Battery Electric Vehicle (BEV) Post Programing Faults

After module programing, faults may become active and require additional calibrations or programming.

Resolutions to Faults After Programming.

HPCU

When the HPCU is programmed, you can get the below active fault:

a. U031B00 - DC/DC Converters, Hardware-Software Incompatibility

i. You then have to run routine 3223-22-03-01 Program DC/DC Control unit (DCU) to get the fault to go Inactive.

PCM

When the PCM is programmed, you can get the below active faults:

a. P100B54 - Transmission Fork Position Sensor – Missing Calibration

i. You have to run Calibration routine 4314-07-03-01 Trans Fork Position Sensor Calibration to get fault to go inactive.

1. When you do this then you get an active fault for HPCU P1021-54 Hybrid/EV drive motor “A”, speed sensor calibration

a. You have then run calibration routine 3241-05-03-01 Resolver Angle, Electric Motor to get the fault to go inactive.

b. U031100 - Software Incompatibility with Hybrid/EV Subnet Node

i. You have to run routine 3241-05-03-02 Program Motor Control Unit (MCU) to get the fault to go inactive.

When you program the SDM you can get the below active faults:

a. B100454 HVAC Control Panel Missing Calibration

i. You then have to run calibration routine 8719-07-03-01 HVAC Control Panel to get the fault to go inactive

b. C101B54 Cooling Circuit Three Way Valve, Missing calibration

i. You have to run calibration routine 3690-07-03-01 Cooling circuit three-way valve to get fault to go inactive

ESCM

When you program the ESCM you can get the below active faults:

a. U033A00 – Software Incompatibility with Hybrid/EV Battery Interface Control Module “A”
b. P2C8A87 – Hybrid/EV Battery Interface Control Module “A” – Missing Message
c. P2C8B87 - Hybrid/EV Battery Interface Control Module “B” – Missing Message
d. U357787 - Hybrid/EV Battery Interface Control Module “C” – Missing Message
e. U357887 - Hybrid/EV Battery Interface Control Module “D” – Missing Message

i. This can all be correct by programming routine 3681-22-01-01 – Program Battery Management Unit (BMU)

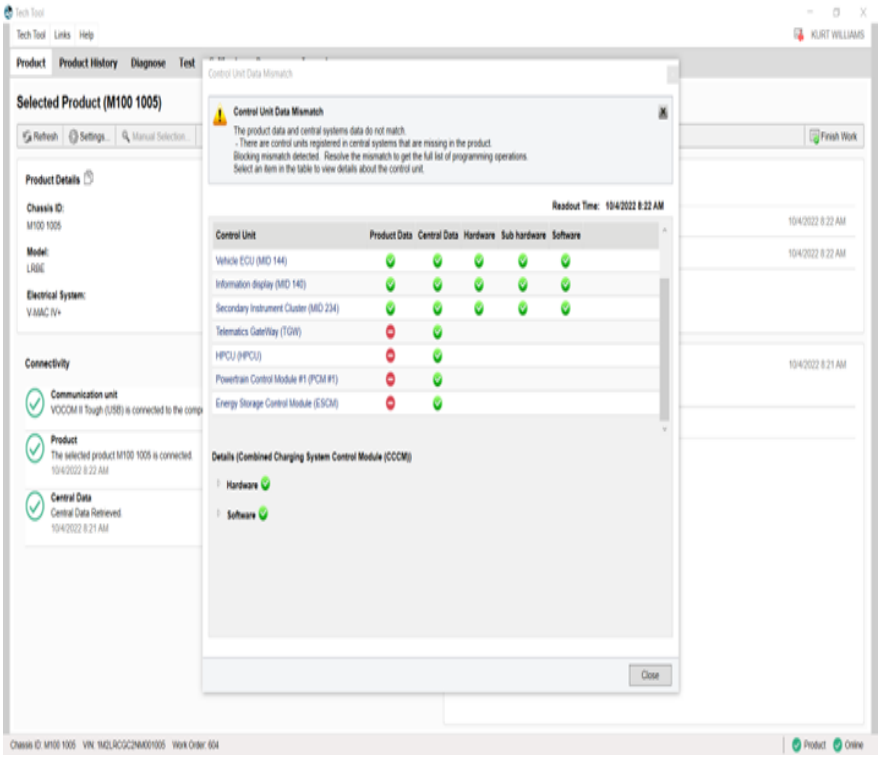
We see a lot of data mismatches, and this has to do with the TEA2+ ECU’s not reporting to the tool.

