



NUMBER: 08-049-20

GROUP: 08 - Electrical

DATE: April 22, 2020

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This bulletin supersedes Service Bulletin 08-073-17, dated August 11, 2017, which should be removed from your files. This is a complete revision and no asterisks have been used to highlight revisions.

SUBJECT:

Charging System, Battery Diagnostic Tools and Warranty

OVERVIEW:

This information only bulletin discusses using the correct test equipment for testing batteries and charging systems, and also warranty reimbursement when battery replacements are necessary.

MODELS:

1996 - Current (All) All FCA Group Vehicles (EMEA only)

NOTE: This bulletin applies to vehicles within the following markets/countries: EMEA

SPECIAL TOOLS/EQUIPMENT REQUIRED:

Description & Part#	Usage	Replaced
Mopar Battery Tester 2000037001	Charge state check of the following batteries: Lead (Pb) flooded, Pb Heavy Duty, Pb AGM, Pb AGM Spiral	Midtronics EXP 813 FCA
Midtronics GRX 3228 2000035900	Integrated instrument for checking the charge state of the following batteries: Lead (Pb) flooded, Pb Heavy Duty, Pb AGM, Pb AGM Spiral	Midtronics GR-1 240
CTEK MXS 10 FCA 2000036901	Battery charger for the following batteries:	<ul style="list-style-type: none"> • CTEK MXS 25000 FCA • ISEAT CB-1 • FCA UNIVERSAL BATTERY CHARGER • CTEK MXS 10 FCA

CAUTION! For further information, refer to the instruments' instruction manuals. Other equipment can only be used to recharge the battery, as an alternative to those listed in the table, on condition that they comply with the minimum requirements given in this document.

CAUTION! Using instruments that do not meet the minimum requirements for recharging batteries, does not allow nor guarantee recharging the battery correctly and could seriously damage the car's electrical/electronic components.

CAUTION! Using the incorrect battery charger, which does not meet the minimum requirements for recharging batteries, may not recharge the battery correctly and could damage the battery and/or the vehicles electrical components

DISCUSSION:

When testing batteries and charging systems, the correct battery tester and charger must be used. Dealers must follow service information for the proper procedures when testing the charging system and batteries. Also, the dealer must follow warranty policies and procedures for proper reimbursement for battery replacement. Refer to the appropriate regional warranty manual to obtain specific warranty reimbursement requirements. This may include specific data which must be recorded and/or specific documentation which may be required to be attached to the work order. In the event the warranty policies and procedures are not followed, warranty reimbursement could be declined or charged back.

Knowing what type of battery that is in the vehicle will help determine which battery tester and charger to use. The type of the battery is always listed on the battery label.

- A – Flooded - Free electrolyte
- A1 - Pb - For standard applications
- A2 - Pb Heavy Duty, for Start/Stop applications
- B – Absorbed Glass Matt (AGM) with absorbent material between the plates
- B1 - Pb AGM with flat plates, for standard and Start/Stop applications
- B2 - Pb AGM Spiral with spiral plates, for standard Start/Stop applications

Preliminary Verification Conditions

Before connecting the battery tester, make sure the following conditions are met:

1.
 - The engine is turned off.
 - Turn off all electrical devices, except for permanent key-off loads.
 - Verify there are no charging system Diagnostic Trouble Codes (DTCs) in any control modules.
2. Check the battery tester for:
 - The battery tester has the latest available software in it.
 - The battery tester leads are in good condition.
3. Check the battery in the vehicle for:
 - No external battery damage.
 - No corrosion on the battery cables.

Preliminary Verification Conditions on the Battery Tester

Before connecting the battery tester, make sure the following conditions are met:

Check the battery tester for:

- The battery tester has the latest available software in it.
- The battery tester leads are in good condition.
- The charge level of the buffer battery inside the equipment must be optimal and able to perform the test in the event of a fully discharged vehicle battery.

