkhwa - 529940	TC2
10281	A	Measure the opening gap of the door. (The measurement must be done at the TOP of the door).		OK		Sinazo Mkhwa - 529940	TC2
10282	R	Door 3 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1405	Sinazo Mkhwa - 529940	TC2
10283	A	Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door).		OK		Sinazo Mkhwa - 529940	TC2
10284	R	Door 3 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1400	Sinazo Mkhwa - 529940	TC2
10285	I	Door 5		OK		Sinazo Mkhwa - 529940	TC2
10286	I	Door Opening Gap		OK		Sinazo Mkhwa - 529940	TC2
10287	A	Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door).		OK		Sinazo Mkhwa - 529940	TC2
10288	R	Door 5 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1394	Sinazo Mkhwa - 529940	TC2
10289	A	Measure the opening gap of the door. (The measurement must be done at the TOP of the door).		OK		Sinazo Mkhwa - 529940	TC2
10290	R	Door 5 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1404	Sinazo Mkhwa - 529940	TC2
10291	A	Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door).		OK		Sinazo Mkhwa - 529940	TC2
10292	R	Door 5 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1398	Sinazo Mkhwa - 529940	TC2
10293	A	Release [TT] (MPU1)lo_dor_tc2opendoorleft		OK		Sinazo Mkhwa - 529940	TC2
10294	R	Check if ALL left doors closes in 3 sec (+1/-0)		OK		Sinazo Mkhwa - 529940	TC2
10295	R	Check that the RED leds on both sides of the door blink while the door closes [Safety Request: Prasa8-05]		OK		Sinazo Mkhwa - 529940	TC2
10296	I	Doors Open Train Line Dev2/82 = Coupler pin 029		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10297	R	Read Defined Variable [NI] Dev2/82 = 0		OK	0	Sinazo Mkhwa - 529940	TC2
10298	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthleftr1		OK		Sinazo Mkhwa - 529940	TC2
10299	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthleftr2		OK		Sinazo Mkhwa - 529940	TC2
10300	I	ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44		OK		Sinazo Mkhwa - 529940	TC2
10301	A	Force [NI] Dev4/86 = 0		OK		Sinazo Mkhwa - 529940	TC2
10302	I	Door 2		OK		Sinazo Mkhwa - 529940	TC2
10303	I	ERTMS Auth Right Train Line Dev4/87 = END2 90XP15 pin 47		OK		Sinazo Mkhwa - 529940	TC2
10304	A	Force [NI] Dev4/87 = 1		OK		Sinazo Mkhwa - 529940	TC2
10305	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthrightr1 = 1		OK		Sinazo Mkhwa - 529940	TC2
10306	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthrightr2 = 1		OK		Sinazo Mkhwa - 529940	TC2
10307	A	Force [TT] (MPU1)lo_dor_tc2opendoorright = 1		OK		Sinazo Mkhwa - 529940	TC2
10308	R	Check that the door opens in 3 sec (+1/-0)		OK		Sinazo Mkhwa - 529940	TC2
10309	R	Check that the GREEN leds on both sides of the door blink while the door opens [Safety Request: Prasa8-05]		OK		Sinazo Mkhwa - 529940	TC2
10310	I	Doors Open Train Line Dev2/82 = Coupler pin 029		OK		Sinazo Mkhwa - 529940	TC2
10311	R	Read Defined Variable [NI] Dev2/82 = 1		OK	1	Sinazo Mkhwa - 529940	TC2
10312	I	Door Opening Gap		OK		Sinazo Mkhwa - 529940	TC2
10313	A	Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door).		OK		Sinazo Mkhwa - 529940	TC2
10314	R	Door 2 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1393	Sinazo Mkhwa - 529940	TC2
10315	A	Measure the opening gap of the door. (The measurement must be done at the TOP of the door).		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10316	R	Door 2 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1400	Sinazo Mkhwa - 529940	TC2
10317	A	Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door).		OK		Sinazo Mkhwa - 529940	TC2
10318	R	Door 2 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1397	Sinazo Mkhwa - 529940	TC2
10319	I	Door 4		OK		Sinazo Mkhwa - 529940	TC2
10320	I	Door Opening Gap		OK		Sinazo Mkhwa - 529940	TC2
10321	A	Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door).		OK		Sinazo Mkhwa - 529940	TC2
10322	R	Door 4 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1394	Sinazo Mkhwa - 529940	TC2
10323	A	Measure the opening gap of the door. (The measurement must be done at the TOP of the door).		OK		Sinazo Mkhwa - 529940	TC2
10324	R	Door 4 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1403	Sinazo Mkhwa - 529940	TC2
10325	A	Measure the opening gap of the door. (The measurement must be done in the MIDDLE of the door).		OK		Sinazo Mkhwa - 529940	TC2
10326	R	Door 4 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1399	Sinazo Mkhwa - 529940	TC2
10327	I	Door 6		OK		Sinazo Mkhwa - 529940	TC2
10328	I	Door Opening Gap		OK		Sinazo Mkhwa - 529940	TC2
10329	A	Measure the opening gap of the door. (The measurement must be done at the BOTTOM of the door).		OK		Sinazo Mkhwa - 529940	TC2
10330	R	Door 6 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1394	Sinazo Mkhwa - 529940	TC2
10331	A	Measure the opening gap of the door. (The measurement must be done at the TOP of the door).		OK		Sinazo Mkhwa - 529940	TC2
10332	R	Door 6 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1402	Sinazo Mkhwa - 529940	TC2
10333	A	Measure the opening gap of the door. (The measurement must be done in the		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

		MIDDLE of the door).					
10334	R	Door 6 gap Result Min/Max : 1390<= x <= 1410 (mm)		OK	1397	Sinazo Mkhwa - 529940	TC2
10335	I	Obstacle Detection		OK		Sinazo Mkhwa - 529940	TC2
10336	I	ERTMS Auth Left Train Line Dev4/86 = END2 90XP15 pin 44		OK		Sinazo Mkhwa - 529940	TC2
10337	A	Force [NI] Dev4/86 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10338	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthleftr1 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10339	A	Force [TT] (MPU1)lo_dor_tc2distertmsauthleftr2 = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10340	A	Position an obstacle on the floor in the centre of each and every door closing line		OK		Sinazo Mkhwa - 529940	TC2
10341	A	Release [TT] (MPU1)lo_dor_tc2opendoorright		OK		Sinazo Mkhwa - 529940	TC2
10342	A	Release [TT] (MPU1)lo_dor_tc2opendoorleft		OK		Sinazo Mkhwa - 529940	TC2
10343	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		Sinazo Mkhwa - 529940	TC2
10344	A	Force [TT] (MPU1)lo_dor_tc2opendoorright = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10345	A	Force [TT] (MPU1)lo_dor_tc2opendoorleft = 1.0		OK		Sinazo Mkhwa - 529940	TC2
10346	A	Remove the obstacles		OK		Sinazo Mkhwa - 529940	TC2
10347	A	Release [TT] (MPU1)lo_dor_tc2opendoorright		OK		Sinazo Mkhwa - 529940	TC2
10348	A	Release [TT] (MPU1)lo_dor_tc2opendoorleft		OK		Sinazo Mkhwa - 529940	TC2
10349	R	Check if ALL doors closes in 3 sec (+1/-0)		OK		Sinazo Mkhwa - 529940	TC2
10350	R	Check that the RED leds on both sides of the door blink while the door closes		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

		[Safety Request: Prasa8-05]					
10351	I	Doors Open Train Line Dev2/82 = Coupler pin 029		OK		Sinazo Mkhwa - 529940	TC2
10352	R	Read Defined Variable [NI] Dev2/82 = 0.0		OK	0	Sinazo Mkhwa - 529940	TC2
10353	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthrightr1		OK		Sinazo Mkhwa - 529940	TC2
10354	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthrightr2		OK		Sinazo Mkhwa - 529940	TC2
10355	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthleftr1		OK		Sinazo Mkhwa - 529940	TC2
10356	A	Release [TT] (MPU1)lo_dor_tc2distertmsauthleftr2		OK		Sinazo Mkhwa - 529940	TC2
10357	I	Safety Doors Loop Train Line Dev4/89 = END2 90XP25 pin 96		OK		Sinazo Mkhwa - 529940	TC2
10358	A	Force [NI] Dev4/89 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10359	I	ERTMS Auth Right Train Line Dev4/87 = END2 90XP15 pin 47		OK		Sinazo Mkhwa - 529940	TC2
10360	A	Force [NI] Dev4/87 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10361	I	V<3km/h Train Line Dev4/39 = END2 90XP15 pin 29		OK		Sinazo Mkhwa - 529940	TC2
10362	A	Force [NI] Dev4/39 = 0.0		OK		Sinazo Mkhwa - 529940	TC2
10363	A	Switch Door Authorization Selector 50S7 to DRIVER		OK		Sinazo Mkhwa - 529940	TC2
10364	I	End of test		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 15 – HVAC Air Conditioning