a. This can be corrected if hooking TT to the truck follows the below process:

i. Turn truck ON and let everything power up
ii. Start TT on PC, Login and get to home screen
iii. Connect communication box to computer
iv. Connect to truck
v. TT should then identify product and mis-matches like shown below should not happen.

b. If there are still issue they may have to disconnect from product

i. Clear the chassis from their recent selections and try again.



Tags

bev mack volvo u031b00 p100b54

u031100 b100454 c101b54 u033a00

p2c8a87 p2c8b87 u357787 u357887

data mismatch data mis-match

Categories *

Make and Model > Mack > LR Electric

Make and Model > Volvo > VNR Electric

Vehicle System > Control Systems

Live UI

Related links and attachments

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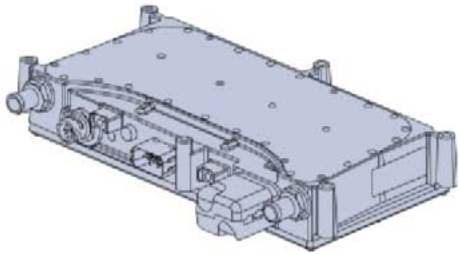
Live UI



3223-22-03-01 Program DC/DC Control unit (DCU)

Simulation

Information >> Conditions >> Execution

Purpose

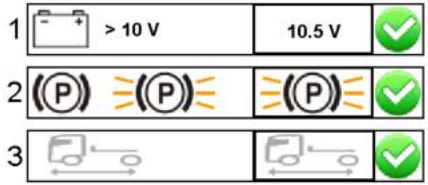
Program DC/DC Control unit (DCU)

Description

HPCU determines which subnodes require software update and programs them with software stored in its memory

Note: Before starting this operation ensure that the latest software is installed in **HPCU**

Continue > Cancel



3223-22-03-01 Program DC/DC Control unit (DCU)

Simulation

Information >> **Conditions** >> Execution

Automatically checked conditions

1 Battery voltage above 10 V
2 Parking brake applied
3 Driveline Inactive

Continue > Cancel

0%

Start the programming

3223-22-03-01 Program DC/DC Control unit (DCU)

Simulation

Information >> Conditions >> **Execution**

Information

The following subnodes will be programmed

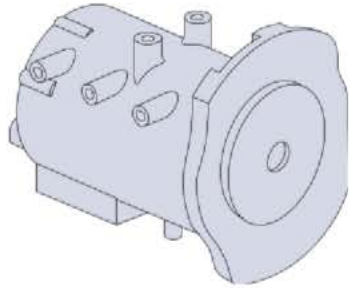
- DC/DC Control unit (DCU) 1

Programming of each subnode will take around 3 minutes

Action

Start the programming

Continue >



3241-05-03-01 Resolver Angle, Electric Motor

Simulation

Information >> Conditions >> Execution >> Result

Purpose

Calibration of the resolver angle offset for the electric motor in the electric powertrain

Description

During this operation, the selector fork position is first calibrated to prepare the system