NOTE: The new Mopar Battery Tester must be connected to the Internet. A W-iFi connection to access and configure the instrument in the cloud where the results of the checks are downloaded. This allows the control department to verify the test performed directly in the cloud and the workshop no longer needs to issue a receipt having interventions carried out under warranty recognized.

Mopar Battery Tester - W-iFi Activation

Verify condition of the following:

- The battery has no external damage.
- The battery terminals are clean (otherwise, clean them e.g. with a stiff brush).

NOTE: No refunds will be granted for operations with test result printouts containing incorrect, incomplete or inaccurate data due to the use of equipment in sub-optimal conditions or failure to comply with the conditions described above.

For all models in which the battery is easily accessible, check also that:

Before connecting the battery tester, make sure the following conditions are met:

Check the battery tester for:

- The battery tester has the latest available software in it.
- The battery tester leads are in good condition.
- The charge level of the buffer battery inside the equipment must be optimal and able to perform the test in the event of a fully discharged vehicle battery.

NOTE: The new Mopar Battery Tester must be connected to the Internet. A W-iFi connection to access and configure the instrument in the cloud where the results of the checks are downloaded. This allows the control department to verify the test performed directly in the cloud and the workshop no longer needs to issue a receipt having interventions carried out under warranty recognized.

Instrument Power Supply

Check the battery tester for:

- Mopar Battery Tester: activates automatically after the correct connection of the clamps.
- GRX 3228 FCA: connect the equipment to a socket (220 V AC power) and turn the ignition switch to ON.

Instrument Connection

For all models (except for Fiat Freemont), it is recommended to check the battery charge state by connecting the instrument directly to the battery terminals, leaving it connected to the car's electrical system.

NOTE: At the end of the check procedure, make sure that the clamps are tightened properly to the battery terminals.

Use the leads in the kit to connect the instruments as follows:

- Red clip connected to the positive battery terminal (or to the positive dummy pole).
- Black clip connected to the negative battery terminal (or to the negative dummy pole).

For vehicles equipped with Intelligent Battery Sensor (IBS) the connection on the negative pole must be made exclusively on the nut **NEVER** on the terminal (Fig. 1) .

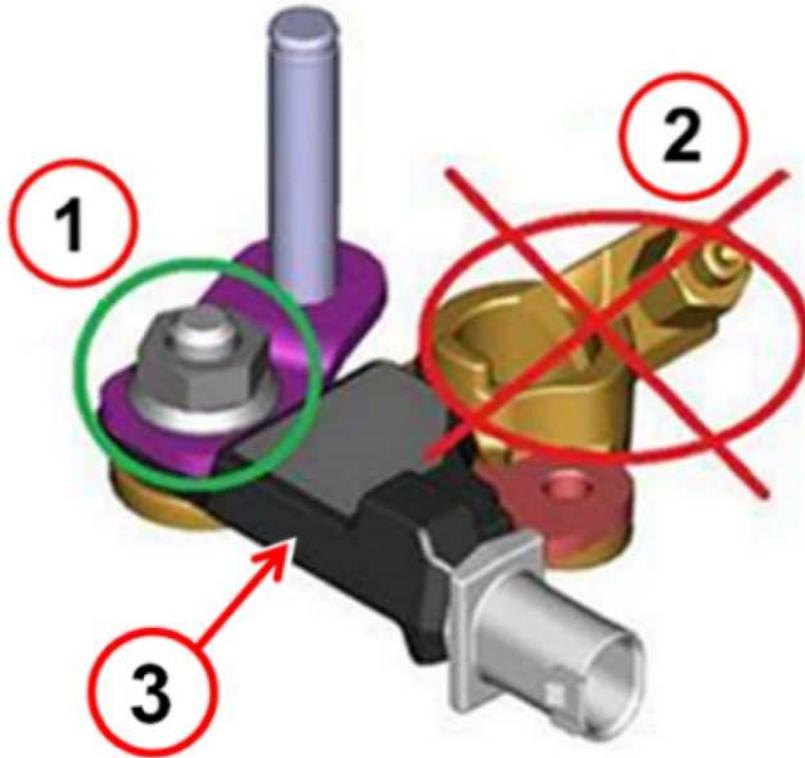


Fig. 1
Intelligent Battery Sensor (IBS) Connection

- 1 - Nut
 - 2 - Terminal
 - 3 - Intelligent Battery Sensor (IBS)
-

The lead clips must be connected correctly; an incorrect connection could cause the following messages:

