PROJECT	CUSTOMER	VEHICLE
X'trapolis-PRASA	**PRASA**	**311 – M3 – VFT**

RTR Vehicle Functional Static Testing TS311 M3 Report

GIB0000008873

	CREATED	VERIFIED	APPROVED	DISTRIBUTION
Name	Nhlakanipho MASONDO	Lindani NGUBANE	Kgomotso NKOANA	Confidentiality Category *Restricted* ☐ *Project* ☐ *Normal* ☑
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Table of modifications

Rev	Date	Modifications Content	Writer
A0	18/11/2025	Creation	Nhlakanipho MASONDO

Internal validations

	Name	Function	Date	Signature
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Execution Plan

Start Date	10/11/2025
End Date	10/11/2025

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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. Train-Ground Communication
Setup the Train-to-ground systems and verify correct installation of the antennas by VSWR test.
7. Rescue Mode and Emergency Disconnection
The objective of this procedure is to verify the correct operation of the emergency disconnection function, as well as the correct activation
of the Back-Up mode.
10. Emergency Brake
The objective of this procedure is to verify all electrical components of the Emergency braking system.
11. Service Brake
The objective of this procedure is to verify all electrical components of the Service brake system.
12. Holding and Parking Brake
The objective of this procedure is to verify all electrical components of the Parking/holding brake system.
13. Passenger Doors
The objective of this procedure is to ensure the proper operation of the train doors.
14. Air Conditioning
Verify the voltage distribution to and correct operation of the HVAC system
15. Fire protection
The objective of this procedure is to verify the configuration of the fire detection units, as well as the presence of the safety resistor in the
auxiliary converter.
16. Traction and Electric Brake
The objective of this procedure is to verify all the train lines associated with the traction and electric brake systems of the train
18. Vehicle Normalization
The objective of this procedure is to ensure that all connectors, panels a8nd covers are normalized.

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Section 2 – Energy Distribution

2.1 Instructions list

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2.1.1 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=015)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10002	I	Initial Conditions		OK		Celiwe Sokhela 491462 10.11.2025	M3
10003	I	All the Circuit Breakers should be OPEN		OK		Celiwe Sokhela 491462 10.11.2025	M3
10004	I	Test bench should be connected but with no power supply		OK		Celiwe Sokhela 491462 10.11.2025	M3
10005	I	NO 400Vac should be connected to the car		OK		Celiwe Sokhela 491462 10.11.2025	M3
10006	A	Close Circuit Breaker 15Q3 (Normal Line)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10007	I	Voltage Isolation 110Vdc		OK		Celiwe Sokhela 491462 10.11.2025	M3
10008	I	230Vac and 400Vac Circuit breaker		OK		Celiwe Sokhela 491462 10.11.2025	M3
10009	A	Close Circuit Breaker 13Q1		OK		Celiwe Sokhela 491462 10.11.2025	M3
10010	A	Close the circuit breaker 13Q3		OK		Celiwe Sokhela 491462 10.11.2025	M3
10011	I	Normal and Permanent Power Supply		OK		Celiwe Sokhela 491462 10.11.2025	M3
10012	I	110Vdc Permanent Train Line Apply 110Vdc on -93XT304_1 pin 4 to simulate Permanent Train Line		OK		Celiwe Sokhela 491462 10.11.2025	M3
10013	A	Apply 110Vdc on the Normal Line using the external power supply		OK		Celiwe Sokhela 491462 10.11.2025	M3
10014	A	Measure 110Vdc between 90XR50.X1/1 (+) and 90XR50.X2/1 (-) (intercar connector). [Normal line]		OK		Celiwe Sokhela 491462 10.11.2025	M3
10015	I	Permanent Line Circuit Breaker		OK		Celiwe Sokhela 491462 10.11.2025	M3

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10016	A	Close Circuit Breaker 15Q4 for battery voltage above 80Vdc and close it(permanent Line)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10017	I	230Vac Circuit Breaker		OK		Celiwe Sokhela 491462 10.11.2025	M3
10018	A	Close Circuit Breaker 13Q2		OK		Celiwe Sokhela 491462 10.11.2025	M3
10019	A	Close Circuit Breaker 13Q3		OK		Celiwe Sokhela 491462 10.11.2025	M3
10020	I	230Vac and 400Vac Voltage Supply		OK		Celiwe Sokhela 491462 10.11.2025	M3
10021	A	Apply 400Vac to the Vehicle, either on End1 or End2		OK		Celiwe Sokhela 491462 10.11.2025	M3
10022	A	Perform a phase rotation measurement on Connector 90XR62 between phases U(X3),V(X2),W(X1) and ensure the rotation is in the correct direction.		OK		Celiwe Sokhela 491462 10.11.2025	M3
10023	R	Phase rotation between U,V,W is correct		OK		Celiwe Sokhela 491462 10.11.2025	M3
10024	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		Celiwe Sokhela 491462 10.11.2025	M3
10025	R	Phase rotation between U,V,W is correct		OK		Celiwe Sokhela 491462 10.11.2025	M3
10026	A	Check 230Vac between points L and N of socket -13XT1		OK		Celiwe Sokhela 491462 10.11.2025	M3
10027	R	230Vac present		OK		Celiwe Sokhela 491462 10.11.2025	M3
10028	A	Check 230Vac between points L and N of socket -13XT2		OK		Celiwe Sokhela 491462 10.11.2025	M3
10029	R	230Vac present		OK		Celiwe Sokhela 491462 10.11.2025	M3
10030	A	Remove connector 57XP1_10		OK		Celiwe Sokhela 491462 10.11.2025	M3
10031	A	Remove connector 93XP150		OK		Celiwe Sokhela 491462 10.11.2025	M3
10032	A	Close circuit breaker 34Q1 and 57Q1		OK		Celiwe Sokhela 491462 10.11.2025	M3
10033	A	Check 400Vac +-5% tolerance between Phases (W,V,U) on connector 57XP1_10 (10.b1,10a2,10a1)		OK		Celiwe Sokhela 491462 10.11.2025	M3

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10034	R	400Vac +- 5% tolerance is measured between all three phases of 57XP1_10		OK		Celiwe Sokhela 491462 10.11.2025	M3
10035	A	Check 400Vac +-5% tolerance between Phases (W,V,U) on connector 93XP150 (E2,E3,E1)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10036	R	400Vac +- 5% tolerance is measured between all three phases on connector 93XP150		OK		Celiwe Sokhela 491462 10.11.2025	M3
10037	A	Put back connector 57XP1_10		OK		Celiwe Sokhela 491462 10.11.2025	M3
10038	A	Put back connector 93XP150		OK		Celiwe Sokhela 491462 10.11.2025	M3
10039	A	Switch off the 400Vac power supply from the socket		OK		Celiwe Sokhela 491462 10.11.2025	M3
10040	I	Auxiliary Converters Command		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10041	A	Battery Connection Train Lines Measure continuity between END 1 90XR14 pin 30 END 2 90XP24 pin 30		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10042	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10043	A	Battery Disconnection Train Lines Measure continuity between END 1 90XR14 pin 31 END 2 90XP24 pin 31		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10044	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10045	A	IES StatusTrain Lines Measure continuity between END 1 90XR15 pin 61 END 2 90XP25 pin 61 and END 1 90XR15 pin 62 END 2 90XP25 pin 62		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10046	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10047	I	END OF TEST		OK		Celiwe Sokhela 491462 10.11.2025	M3