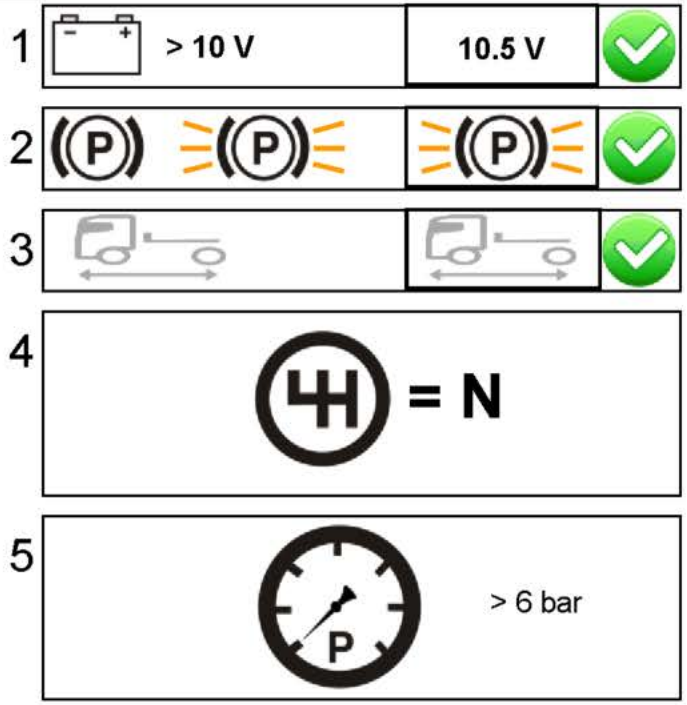
Then the offset angle of the resolver is calibrated to improve its accuracy and to secure the correct function of the electric motor

The calibration shall be performed if:

- Electric motor or electric motor drive has been replaced
- Electric motor drive has been programmed
- The DTC indicates that a calibration must be carried out

Continue >

Cancel



3241-05-03-01 Resolver Angle, Electric Motor

Simulation

Information >> **Conditions** >> Execution >> Result

Automatically checked conditions

1 Battery voltage above 10 V
2 Parking brake applied
3 Driveline Inactive

Manual conditions

4 Gear selector in neutral position
5 Air pressure above 6 bar

Note: The calibration will start when Continue is selected

Confirmed

Continue > Cancel

3241-05-03-01 Resolver Angle, Electric Motor

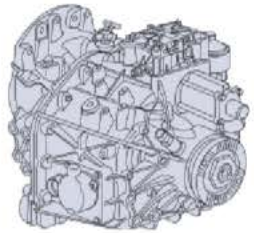
Simulation

Action

1 Gear selector fork calibration
2 Turn ignition key to start position
3 Resolver Angle calibration
4 Turn the ignition key to OFF position

1

Gear selector fork calibration



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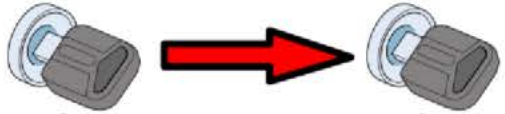
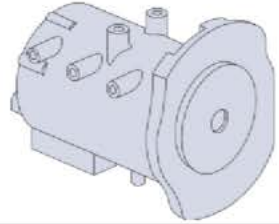


3

Resolver Angle calibration



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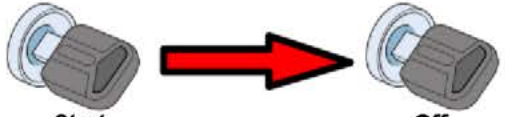
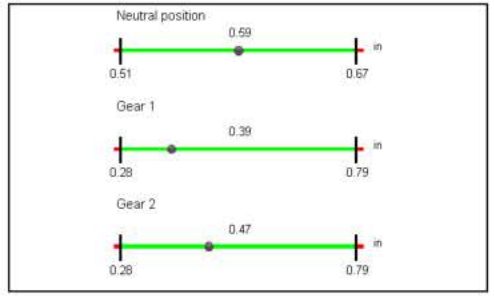


Detailed information

1



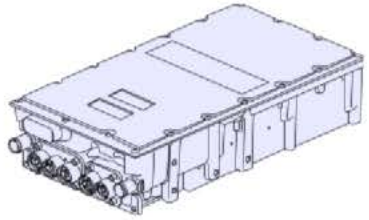
3241-05-03-01 Resolver Angle, Electric Motor