- On the Mopar Battery Tester - CHECK CLAMP.
- On the GRX 3228 FCA – CHECK TERMINAL CONNECTIONS If the leads are connected with the wrong polarity, the following message will appear on the display of the GRX 3228 FCA: REVERSED TERMINALS, accompanied by an alarm signal.

Check Charge

The following is the procedures for checking the state of charge of the battery using the following tools Refer to the appropriate section of this bulletin:

- Mopar Battery Tester.
- Midtronics GRX 3228 FCA.

Mopar Battery Tester

The instruments must be configured correctly, setting the battery rated values and test standards, as given on its label.

Vehicles with Start and Stop system:

1. In the main menu, use the LEFT and RIGHT arrows to select “BATTERY START / “DIAGNOSIS” (battery icon with letter A on the display).
2. Press Enter to confirm; the request to scan the barcode corresponding to the VIN will appear on the display of the instrument (Fig. 4) .

Vehicles WITHOUT Start and Stop system:

1. In the main menu, use the LEFT and RIGHT arrows to select “BATTERY TEST” (battery icon on the display).
2. Press Enter to confirm; the request to scan the barcode corresponding to the VIN will appear on the display of the instrument (Fig. 4) . VIN acquisition via scanner (for all vehicles with and without Start and Stop system) According to whether the barcode corresponds to the VIN is present or absent, follow the instructions in the following paragraphs.

NOTE: For almost all models, the barcode corresponding to the VIN is shown on the C.O.C. (Order Delivery Certificate) (A) on a side window of new cars, before hand over to the customer (Fig. 3) .

COC CARTELLINO ORDINE CONSEGNA MODELLO - TELAIO		STABILIMENTO 38 153 SATA MELFI (PZ)	DATA-ORA DI STAMPA 9/05/2017 - 09:08	DATA PERIODO 2017/19		
199 - P317765		* 1 9 9 P 3 1 7 7 6 5 *		OCF NO	SETT. 19	
VERSIONE SERIE 75Y 8	ALL.SPECIALE 7117	PESO 1126	DESCRIZIONE VEICOLO L15PBZ69	COLORE INT. COLORE EST. 127 296	MOTORE 1,2 8V COND. E6	N. MOTORE 2130563
COD.CLIENTE 31092DL	MERCATO/ZONA FRANCIA	DESTINAZIONE EFD	PUNTO ARRIVO CORBAS	ORDINE 218074773	* 2 1 8 0 7 4 7 7 *	
DESTINATARIO LOGISTIQUE ALFA PROTEZIONE TNT			VIN: * Z F A 1 9 9 0 0 0 0 P 3 1 7 7 6 5 *			
OPT 269 NAVIGATORE+SD		* 3 1 0 9 2 D L 0 9 0 5 1 7 1 1 2 6 2 9 6 *				
0ZFA1990000P31 7765 4000		* S 3 8 1 9 9 7 5 Y 8 P 3 1 7 7 6 5 *				

Fig. 2
VIN (Order Delivery Certificate)



Fig. 3
Mopar Battery Tester

- 1 - Display Screen
- 2 - Mopar Battery Tester
- 3 - VIN acquisition request
- 4- Bar Code Scanner
- 5 - Temperature sensor

A - Vehicles with barcode corresponding to the VIN:

- When the request to scan the barcode corresponding to the VIN is displayed, use the “UP” and “DOWN” arrows to select “YES” (Fig. 4) .
- Aim the scanner on the back of the instrument towards the barcode (Fig. 4) .
- Press Enter to acquire the code.
- After acquiring the barcode; the display of the instrument shows the request to specify the type of battery to be checked; proceed to Step 1(Fig. 4) .
- When the request to scan the barcode corresponding to the VIN is displayed, use the “UP” and “DOWN” arrows to select “NO”(Fig. 4) .
- Press Enter to confirm. The display of the instrument (2) shows the request to specify the type of battery to be checked (Fig. 4) ; proceed to Step 1.
- After checking the battery, manually enter the VIN as specified in step Step 10.