15.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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			TC2
10002	I	Initial conditions		NE			TC2
10003	A	Car Should be Prepared with CVS running and 400V ac available in the car		NE			TC2
10004	I	HVAC Electronic Power Supply		NE			TC2
10005	A	Close Circuit Breaker 13Q1 and 13Q5		NE			TC2
10006	A	Allow the HVAC to initialize and check on the DDU if the HVAC is online		NE			TC2
10007	I	Checking 400Vac		NE			TC2
10008	A	Close Circuit Breaker 57Q1		NE			TC2
10009	A	Disconnect connector 57XP4_X5, use multimeter and Measure 400Vac between phase a1, a2 and b1		NE			TC2
10010	R	400Vac measured between all phases		NE			TC2
10011	A	On same connector 57XP4_X5, with a phasemeter, check the correct Phase Rotation between points a1- Phase L1, a2- Phase L2 and b1- Phase L3.		NE			TC2
10012	R	The phase rotation is correct between all three phases		NE			TC2
10013	A	Normalize connector 57XP4_X5		NE			TC2
10014	I	HVAC inhib		NE			TC2
10015	A	Force [TT] (MPU1)lo_hva_tc2hvacinhibr1___1 = 1.0		NE			TC2
10016	A	Force [TT] (MPU1)lo_hva_tc2hvacinhibr2___1 = 1.0		NE			TC2
10017	I	50% HVAC restriction		NE			TC2
10018	A	Force [TT] NRG_HvacTc2Cab50Cmd = 0		NE			TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10019	A	Force [TT] NRG_HvacTc250Cmd = 0		NE			TC2
10020	I	Saloon HVAC		NE			TC2
10021	A	Close Circuit Breaker 57Q2		NE			TC2
10022	R	HVAC unit turns ON and starts to work		NE			TC2
10023	I	HVAC web portal		NE			TC2
10024	I	Connect the laptop to the HVAC maintenance software using web browser. Enter the following IP address on the web browser 10.136.xxx.28 xxx represents the train number Login: maint Password: maint		NE			TC2
10025	R	On status tab, Active mode is off for both cab and saloon		NE			TC2
10026	A	Go to Alarms tab and clear all the alarms for saloon and cabin		NE			TC2
10027	I	Full "Self test" saloon		NE			TC2
10028	I	For the following tests make sure on the webHMI tab you change contoller to be controlled by webHMI and not MPU		NE			TC2
10029	A	Before running the full test, please click on reset test to reset the previous results.		NE			TC2
10030	A	Select Full-Test on the Saloon HVAC		NE			TC2
10031	R	All saloon HVAC units work according to the mode described in the "ACTIVE MODE" on the status tab		NE			TC2
10032	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			TC2
10033	I	Forced Mode (Saloon HVAC)		NE			TC2
10034	I	During all tests Walk through the whole car and physically check (feel) that the HVAC is functioning as desired		NE			TC2
10035	I	Go to maintenance tab to force the following modes		NE			TC2
10036	I	Cooling Mode		NE			TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10037	A	Select forced Cooling mode on the Saloon HVAC and let it run for 5 mins		NE			TC2
10038	R	All HVAC units are cooling		NE			TC2
10039	I	Heating Mode		NE			TC2
10040	A	Select forced Heating mode on the Saloon HVAC and let it run for 5 mins		NE			TC2
10041	R	All HVAC units are heating		NE			TC2
10042	I	Cabin Footrest Heater Test		NE			TC2
10043	I	Use the tools list to record the serial number of the Infrared Thermometer that will be used in the next section		NE			TC2
10044	A	Close Circuit Breaker 57Q3		NE			TC2
10045	R	The Foot Heater pushbutton white lamp 57S3 is OFF		NE			TC2
10046	R	Foot Heater is Off (UDM)		NE			TC2
10047	A	Press the Foot Heater Pushbutton 57S3		NE			TC2
10048	R	The Foot Heater pushbutton white lamp 57S3 is ON		NE			TC2
10049	R	Read Defined Variable [TT] (MPU1)li_hva_tc2footheaterfault___1 = 0.0		NE			TC2
10050	R	Foot Heater is ON (allow some time for it to heat up and confirm with Infrared Thermometer that it is heating up)		NE			TC2
10051	A	Once verified working, press the Foot Heater Pushbutton 57S3		NE			TC2
10052	R	The Foot Heater pushbutton white lamp 57S3 is OFF		NE			TC2
10053	R	Read Defined Variable [TT] (MPU1)li_hva_tc2footheaterfault___1 = 0.0		NE			TC2
10054	R	Foot Heater is OFF (allow some time for it to cool down and confirm with Infrared Thermometer that it is cooling down)		NE			TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10055	A	Check that the Footrest can go up by slightly pressing the adjusting pedal.		NE			TC2
10056	R	The Footrest is adjustable, it can go up.		NE			TC2
10057	A	Check that the Footrest can go down by pressing the adjusting pedal. Ensure the other foot applies force on the Footrest		NE			TC2
10058	R	The Footrest is adjustable, it can go down.		NE			TC2
10059	I	Cab Hvac		NE			TC2
10060	I	Full "Self test" Cab		NE			TC2
10061	A	Before running the full test, please click on reset test to reset the previous results.		NE			TC2
10062	A	Select Full test on the Cab HVAC		NE			TC2
10063	R	The cab HVAC works according to the mode described in the "ACTIVE MODE" on the status tab		NE			TC2
10064	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			TC2
10065	I	Forced Mode (Cabin HVAC)		NE			TC2
10066	I	For the coming test, check(feel) that the air coming through the supply air duct in the cabin is as desired "VENT/COOl or HEAT"		NE			TC2
10067	I	Go to maintenance tab to force the following modes		NE			TC2
10068	I	Cooling Mode		NE			TC2
10069	A	Select forced Cooling mode on the Cabin HVAC and let it run for 5 mins		NE			TC2
10070	R	All HVAC ducts in the cab are cooling		NE			TC2
10071	I	Heating Mode		NE			TC2
10072	R	Select forced heating mode on the Cabin HVAC and let it run for 5 mins		NE			TC2
10073	R	All HVAC ducts in the cab are heating		NE			TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10074	I	HVAC Faults		NE			TC2
10075	A	In the maintenance software, select the "Alarms" tab		NE			TC2
10076	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			TC2
10077	R	No active faults identified on the HVAC unit		NE			TC2
10078	I	Air Flow Measure		NE			TC2
10079	I	Using the tools list on the side of your screen, log the serial number of the anemometer used		NE			TC2
10080	A	Turn the cab ventilation control switch 57S1 to high speed position		NE			TC2
10081	A	Check that the windshield air outlet is open		NE			TC2
10082	A	On the left side diffuser, put an anemometer in the middle of the air diffuser directly in contact with the grill		NE			TC2
10083	A	Record the average air speed over 30 s		NE			TC2
10084	R	Average air speed Read Undefined Value : x (m/s)		NE			TC2
10085	A	On the right side diffuser, put the anemometer in the middle of air diffuser directly in contact with the grill		NE			TC2
10086	A	Record the average air speed over 30s		NE			TC2
10087	R	Average air speed Read Undefined Value : x (m/s)		NE			TC2
10088	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 that the flexible duct going to windshield diffuser is not squeezed.		NE			TC2
10089	R	Difference between left-right air flow is within 15%		NE			TC2
10090	A	Turn the Cab Ventilation Control Switch 57S1 to OFF position		NE			TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10091	R	Cabin HVAC turned OFF		NE			TC2
10092	A	Release [TT] (MPU1)lo_hva_tc2hvacinhibr1___1		NE			TC2
10093	A	Release [TT] (MPU1)lo_hva_tc2hvacinhibr2___1		NE			TC2
10094	A	Release [TT] NRG_HvacTc2Cab50Cmd		NE			TC2
10095	A	Release [TT] NRG_HvacTc250Cmd		NE			TC2
10096	I	END TEST		NE			TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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	Initial conditions		OK		Goitsemodimo Kgatitswe - 526511	TC2
10002	A	Car Should be Prepared		OK		Goitsemodimo Kgatitswe - 526511	TC2
10003	I	Power Supply		OK		Goitsemodimo Kgatitswe - 526511	TC2
10004	A	Remove Connector 57XP1_5 from HVAC Panel		OK		Goitsemodimo Kgatitswe - 526511	TC2
10005	A	Close Circuit Breaker 57Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10006	A	Force [TT] (MPU1)Io_hva_tc2hvacinhibr1___1 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10007	A	Force [TT] (MPU1)Io_hva_tc2hvacinhibr2___1 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10008	R	Check battery voltage (above 80Vdc) between points 11 and 9 of the connector 57XP1_5		OK		Siphesihle Mchunu - 491465	TC2
10009	A	Force [TT] (MPU1)Io_hva_tc2hvacinhibr2___1 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10010	R	Check 0Vdc between points 11 and 9 of the connector 57XP1_5		OK		Siphesihle Mchunu - 491465	TC2
