



PERSONAL SERVICE LAB

MASTERS OF CARE

Best Practices for Grecale 12 Volt Battery management and diagnosis

DATE: DECEMBER 30 2022

MODELS: Grecale M182**SECTION:** 08.20-1 Energy generation and accumulation

This technical bulletin provides information regarding the correct management and diagnosis of the Grecale 12 Volt Battery. Below are the main topics discussed in this release:

1. Battery Check at PDI
2. Correct battery management during PDI Inspection and In-stock period
3. Diagnostic checklist for a "Dead Battery" concern

1. Battery Check at PDI

Starting with Grecale, Maserati introduced and announced the new model introduction circular letter (MAS003281) and the management of vehicles in stock instructions (MAS003377), a new important check to be done during PDI at the dealer.

This check requires measuring the 12V battery voltage (at PDI) directly at the battery posts with a digital multimeter after disconnecting the negative quick connector and before connecting any charger or maintainer.

Due to the intricate technology used in the Grecale, the 12V battery voltage must be maintained equal to or greater than 12.5V. However, if the battery voltage measures below 12.5V but is over 12.1V, the battery must be completely recharged.

If the voltage measures less than 12.1V it must be replaced and authorized in cost code 12 by opening a BOL as "Support Request" and attaching the following 3 items:

- i. Picture of digital multimeter showing Battery Voltage (Negative Cable Disconnected, see above)
- ii. Picture of the Battery Label including QR code and PN found on top of the battery
- iii. BCM only, Parameter & DTC Report via EVO (*Connect battery charger if needed in case of low battery voltage to obtain EVO report)

As requested by circular letter MAS003377, this battery Voltage value must be recorded during PDI, on the "CHECKLIST FOR LONG-TERM OPERATIONS" at month 0 record.

NOTE: The required open-load battery voltage measured with a digital multimeter value is not to be confused with the value shown by MDEVO during the Logistics mode removal procedure, this value is subject to a voltage drop induced by the absorption of the car with the ignition ON.

2. Correct battery management during the pre-delivery inspection and vehicles in stock

Due to the new electronic architecture and the high number of control units installed in the Grecale, the electrical current absorption can be higher than 25 Amps with the ignition ON. Therefore, when using the MDEVO connected to the vehicle with the ignition ON engine OFF, it is mandatory to use a battery charger capable of guaranteeing an adequate and **constant** recharge current no lower than 25 Amps.

To ensure correct maintenance of the battery during in-stock storage period, we remind you to follow the instructions provided in circular letter MAS003377 "Management and maintenance of Maserati vehicles in stock" and to record the open-load battery voltage value in the checklist (CHECKLIST FOR LONG-TERM OPERATIONS) at month 0 and every subsequent scheduled checking interval.

For optimal performance and reliability of the 12 Volt Battery, the removal and enabling of the logistics mode using the EVO is linked to a preliminary check of the battery state of charge monitored by the BCM from the data received by the IBS sensor. The **minimum** state of charge required to enable Logistics Mode removal is 80%.

This operation must be performed possibly within 48 hours before the expected delivery date to the final customer, recording the final battery voltage value measured with a multimeter on the PDI Checklist - Section 7.

3. Diagnostic checklist for a "Dead Battery" concern

To be performed **ONLY** after the vehicle has been sold and or AFTER PDI has been performed and vehicle stored for a long time.

To speed up the investigation of the potential root cause and the authorization to replace the 12 Volt battery, we ask you to complete the attached **CUSTOMER USAGE AND ROAD ASSISTANCE INFORMATION QUESTIONNAIRE** and or the **DIAGNOSTIC CHECKLIST** (Attachments: PAGES 1 and 2) and attach it to the "Support Request" Blue Online (BOL).

IMPORTANT: the disconnection of the battery on connected (Active Maserati Connected Service) vehicles generate the activation of the "STOLEN" mode by the TBM with a parasitic draw of approximately 150 mA for 8 hours after the battery has been re-connected. It is important to prevent this from occurring when performing a parasitic draw test. Because of this, we suggest that you follow the below procedure when diagnosing a vehicle with a suspected excessive parasitic draw:

NOTE: Refer to the attached **PARASITIC DRAW TEST** (Attachments: PAGE 3) for detailed instructions and to record the results.

