TECHNICAL SERVICE BULLETIN 28/02/2024

Heavy Commercial Vehicles

Bulletin to be circulated to:	Service Manager	Warranty Manager	Parts Manager	Master Technician	Service Consultant	BMIS
	✓	✓	✓	✓	✓	✓

Subject	Battery Replacement with Midtronics Measurement and SOH Values
Variant	F-MAX vehicles,
Abstract	Deciding for battery replacement by SOH value and Midtronics output on F-MAX vehicles.

Labour:

Labour code	Labour Name	Duration (Hour)
31C022 Q	Battery Replacement	0.5

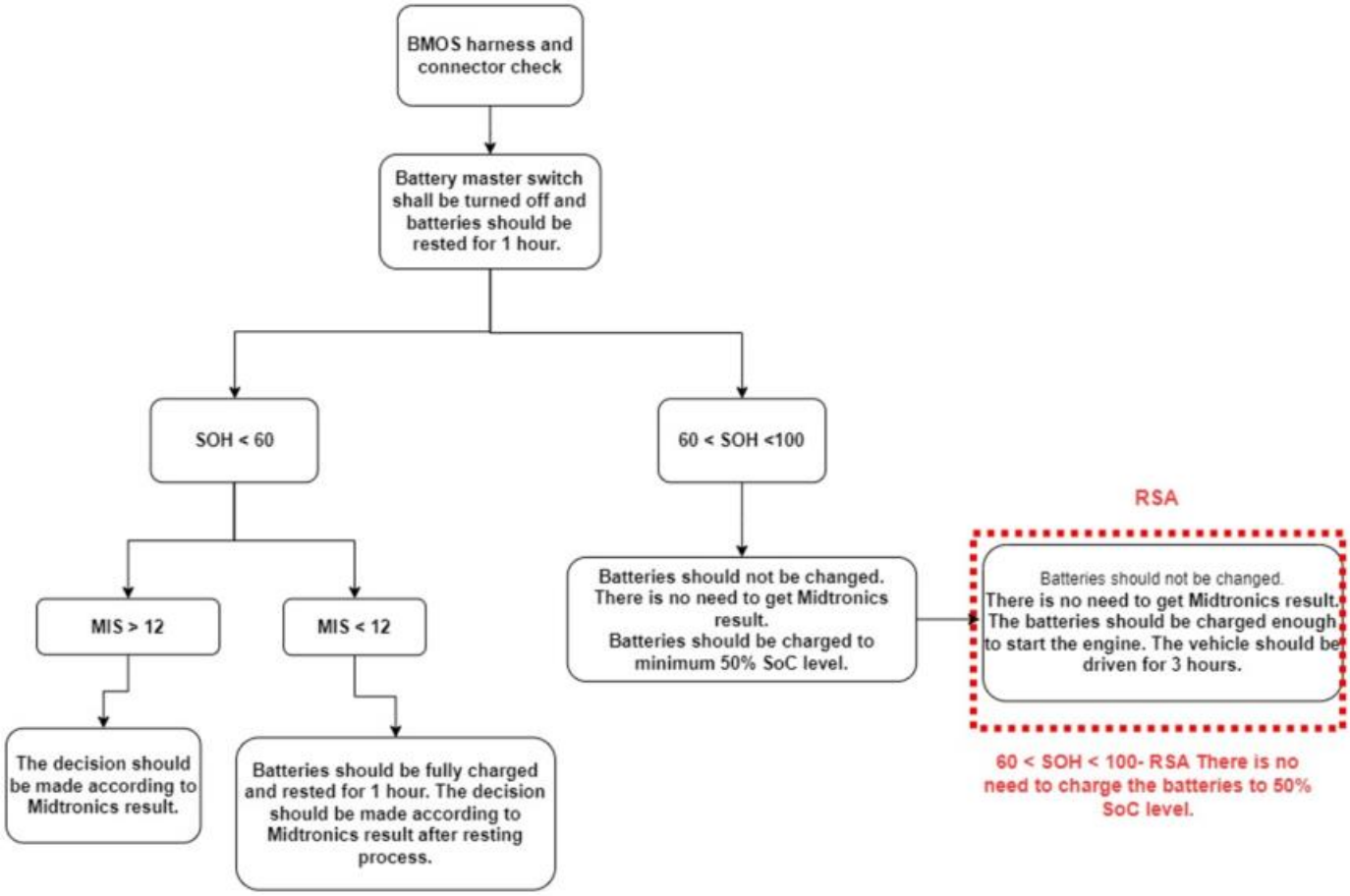
Required Parts:

Part Number	Part Description	Quantity
MC46 10655 AB	Battery (240Ah)	2 pcs
MFCC46 10655 CB	Battery (225Ah)	2 pcs
LC46 10655 AA	Battery (210 Ah)	2 pcs

General Information;

The following operations will **only** be performed on FMAX vehicles that come to the service **with battery problems**. Operations will be carried out according to the SOH and Midtronics guidance specified in the customer complaint.