Vehicles with Start and Stop system

1. With the “UP” and “DOWN” arrows select the battery type:

- AGM FLAT PLATE - (Pb AGM).
- EFB – (Enhanced Flooded Battery).

2. Press the Enter button to continue.

Vehicles WITHOUT Start and Stop system

1. With the “UP” and “DOWN” arrows select the battery type:

- FLOODED (free acid for standard applications).
- AGM FLAT PLATE.
- AGM SPIRAL.
- VRLA/GEL (normally not used).

2. Press the Enter button to continue.

For all vehicles with and without Start and Stop system

1. After pressing Enter (from [Step 2](#) for vehicles with and without Start and Stop), the display of the instrument shows the request to specify the type of battery to be checked. Use the UP and DOWN buttons to select the TEST STANDARD (RATING) following the indications given on the battery label, according to the following table:

STANDARD GIVEN ON THE BATTERY	STANDARD TO SELECT ON THE INSTRUMENT
IEC	IEC
EN	EN
EN2	EN2
JIS	JIS
SAE	SAE
EN - SAE	EN
EN2 - SAE (with the same current value)	EN2
EN2 - IEC	(*)

(*) If both standards are present, select one of the two standards (EN2 or IEC), taking care when entering the corresponding current value (A).

2. Press the Enter button to continue.

3. Use the “UP” and “DOWN” arrows to select (or key in) the current value (A) for the test standard according to the battery label.

4. Press the Enter button to continue.

5. Use the “UP” and “DOWN” arrows to select whether the battery is on the vehicle (YES or NO).

6. Press the Enter button to continue.

7. If “Battery on vehicle” is selected, use the UP and DOWN arrows to select the connection type: battery terminals (Direct Connect) or dummy terminals (Jump Start Post).

8.

- a. If battery terminals (Direct Connect) was selected, measure the temperature by placing the sensor about 2.5 cm from the battery ([Fig. 5](#)), continue with [Step 9](#).
- b. If dummy terminal (Jump Start Post) was selected, use the UP and DOWN arrows to select and confirm the make, model and version of the vehicle being tested, then continue with [Step 9](#).

9. Press the Enter key: the instrument starts checking the charge state.

NOTE: During the check the instrument may ask if the battery has been recently charged; select Yes or No with the UP and DOWN arrows and press Enter to confirm.

- At the end of the check, the result is shown on the display of the instrument (Fig. 5) .
- Take note of the result of the check and, if not previously detected by the scanner, proceed by manually entering the VIN code as described in Step 10. Then, according to the result, carry out the operations prescribed in the "Check and Repair Result"(Fig. 5) .