10011	A	Force [TT] (MPU1)Io_hva_tc2hvacinhibr1___1 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10012	R	Check 0Vdc between points 11 and 9 of the connector 57XP1_5		OK		Siphesihle Mchunu - 491465	TC2
10013	R	Check 0Vdc between points 10 and 9 of the connector 57XP1_5		OK		Siphesihle Mchunu - 491465	TC2
10014	A	Force [TT] (MPU1)Io_hva_tc2hvacinhibr2___1 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10015	A	Force [TT] (MPU1)Io_hva_tc2emergventil___1 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10016	R	Check 0Vdc between points 11 and 9 of the connector 57XP1_5		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10017	R	Check battery voltage (above 80Vdc) between points 10 and 9 of the connector 57XP1_5		OK		Siphesihle Mchunu - 491465	TC2
10018	A	Release [TT] (MPU1)lo_hva_tc2emergventil___1		OK		Siphesihle Mchunu - 491465	TC2
10019	A	Release [TT] (MPU1)lo_hva_tc2hvacinhibr1___1		OK		Siphesihle Mchunu - 491465	TC2
10020	A	Release [TT] (MPU1)lo_hva_tc2hvacinhibr2___1		OK		Siphesihle Mchunu - 491465	TC2
10021	A	Put Back the Connector 57XP1_5 from HVAC Panel		OK		Siphesihle Mchunu - 491465	TC2
10022	I	HVAC Electronic Power Supply		OK		Siphesihle Mchunu - 491465	TC2
10023	A	Close Circuit Breaker F1 on the HVAC Panel		OK		Siphesihle Mchunu - 491465	TC2
10024	A	Turn the control switch to AUTO position on the HVAC Panel		OK		Siphesihle Mchunu - 491465	TC2
10025	R	The HVAC electronic is ON		OK		Siphesihle Mchunu - 491465	TC2
10026	A	Open Circuit Breaker F1 on the HVAC Panel		OK		Siphesihle Mchunu - 491465	TC2
10027	R	The HVAC electronic is OFF		OK		Siphesihle Mchunu - 491465	TC2
10028	A	Close Circuit Breaker F1 on the HVAC Panel		OK		Siphesihle Mchunu - 491465	TC2
10029	I	Software Upload	☒	OK		Siphesihle Mchunu - 491465	TC2
10030	I	Follow the procedure in the document below to upload software onto the HVAC electronic	☒	OK		Siphesihle Mchunu - 491465	TC2
10031	I	Sensor's Grade		OK		Siphesihle Mchunu - 491465	TC2
10032	I	Each temperature sensor has calibrated grade information. The sensor must be setup with this information.		OK		Siphesihle Mchunu - 491465	TC2
10033	A	The label with sensor grade information is found inside the HVAC frame, near the filter. Inside the train, open the ceiling filter access, rotate a damper and read the label.		OK		Siphesihle Mchunu - 491465	TC2
10034	R	Sensor grade for HVAC Return Air (RAS) is:		OK	2L	Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10035	R	Sensor grade for HVAC Duct Air (DAS) is:		OK	6H	Goitsemodimo Kgatitswe - 526511	TC2
10036	R	Sensor grade for HVAC Fresh Air (FAS) is:		OK	7L	Goitsemodimo Kgatitswe - 526511	TC2
10037	R	Sensor grade for HVAC Duct Air 2 (DAS2) is:		OK	8L	Goitsemodimo Kgatitswe - 526511	TC2
10038	A	In the maintenance software, select the "Application settings" page and click the "Sensors" tab		OK		Siphesihle Mchunu - 491465	TC2
10039	A	Enter the data found on the label for each grade. Then, click "Save settings"		OK		Siphesihle Mchunu - 491465	TC2
10040	A	Open Circuit Breaker F1 on the HVAC Panel		OK		Siphesihle Mchunu - 491465	TC2
10041	I	Checking 400Vac		OK		Siphesihle Mchunu - 491465	TC2
10042	A	Ensure that the 400Vac Shore Supply is connected to the vehicle, else connect it		OK		Siphesihle Mchunu - 491465	TC2
10043	A	Close Circuit Breaker 57Q1		OK		Siphesihle Mchunu - 491465	TC2
10044	A	Measure 400Vac in the Terminal Block next to the connector '57XP1_10. A / '57XP1_10. B' on the HVAC Panel		OK		Siphesihle Mchunu - 491465	TC2
10045	R	400Vac measured		OK		Siphesihle Mchunu - 491465	TC2
10046	A	On the HVAC Panel check 400Vac between points L1- Phase R, L2- Phase S, L3- Phase T		OK		Siphesihle Mchunu - 491465	TC2
10047	R	400Vac is measured between each of the phases		OK		Siphesihle Mchunu - 491465	TC2
10048	A	On the HVAC Panel, with a phasemeter, check the correct Phase Rotation between points L1- Phase R, L2- Phase S and L3- Phase T.		OK		Siphesihle Mchunu - 491465	TC2
10049	R	The phase rotation is correct between all three phases		OK		Siphesihle Mchunu - 491465	TC2
10050	I	Using the tools list on the side of your screen, log the details of the phasemeter used		OK		Siphesihle Mchunu - 491465	TC2
10051	I	Saloon HVAC		OK		Siphesihle Mchunu - 491465	TC2
10052	A	Close Circuit Breaker F1 on the HVAC Panel		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10053	R	HVAC unit turns ON and starts to work		OK		Siphesihle Mchunu - 491465	TC2
10054	I	Reconnect the laptop to the HVAC maintenance software using HCU Finder		OK		Siphesihle Mchunu - 491465	TC2
10055	R	The Exhaust fans are Turned Off (Confirm on Forced tab that Actual exhauster speed is OFF)		OK		Siphesihle Mchunu - 491465	TC2
10056	I	Forced Mode (Saloon HVAC)		OK		Siphesihle Mchunu - 491465	TC2
10057	I	For the next sections, walk through the whole car and physically check (feel) that the HVAC is functioning as desired		OK		Siphesihle Mchunu - 491465	TC2
10058	I	In the maintenance software, select the 'Forced' tab, and use the "Required working mode" drop down box to force the following modes:		OK		Siphesihle Mchunu - 491465	TC2
10059	I	Ventilation Mode		OK		Siphesihle Mchunu - 491465	TC2
10060	A	Force Ventilation mode on the Saloon HVAC		OK		Siphesihle Mchunu - 491465	TC2
10061	R	All saloon HVAC units work in Ventilation mode. Not heating/cooling		OK		Siphesihle Mchunu - 491465	TC2
10062	R	The Exhaust fans are Turned OFF		OK		Siphesihle Mchunu - 491465	TC2
10063	I	Cooling Mode		OK		Siphesihle Mchunu - 491465	TC2
10064	A	Force Cooling mode on the Saloon HVAC		OK		Siphesihle Mchunu - 491465	TC2
10065	R	All saloon HVAC units work in Cooling mode		OK		Siphesihle Mchunu - 491465	TC2
10066	R	The Exhaust fans are Turned OFF		OK		Siphesihle Mchunu - 491465	TC2
10067	I	Heating Mode		OK		Siphesihle Mchunu - 491465	TC2
10068	A	Force Heating mode on the Saloon HVAC		OK		Siphesihle Mchunu - 491465	TC2
10069	R	All saloon HVAC units work in Heating mode		OK		Siphesihle Mchunu - 491465	TC2
10070	R	The Exhaust fans are Turned OFF		OK		Siphesihle Mchunu - 491465	TC2
10071	I	Automatic Mode		OK		Siphesihle Mchunu - 491465	TC2
10072	A	Force Self-Test on the Saloon HVAC		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10073	R	All saloon HVAC units work according to the mode described in the "Actual working mode"		OK		Siphesihle Mchunu - 491465	TC2
10074	R	The Exhaust fans are Turned OFF		OK		Siphesihle Mchunu - 491465	TC2
10075	I	Cabin Footrest Heater Test		OK		Siphesihle Mchunu - 491465	TC2
10076	I	Use the tools list on the side of your screen, to record the serial number of the Infrared Thermometer that will be used in the next section		OK		Siphesihle Mchunu - 491465	TC2
10077	A	Close Circuit Breaker 57Q3		OK		Siphesihle Mchunu - 491465	TC2
10078	R	The Foot Heater pushbutton white lamp 57S3 is OFF		OK		Siphesihle Mchunu - 491465	TC2
10079	R	Foot Heater is Off (UDM)		OK		Siphesihle Mchunu - 491465	TC2
10080	A	Press the Foot Heater Pushbutton 57S3		OK		Siphesihle Mchunu - 491465	TC2
10081	R	The Foot Heater pushbutton white lamp 57S3 is ON		OK		Siphesihle Mchunu - 491465	TC2
10082	R	Read Defined Variable [TT] (MPU1)li_hva_tc2footheaterfault___1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10083	R	Foot Heater is ON (allow some time for it to heat up and confirm with the Infrared Thermometer that it is heating up)		OK		Siphesihle Mchunu - 491465	TC2
10084	A	Once verified working, press the Foot Heater Pushbutton 57S3		OK		Siphesihle Mchunu - 491465	TC2
10085	R	The Foot Heater pushbutton white lamp 57S3 is OFF		OK		Siphesihle Mchunu - 491465	TC2
10086	R	Read Defined Variable [TT] (MPU1)li_hva_tc2footheaterfault___1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10087	R	Foot Heater is OFF (allow some time for it to cool down and confirm with the Infrared Thermometer that it is cooling down)		OK		Siphesihle Mchunu - 491465	TC2
10088	A	Check that the Footrest can go up by slightly pressing the adjusting pedal		OK		Siphesihle Mchunu - 491465	TC2
10089	R	The Footrest is adjustable, it can go up.		OK		Siphesihle Mchunu - 491465	TC2
10090	A	Check that the Footrest can go down by pressing the adjusting pedal. Ensure the		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