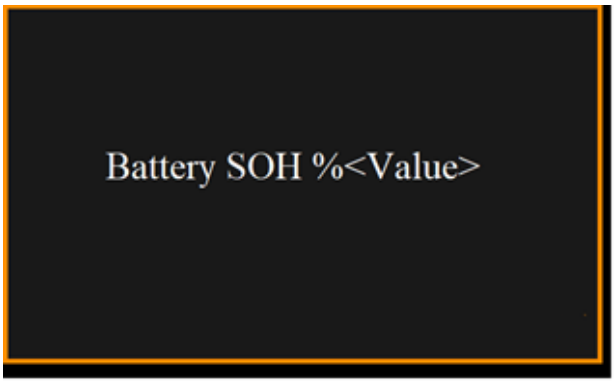
FLOW CHART -1



SOH Value Measurement Process:

1- SOH value should be read after checking the BMOS installation and resting the batteries for 1 hour.
2- Before flashing the module, check the Instrument Cluster(IC) parameters and make sure that the current IC software in the vehicle has a software version older than JC46-14C026-CN.
3- To read SOH value, engine must be started and hazard switch must be activated.
4- The battery information screen must be displayed and the OK button on the steering wheel must be pressed 10 times continuously.

5- After performing the “SOH Value Measurement Processes”, the SOH value will be displayed on the cluster screen.



Battery measurement and replacement decision processes:

IMPORTANT NOTE: The terminals of the batteries must not be disconnected and the BMOS sensor must not be removed before turning the battery switch on and off. The on-off operation of the battery master switch must only be done through the switch.

1- Battery status determination should be started by visually checking the BMOS connector and installation in the vehicle. For BMOS control, the information in the "**BMOS Control Processes"** subject should be taken into consideration. If there is a problem with the BMOS connector or wiring, this error must be resolved first.

2- The time when the batteries are started to rest and the measurement is taken must be photographed and uploaded to the EW system.

3- For vehicles with a SOH value below 60 and more than 12 months after the sale, a Midtronics printout must be obtained. Afterwards, the battery change should be decided according to the Midtronics test result. Midtronics printouts must be uploaded to the EW system.

4- For vehicles with a SOH value below 60 and less than 12 months since the sale, Midtronics printout should be taken after the **batteries are fully charged and rested for 1 hour**. Afterwards, a decision should be made to replace the battery according to the Midtronics test results. Midtronics outputs must be uploaded to the SYS system. Voltage values for 100% charged batteries are shown in the table below.

Part Number	Part Description	100% Charged Open Circuit Voltage
MC46 10655 AB	Battery (240Ah)	25.75 V (at 20°C)
LC46 10655 AA	Battery (210 Ah)	26.1 V (at 20°C)