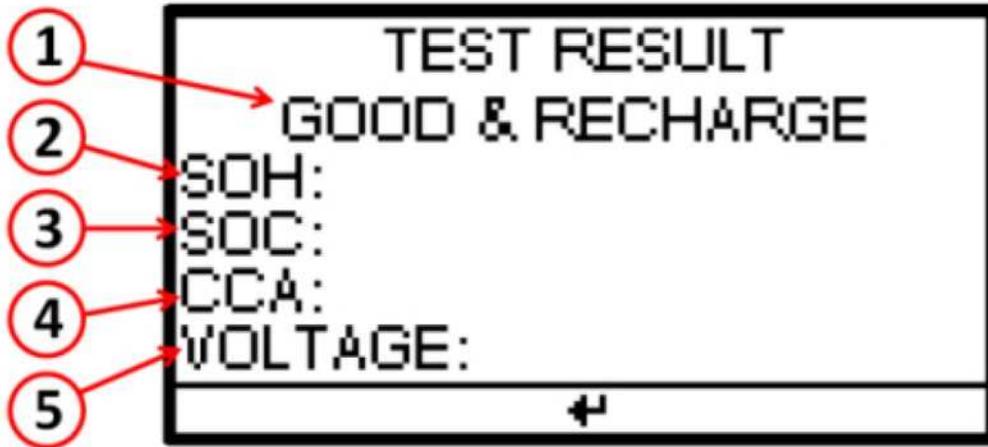


Fig. 4
Scan Results

- 1 - Battery test result
- 2 - State of Health - (SOH)
- 3 - State of Charge - (SOC)
- 4- Cold Cranking Ampere - (CCA)
- 5 - Voltage

10. Press Enter: the display of the instrument shows the request to manually enter the VIN code. Use the "UP" and "DOWN" arrows and select:
- YES>>> in the case of warranty claims and the VIN was not detected with the scanner at the beginning of the procedure - proceed Step 11.
 - NO>>> in the case of out-of-warranty service or warranty service and the VIN has already been detected with the scanner at the beginning of the procedure - in the latter case, proceed to Step 12.
11. After selecting YES, a keyboard appears on the display; use the "UP" - "DOWN" - "LEFT" - "RIGHT" arrows to enter the VIN code. Make sure the VIN code is correct then select VIN (VIN input) to confirm or select Abort to repeat the VIN entry.
- After confirming the VIN (input VIN) continue with the indications shown on the display until the Test Code screen appears - proceed to Step 13.
12. After selecting NO, continue with the indications shown on the display until the Test Code screen appears - proceed to Step 13.
13. The Test Code screen informs you that the result of the test has been automatically sent to the server (cloud) or that, due to lack of connection to the wireless network, the result has been stored.

NOTE: When the connection to the wireless network is restored, the instrument will automatically send the stored results to the server.

Midtronics GRX 3228 FCA

The instruments must be configured correctly, setting the battery rated values and test standards, as given on its label.

In the main menu, use the LEFT and RIGHT arrows to select “BATTERY TEST” / “DIAGNOSIS” (battery icon on the display) and proceed as follows:

1. Use the UP and DOWN arrows to select the TEST LOCATION:
 - BATTERY TERMINAL (A).
 - STARTER TERMINAL (B).
2. Press the NEXT button to continue.
3. (A) - If BATTERY TERMINAL was selected, proceed as follows:
Select the battery location:
 - OUTSIDE THE VEHICLE.
 - IN THE VEHICLE.
4. Press the NEXT button to continue.
5. Select the BATTERY TYPE:
 - NORMAL - Flooded (Pb and Pb Heavy Duty).
 - AGM - AGM with flat plates (Pb AGM).
 - SPIRAL - AGM with spiral plates (Pb AGM Spiral).
 - GEL - Pb with gel electrolyte (not normally used).
6. Press the NEXT button to continue.
7. Select the NOMINAL UNIT (TEST STANDARD) following the indications given on the battery's label, according to the following table:

STANDARD GIVEN ON THE BATTERY	STANDARD TO SELECT ON THE INSTRUMENT
IEC	IEC
EN	EN
EN2	EN2
JIS	JIS
EN - SAE	EN
EN2 - SAE (with the same current value)	EN2
EN2 - IEC	(*)

(*) If both standards are present, select one of the two standards (EN2 or IEC), taking care when entering the corresponding current value.

NOTE: If the standard on the battery is different from EN, EN2, IEC, SAE, JIS, set the CCA standard on the instrument.

8. Press the NEXT button to continue.
9. Select the POWER (current) relative to the selected standard as given on the battery's label.

10. Press the NEXT button to continue.

If STARTER TERMINAL was selected, proceed as follows:

a. Select the VEHICLE BRAND:

- FIAT
- CHRYSLER
- DODGE
- LANCIA

b. Press the NEXT button to continue.

c. Select the CAR MODEL:

- One or more options are available, depending on the previously selected manufacturer.

d. Press the NEXT button to continue.

e. Select the BATTERY VALUE:

- It may not be required for some models, if they are equipped with a single type of battery.

f. Press the NEXT button to continue.