		other foot applies force on the Footrest					
10091	R	The Footrest is adjustable, it can go down.		OK		Siphesihle Mchunu - 491465	TC2
10092	I	Forced Mode (Cabin HVAC)		OK		Siphesihle Mchunu - 491465	TC2
10093	I	In the maintenance software, select the 'Forced' tab, and use the "Required working mode" drop down box to force the following modes:		OK		Siphesihle Mchunu - 491465	TC2
10094	I	Ventilation Mode		OK		Siphesihle Mchunu - 491465	TC2
10095	A	Force Ventilation mode on the Cab HVAC		OK		Siphesihle Mchunu - 491465	TC2
10096	R	The Cab HVAC works in Ventilation mode. Not heating/cooling		OK		Siphesihle Mchunu - 491465	TC2
10097	I	Cooling Mode		OK		Siphesihle Mchunu - 491465	TC2
10098	A	Force Cooling mode on the Cab HVAC		OK		Siphesihle Mchunu - 491465	TC2
10099	R	The Cab HVAC works in Cooling mode		OK		Siphesihle Mchunu - 491465	TC2
10100	I	Heating Mode		OK		Siphesihle Mchunu - 491465	TC2
10101	A	Force Heating mode on the Cab HVAC		OK		Siphesihle Mchunu - 491465	TC2
10102	R	The Cab HVAC works in Heating mode		OK		Siphesihle Mchunu - 491465	TC2
10103	I	Automatic Mode		OK		Siphesihle Mchunu - 491465	TC2
10104	A	Force Automatic mode on the Cab HVAC		OK		Siphesihle Mchunu - 491465	TC2
10105	R	The Cab HVAC works in Automatic mode - according to the mode described in the "Actual working mode"		OK		Siphesihle Mchunu - 491465	TC2
10106	I	HVAC Faults		OK		Siphesihle Mchunu - 491465	TC2
10107	A	In the maintenance software, select the "Alarms / Warnings" tab		OK		Siphesihle Mchunu - 491465	TC2
10108	A	Ensure there are no active faults on the HVAC		OK		Siphesihle Mchunu - 491465	TC2
10109	R	No active faults identified on the HVAC unit		OK		Siphesihle Mchunu - 491465	TC2
10110	I	Air Flow Measure		OK		Siphesihle Mchunu - 491465	TC2
10111	I	Using the tools list on the side of your screen, log the details of the anemometer		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