Simulation

Result

Calibration successful

Note: After calibration, turn the main switch OFF to reset the control units



3241-05-03-02 Program Motor Control Unit (MCU)

Simulation

Information >> Conditions >> Execution

Purpose

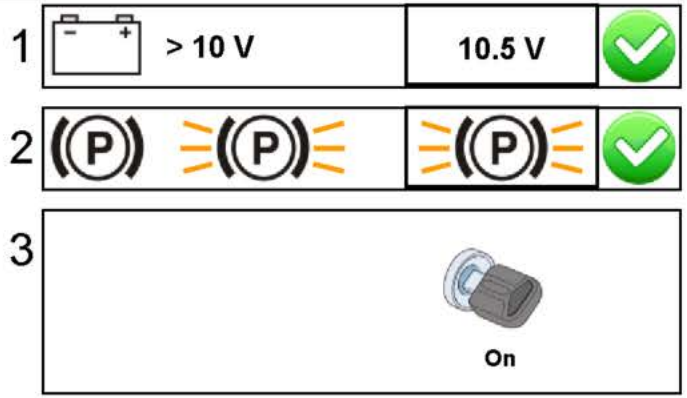
Program Motor Control Unit (MCU)

Description

PCM determines which subnodes require software update and programs them with software stored in its memory

Note: Before starting this operation ensure that the latest software is installed in **PCM**

Continue > Cancel



3241-05-03-02 Program Motor Control Unit (MCU)

Simulation

Information >> **Conditions** >> Execution

Automatically checked conditions

1 Battery voltage above 10 V
2 Parking brake applied

Manual conditions

3 The driveline is inactive. Ignition key in **ON** position

☑ Confirmed

Continue > Cancel

0%

Start the programming

3241-05-03-02 Program Motor Control Unit (MCU)

Simulation

Information >> Conditions >> **Execution**

Information

The following subnodes will be programmed

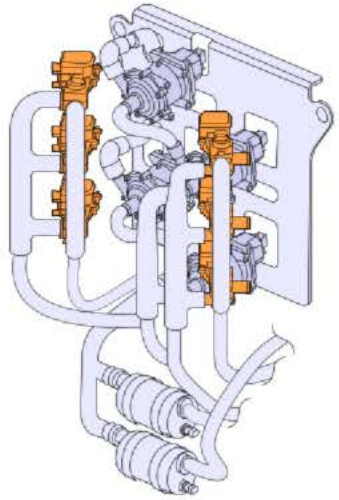
- Motor Control Unit 1

Programming of each subnode will take around 4 minutes

Action

Start the programming

Continue >



3690-07-03-01 Cooling circuit three-way valve

Simulation

Information >> Conditions >> Execution >> Result

Purpose

Calibrate all six electric cooling circuit three-way valves when the **EVCM** or one or more valves has been replaced or repositioned

Description

EVCM moves the valves to their end positions and stores the measured voltage value for each valve position for all six valve assemblies