- 1) No codes in ANY module
- 2) 12V Battery adequately charged (12.5V or above)
- 3) All doors closed the exception of the rear trunk/Tailgate
- 4) Interior and exterior lights must be OFF
- 5) All Keys out of detection range (more than 16 FT)
- 6) The rear Trunk opened, and the latch manually closed
- 7) No electronic device connected to USB ports or OBD connector
- 8) Lock the car with the key fob and remove it from the detection range (more than 16 FT)
- 9) Wait at least 30 minutes (Vehicle Sleep Mode)
- 10) Use a digital multimeter and connect leads to the negative battery post and a clean chassis ground
- 11) Disconnect the quick connector of the negative battery cable while keeping both the multimeter leads connected to the negative battery post and chassis ground

"Lab OP -0.20.001.5 --> BOL Supplementary diagnosis level 4: 2.0h can be claimed for performing diagnostic checklist"

PAGE 1**CUSTOMER USAGE AND ROAD ASSISTANCE INFORMATION QUESTIONNAIRE****(Checklist to be filled out by dealer if customer experienced a “Dead Battery” event)****ROAD ASSISTANCE INFORMATION**

Has a jump starter been used?	YES	NO
Battery cables attached to the battery post loose?	YES	NO
CUSTOMER INTERVIEW		
Vehicle doors were closed/locked?	YES	NO
Did the car open using the remote (Key FOB)?	YES	NO
Did the customer notice any malfunctions when the battery was discharged? (e.g Malfunction warning indicators lights or messages in the cluster)	YES	NO
If yes, which ones (Describe in detail)		
Has the car recently been moved or has been parked for many days? (indicate days or hours).		
How many miles per day does the customer travel on average?	Miles	
Type of route used most frequently (insert flag)	City	
	City & Highway	
	Highway	
Does the customer usually use the radio at KEY OFF?	YES	NO
After the KEY OFF, does the customer leave electrical external devices connected (USB or 12V devices)?	YES	NO
If yes, which ones (Describe in detail)		
Were there valid keys in the car?	YES	NO
How far away from the car were the keys outside the vehicle?	FT	
Is a GPS tracker or other aftermarket KIT installed on the car?	YES	NO
If yes, which ones (Describe in detail)		

DIAGNOSTIC CHECKLIST

To be performed **ONLY** after the vehicle has been sold and or AFTER PDI has been performed and vehicle stored for a long time.

ATTENTION! DO NOT DISCONNECT BATTERY CABLES OR IBS (until completion of the checklist)
the disconnection of the battery on connected (Active Maserati Connected Service) vehicles generate the activation of the "STOLEN" mode by the TBM with a parasitic draw of approximately 150 mA for 8 hours after the battery has been re-connected

Provide the open load battery voltage value detected while taking charge of the new vehicle by the dealer (attach the CHECKLIST FOR LONG-TERM OPERATIONS)		Volt	
Provide the Battery Voltage value detected at the end of the PDI process (attach the PDI Checklist)		Volt	
Provide the Battery Picotest report (in pdf format) performed at vehicle entry NOTE: The test must be performed by connecting probes directly on the battery post and starting it with ignition OFF			
If the vehicle is in PDI, indicate how many days it has been in stock and how often the battery check and recharge procedure has been performed. Attach CHECKLIST FOR LONG-TERM OPERATIONS per bulletin MAS003377			
Check for the presence/ installation of any aftermarket device (GPS tracker, alarm). If present indicates brand/model and attaches pictures of the device and related installation	Brand/model:	YES	NO
Battery post terminals are free of corrosion or mechanical anomalies?		YES	NO
Are battery post terminals loose?		YES	NO
Check Battery PN and attach a picture of the label on the upper cover	PN:		
Check the Battery production date attaching a picture of the hot printed code on the upper cover	Code:		
The battery flat event happened with the car in Logistic mode or Customer mode?	LOGISTIC MODE	YES	NO
	CUSTOMER MODE	YES	NO
Check the position of the external lights selector (auto, manual) and if the lights stayed on		YES	NO
Check the radio power off delay, indicating minutes (3,6 or 12 min selectable from MIA)		min	
Check for SW updates previously performed on the vehicle.	Updated ECUs:	YES	NO
Attach a complete vehicle scan report (in pdf format) including DTCs and Parameters			

PAGE 3

PARASITIC DRAW TEST

ATTENTION! the disconnection of the battery on connected (Active Maserati Connected Service) vehicles Activates the "STOLEN" mode by the TBM with a parasitic draw of approximately 150 mA for 8 hours after the battery has been re-connected. To prevent this, follow the procedure below.

12V Battery Preconditions:

If the outcome of the battery test indicates that the battery needs to be re-charged, carry out a complete charging cycle. Attach a picture of the battery charger display at the beginning and end of charging.

(If possible, add also picture after 3 hours of charging)

(In case of usage of no smart charger, the re-charging will have to last at least 8 hours)

Parasitic Draw Preconditions:

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- 5) All Keys out of detection range (more than 16 FT)
- 6) The rear Trunk opened, and the latch manually closed
- 7) No electronic device connected to USB ports or OBD connector
- 8) Lock the car by the key fob and remove it from the detection range (more than 16 FT)
- 9) Wait at least 30 minutes (Vehicle Sleep Mode)
- 10) Use a digital multimeter and connect leads to the negative battery post and a clean chassis ground
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Record the results every 30 min up to 90 minutes below:

1) 30 min _____ mA

2) 60 min _____ mA

3) 90 min _____ mA