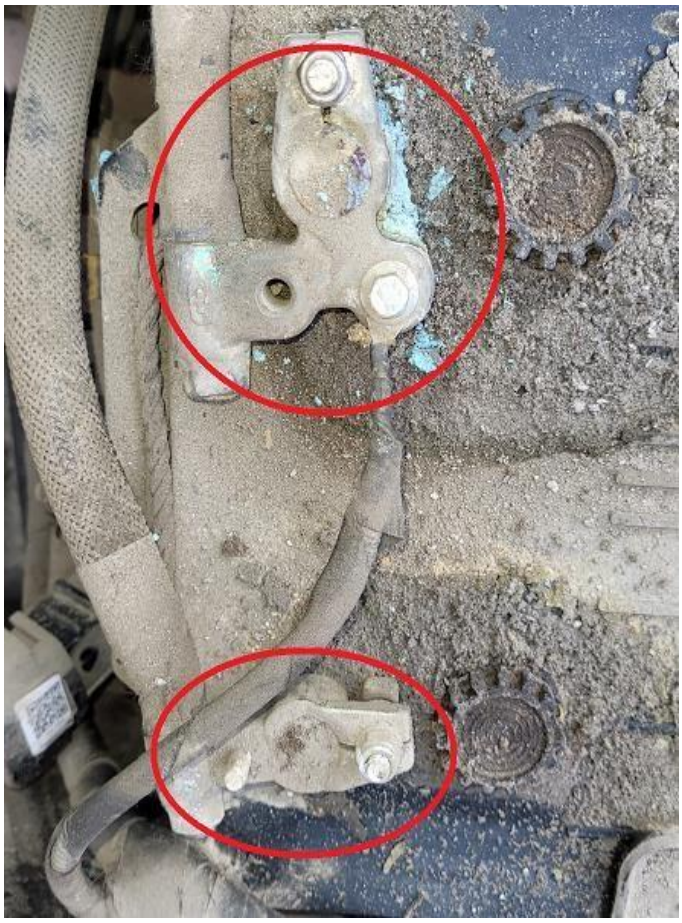
5- **Midtronics printout will not be taken** on vehicles with SOH Value greater than 60. **Battery changes will not be made.** The process must be completed by charging the batteries up to 50%.

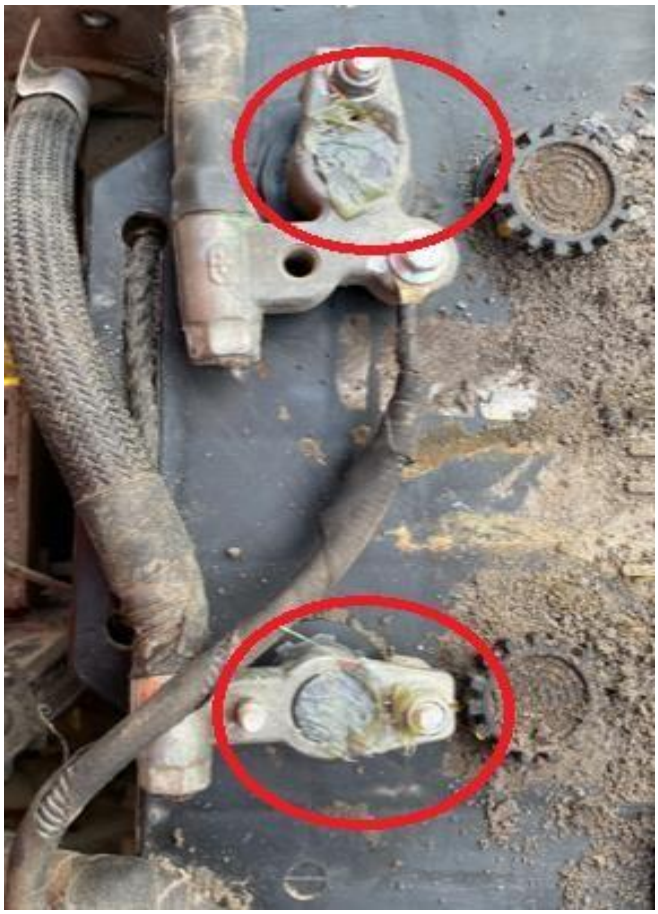
6- **Midtronics printout will not be taken** for vehicles with a SOH value greater than 60 and for which roadside assistance service has been requested. **Battery changes will not be made.** The process must be completed by charging the batteries enough to start the vehicle. The driver must be warned to drive for at least 3 hour.

Battery Terminal Cleaning Procedures:

1- After SOH measurements are taken in vehicles that come to the service due to battery complaints, the battery terminals with oxidation as shown in the photo below should be cleaned with a clean cloth moistened with hot water by removing the battery terminal eyelets (4 battery terminals), and dry with a dry cloth after the cleaning process. After the cleaning process is completed, grease should be applied on the battery terminals as shown in the below images.

NOT: Battery terminal cleaning operations must be performed after reading the SOH value.