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Section 3 – TCMS Network

3.1 Instructions list

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3.1.1 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		Celiwe Sokhela 491462 10.11.2025	M3
10002	I	Initial conditions		OK		Celiwe Sokhela 491462 10.11.2025	M3
10003	I	Vehicle test bench should be configured as TC1: 1. TC1 Dataplugs 2. MCE switch set to TC1		OK		Celiwe Sokhela 491462 10.11.2025	M3
10004	A	110Vdc supply to the Normal Train line is ON		OK		Celiwe Sokhela 491462 10.11.2025	M3
10005	I	Power Supply to the Router Switches		OK		Celiwe Sokhela 491462 10.11.2025	M3
10006	I	Power supply to the 25A10 SWITCH ETHERNET (CRS1)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10007	A	Close Circuit Breaker 25Q10		OK		Celiwe Sokhela 491462 10.11.2025	M3
10008	R	CRS1 25A10 is ON		OK		Celiwe Sokhela 491462 10.11.2025	M3
10009	I	Power supply to the 25A11 SWITCH ETHERNET (CRS2)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10010	A	Close Circuit Breaker 25Q11		OK		Celiwe Sokhela 491462 10.11.2025	M3
10011	R	CRS2 25A11 is ON		OK		Celiwe Sokhela 491462 10.11.2025	M3
10012	I	Power supply to the 25A14 ETHERNET REPEATER (TBR)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10013	A	Close Circuit Breaker 25Q14		OK		Celiwe Sokhela 491462 10.11.2025	M3
10014	R	TBR 25A14 is ON		OK		Celiwe Sokhela 491462 10.11.2025	M3
10015	A	Close Circuit Breaker 25Q6		OK		Celiwe Sokhela 491462 10.11.2025	M3

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10016	A	Close Circuit Breaker 25Q7		OK		Celiwe Sokhela 491462 10.11.2025	M3
10017	I	Ethernet Loop		OK		Celiwe Sokhela 491462 10.11.2025	M3
10018	A	For each CRS, check that the Ethernet Loop LEDs are flashing		OK		Celiwe Sokhela 491462 10.11.2025	M3
10019	R	CRS1 has LEDs on ports X3 and X4 flashing		OK		Celiwe Sokhela 491462 10.11.2025	M3
10020	R	CRS2 has ONLY LED on port X4 flashing		OK		Celiwe Sokhela 491462 10.11.2025	M3
10021	R	Check on the Test Bench DDU that all Router Switches are available on the network		OK		Celiwe Sokhela 491462 10.11.2025	M3
10022	I	Power Supply to the BRIOMS		OK		Celiwe Sokhela 491462 10.11.2025	M3
10023	I	Power supply to the 25A6 BRIOM 40/10 ETH 6		OK		Celiwe Sokhela 491462 10.11.2025	M3
10024	R	BRIOM 25A6 is ON		OK		Celiwe Sokhela 491462 10.11.2025	M3
10025	A	Check visually that ground braid is connected to BRIOM.		OK		Celiwe Sokhela 491462 10.11.2025	M3
10026	I	Power supply to the 25A7 BRIOM 40/10 ETH 7		OK		Celiwe Sokhela 491462 10.11.2025	M3
10027	R	BRIOM 25A7 is ON		OK		Celiwe Sokhela 491462 10.11.2025	M3
10028	A	Check visually that ground braid is connected to BRIOM		OK		Celiwe Sokhela 491462 10.11.2025	M3
10029	I	END OF TEST		OK		Celiwe Sokhela 491462 10.11.2025	M3

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Section 4 – Cabin Control

4.1 Instructions list

4.1.1 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		Mpumelelo Sithole 529980 10.11.2025	M3
10002	I	Train Lines		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10003	A	Cab Selected on Train - Train Lines Measure continuity between END1 90XR14 pin 3 END2 90XP24 pin 3		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10004	R	Both pins are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10005	A	Cab Active TC1 Train Lines Measure continuity between END1 90XR14 pin 4 END2 90XP24 pin 4		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10006	R	Both pins are continuous.		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10007	A	Cab Active TC2 Train Lines Measure continuity between END1 90XR14 pin 5 END2 90XP24 pin 5		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10008	R	Both pins are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10009	A	Master Key TC1 Train Lines Measure continuity between END1 90XR14 pin 17 END2 90XP24 pin 17		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10010	R	Both pins are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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10011	I	END OF TEST		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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Section 5 – Internal Lighting

5.1 Instructions list

5.1.1 Internal Lighting

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

N°	Type	Instruction	File	Result status	Result value	Operator	Vehicle
10001	I	Internal Lighting (SPP=52)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10002	I	Initial Conditions		OK		Celiwe Sokhela 491462 10.11.2025	M3
10003	I	110Vdc Normal line is ON		OK		Celiwe Sokhela 491462 10.11.2025	M3
10004	I	Cleaning Light Command		OK		Celiwe Sokhela 491462 10.11.2025	M3
10005	A	110Vdc Permanent Train Line Apply 110V on 93XT304_1 pin 4 to simulate permanent supply		OK		Celiwe Sokhela 491462 10.11.2025	M3
10006	A	Close Circuit Breaker 52Q3		OK		Celiwe Sokhela 491462 10.11.2025	M3
10007	A	Close Circuit Breaker 52Q4		OK		Celiwe Sokhela 491462 10.11.2025	M3
10008	A	Close Circuit Breaker 52Q5		OK		Celiwe Sokhela 491462 10.11.2025	M3
10009	R	All saloon emergency lights (low intensity) are OFF on all light modules (Left + Right)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10010	A	Turn Cleaning Light Switch 52S6 to ON position.		OK		Celiwe Sokhela 491462 10.11.2025	M3
10011	R	All saloon emergency lights (low intensity) are (ON) on all light modules (Left + Right)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10012	A	Reset Circuit Breaker 52Q5 (Open and Close)		OK		Celiwe Sokhela 491462 10.11.2025	M3