		used					
10112	A	Check that the windshield air outlet is open		OK		Siphesihle Mchunu - 491465	TC2
10113	A	On the left side diffuser, put an anemometer in the middle of the air diffuser directly in contact with the grill		OK		Siphesihle Mchunu - 491465	TC2
10114	A	Record the average air speed over 30 s		OK		Siphesihle Mchunu - 491465	TC2
10115	R	Average air speed		OK	2.82	Siphesihle Mchunu - 491465	TC2
10116	A	On the right-side diffuser, put the anemometer in the middle of air diffuser directly in contact with the grill		OK		Siphesihle Mchunu - 491465	TC2
10117	A	Record the average air speed over 30s		OK		Siphesihle Mchunu - 491465	TC2
10118	R	Average air speed		OK	4.08	Siphesihle Mchunu - 491465	TC2
10119	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 that the flexible duct going to windshield diffuser is not squeezed.		OK		Siphesihle Mchunu - 491465	TC2
10120	R	Difference between left-right air flow is within 15%		OK		Siphesihle Mchunu - 491465	TC2
10121	R	Cabin HVAC turned OFF		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Anthonia Mabowa - 494131	TC2
10002	I	Initial conditions		OK		Anthonia Mabowa - 494131	TC2
10003	I	Car Should be Prepared		OK		Anthonia Mabowa - 494131	TC2
10004	I	Fire Detection Control		OK		Anthonia Mabowa - 494131	TC2
10005	I	Fire Detection Train Lines Dev4/76 = END2 90XP14 pin 21 Dev2/7 = END1 Coupler pin 008 Dev2/33 = END1 Coupler pin 108		OK		Anthonia Mabowa - 494131	TC2
10006	A	Force [NI] Dev4/76 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10007	R	Read Defined Variable [NI] Dev2/7 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10008	R	Read Defined Variable [NI] Dev2/33 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10009	A	Check on the Alarm Module that the Fire Alarm 67H1 is illuminated		OK		Anthonia Mabowa - 494131	TC2
10010	I	Fire Detection Train Lines Dev4/76 = END2 90XP14 pin 21 Dev2/7 = END1 Coupler pin 008 Dev2/33 = END1 Coupler pin 108		OK		Anthonia Mabowa - 494131	TC2
10011	A	Force [NI] Dev4/76 = 0.0		OK		Anthonia Mabowa - 494131	TC2
10012	R	Read Defined Variable [NI] Dev2/7 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10013	R	Read Defined Variable [NI] Dev2/33 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10014	A	Check on the Alarm Module that the Fire Alarm 67H1 is OFF		OK		Anthonia Mabowa - 494131	TC2
10015	I	Continuity Check		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10016	A	Check the continuity between the two provided points of the line below		OK		Anthonia Mabowa - 494131	TC2
10017	A	From: [(local: +END2 connector -90XP13.b (pin 4))] to: [-67A1 (local: +END2 connector -90XP13.a (pin 7))]		OK		Anthonia Mabowa - 494131	TC2
10018	A	From: [(local: +END2 connector -90XP13.b (pin 5))] to: [-67A1 (local: +END2 connector -90XP13.a (pin 8))]		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 17 – Driving Command

17.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Anthonia Mabowa - 494131	TC2
10002	I	Initial conditions		OK		Anthonia Mabowa - 494131	TC2
10003	I	Cabin should be active		OK		Anthonia Mabowa - 494131	TC2
10004	A	Ensure all the doors are closed		OK		Anthonia Mabowa - 494131	TC2
10005	A	Ensure that there is air connected to the main pipe		OK		Anthonia Mabowa - 494131	TC2
10006	A	Force [TT] (BCU1)li_mp_ps_ok = 1.0		OK		Anthonia Mabowa - 494131	TC2
10007	I	Circuit Breakers		OK		Anthonia Mabowa - 494131	TC2
10008	A	Close Circuit Breaker "30Q1"		OK		Anthonia Mabowa - 494131	TC2
10009	A	Close Circuit Breaker "30Q2"		OK		Anthonia Mabowa - 494131	TC2
10010	A	Close Circuit Breaker "30Q3"		OK		Anthonia Mabowa - 494131	TC2
10011	A	Close Circuit Breaker "31Q1"		OK		Anthonia Mabowa - 494131	TC2
10012	I	Direction Selector Switch		OK		Anthonia Mabowa - 494131	TC2
10013	I	Set the Running Direction Switch 30A1.S2 to "Neutral" position		OK		Anthonia Mabowa - 494131	TC2
10014	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsnozeror1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10015	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsnozeror2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10016	I	Set the Running Direction Switch 30A1.S2 to "Reverse" position		OK		Anthonia Mabowa - 494131	TC2
10017	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsnozeror1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10018	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsnozeror2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10019	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsreverser1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10020	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsreverser2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10021	I	Reverse Train lines Dev2/28 = coupler pin 011 Dev2/29 = coupler pin 132 Dev5/78 = END2 90XP15 pin 30		OK		Anthonia Mabowa - 494131	TC2
10022	R	Read Defined Variable [NI] Dev2/28 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10023	R	Read Defined Variable [NI] Dev2/29 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10024	R	Read Defined Variable [NI] Dev5/78 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10025	I	Set the Running Direction Switch 30A1.S2 to "Forward" position		OK		Anthonia Mabowa - 494131	TC2
10026	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsnozeror1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10027	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsreverser1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10028	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsreverser2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10029	R	Read Defined Variable [NI] Dev2/28 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10030	I	Reverse Train lines Dev2/28 = coupler pin 011 Dev2/29 = coupler pin 132 Dev5/78 = END2 90XP15 pin 30		OK		Anthonia Mabowa - 494131	TC2
10031	R	Read Defined Variable [NI] Dev2/29 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10032	R	Read Defined Variable [NI] Dev5/78 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10033	I	Forward Train lines Dev2/26 = coupler pin 032 Dev2/27 = coupler pin 111 Dev5/35 = END2 90XP15 pin 25		OK		Anthonia Mabowa - 494131	TC2
10034	R	Read Defined Variable [NI] Dev2/26 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10035	R	Read Defined Variable [NI] Dev2/27 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10036	R	Read Defined Variable [NI] Dev5/35 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10037	I	Set the Running Direction Switch 30A1.S2 to "Neutral" position		OK		Anthonia Mabowa - 494131	TC2
10038	R	Read Defined Variable [NI] Dev2/26 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10039	I	Forward Train lines Dev2/26 = coupler pin 032		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