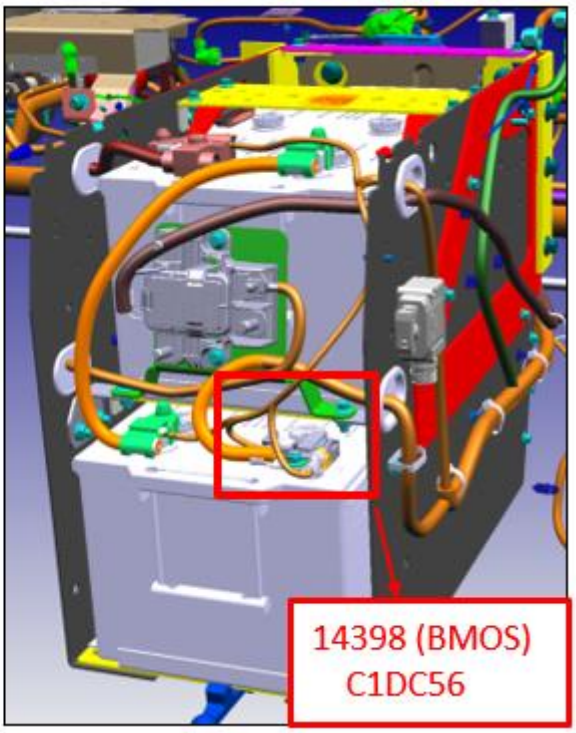
Battery Parameter Update Processes:

1- If there is 210 Ah battery with part number LC46-10655-AA on the vehicle, 210 Ah battery with part number LC46-10655-AA will be selected from the "Service Configuration Writing" operation of the BCU module. If there is 225 Ah battery with part number MFCC46 10655 CB or 240 Ah battery with part number MC46 10655 AB on the vehicle then 240 Ah battery with part number MC46 10655 AB will be selected from the "Service Configuration Writing"operation of the BCU module.

2- BCM software must be updated to JC46-14C100-DC_v0_.vbf or a more recent software version in every vehicle that comes to service due to battery problem. After the update process, at least 4 hours must pass for the SOH value to give the correct value. Therefore, the update process should be done in the last step. **(This software has no effect on the SOH value measurement).**

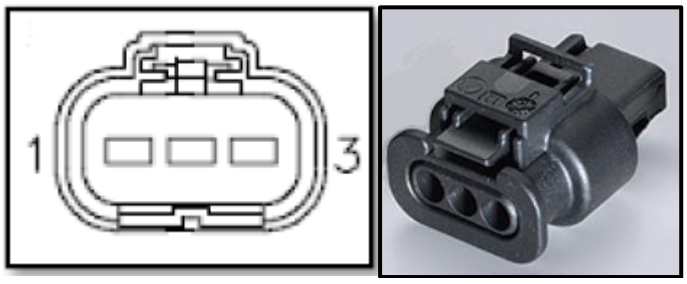
BMOS Control Processes:

1- The location of the BMOS (Battery Monitoring Sensor) on the vehicle and electrical connections are shown in below.

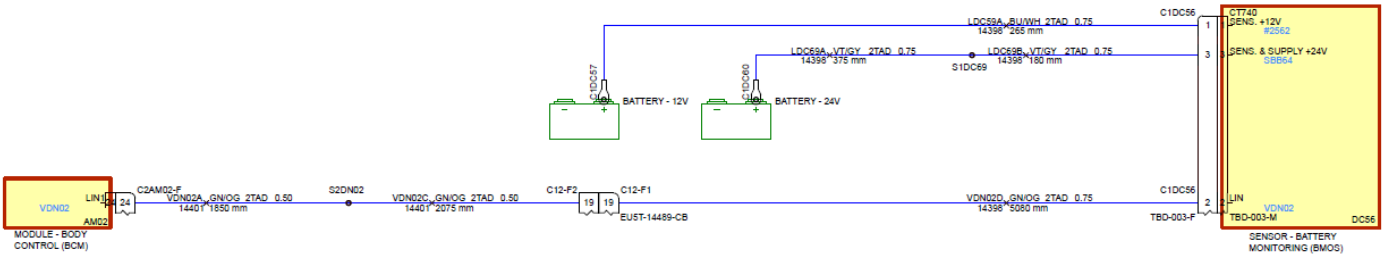


14398 – BCU Wiring

Connector of Battery Monitoring Sensor: C1DC56
Connector Brand/Part Number: HIRSCHMANN 872-858-546



No	Cable	Section	Color	Target	Pin Layout	Function
1	LDC59A	0,75 mm²	BU/WH	BATT. 12V	C1DC57	12V
2	VDN02D	0,75 mm²	GN/OG	BCM	C2AM02-F/24	LIN
3	LDC69A	0,75 mm²	VT/GY	BATT. 24V	C1DC60	24V



Regards,

Ford Trucks Service Engineering
Ford Otomotiv San. A.Ş.