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10013	A	Close Circuit Breaker 52Q1		OK		Celiwe Sokhela 491462 10.11.2025	M3
10014	A	Close Circuit Breaker 52Q2		OK		Celiwe Sokhela 491462 10.11.2025	M3
10015	R	All saloon emergency lights (low intensity) are ON (on) all light modules (Left + Right)		OK		Sinazo Mkhwa 529940 15.11.2025	M3
10016	I	END OF TEST		OK		Celiwe Sokhela 491462 10.11.2025	M3

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Section 6 – PACIS System

6.1 Instructions list

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6.1.1 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 IO (SPP=054)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10002	I	Initial conditions		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10003	I	110Vdc Normal line is connected and ON		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10004	I	Circuit Breakers		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10005	A	Close Circuit Breaker 54Q1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10006	A	Close Circuit Breaker 54Q2		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10007	A	Close Circuit Breaker 54Q10		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10008	A	Close Circuit Breaker 54Q11		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10009	A	Close Circuit Breaker 55Q2		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10010	A	Close Circuit Breaker 55Q3		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10011	R	All 'Pacis System' circuit breakers are closed		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10012	I	Power Supply of Router Switches		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10013	I	Ethernet Switch CRS1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10014	R	CRS1 is ON		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10015	I	Ethernet Switch CRS2		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10016	R	CRS2 is ON		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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10017	I	DPAI-1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10018	R	DPAI-1 is ON		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10019	I	DPAI-2		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10020	R	DPAI-2 is ON		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10021	I	Lateral Display 'LAT1'		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10022	R	The PWR (power) LED is ON on the Lateral Display 'LAT1'		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10023	I	Lateral Display 'LAT2'		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10024	R	The PWR (power) LED is ON on the Lateral Display 'LAT2'		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10025	I	Interior Display 'INT1'		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10026	R	The PWR (power) LED is ON on the Interior Display 'INT1'		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10027	I	Interior Display 'INT2'		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10028	R	The PWR (power) LED is ON on the Interior Display 'INT2' is ON		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10029	I	Impedance of Loudspeaker		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10030	I	Saloon Speakers Commanded by DPAI-1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10031	A	Measure the impedance connector '54XP1_X4' between pins:z32(+) and z30 (-)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10032	R	ImpedanceResult Max : x <= 32.00 (Ohm)		OK	31.2	Tebogo Mtombeni 529938 10.11.2025	M3
10033	I	Saloon Speakers Commanded by DPAI-2		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10034	A	Measure the impedance connector '54XP2_X4' between pins:z32(+) and z30 (-)		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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10035	R	ImpedanceResult Max : x <= 32.00 (Ohm)		OK	30.8	Tebogo Mtombeni 529938 10.11.2025	M3
10036	I	END OF TEST		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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Section 7 – Train Ground Communication

7.1 Instructions list

7.1.1 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		Mpumelelo Sithole 529980 10.11.2025	M3
10002	A	ERTMS Bypass Train Lines Check continuity between END1 90XR14 pin 11 END2 90XP24 pin 11		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10003	R	Both pins are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10004	A	Emergency Brake ERTMS 1 Train Lines Check continuity between END1 90XR14 pin 18 END2 90XP24 pin 18		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10005	R	Both pins are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10006	I	Emergency Brake ERTMS 2 Train Lines Check continuity between END1 90XR14 pin 20 END2 90XP24 pin 20		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10007	R	Both pins are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10008	I	Eurobalise Antenna Cable		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10009	A	Check continuity between [Intercar(LOCAL: +END1; Connector - 90XR10) and Intercar (LOCAL:+END2; connector -90XP20)] according to the image below		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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10010	R	Eurobalise Antenna cable is correctly configured		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10011	I	END OF TEST		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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Section 8 – Rescue Mode and Emergency Disconnection

8.1 Instructions list

8.1.1 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		Mpumelelo Sithole 529980 10.11.2025	M3
10002	I	Backup Mode		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10003	A	Backup Mode Train Lines Check continuity between END1 90XR15 pin 23 END2 90XP25 pin 23 and 27K1 A1		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10004	R	All points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10005	A	Check continuity between 27K1 A2 and Ground		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10006	R	The points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10007	I	Emergency Disconnection		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10008	A	Emergency Disconnection Train Lines Check continuity between END1 90XR15 pin 24 END2 90XP25 pin 24		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10009	R	All points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10010	I	END OF TEST		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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Section 9 – Emergency Brake

9.1 Instructions list

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9.1.1 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		Mpumelelo Sithole 529980 10.11.2025	M3
10002	I	Initial Conditions		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10003	I	No PEAs are activated		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10004	I	110Vdc Normal power supply should be connected to the vehicle and ON		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10005	I	Visual Inspection		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10006	A	Physically and visually inspect all the Disk Break Units (DBU) and brake pads, to ensure they are securely fitted		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10007	R	All the brake DBUs are correctly installed, and all the brake pads are correctly installed and locked		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10008	A	Check the pipe installation		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10009	R	All the pipes are installed on the vehicle		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10010	A	Check all the Passenger Emergency Alarm handles, and ensure they are connected to their respective connectors		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10011	R	All the PEAs are installed and connected		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10012	I	Train Lines		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10013	A	Emergency Brake Loop Train Lines Check continuity between END1 90XR24 pin 8 END2 90XP34 pin 8		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10014	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10015	A	Emergency Brake Loop Override Train Lines Check continuity between		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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		END1 90XR24 pin 9 END2 90XP34 pin 9					
10016	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10017	I	Emergency Brake Train Line Check continuity between END1 90XR25 pin 67 END2 90XP35 pin 67		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10018	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10019	A	PEA Loop OTDR Train Lines Check continuity between END1 90XR24 pin 10 END2 90XP34 pin 10		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10020	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10021	A	PEA Loop Train Lines Check continuity between END1 90XR25 pin 95 END2 90XP35 pin95		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10022	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10023	A	PEA Reset Check continuity on Timer Relay 44D1 between points A1 and B1. Check continuity on Timer Relay 44D1 between points A4, B3 and C4		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10024	R	The Points are continuous.		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10025	I	END OF TEST		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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Section 10 – Service Brake