		Dev2/27 = coupler pin 111 Dev5/35 = END2 90XP15 pin 25					
10040	R	Read Defined Variable [NI] Dev2/27 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10041	R	Read Defined Variable [NI] Dev5/35 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10042	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsnozeror1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10043	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dsreverser1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10044	I	Driving Mode		OK		Anthonia Mabowa - 494131	TC2
10045	A	Turn the Driving Mode Switch 30S1 to "Speed" position		OK		Anthonia Mabowa - 494131	TC2
10046	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit1r1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10047	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit1r2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10048	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit2r1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10049	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit2r2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10050	A	Turn the Driving Mode Switch 30S1 to "Effort" position		OK		Anthonia Mabowa - 494131	TC2
10051	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit1r1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10052	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit3r1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10053	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit2r1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10054	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit2r2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10055	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit4r1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10056	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit4r2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10057	A	Turn the Driving Mode Switch 30S1 to "Depot" position		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10058	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit1r1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10059	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit1r2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10060	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit2r1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10061	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit3r1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10062	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit4r1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10063	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit4r2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10064	A	Turn the Driving Mode Switch 30S1 to "Couple/Wash" position		OK		Anthonia Mabowa - 494131	TC2
10065	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit1r1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10066	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit2r1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10067	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit3r1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10068	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit3r2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10069	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit4r1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10070	R	Read Defined Variable [TT] (MPU1)li_drc_tc2dmodebit4r2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10071	I	Reduced Power		OK		Anthonia Mabowa - 494131	TC2
10072	A	Press and hold the Reduced Power Pushbutton 30S2		OK		Anthonia Mabowa - 494131	TC2
10073	R	Read Defined Variable [TT] (MPU1)li_drc_tc2reducedpowerr1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10074	R	Read Defined Variable [TT] (MPU1)li_drc_tc2reducedpowerr2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10075	A	Release the Reduced Power Pushbutton 30S2		OK		Anthonia Mabowa - 494131	TC2
10076	R	Read Defined Variable [TT] (MPU1)li_drc_tc2reducedpowerr1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10077	R	Read Defined Variable [TT] (MPU1)li_drc_tc2reducedpowerr2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10078	A	Force [TT] (MPU1)lo_drc_tc2reducedlampr1 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10079	R	Check that the Reduced Power Pushbutton lamp is ON		OK		Anthonia Mabowa - 494131	TC2
10080	A	Release [TT] (MPU1)lo_drc_tc2reducedlampr1		OK		Anthonia Mabowa - 494131	TC2
10081	R	Check that the Reduced Power Pushbutton lamp is OFF		OK		Anthonia Mabowa - 494131	TC2
10082	A	Force [TT] (MPU1)lo_drc_tc2reducedlampr2 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10083	R	Check that the Reduced Power Pushbutton lamp is ON		OK		Anthonia Mabowa - 494131	TC2
10084	A	Release [TT] (MPU1)lo_drc_tc2reducedlampr2		OK		Anthonia Mabowa - 494131	TC2
10085	R	Check that the Reduced Power Pushbutton lamp is OFF		OK		Anthonia Mabowa - 494131	TC2
10086	I	Master Controller Traction / No Brake		OK		Anthonia Mabowa - 494131	TC2
10087	I	The Master Controller should be in "OFF" position		OK		Anthonia Mabowa - 494131	TC2
10088	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch1 : 5479<= x <= 6369		OK	5920	Anthonia Mabowa - 494131	TC2
10089	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch2 : 5479<= x <= 6369		OK	5968	Anthonia Mabowa - 494131	TC2
10090	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcnocoastr1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10091	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcnocoastr2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10092	I	No Brake Train lines Dev2/32 = coupler pin 039 Dev2/8 = coupler pin 139 Dev5/82 = 90XP15 pin 32		OK		Anthonia Mabowa - 494131	TC2
10093	R	Read Defined Variable [NI] Dev2/32 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10094	R	Read Defined Variable [NI] Dev2/8 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10095	R	Read Defined Variable [NI] Dev5/82 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10096	R	Read Defined Variable [TT] (MPU1)BCU2_BcuTlNoBr = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10097	I	Ensure that the blue mushroom is released		OK		Anthonia Mabowa - 494131	TC2
10098	A	Turn Emergency Braking Loop Override Switch 44S2 to BYPASS		OK		Siphesihle Mchunu - 491465	TC2
10099	I	Emergency Brake Train Line Dev 4/61 = 90XP15 pin 67		OK		Anthonia Mabowa - 494131	TC2
10100	A	Force [NI] Dev4/61 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10101	R	Read Defined Variable [NI] Dev2/84 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10102	R	Read Defined Variable [NI] Dev2/85 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10103	A	Turn the Traction Interlock Override Switch 31S1 to "Override" position		OK		Anthonia Mabowa - 494131	TC2
10104	R	Check that the indicator lamp 31H1 is ON		OK		Anthonia Mabowa - 494131	TC2
10105	I	Emergency Brake Train Loop Dev 4/61 = 90XP15 pin 67		OK		Anthonia Mabowa - 494131	TC2
10106	A	Force [NI] Dev4/61 = 0.0		OK		Anthonia Mabowa - 494131	TC2
10107	R	Read Defined Variable [NI] Dev2/84 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10108	R	Read Defined Variable [NI] Dev2/85 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10109	A	Turn the Emergency Braking Loop Override Switch 44S2 to NORMAL		OK		Anthonia Mabowa - 494131	TC2
10110	A	Check that the indicator lamp 31H1 is OFF		OK		Anthonia Mabowa - 494131	TC2
10111	A	Place the Master Controller in "100% Traction" position		OK		Anthonia Mabowa - 494131	TC2
10112	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch1 : 29183<= x <= 31102		OK	30816	Anthonia Mabowa - 494131	TC2
10113	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch2 : 29183<= x <= 31102		OK	30880	Anthonia Mabowa - 494131	TC2
10114	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mctractionr1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10115	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mctractionr2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10116	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcnocoastr1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10117	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcnocoastr2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10118	I	No Brake Train line Dev2/32 = coupler pin 039		OK		Anthonia Mabowa - 494131	TC2
10119	R	Read Defined Variable [NI] Dev2/32 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10120	R	Read Defined Variable [TT] (MPU1)BCU2_BcuTlNoBr = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10121	R	Read Defined Variable [TT] (MPU1)BCU2_BcuTlTract = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10122	I	Traction Train lines Dev2/30 = coupler pin 026 Dev2/31 = coupler pin 126 Dev5/41 = END2 90XP15 pin 31		OK		Anthonia Mabowa - 494131	TC2
10123	R	Read Defined Variable [NI] Dev2/30 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10124	R	Read Defined Variable [NI] Dev2/31 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10125	R	Read Defined Variable [NI] Dev5/81 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10126	A	Place the Master Controller in "100% Service Brake" position		OK		Anthonia Mabowa - 494131	TC2
10127	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch1 : 29183<= x <= 31102		OK	30816	Anthonia Mabowa - 494131	TC2
10128	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch2 : 29183<= x <= 31102		OK	30880	Anthonia Mabowa - 494131	TC2
10129	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcbraker1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10130	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcbraker2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10131	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mctractionr1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10132	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mctractionr2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10133	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcnocoastr1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10134	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcemergencybraker1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10135	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcemergencybraker2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10136	I	No Brake Train lines Dev2/32 = coupler pin 039 Dev2/8 = coupler pin 139 Dev5/82 = 90XP15 pin 32		OK		Anthonia Mabowa - 494131	TC2
10137	R	Read Defined Variable [NI] Dev2/32 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10138	R	Read Defined Variable [NI] Dev2/8 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10139	R	Read Defined Variable [NI] Dev5/82 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10140	I	Traction Train lines Dev2/30 = coupler pin 026 Dev2/31 = coupler pin 126 Dev5/81 = END2 90XP15 pin 31		OK		Anthonia Mabowa - 494131	TC2
10141	R	Read Defined Variable [NI] Dev2/30 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10142	R	Read Defined Variable [NI] Dev2/31 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10143	R	Read Defined Variable [NI] Dev5/81 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10144	R	Read Defined Variable [TT] (MPU1)BCU2_BcuTlNoBr = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10145	R	Read Defined Variable [TT] (MPU1)BCU2_BcuTlTract = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10146	A	Place the Master Controller in "Emergency Brake" position		OK		Anthonia Mabowa - 494131	TC2
10147	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch1 : 29183<= x <= 31102		OK	30816	Anthonia Mabowa - 494131	TC2
10148	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch2 : 29183<= x <= 31102		OK	30864	Anthonia Mabowa - 494131	TC2
10149	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcbraker1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10150	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcbraker2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10151	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcnocoastr1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10152	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcemergencybraker1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10153	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcemergencybraker2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10154	A	Place the Master Controller in "OFF" position		OK		Anthonia Mabowa - 494131	TC2
10155	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch1 : 5479<= x <= 6369		OK	5920	Anthonia Mabowa - 494131	TC2
10156	R	Read Min/Max [TT] (MPU1)ai_drc_tc2mcpositionch2 : 5479<= x <= 6369		OK	5968	Anthonia Mabowa - 494131	TC2
10157	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcnocoastr1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10158	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcbraker1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10159	R	Read Defined Variable [TT] (MPU1)li_drc_tc2mcbraker2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10160	I	Traction Interlock		OK		Anthonia Mabowa - 494131	TC2
10161	I	Traction Interlock Override		OK		Anthonia Mabowa - 494131	TC2
10162	I	Traction Interlock Train lines Dev2/34 = coupler pin 006 Dev2/35 = coupler pin 106 Dev5/83 = END2 90XP15 pin 41		OK		Anthonia Mabowa - 494131	TC2
10163	R	Read Defined Variable [NI] Dev2/34 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10164	R	Read Defined Variable [NI] Dev2/35 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10165	R	Read Defined Variable [NI] Dev5/83 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10166	I	Traction Interlock Bypass Train Line Dev5/4 = END2 90XP14 pin 6		OK		Anthonia Mabowa - 494131	TC2
10167	R	Read Defined Variable [NI] Dev5/4 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10168	R	Read Defined Variable [TT] (BCU2)LI_NOT_INHIB = 1.0		OK	1	Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10169	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractintoverrider1 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10170	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractintoverrider2 = 1.0		OK	1	Anthonia Mabowa - 494131	TC2
10171	R	Check that the Indicator Lamp 31H2 is ON		OK		Anthonia Mabowa - 494131	TC2
10172	A	Turn the Traction Interlock Override Switch 31S1 to "Normal" position		OK		Anthonia Mabowa - 494131	TC2
10173	I	Traction Interlock Train lines Dev2/34 = coupler pin 006 Dev2/35 = coupler pin 106 Dev5/83 = END2 90XP15 pin 41		OK		Anthonia Mabowa - 494131	TC2
10174	R	Read Defined Variable [NI] Dev2/34 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10175	R	Read Defined Variable [NI] Dev2/35 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10176	R	Read Defined Variable [NI] Dev5/83 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10177	I	Traction Interlock Bypass Train Line Dev5/4 = END2 90XP14 pin 6		OK		Anthonia Mabowa - 494131	TC2
10178	R	Read Defined Variable [NI] Dev5/4 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10179	R	Read Defined Variable [TT] (BCU2)LI_NOT_INHIB = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10180	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractintoverrider1 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10181	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractintoverrider2 = 0.0		OK	0	Anthonia Mabowa - 494131	TC2
10182	R	Check that the Indicator Lamp 31H2 is OFF		OK		Anthonia Mabowa - 494131	TC2
10183	I	Traction Interlock Relay		OK		Anthonia Mabowa - 494131	TC2
10184	A	Open Circuit Breaker "30Q1"		OK		Anthonia Mabowa - 494131	TC2
10185	A	Open Circuit Breaker "30Q2"		OK		Anthonia Mabowa - 494131	TC2
10186	I	Set the Running Direction Switch 30A1.S2 to "Forward" position		OK		Anthonia Mabowa - 494131	TC2
10187	I	Safety Doors Loop Train Line Dev4/89 = END2 90XP15 pin 96		OK		Anthonia Mabowa - 494131	TC2
10188	A	Force [NI] Dev4/89 = 1.0		OK		Anthonia Mabowa - 494131	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10189	A	Force [TT] (MPU1)lo_drc_tc2tractionloopr1 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10190	I	Emergency Brake Loop Train Line Dev4/5 = END2 90XP14 pin 9		OK		Anthonia Mabowa - 494131	TC2
10191	A	Force [NI] Dev4/5 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10192	A	Force [TT] (MPU1)lo_ubk_tc2emergbraker1 = 1.0		OK		Anthonia Mabowa - 494131	TC2
10193	A	Turn the Dead Man Override Switch 60S1 to "Override" position		OK		Anthonia Mabowa - 494131	TC2
10194	A	Turn the ERTMS Isolation switch 62S1 to "Isolation" position		OK		Anthonia Mabowa - 494131	TC2
10195	I	Traction Interlock Train lines Dev5/83 = END2 90XP15 pin 41		OK		Siphesihle Mchunu - 491465	TC2
10196	R	Read Defined Variable [NI] Dev5/83 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10197	R	Read Defined Variable [TT] (MPU1)li_ubk_tc2emergrelay1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10198	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractionauthorr1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10199	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractionauthorr2 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10200	R	Check that the Indicator Lamp 31H1 is ON	TA	OK		Siphesihle Mchunu - 491465	TC2
10201	A	Press and Activate the Mushroom switch 44S1		OK		Siphesihle Mchunu - 491465	TC2
10202	R	Check that the Indicator Lamp 31H1 is OFF		OK		Siphesihle Mchunu - 491465	TC2
10203	A	Release the Mushroom switch 44S1		OK		Siphesihle Mchunu - 491465	TC2
10204	R	Check that the Indicator Lamp 31H1 is ON	TA	OK		Siphesihle Mchunu - 491465	TC2
10205	A	Place the Master Controller in "100% Traction" position		OK		Siphesihle Mchunu - 491465	TC2
10206	I	Traction Train lines Dev5/81 = END2 90XP15 pin 31		OK		Siphesihle Mchunu - 491465	TC2
10207	R	Read Defined Variable [NI] Dev5/81 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10208	A	Place the Master Controller in "Neutral" position		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10209	A	Close Circuit Breaker "30Q1"		OK		Siphesihle Mchunu - 491465	TC2
10210	A	Close Circuit Breaker "30Q2"		OK		Siphesihle Mchunu - 491465	TC2
10211	I	Set the Running Direction Switch 30A1.S2 to "Neutral" position		OK		Siphesihle Mchunu - 491465	TC2
10212	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractionauthorr1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10213	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractionauthorr2 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10214	I	Traction Interlock Train lines Dev5/83 = END2 90XP15 pin 41		OK		Siphesihle Mchunu - 491465	TC2
10215	R	Read Defined Variable [NI] Dev5/83 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10216	R	Check Indicator Lamp 31H1 is OFF		OK		Siphesihle Mchunu - 491465	TC2
10217	A	Release [TT] (MPU1)lo_drc_tc2tractionloopr1		OK		Siphesihle Mchunu - 491465	TC2
10218	A	Force [TT] (MPU1)lo_drc_tc2tractionloopr2 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10219	I	Set the Running Direction Switch 30A1.S2 to "Reverse" position		OK		Siphesihle Mchunu - 491465	TC2
10220	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractionauthorr1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2
10221	R	Check Indicator Lamp 31H1 is ON		OK		Siphesihle Mchunu - 491465	TC2
10222	I	Traction Authorization at V>5km/h		OK		Siphesihle Mchunu - 491465	TC2
10223	I	Safety Doors Loop Train Line Dev4/89 = END2 90XP15 pin 96		OK		Siphesihle Mchunu - 491465	TC2
10224	A	Force [NI] Dev4/89 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10225	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractionauthorr1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10226	I	V>5km/h Train Line Dev4/38 = END2 90XP15 pin 28		OK		Siphesihle Mchunu - 491465	TC2
10227	A	Force [NI] Dev4/38 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10228	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractionauthorr1 = 0.0		OK	0	Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10229	I	PEA Loop Train Line Dev4/62 = END2 90XP15 pin 95		OK		Siphesihle Mchunu - 491465	TC2
10230	A	Force [NI] Dev4/62 = 1.0		OK		Siphesihle Mchunu - 491465	TC2
10231	R	Read Defined Variable [TT] (MPU1)li_drc_tc2tractionauthorr1 = 1.0		OK	1	Siphesihle Mchunu - 491465	TC2
10232	I	PEA Loop Train Line Dev4/62 = END2 90XP15 pin 95		OK		Siphesihle Mchunu - 491465	TC2
10233	A	Force [NI] Dev4/62 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10234	I	V>5km/h Train Line Dev4/38 = END2 90XP15 pin 28		OK		Siphesihle Mchunu - 491465	TC2
10235	A	Force [NI] Dev4/38 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10236	I	Emergency Brake Loop Train Line Dev4/5 = END2 90XP14 pin 9		OK		Siphesihle Mchunu - 491465	TC2
10237	A	Force [NI] Dev4/5 = 0.0		OK		Siphesihle Mchunu - 491465	TC2
10238	A	Release [TT] (MPU1)lo_ubk_tc2emergbraker1		OK		Siphesihle Mchunu - 491465	TC2
10239	A	Release [TT] (MPU1)lo_drc_tc2tractionloopr2		OK		Siphesihle Mchunu - 491465	TC2
10240	I	Set the Running Direction Switch 30A1.S2 to "Normal" position		OK		Siphesihle Mchunu - 491465	TC2
10241	A	Turn the Dead Man Override Switch 60S1 to "Normal" position		OK		Siphesihle Mchunu - 491465	TC2
10242	A	Turn the ERTMS Isolation switch 62S1 to "Normal" position		OK		Siphesihle Mchunu - 491465	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 18 – Train-Ground Communication