Continue >

Cancel

3690-07-03-01 Cooling circuit three-way valve

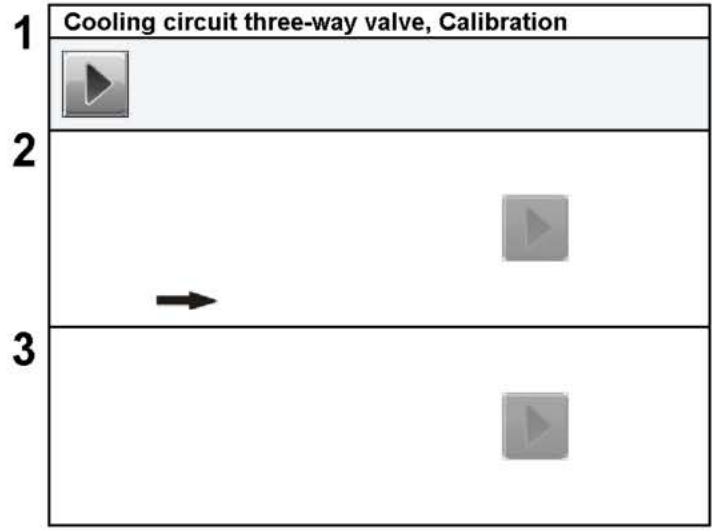
Simulation

Information >> **Conditions** >> Execution >> Result

Automatically checked conditions

1 Ignition key in **ON** position. Driveline Inactive
2 Battery voltage above 10 V

Continue > Cancel



3690-07-03-01 Cooling circuit three-way valve

Simulation

Information >> Conditions >> **Execution** >> Result

Action

1 Press the play button to start the calibration
2 Remove key from the key switch. Set the chassis switch in the position 1.
Then select the play button, wait 20s
3 Set the chassis switch in the position 2. Put the key in Ignition ON position.
Then select the play button

Note: The calibration takes approximately 5 minutes

Continue >

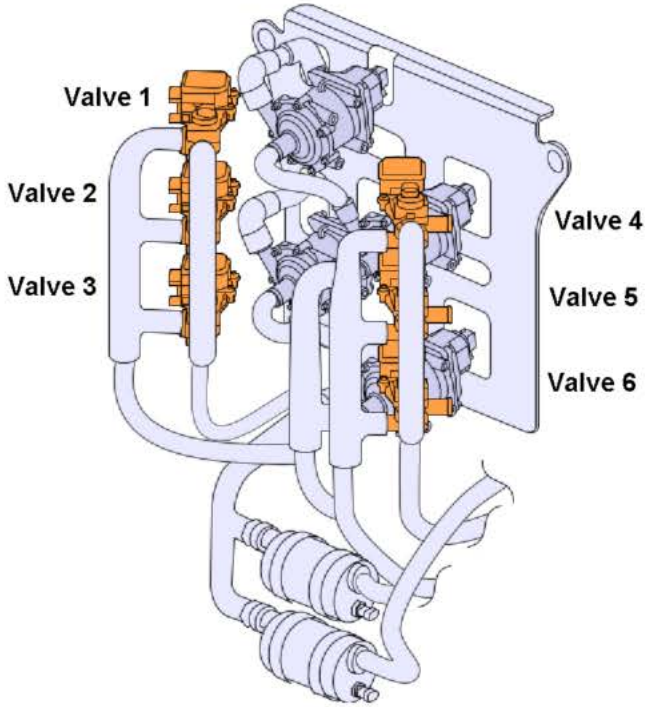
3690-07-03-01 Cooling circuit three-way valve

Simulation

Information >> Conditions >> Execution >> **Result**

Result

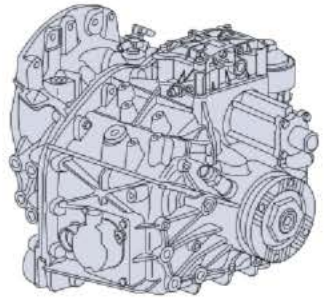
Calibration successful



Valve 1	✓	Valve 4	✓
Valve 2	✓	Valve 5	✓
Valve 3	✓	Valve 6	✓

Icon	Description
✓	Calibration successful
✗	Calibration unsuccessful
⊖	The calibration was not performed

Continue >



4314-07-03-01 Gear selector fork

Simulation

Information >> Conditions >> Execution >> Result

Purpose

Calibrate Gear selector fork 1/2

Description

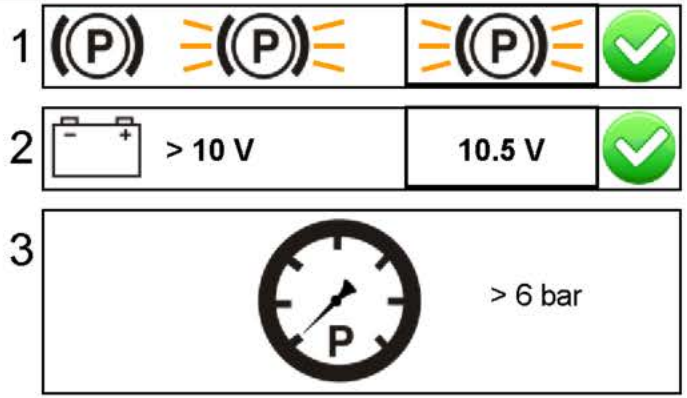
Calibration of the shift fork for the two speed gearbox