10.1 Instructions list

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10.1.1 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		Celiwe Sokhela 491462 10.11.2025	M3
10002	I	Initial Conditions		OK		Celiwe Sokhela 491462 10.11.2025	M3
10003	I	No air supply to the vehicle		OK		Celiwe Sokhela 491462 10.11.2025	M3
10004	I	All brake panel cocks are in normal position (not isolated)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10005	I	110Vdc Normal power supply should be connected to the vehicle and ON		OK		Celiwe Sokhela 491462 10.11.2025	M3
10006	I	Follow the procedure in the document below to upload software onto the TBCU electronic ***[14-57-29-277666_277616_TBCU Software Upload.pdf]***		OK		Celiwe Sokhela 491462 10.11.2025	M3
10007	I	Power Supply		OK		Celiwe Sokhela 491462 10.11.2025	M3
10008	A	Remove the connector 10XR12_XCB2 from the propulsion box		OK		Celiwe Sokhela 491462 10.11.2025	M3
10009	A	Close Circuit Breaker 33Q1, 33Q3 and 33Q5		OK		Celiwe Sokhela 491462 10.11.2025	M3
10010	A	Check the voltage on connector 10XR12_XCB2 between pins 4 (+) and 69 (-) ; 4(+) and 67(-); and 5(+) and 68(-)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10011	R	Battery Voltage (above 80Vdc) is measured on connector 10XR12_XCB2 between pins 4 (+) and 69 (-) ; 4(+) and 67(-); and 5(+) and 68(-)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10012	A	Open Circuit Breaker 33Q1 and 33Q3, Replace connector 10XR12_XCB2 on the propulsion box, and Close Circuit breaker 33Q1 and 33Q3		OK		Celiwe Sokhela 491462 10.11.2025	M3
10013	A	Remove the connector -40XP2_C2_16 from pneumatic brake panel		OK		Celiwe Sokhela 491462 10.11.2025	M3
10014	A	Close Circuit Breaker 40Q1		OK		Celiwe Sokhela 491462 10.11.2025	M3

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10015	A	Check the voltage on connector 40XP2_C2_16 between pins 13 (+) and 31 (-)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10016	R	Battery Voltage (above 80Vdc) is measured on connector 40XP2_C2_16 between pins 13 (+) and 31 (-)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10017	A	Open Circuit Breaker 40Q1, Replace connector -40XP2_C2_16 on the pneumatic brake panel, and Close Circuit breaker -40Q1		OK		Celiwe Sokhela 491462 10.11.2025	M3
10018	R	The pneumatic brake panel 40A2 is ON		OK		Celiwe Sokhela 491462 10.11.2025	M3
10019	I	Train Lines		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10020	A	EB Reduced Train Lines Check continuity between END1 90XR15 pin 60 END2 90XP25 pin 60		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10021	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10022	A	Brake Applied Train Lines Check continuity between END1 90XR15 pin 50 END2 90XP25 pin 50		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10023	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10024	A	Remote Isolation Train Lines Check continuity between END1 90XR15 pin 59 END2 90XP25 pin 59		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10025	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10026	I	END OF TEST		OK		Celiwe Sokhela 491462 10.11.2025	M3

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Section 11 – Holding and Parking Brake

11.1 Instructions list

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11.1.1 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		Celiwe Sokhela 491462 10.11.2025	M3
10002	I	Initial Conditions		OK		Celiwe Sokhela 491462 10.11.2025	M3
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		Celiwe Sokhela 491462 10.11.2025	M3
10004	A	Check that the pressure on Test point C2.11/1 is >5bar		OK		Celiwe Sokhela 491462 10.11.2025	M3
10005	I	Visual Inspection		OK		Celiwe Sokhela 491462 10.11.2025	M3
10006	A	Check the installation of the manual parking brake release components (lever + cable)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10007	R	The lever is securely fixed (tight), and the cable is correctly attached to the bogie (there is no excess cable and all clamps are installed)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10008	I	Circuit Breaker		OK		Celiwe Sokhela 491462 10.11.2025	M3
10009	A	Close Circuit Breaker 33Q3		OK		Celiwe Sokhela 491462 10.11.2025	M3
10010	A	Close Circuit Breaker 33Q5		OK		Celiwe Sokhela 491462 10.11.2025	M3
10011	I	Parking Brake Pressure Switch		OK		Celiwe Sokhela 491462 10.11.2025	M3
10012	R	Read Defined Variable [TT] (TBCU3)LI_PARK_BR_RELEASE = 1.0		OK	1	Celiwe Sokhela 491462 10.11.2025	M3
10013	R	Read Defined Variable [TT] (TBCU3)LI_BRAKE_STAT = 0.0		OK	0	Celiwe Sokhela 491462 10.11.2025	M3
10014	R	Read Defined Variable [TT] (MPU1)tbcu3_parkbrakerelease = 1.0		OK	1	Celiwe Sokhela 491462 10.11.2025	M3
10015	R	Read Defined Variable [TT] (MPU1)tbcu3_li_pbrake_stat = 0.0		OK	0	Celiwe Sokhela 491462 10.11.2025	M3

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10016	A	Parking Brake Applied Train Lines Check continuity between END1 90XR15 pin 77 END2 90XP25 pin 77		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10017	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10018	A	Remote Parking Command Train Lines Check continuity between END1 90XR15 pin 68 END2 90XP25 pin 68		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10019	R	Both points are continuous		OK		Celiwe Sokhela 491462 10.11.2025	M3
10020	I	Parking Brake Applied		OK		Celiwe Sokhela 491462 10.11.2025	M3
10021	I	For this section of the test, ensure that the pressure on test point C2.11/1 is ALWAYS BELOW 4.8 Bar. if it goes above, turn the Isolation cock C2.3.2 to CLOSE position to drain the air		OK		Celiwe Sokhela 491462 10.11.2025	M3
10022	A	Position the Isolation cock C2.3.2 in CLOSE position. Allow the parking brake air pressure to drain to below 4.5 Bar. Use the test point C2.11/1 to verify the air pressure <4.5 Bar		OK		Celiwe Sokhela 491462 10.11.2025	M3
10023	R	Pressure at test point C2.11/1 <4.5 Bar		OK		Celiwe Sokhela 491462 10.11.2025	M3
10024	R	Read Defined Variable [TT] (TBCU3)LI_PARK_BR_RELEASE = 0.0		OK	0	Celiwe Sokhela 491462 10.11.2025	M3
10025	R	Read Defined Variable [TT] (MPU1)tbcu3_parkbrakerelease = 0.0		OK	0	Celiwe Sokhela 491462 10.11.2025	M3
10026	A	Return the Isolation cock C2.3.2 to OPEN position		OK		Celiwe Sokhela 491462 10.11.2025	M3
10027	R	Read Defined Variable [TT] (TBCU3)LI_BRAKE_STAT = 1.0		OK	1	Celiwe Sokhela 491462 10.11.2025	M3
10028	R	Read Defined Variable [TT] (MPU1)tbcu3_li_pbrake_stat = 1.0		OK	1	Celiwe Sokhela 491462 10.11.2025	M3
10029	R	Read Defined Variable [TT] (TBCU3)LI_PARK_BR_DC = 0.0		OK	0	Celiwe Sokhela 491462 10.11.2025	M3
10030	R	Read Defined Variable [TT] (MPU1)tbcu3_parkbrakeisoldc = 0.0		OK	0	Celiwe Sokhela 491462 10.11.2025	M3
10031	R	Read Defined Variable [TT] (MPU1)li_pbk_m3parkbrakeisol = 0.0		OK	0	Celiwe Sokhela 491462 10.11.2025	M3