18.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

18.1.1 062_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	TC2
10002	A	Ensure Circuit Breaker 62Q1 is OPEN		OK		Sinazo Mkhwa - 529940	TC2
10003	I	DMI Power Supply		OK		Sinazo Mkhwa - 529940	TC2
10004	A	Use the following procedure to perform Electrical check on the DMI power supply		OK		Sinazo Mkhwa - 529940	TC2
10005	A	Close Circuit Breaker 62Q1		OK		Sinazo Mkhwa - 529940	TC2
10006	R	The ERTMS Display Unit (MMI) is powered ON		OK		Sinazo Mkhwa - 529940	TC2
10007	A	Place the ERTMS Isolation Switch 62S1 is in Isolation position		OK		Sinazo Mkhwa - 529940	TC2
10008	R	The ERTMS Display Unit (MMI) is powered OFF		OK		Sinazo Mkhwa - 529940	TC2
10009	I	DMI Software Upload		OK		Goitsemodimo Kgatitswe - 526511	TC2
10010	A	Use the following procedure to upload the DMI software		OK		Goitsemodimo Kgatitswe - 526511	TC2
10011	I	Emergency Brake By ERTMS		OK		Goitsemodimo Kgatitswe - 526511	TC2
10012	I	Emergency Brake ERTMS Train lines Dev4/88 =END2 Emergency Brake ERTMS 1		OK		Carol Gumede - 425280	TC2
10013	A	Force [NI] Dev4/88 = 1.0		OK		Carol Gumede - 425280	TC2
10014	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk1r1 = 0.0		OK	0	Carol Gumede - 425280	TC2
10015	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk1r2 = 0.0		OK	0	Carol Gumede - 425280	TC2
10016	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk2r1 = 1.0		OK	1	Carol Gumede - 425280	TC2
10017	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk2r2 = 1.0		OK	1	Carol Gumede - 425280	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10018	I	Emergency Brake ERTMS Train lines Dev4/80 =END2 Emergency Brake ERTMS 2		OK		Carol Gumede - 425280	TC2
10019	A	Force [NI] Dev4/80 = 1.0		OK		Carol Gumede - 425280	TC2
10020	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk1r1 = 0.0		OK	0	Carol Gumede - 425280	TC2
10021	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk1r2 = 0.0		OK	0	Carol Gumede - 425280	TC2
10022	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk2r1 = 0.0		OK	0	Carol Gumede - 425280	TC2
10023	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk2r2 = 0.0		OK	0	Carol Gumede - 425280	TC2
10024	A	Force [NI] Dev4/88 = 0.0		OK		Carol Gumede - 425280	TC2
10025	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk1r1 = 1.0		OK	1	Carol Gumede - 425280	TC2
10026	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk1r2 = 1.0		OK	1	Carol Gumede - 425280	TC2
10027	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk2r1 = 0.0		OK	0	Carol Gumede - 425280	TC2
10028	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk2r2 = 0.0		OK	0	Carol Gumede - 425280	TC2
10029	A	Force [NI] Dev4/80 = 0.0		OK		Carol Gumede - 425280	TC2
10030	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk1r1 = 1.0		OK	1	Carol Gumede - 425280	TC2
10031	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk1r2 = 1.0		OK	1	Carol Gumede - 425280	TC2
10032	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk2r1 = 1.0		OK	1	Carol Gumede - 425280	TC2
10033	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsebk2r2 = 1.0		OK	1	Carol Gumede - 425280	TC2
10034	I	ERTMS Bypass/Reset		OK		Carol Gumede - 425280	TC2
10035	I	ERTMS Bypass Train Lines Dev2/5 = coupler pin 036 Dev2/6 = coupler pin 136 Dev5/8 = END2 train line		OK		Carol Gumede - 425280	TC2
10036	R	Read Defined Variable [NI] Dev2/5 = 1.0		OK	1	Carol Gumede - 425280	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10037	R	Read Defined Variable [NI] Dev2/6 = 1.0		OK	1	Carol Gumede - 425280	TC2
10038	R	Read Defined Variable [NI] Dev5/88 = 1.00		OK	1	Ntobeko Ndlovu - 421595	TC2
10039	A	Turn cab key 30A1.S1 to non-active cab position		OK		Carol Gumede - 425280	TC2
10040	R	Read Defined Variable [NI] Dev2/5 = 0.0		OK	0	Carol Gumede - 425280	TC2
10041	R	Read Defined Variable [NI] Dev2/6 = 0.0		OK	0	Carol Gumede - 425280	TC2
10042	R	Read Defined Variable [NI] Dev5/88 = 0.00		OK	0	Carol Gumede - 425280	TC2
10043	A	Turn cab key 30A1.S1 to active cab position		OK		Carol Gumede - 425280	TC2
10044	A	Place the ERTMS Isolation Switch 62S1 in Normal position		OK		Carol Gumede - 425280	TC2
10045	R	Read Defined Variable [NI] Dev2/5 = 0.0		OK	0	Carol Gumede - 425280	TC2
10046	R	Read Defined Variable [NI] Dev5/88 = 0.00		OK	0	Carol Gumede - 425280	TC2
10047	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsbypassr1 = 0.0		OK	0	Carol Gumede - 425280	TC2
10048	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsbypassr2 = 0.0		OK	0	Carol Gumede - 425280	TC2
10049	R	The indicator Lamp 62H1 is OFF	ERTMS	OK		Carol Gumede - 425280	TC2
10050	A	Place the ERTMS Isolation Switch 62S1 in Isolation position		OK		Carol Gumede - 425280	TC2
10051	R	Read Defined Variable [NI] Dev2/5 = 1.0		OK	1	Carol Gumede - 425280	TC2
10052	R	Read Defined Variable [NI] Dev5/88 = 1.00		OK	1	Ntobeko Ndlovu - 421595	TC2
10053	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsbypassr1 = 1.0		OK	1	Carol Gumede - 425280	TC2
10054	R	Read Defined Variable [TT] (MPU1)li_ets_tc2ertmsbypassr2 = 1.0		OK	1	Carol Gumede - 425280	TC2
10055	R	The indicator Lamp 62H1 is ON	ERTMS	OK		Carol Gumede - 425280	TC2
10056	A	Place the ERTMS Isolation Switch 62S1 in Normal position		OK		Carol Gumede - 425280	TC2
10057	I	Eurobalise Antenna Cable		OK		Carol Gumede - 425280	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10058	A	Check continuity between [Inter-car (LOCAL: +END2; Connector -90XR10) and Eurobalise Antenna (LOCAL: +UCA; connector -62XP3_X1] according to the image		OK		Sinazo Mkhwa - 529940	TC2
10059	R	Eurobalise Antenna cable is correctly configured		OK		Sinazo Mkhwa - 529940	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

18.1.2 063_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		Goitsemodimo Kgatitswe - 526511	TC2
10002	A	Turn Driver Key 30A1.S1 to Active Cab position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10003	I	UHF Radio		OK		Goitsemodimo Kgatitswe - 526511	TC2
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		Goitsemodimo Kgatitswe - 526511	TC2
10005	I	Tester Calibration		OK		Goitsemodimo Kgatitswe - 526511	TC2
10006	I	PERFORM THIS CALIBRATION BEFORE TESTING EACH CABLE		OK		Goitsemodimo Kgatitswe - 526511	TC2
10007	A	Select "preset", then Set the test frequency by selecting "FREQ/DIST" then setting the start and stop frequency, select "calibrate", then "Full 1-port" then Calibrate the Antenna cable tester using the 0.5m extension cable and the T-calibration unit.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10008	I	Antenna Cable		OK		Siphesihle Mchunu - 491465	TC2
10009	A	Ensure the frequency range is 450MHz - 470MHz; Connect the UHF antenna cable to the measuring cable and note the resulting waveform		OK		Siphesihle Mchunu - 491465	TC2
10010	A	Save the waveform result with the following name: TS#(#-Train number)_TC2_ UHF		OK		Siphesihle Mchunu - 491465	TC2
10011	R	The maximum peak of the waveform is = Result Max : x <= 1.5 ()		OK	1.26	Siphesihle Mchunu - 491465	TC2
10012	A	Normalize the UHF antenna cable		OK		Siphesihle Mchunu - 491465	TC2
10013	I	Power Supply		OK		Goitsemodimo Kgatitswe - 526511	TC2
10014	A	Close Circuit Breaker 63Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10015	R	Check that the UHF Radio is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10016	R	Check that the UHF hand held is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10017	A	press the volume buttons '+' and '-' on the top of the radio, and endure that the sound level increases and decreases accordingly		OK		Goitsemodimo Kgatitswe - 526511	TC2
10018	A	Open Circuit Breaker 63Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10019	R	Check that the UHF Radio is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10020	A	Close Circuit Breaker 63Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10021	A	Turn the UHF Radio Emergency Supply switch 63S1 to the "Emergency" position, and release it		OK		Goitsemodimo Kgatitswe - 526511	TC2
10022	R	Check that the UHF Radio is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10023	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		Goitsemodimo Kgatitswe - 526511	TC2
10024	R	After 10 minutes the UHF Radio turns OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10025	I	GSMR Radio		OK		Goitsemodimo Kgatitswe - 526511	TC2
10026	I	Power Supply GSM_RADIO		OK		Goitsemodimo Kgatitswe - 526511	TC2
10027	A	Close Circuit Breaker 65Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10028	R	Check that the GSM Radio is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10029	A	press the volume buttons '+' and '-' on top of the radio handheld, and endure that the sound level increases and decreases accordingly		OK		Goitsemodimo Kgatitswe - 526511	TC2
10030	A	Open Circuit Breaker 65Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10031	R	Check that the GSM Radio is OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10032	A	Close Circuit Breaker 65Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10033	A	Turn the GSM Radio Emergency Supply switch 65S1 to the "Emergency" position, and release it		OK		Goitsemodimo Kgatitswe - 526511	TC2
10034	R	Check that the GSM Radio is ON		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10035	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		Goitsemodimo Kgatitswe - 526511	TC2
10036	R	After 10 minutes the GSM Radio turns OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10037	I	Antenna Cable		OK		Siphesihle Mchunu - 491465	TC2
10038	A	Set the tester frequency range to 876MHz - 960MHz then Recalibrate the Antenna cable tester		OK		Siphesihle Mchunu - 491465	TC2
10039	A	Connect the GSMR antenna cable to the measuring cable and note the resulting waveform		OK		Siphesihle Mchunu - 491465	TC2
10040	R	The maximum peak of the waveform is = Result Max : x <= 2 ()		OK	1.69	Siphesihle Mchunu - 491465	TC2
10041	A	Save the waveform result with the following name: TS#(#-Train number)_TC2_ GSMR		OK		Siphesihle Mchunu - 491465	TC2
10042	A	Normalize the GSMR antenna cable		OK		Siphesihle Mchunu - 491465	TC2
10043	I	HMI Power On		OK		Goitsemodimo Kgatitswe - 526511	TC2
10044	I	Proceed with the following steps after the Radio has turned OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10045	A	Close Circuit Breaker 65Q2 - allow time for the Radio to turn ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10046	A	Turn Driver Key 30A1.S1 to Non-Active Cab position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10047	A	Reset (Off then On) Circuit Breaker 20Q2		OK		Goitsemodimo Kgatitswe - 526511	TC2
10048	R	The GSMR HMI Screen turns OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10049	A	Turn the GSM Radio Emergency Supply switch 65S1 to the "Emergency" position, and release it		OK		Goitsemodimo Kgatitswe - 526511	TC2
10050	R	The GSMR HMI Screen turns ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10051	A	Open Circuit Breaker 65Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10052	R	The GSMR HMI Screen turns OFF		OK		Goitsemodimo Kgatitswe - 526511	TC2
10053	A	Turn Driver Key 30A1.S1 to Active Cab position		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10054	R	The GSMR turns ON		OK		Goitsemodimo Kgatitswe - 526511	TC2
10055	A	Close Circuit Breaker 65Q1		OK		Goitsemodimo Kgatitswe - 526511	TC2
10056	I	Software Installation		OK		Goitsemodimo Kgatitswe - 526511	TC2
10057	A	Follow the below procedure to install software onto the GSMR		OK		Goitsemodimo Kgatitswe - 526511	TC2
10058	A	Ensure that Deadman is not overridden, set the direction switch to Forward position		OK		Goitsemodimo Kgatitswe - 526511	TC2
10059	R	After Deadman trips, GSMR HMI reports DSD Alert! and the GSMR buzzer can be heard		OK		Goitsemodimo Kgatitswe - 526511	TC2
10060	I	Handset and Loudspeaker Volume		OK		Goitsemodimo Kgatitswe - 526511	TC2
10061	A	Pick up the GSM-R handset. On the GSM-R, press the "11" key		OK		Goitsemodimo Kgatitswe - 526511	TC2
10062	R	On the GSM-R MMI, volume symbol flashes above the "11" key.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10063	A	Adjust the volume using the arrow upward (louder) or arrow downward (quieter)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10064	R	The sound change is audible (in the handset and visible on MMI) immediately		OK		Goitsemodimo Kgatitswe - 526511	TC2
10065	A	On the GSM-R, press the "11" key.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10066	R	On the GSM-R MMI, volume symbol is no longer flashing above the "11" key.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10067	A	Hang up the GSM-R handset. On GSM-R M, Press the "11" key.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10068	R	On the GSM-R MMI, volume symbol flashes above the "11" key.		OK		Goitsemodimo Kgatitswe - 526511	TC2
10069	A	Adjust the volume using the arrow upward (louder) or arrow downward (quieter)		OK		Goitsemodimo Kgatitswe - 526511	TC2
10070	R	The sound change is audible (in the loudspeaker located in the ceiling and visible on MMI) immediately		OK		Goitsemodimo Kgatitswe - 526511	TC2
10071	A	On the GSM-R, press the "11" key.		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10072	R	On the GSM-R M, volume symbol is no longer flashing above the "11" key.		OK		Goitsemodimo Kgatitswe - 526511	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 19 – Vehicle Normalization