The shift fork is shifted to all positions and the neutral position is stored as the calibrated one

Note: Fault codes related to Sensors/Valves present in the system should be repaired and cleared before the start of operation

Continue >

Cancel



4314-07-03-01 Gear selector fork

Simulation

Information >> **Conditions** >> Execution >> Result

Automatically checked conditions

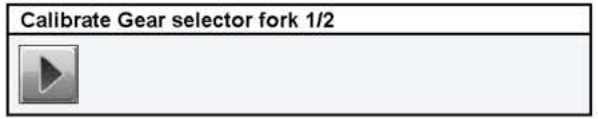
1 Parking brake applied
2 Battery voltage above 10 V

Manual conditions

3 Air pressure above 6 bar

☐ Confirmed

Continue > Cancel



4314-07-03-01 Gear selector fork

Simulation

Information >> Conditions >> **Execution** >> Result

Action

Press the play button to start the calibration

Continue >

4314-07-03-01 Gear selector fork

Simulation

Result

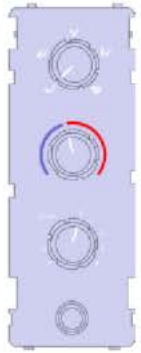
Calibration successful

Test result

Select one of the following alternatives

- (•) OK
- ( ) Not OK

Continue >



Illustrations are used for reference only, may differ slightly from the actual vehicle
The essential information in the illustration is however always correct

8719-07-03-01 HVAC control panel

Simulation

Information >> Conditions >> Execution >> Result

Purpose

Calibrate the **HVAC** control panel rotary switches

Description

The calibration must be performed when:

- The **HVAC** control panel is being installed or replaced
- The temperature potentiometer is drifting
- Electromobility Vehicle Control Module (EVCM) has been replaced or programmed

Continue > Cancel

8719-07-03-01 HVAC control panel

Simulation

Information >> **Conditions** >> Execution >> Result

Automatically checked conditions

1 Battery voltage above 10 V
2 Ignition key in **ON** position. Driveline Inactive

Continue > Cancel

8719-07-03-01 HVAC control panel

Simulation

Action

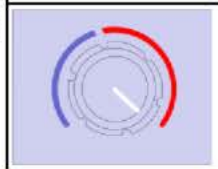
1. Press the play button to start the calibration
2. Set the temperature knob to the coolest temperature (counterclockwise). Then select the play button
3. Set the temperature knob to the hottest temperature (clockwise). Then select the play button
4. Set the blower knob to position 0, then select the play button
5. Set the blower knob to position 4, then select the play button
6. Remove key from the key switch. Set the chassis switch in the position 1. Then select the play button, wait 20 s
7. Set the chassis switch in the position 2. Put the key in Ignition ON position and select the play button

Note: The illustration may not correspond exactly to the selected vehicle.

1 HVAC control panel, Calibration

2

3



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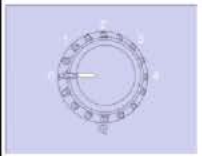

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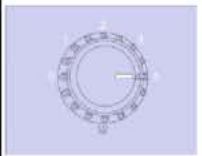

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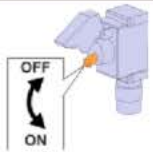

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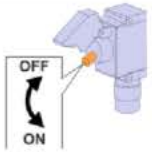

Continue >

8719-07-03-01 HVAC control panel

Simulation

Information >> **Conditions** >> Execution >> Result

Automatically checked conditions

1 Battery voltage above 10 V
2 Ignition key in **ON** position. Driveline Inactive

Continue > Cancel