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10032	A	Position the Isolation cock C2.3.2 in CLOSE position		OK		Celiwe Sokhela 491462 10.11.2025	M3
10033	R	Read Defined Variable [TT] (MPU1)li_pbk_m3parkbrakeisol = 1.0		OK	1	Celiwe Sokhela 491462 10.11.2025	M3
10034	R	Read Defined Variable [TT] (TBCU3)LI_BRAKE_STAT = 0.0		OK	0	Celiwe Sokhela 491462 10.11.2025	M3
10035	R	Read Defined Variable [TT] (MPU1)tbcu3_li_pbrake_stat = 0.0		OK	0	Celiwe Sokhela 491462 10.11.2025	M3
10036	R	Read Defined Variable [TT] (TBCU3)LI_PARK_BR_DC = 1.0		OK	1	Celiwe Sokhela 491462 10.11.2025	M3
10037	R	Read Defined Variable [TT] (MPU1)tbcu3_parkbrakeisoldc = 1.0		OK	1	Celiwe Sokhela 491462 10.11.2025	M3
10038	A	Return the Isolation cock C2.3.2 to OPEN position		OK		Celiwe Sokhela 491462 10.11.2025	M3
10039	I	END OF TEST		OK		Celiwe Sokhela 491462 10.11.2025	M3

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Section 12 – Passenger Doors

12.1 Instructions list

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12.1.1 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		Mpumelelo Sithole 529980 10.11.2025	M3
10002	I	Initial conditions		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10003	I	110Vdc Normal power supply is connected to the vehicle and ON		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10004	I	Circuit Breaker		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10005	A	Close Circuit Breaker 50Q1		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10006	R	DCU 1 is powered ON		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10007	R	Check on the DDU that DCU1 is online		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10008	A	Close Circuit Breaker 50Q2		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10009	R	DCU 2 is powered ON		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10010	R	Check on the DDU that DCU2 is online		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10011	A	Close Circuit Breaker 50Q3		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10012	R	DCU 3 is powered ON		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10013	R	Check on the DDU that DCU3 is online		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10014	A	Close Circuit Breaker 50Q4		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10015	R	DCU 4 is powered ON		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10016	R	Check on the DDU that DCU4 is online		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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10017	A	Close Circuit Breaker 50Q5		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10018	R	DCU 5 is powered ON		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10019	R	Check on the DDU that DCU5 is online		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10020	A	Close Circuit Breaker 50Q6		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10021	R	DCU 6 is powered ON		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10022	R	Check on the DDU that DCU6 is online		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10023	A	Close Circuit Breaker 50Q7		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10024	I	Car ID Code		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10025	A	Using the DDU on the test bench, check that all the doors on M4 are available - as in the picture below		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10026	R	All doors are available		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10027	I	Train Lines and Safety Loop		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10028	A	ERTMS Auth Left Train Lines Check continuity between END1 90XR15 pin 44 END2 90XP25 pin 44		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10029	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10030	A	ERTMS Auth Right Train Lines Check continuity between END1 90XR15 pin 47 END2 90XP25 pin 47		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10031	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10032	A	Doors Open Train Lines Check continuity between END1 90XR15 pin 66 END2 90XP25 pin 66		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10033	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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10034	A	Door Close Right Train Lines Check continuity between END1 90XR15 pin 78 END2 90XP25 pin 78		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10035	A	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10036	A	Door Close Left Train Lines Check continuity between END1 90XR15 pin 79 END2 90XP25 pin 79		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10037	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10038	A	Door Auth Left Train Lines Check continuity between END1 90XR15 pin 85 END2 90XP25 pin 85		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10039	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10040	A	Door Auth Right Train Lines Check continuity between END1 90XR15 pin 84 END2 90XP25 pin 84		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10041	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10042	A	V<3km/h Train Lines Check continuity between END1 90XR15 pin 29 END2 90XP25 pin 29		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10043	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10044	A	Door Auth Left Train Lines Check continuity between END1 90XR15 pin 85 END2 90XP25 pin 85		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10045	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10046	A	Door Auth Right Train Lines Check continuity between END1 90XR15 pin 84 END2 90XP25 pin 84		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10047	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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10048	A	Safety Doors Loop Train Lines Check continuity between END1 90XR15 pin 96 END2 90XP25 pin 96		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10049	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10050	I	Left Side Doors		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10051	A	Put the connector written M3 on connector 90XP15 End 2		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10052	I	Door 1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10053	I	The below signals are now simulated: - Door Auth Left - Door Open Left - V<3km/h		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10054	A	Force [TT] (MPU1)lo_dor_m3opendoorleft = 1.00		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10055	R	Check that the door opens in 3 sec (+1/-0)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10056	R	Check that the GREEN LED on both sides of the door blink while the door opens [Safety Request: Prasa8-05]		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10057	I	Door Opening Gap		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10058	A	Measure the opening gap of the door. (This measurement must be done at the BOTTOM of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10059	R	Door 1 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1399	Tebogo Mtombeni 529938 10.11.2025	M3
10060	A	Measure the opening gap of the door. (This measurement must be done at the top of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10061	R	Door 1 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1408	Tebogo Mtombeni 529938 10.11.2025	M3
10062	A	Measure the opening gap of the door. (This measurement must be done in the middle of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10063	R	Door 1 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1404	Tebogo Mtombeni 529938 10.11.2025	M3
10064	I	Door 3		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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10065	A	Measure the opening gap of the door. (This measurement must be done at the BOTTOM of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10066	R	Door 3 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1391	Tebogo Mtombeni 529938 10.11.2025	M3
10067	A	Measure the opening gap of the door. (This measurement must be done at the top of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10068	R	Door 3 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1408	Tebogo Mtombeni 529938 10.11.2025	M3
10069	A	Measure the opening gap of the door. (This measurement must be done in the middle of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10070	R	Door 3 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1403	Tebogo Mtombeni 529938 10.11.2025	M3
10071	I	Door 5		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10072	I	Door Opening Gap		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10073	A	Measure the opening gap of the door. (This measurement must be done at the BOTTOM of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10074	R	Door 5 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1401.4	Tebogo Mtombeni 529938 10.11.2025	M3
10075	A	Measure the opening gap of the door. (This measurement must be done at the top of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10076	R	Door 5 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1407.8	Tebogo Mtombeni 529938 10.11.2025	M3
10077	A	Measure the opening gap of the door. (This measurement must be done in the middle of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10078	R	Door 5 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1404.7	Tebogo Mtombeni 529938 10.11.2025	M3
10079	I	Right Side Doors		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10080	I	Keep the connector on 90XP15 End 2		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10081	I	Door 2		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10082	I	The below signals remain simulated: - Door Auth Right - Door Open Right - V<3km/h		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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10083	A	Force [TT] (MPU1)lo_dor_m3opendoorright = 1.00		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10084	R	Check that the door opens in 3 sec (+1/-0)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10085	R	Check that the GREEN LED on both sides of the door blink while the door opens. [Safety Request: Prasa8-05]		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10086	I	Door Opening Gap		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10087	A	Measure the opening gap of the door. (This measurement must be done at the BOTTOM of the door).		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10088	R	Door 2 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1402.4	Tebogo Mtombeni 529938 10.11.2025	M3
10089	A	Measure the opening gap of the door. (This measurement must be done at the top of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10090	R	Door 2 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1409.7	Tebogo Mtombeni 529938 10.11.2025	M3
10091	A	Measure the opening gap of the door. (This measurement must be done in the middle of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10092	R	Door 2 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1404.7	Tebogo Mtombeni 529938 10.11.2025	M3
10093	I	Door 4		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10094	I	Door Opening Gap		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10095	A	Measure the opening gap of the door. (This measurement must be done at the BOTTOM of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10096	R	Door 4 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1398.7	Tebogo Mtombeni 529938 10.11.2025	M3
10097	A	Measure the opening gap of the door. (This measurement must be done at the top of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10098	R	Door 4 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1406.8	Tebogo Mtombeni 529938 10.11.2025	M3
10099	A	Measure the opening gap of the door. (This measurement must be done in the middle of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10100	R	Door 4 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1403.5	Tebogo Mtombeni 529938 10.11.2025	M3