19.1 Instructions list

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

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		Mlungisi Madela - 529927	TC2
10002	I	This inspection must be performed by the EPU/Acting EPU Manager on shift		OK		Mlungisi Madela - 529927	TC2
10003	I	The VFT procedures are all completed		OK		Mlungisi Madela - 529927	TC2
10004	I	Vehicle Normalization Check		OK		Mlungisi Madela - 529927	TC2
10005	R	On LV1 all Circuit Breakers are installed and secured		OK		Mlungisi Madela - 529927	TC2
10006	R	On LV1 all Switches and Buttons are installed properly		OK		Mlungisi Madela - 529927	TC2
10007	R	On LV1 all Relays and Timers are installed and secured		OK		Mlungisi Madela - 529927	TC2
10008	R	On LV1 all Dataplugs are installed, tightened and earth braids are fastened		OK		Mlungisi Madela - 529927	TC2
10009	R	On LV1 BRIOMs are properly installed		OK		Mlungisi Madela - 529927	TC2
10010	R	On LV1 all UMC Rack cards are installed properly		OK		Mlungisi Madela - 529927	TC2
10011	R	On LV1 all Connectors are tightened		OK		Mlungisi Madela - 529927	TC2
10012	R	On LV1 there are no missing components, device, wiring or connectors.		OK		Mlungisi Madela - 529927	TC2
10013	R	On LV2 the MCE is installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10014	R	On LV2 the GSMR-Radio is installed and properly tightened and its connectors are tightened		OK		Mlungisi Madela - 529927	TC2
10015	R	On LV2 the UHF-Radio is installed and properly tightened and its connectors are tightened		OK		Mlungisi Madela - 529927	TC2
10016	R	On LV2 OTDR is installed and properly tightened, and its connectors are tightened.		OK		Mlungisi Madela - 529927	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10017	A	On LV2 CPM is installed and properly tightened, and its connectors are tightened.		OK		Mlungisi Madela - 529927	TC2
10018	R	On LV2 all Circuit Breakers are installed and secured		OK		Mlungisi Madela - 529927	TC2
10019	R	On LV2 all Connectors are tightened		OK		Mlungisi Madela - 529927	TC2
10020	R	On LV2 there are no missing components, device, wiring or connectors.		OK		Mlungisi Madela - 529927	TC2
10021	A	On the Driver's Desk, all Switches and Buttons are installed properly. Refer to the image		OK		Mlungisi Madela - 529927	TC2
10022	R	On the Driver's Desk, DDU is installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10023	R	On the Driver's Desk, ERTMS HMI is installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10024	R	On the Driver's Desk, GSMR HMI and Handset are installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10025	R	On the Driver's Desk, Speedometer is installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10026	R	On the Driver's Desk, Pressure Gauge is installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10027	R	On the Driver's Desk, Alarm Module is installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10028	R	On the Driver's Desk, Voltage/Traction Indicator is installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10029	R	On the Driver's Desk, Master Controller is installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10030	R	On the UDM, all connectors are tightened		OK		Mlungisi Madela - 529927	TC2
10031	R	On the UDR, Wiper Controller is properly installed		OK		Mlungisi Madela - 529927	TC2
10032	R	On the UDL, BRIOMs are properly installed		OK		Mlungisi Madela - 529927	TC2
10033	R	CPM is properly installed and secured		OK		Mlungisi Madela - 529927	TC2
10034	R	Driver Foot Heater is properly installed		OK		Mlungisi Madela - 529927	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

10035	R	On the Cab Ceiling, Lights are all properly installed		OK		Mlungisi Madela - 529927	TC2
10036	R	On the Cab Ceiling, Speakers are all properly installed		OK		Mlungisi Madela - 529927	TC2
10037	R	On the Cab Ceiling, Fire Detector is properly installed and secured		OK		Mlungisi Madela - 529927	TC2
10038	R	On the Cab Ceiling, Frontal Camera is properly installed		OK		Mlungisi Madela - 529927	TC2
10039	R	All DCUs are properly installed and secured		OK		Mlungisi Madela - 529927	TC2
10040	R	All Internal Displays are properly installed and secured		OK		Mlungisi Madela - 529927	TC2
10041	R	All Light Covers are properly installed		OK		Mlungisi Madela - 529927	TC2
10042	R	All Saloon Cameras are properly installed		OK		Mlungisi Madela - 529927	TC2
10043	R	All PEAs and PEIs are properly installed		OK		Mlungisi Madela - 529927	TC2
10044	R	On LV7 all Dataplugs are installed, tightened and earth braids are fastened		OK		Mlungisi Madela - 529927	TC2
10045	R	On HC Cubicle the Controller is installed and properly tightened and its connectors are tightened		OK		Mlungisi Madela - 529927	TC2
10046	R	On the LVB, all Relays and Timers are installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10047	R	On the LVB, all Circuit Breakers are installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10048	R	On the Underframe, CVS Agate is installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10049	R	On the Underframe, Speed Sensors are installed and properly tightened		OK		Mlungisi Madela - 529927	TC2
10050	R	On the Underframe, Battery Box cables are properly connected		OK		Mlungisi Madela - 529927	TC2
10051	R	ALL underframe covers are normalised		OK		Mlungisi Madela - 529927	TC2
10052	R	On END1 the Octopus cables are disconnected from the coupler and properly stored.		OK		Mlungisi Madela - 529927	TC2
10053	R	On END2 the Octopus cables are disconnected from the car and properly		OK		Mlungisi Madela - 529927	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

		stored.					
10054	R	The Test Bench is switched OFF and Octopus is disconnected and properly stored		OK		Mlungisi Madela - 529927	TC2
10055	R	ALL P.Os of this car are closed		OK		Mlungisi Madela - 529927	TC2
10056	I	End Of Test		OK		Mlungisi Madela - 529927	TC2

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

Section 20 – Report summaries

20.1 Results status

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

20.2 Tools used

Function	Tool name	Tool number	Next Calibration date
015_NRG	NPhasemètre	Phasemeter	8/25/2024
040_SBK	Manometro	Manometer	10/29/2024
045_PBK	Manometro	Manometer	10/29/2024
057_HVA	NAnémomètre	Anemometer 1	8/25/2024

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.

067_FSD	Multimetro	Multimeter 4	8/23/2024
070_SIG_2	Manometro	Manometer	10/29/2024

Vehicle	Equipment	Expected version	Version loaded
TC2			

UNCONTROLLED WHEN PRINTED – Not to be used before verification of applicable version number
© All rights reserved. Reproduction, use or disclosure to third parties, without express written authorization, is strictly prohibited.