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10101	I	Door 6		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10102	I	Door Opening Gap		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10103	A	Measure the opening gap of the door. (This measurement must be done at the BOTTOM of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10104	R	Door 6 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1397.8	Tebogo Mtombeni 529938 10.11.2025	M3
10105	A	Measure the opening gap of the door. (This measurement must be done at the top of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10106	R	Door 6 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1407.8	Tebogo Mtombeni 529938 10.11.2025	M3
10107	A	Measure the opening gap of the door. (This measurement must be done in the middle of the door)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10108	R	Door 6 gapResult Min/Max : 1390<= x <= 1410 (mm)		OK	1405.1	Tebogo Mtombeni 529938 10.11.2025	M3
10109	I	Obstacle Detection		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10110	A	Position an obstacle on the floor in the centre of the door closing line for all the doors		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10111	A	Force [TT] (MPU1)lo_dor_m3opendoorleft = 0		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10112	A	Force [TT] (MPU1)lo_dor_m3opendoorright = 0		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10113	R	The doors will hit the obstacle, reopen and try to close again 3 times. On the third attempt it will stop and stand ajar - free to be opened manually		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10114	A	Safety Doors Loop Train Lines Check continuity between END1 90XR15 pin 96 END2 90XP25 pin 96		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10115	R	There is no continuity between the two points		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10116	A	Force [TT] (MPU1)lo_dor_m3opendoorleft = 1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10117	A	Force [TT] (MPU1)lo_dor_m3opendoorright = 1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10118	R	The door opens fully		OK		Tebogo Mtombeni 529938	M3

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						10.11.2025	
10119	A	Remove the obstacle		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10120	A	Release [TT] (MPU1)lo_dor_m3opendoorleft		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10121	A	Release [TT] (MPU1)lo_dor_m3opendoorright		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10122	A	Remove the connector from 90XP15 End 2.		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10123	I	End of Test.		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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Section 13 – HVAC Air Condition

13.1 Instructions list

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13.1.1 HVAC_TK

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

N°	Type	Instruction	File	Result status	Result value	Operator	Vehicle
10001	I	Air Conditioning (SPP=057)		NE			M3
10002	I	Initial conditions		NE			M3
10003	A	Car Should be Prepared		NE			M3
10004	I	Power Supply		NE			M3
10005	A	Close Circuit Breaker 57Q1		NE			M3
10006	A	Close Circuit Breaker 57Q2		NE			M3
10007	I	HVAC Electronic Power Supply		NE			M3
10008	A	Close Circuit Breaker F1 on the HVAC Panel		NE			M3
10009	I	The HVAC electronic is ON		NE			M3
10010	A	Turn the control switch to AUTO position on the HVAC Panel		NE			M3
10011	I	Software Upload		NE			M3
10012	I	Follow the procedure in the document below to upload software onto the HVAC electronic		NE			M3
10013	A			NE			M3
10014	I	Checking 400Vac		NE			M3
10015	A	Ensure that the 400Vac Shore Supply is connected to the vehicle, else connect it		NE			M3

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10016	A	Disconnect connector 57XP4__X5 and use a multimeter to measure 400Vac between phases a1, a2 and b1		NE			M3
10017	R	400Vac (+-5%) measured		NE			M3
10018	A	On the same connector, with a phasemeter, check the correct Phase Rotation between points L1- Phase a1, L2- Phase a2 and L3- Phase b1.		NE			M3
10019	R	The phase rotation is correct between all three phases		NE			M3
10020	A	Normalize connector 57XP4__X5		NE			M3
10021	I	HVAC 50% restriction		NE			M3
10022	A	Force [TT] NRG_HvacM350Cmd = 0		NE			M3
10023	I	HVAC inhib		NE			M3
10024	A	Force [TT] (MPU1)Io_hva_m3hvacinhibr1___1 = 1		NE			M3
10025	A	Force [TT] (MPU1)Io_hva_m3hvacinhibr2___1 = 1		NE			M3
10026	R	HVAC unit turns ON and starts to work		NE			M3
10027	I	Emergency Ventilation		NE			M3
10028	A	Force [TT] (MPU1)Io_hva_m3emergventil___1 = 1		NE			M3
10029	I	All saloon HVAC units work in Ventilation mode. Not heating/cooling		NE			M3
10030	A	Connect the laptop to the HVAC maintenance software using HCU Finder and check the actual working mode of HVAC		NE			M3
10031	R	Release [TT] (MPU1)Io_hva_m3emergventil___1		NE			M3
10032	I	Forced Mode (Saloon HVAC)		NE			M3

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10033	I	In the maintenance software, select the 'Forced' tab, and use the "Required working mode" drop down box to force the following modes:		NE			M3
10034	I	For the next sections, walk through the whole car and physically check (feel) that the HVAC is functioning as desired		NE			M3
10035	A	Force Ventilation mode on the Saloon HVAC		NE			M3
10036	I	Ventilation Mode		NE			M3
10037	R	All saloon HVAC units work in Ventilation mode. Not heating/cooling		NE			M3
10038	I	Cooling Mode		NE			M3
10039	A	Force Cooling mode on the Saloon HVAC		NE			M3
10040	R	All saloon HVAC units work in Cooling mode		NE			M3
10041	I	Heating Mode		NE			M3
10042	A	Force Heating mode on the Saloon HVAC		NE			M3
10043	R	All saloon HVAC units work in Heating mode		NE			M3
10044	I	Self-Test		NE			M3
10045	A	Force Self-Test on the Saloon HVAC		NE			M3
10046	R	All saloon HVAC units work according to the mode described in the "Actual working mode"		NE			M3
10047	R	The Exhaust fans are Turned OFF		NE			M3
10048	I	HVAC Faults		NE			M3
10049	A	In the maintenance software, select the "Alarms / Warnings" tab		NE			M3
10050	A	Ensure there are no active faults on the HVAC		NE			M3

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10051	R	No active faults identified on the HVAC unit		NE			M3
10052	A	Release [TT] (MPU1) lo_hva_m3hvacinhibr1___1		NE			M3
10053	A	Release [TT] (MPU1) lo_hva_m3hvacinhibr2___1		NE			M3
10054	A	Release [TT] NRG_HvacM350Cmd		NE			M3
10055	I	End of Test		NE			M3

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13.1.2 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		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10002	I	Initial conditions		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10003	A	Car Should be Prepared with CVS running and 400V ac available in the car		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10004	I	HVAC AC Power Supply		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10005	A	Close Circuit Breaker 13Q1 and 13Q5		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10006	A	Check on the DDU if the HVAC is offline		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10007	I	Checking 400Vac		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10008	A	Close Circuit Breaker 57Q1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10009	A	Disconnect connector 57XP4_X5 and Measure 400Vac between all 3 phases which are a1- phase L1, a2- Phase L2 and b1- phase L3 of connector 57XP4_X5		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10010	R	400Vac measured between all phases		OK		Tebogo Mtombeni 529938 10.11.2025	M3
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.		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10012	R	The phase rotation is correct between all three phases		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10013	A	normalize connector 57XP4_X5		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10014	I	HVAC Controller power supply		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10015	A	Close Circuit Breaker 57Q2		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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10016	A	Allow the HVAC to initialize and check on the DDU if the HVAC is online		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10017	R	HVAC unit is online and starts to work		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10018	I	HVAC inhib		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10019	A	Force [TT] (MPU1)lo_hva_m3hvacinhibr1___1 = 1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10020	A	Force [TT] (MPU1)lo_hva_m3hvacinhibr2___1 = 1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10021	I	HVAC 50% restriction		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10022	A	Force [TT] NRG_HvacM350Cmd = 0		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10023	I	Saloon HVAC		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10024	I	HVAC web portal		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10025	A	The attached document is a procedure on how to navigate around the maintenance software.		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10026	I	Connect the laptop to the HVAC maintenance software using web browser. Enter the following IP address on the web browser 10.136.xxx.31 xxx represents the train number Login: maint Password: maint		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10027	R	On status tab, Active mode is off for both cab and saloon		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10028	A	Go to Alarms tab and clear all the alarms for saloon and cabin		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10029	I	HAVC saloon		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10030	I	Full "Self-test" saloon		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10031	I	For the following tests make sure on the webHMI tab you change controller to be controlled by webHMI and not MPU		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10032	A	Before running the full test, please click on reset test to reset the previous results.		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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10033	A	Select Full-Test on the Saloon HVAC		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10034	R	All saloon HVAC units work according to the mode described in the "ACTIVE MODE" on the status tab		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10035	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.		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10036	I	Forced Mode (Saloon HVAC)		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10037	I	During all tests Walk through the whole car and physically check (feel) that the HVAC is functioning as desired		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10038	I	Go to maintenance tab to force the following modes		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10039	I	Cooling Mode		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10040	A	Select forced Cooling mode on the Saloon HVAC and let it run for 5 mins		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10041	R	All HVAC units are cooling		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10042	I	Heating Mode		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10043	A	Select forced Heating mode on the Saloon HVAC and let it run for 5 mins		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10044	R	All HVAC units are heating		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10045	I	HVAC Faults		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10046	A	In the maintenance software, select the "Alarms" tab		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10047	A	Ensure there are no active faults on the HVAC for the Saloon. Use the highlighted drop down to navigate between saloon and cabin.		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10048	R	No active faults identified on the HVAC unit		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10049	A	Release [TT] (MPU1) lo_hva_m3hvacinhibr1___1		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10050	A	Release [TT] (MPU1) lo_hva_m3hvacinhibr2___1		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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10051	A	Release [TT] NRG_HvacM350Cmd		OK		Tebogo Mtombeni 529938 10.11.2025	M3
10052	I	End of test		OK		Tebogo Mtombeni 529938 10.11.2025	M3

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Section 14 – Fire protection

14.1 Instructions list

14.1.1 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		Mpumelelo Sithole 529980 10.11.2025	M3
10002	I	Fire Detection Train Lines		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10003	A	Fire Detection Train Lines Check continuity between END1 90XR14 pin 21 END2 90XP24 pin 21		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10004	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10005	I	Continuity Test		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10006	I	The following steps are continuity tests between the two points described in each step. Use a multimeter for this test.		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10007	A	From : [(local: +END1 -90XR13.B (pin 4))] to: [-Inter-connector (local: +END2 -90XP23.b pin 4)]		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10008	A	From : [(local: +END1 -90XR13.B (pin 5))] to: [-Inter-connector (local: +END2 -90XP23.b pin 5)]		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10009	A	From : [(local: +END1 -90XR13.A (pin 7))] to: [-Inter-connector (local: +END2 -90XP23.a pin 7)]		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10010	A	From : [(local: +END1 -90XR13.A (pin 8))] to: [-Inter-connector (local: +END2 -90XP23.a pin 8)]		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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10011	I	END OF TEST		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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Section 15 – Traction and Electric Brake

15.1 Instructions list

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15.1.1 Traction and Electric Brake

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

N°	Type	Instruction	File	Result status	Result value	Operator	Vehicle
10001	I	Traction and Electric Brake (SPP=033)		OK		Celiwe Sokhela 491462 10.11.2025	M3
10002	I	Circuit Breakers and Configuration		OK		Celiwe Sokhela 491462 10.11.2025	M3
10003	A	Close Circuit Breaker 33Q2		OK		Celiwe Sokhela 491462 10.11.2025	M3
10004	A	Close Circuit Breaker 33Q4		OK		Celiwe Sokhela 491462 10.11.2025	M3
10005	A	Close Circuit Breaker 33Q5		OK		Celiwe Sokhela 491462 10.11.2025	M3
10006	I	Circuit Breaker 33Q1 and 33Q3 must be Opened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10007	A	110Vdc Normal Traction EL Train Line Put the connector written M3 on 90XP15 End2		OK		Celiwe Sokhela 491462 10.11.2025	M3
10008	A	Close Circuit Breaker 33Q1		OK		Celiwe Sokhela 491462 10.11.2025	M3
10009	A	Close Circuit Breaker 33Q3		OK		Celiwe Sokhela 491462 10.11.2025	M3
10010	R	Read Defined Variable [TT] (TBCU3)LI_CAR_ID3 = 1.00		OK	1	Celiwe Sokhela 491462 10.11.2025	M3
10011	I	The TBCU should appear on TCMS network on DDU screen		OK		Celiwe Sokhela 491462 10.11.2025	M3
10012	I	Train Lines		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10013	A	Forward Train Lines Check continuity between END1 90XR15 pin 25 END2 90XP25 pin 25		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10014	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10015	A	Reverse Train Lines Check continuity between		OK		Mpumelelo Sithole 529980 10.11.2025	M3

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		END1 90XR15 pin 30 END2 90XP25 pin 30					
10016	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10017	A	Traction Train Lines Check continuity between END1 90XR15 pin 31 END2 90XP25 pin 31		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10018	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10019	A	No Brake Train Lines Check continuity between END1 90XR15 pin 32 END2 90XP25 pin 32		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10020	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10021	A	Traction Interlock Bypass Train Lines Check continuity between END1 90XR14 pin 6 END2 90XP24 pin 6		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10022	R	Both points are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10023	A	Traction Interlock Train Lines Check continuity between END1 90XR15 pin 41 END2 90XP25 pin 41 and -10XP12_XCB2 pin 8		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10024	R	All pins are continuous		OK		Mpumelelo Sithole 529980 10.11.2025	M3
10025	A	110Vdc Normal Traction EL Train Line Remove the connector from 90XP15 End 2		OK		Celiwe Sokhela 491462 10.11.2025	M3
10026	I	Coolant Liquid		OK		Celiwe Sokhela 491462 10.11.2025	M3
10027	A	Check that the coolant level is atleast 1/2 of the sight glass level indicator ***[12-42-59-277668_277624_Coolant Level Check.pdf]***		OK		Celiwe Sokhela 491462 10.11.2025	M3
10028	R	Coolant Liquid Level is OK		OK		Celiwe Sokhela 491462 10.11.2025	M3
10029	I	End of Test		OK		Celiwe Sokhela 491462 10.11.2025	M3

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Section 16 – Vehicle Normalization

16.1 Instructions list

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16.1.1 Vehicle Normalization

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

N°	Type	Instruction	File	Result status	Result value	Operator	Vehicle
10001	R	On LV3 all Connectors are tightened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10002	I	Initial Conditions		OK		Celiwe Sokhela 491462 10.11.2025	M3
10003	I	The VFT procedures are all completed		OK		Celiwe Sokhela 491462 10.11.2025	M3
10004	I	Vehicle Normalization Check		OK		Celiwe Sokhela 491462 10.11.2025	M3
10005	R	On LV3 all Circuit Breakers are installed and secured		OK		Celiwe Sokhela 491462 10.11.2025	M3
10006	R	On LV3 all Dataplugs are installed, tightened and earth braids are fastened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10007	R	On LV3 there are no missing components, device, wiring or connectors.		OK		Celiwe Sokhela 491462 10.11.2025	M3
10008	R	On LV6 all Dataplugs are installed, tightened and earth braids are fastened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10009	R	On LV6 all Connectors are tightened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10010	R	On LV6 there are no missing components, device, wiring or connectors.		OK		Celiwe Sokhela 491462 10.11.2025	M3
10011	R	On HC Cubicle the Controller is installed and properly tightened and its connectors are tightened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10012	R	All DCUs are properly installed and secured		OK		Celiwe Sokhela 491462 10.11.2025	M3
10013	R	All Internal Displays are properly installed and secured		OK		Celiwe Sokhela 491462 10.11.2025	M3
10014	R	All Light Covers are properly installed		OK		Celiwe Sokhela 491462 10.11.2025	M3
10015	R	All Saloon Fire Detectors are properly installed and secured		OK		Celiwe Sokhela 491462 10.11.2025	M3
10016	R	All covers are normalised inside the car		OK		Celiwe Sokhela 491462 10.11.2025	M3

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10017	R	On the Underframe, TBCU Agate is installed and properly tightened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10018	R	On the Underframe, Speed Sensors are installed and properly tightened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10019	R	On the LVB, all Circuit Breakers are installed and properly tightened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10020	R	On the LVB, all Relays and Timers are installed and properly tightened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10021	R	On the LVB, BRIOMs are installed and properly tightened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10022	R	On the LVB there are no missing components, device, wiring or connectors.		OK		Celiwe Sokhela 491462 10.11.2025	M3
10023	R	On the Underframe, all Connectors are tightened		OK		Celiwe Sokhela 491462 10.11.2025	M3
10024	R	All underframe covers are normalised		OK		Celiwe Sokhela 491462 10.11.2025	M3
10025	R	On END1 the Octopus cables are disconnected from the car and properly stored.		OK		Celiwe Sokhela 491462 10.11.2025	M3
10026	R	On END2 the Octopus cables are disconnected from the car and properly stored.		OK		Celiwe Sokhela 491462 10.11.2025	M3
10027	R	The Test Bench is switched OFF, and the Octopus cables are disconnected and properly stored		OK		Celiwe Sokhela 491462 10.11.2025	M3
10028	R	ALL P.Os of this car are closed		OK		Sinazo Mkhwa 529940 15.11.2025	M3
10029	I	End Of Test		OK		Celiwe Sokhela 491462 10.11.2025	M3

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Section 17 – Report summaries

17.1 Results status

Test Instruction Sheet	Compliant	Incomplete	Non-compliant
Energy Distribution	X		
TCMS Network	X		
Cabin Control	X		
Internal Lighting	X		
PACIS System	X		
Train Ground Communication	X		
Rescue Mode and Emergency Disconnection	X		
Emergency Brake	X		
Service Brake	X		
Holding and Parking Brake	X		
HVAC Air Condition	X		
Fire protection	X		
Traction and Electric Brake	X		
Passenger Doors	X		
Vehicle Normalization	X		

17.2 Tools used

Function	Tool name	Tool number	Next Calibration date
015_NRG	Phasemeter	Phasemeter	11/30/2025
054_PIS	Multimeter	Multimeter 2	9/30/2026
057_HVA_SME	Phasemeter	Phasemeter	11/30/2025
062_ETS	Multimeter	Multimeter 6	9/30/2026
067_FSD	Multimeter	Multimeter 5	9/30/2026

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