The instrument automatically proceeds sequentially to:

- Charge status control.
- Charge (if necessary).
- Final check after recharge.

While charging, the following parameters are displayed:

- Charging voltage.
- Charge current.
- Remaining charge time.
- Charge amount supplied to the battery in Ah.

At the end of the test, the display shows the result (Fig. 6) ; the screens can be scrolled with the UP and DOWN arrows.

- To print the results, press the PRINT function key.
- To return to the Main menu, press the EXIT function key.

Result of the battery check with GRX 3228 FCA

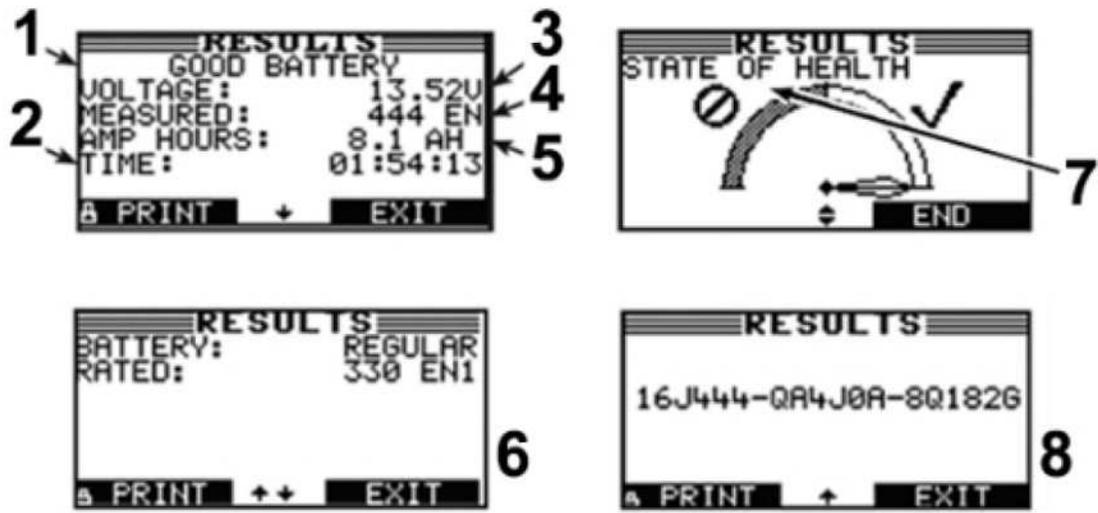


Fig. 5
Final Results

- 1 - Battery test result
 - 2 - Total charging time
 - 3 - Measured voltage
 - 4 - Measured current
 - 5 - Charging current
 - 6 - C Rated battery data
 - 7 - Health status
 - 8 - Test code
-

CHECK AND REPAIR RESULT

Depending on the test results, perform the operations in the table below:

READING ON MOPAR BATTERY TESTER	READING ON MIDTRONICS GRX 3228 FCA	OPERATION
Good battery (Good & Pass)	Good battery	No operation.
Good-Recharge (Good & Recharge)	—	Completely recharge the battery using the instruments recommended by FCA and then perform the diagnosis again.
Charge and repeat the test (Recharge & Retest)	—	Completely recharge the battery using the instruments recommended by FCA and then perform the diagnosis again.
Change battery (Bad & Replace)	Change battery	Replace the battery with a new one, referring to the spare parts catalogue for the specific chassis.
Faulty cell (Bad Cell Replace)	Faulty cell	Replace the battery with a new one, referring to the spare parts catalogue for the specific chassis.
—	Battery too hot	Leave the battery to cool down and then perform the diagnosis again.
—	Frozen battery	Leave the battery to thaw and then perform the diagnosis again.

NOTE: If the test results confirm the need to replace the battery, a test MUST be performed on the new battery, to ensure optimal charge conditions.

CLAIM FORM DATA

For the battery checks and eventual replacement to be done under warranty, it is mandatory to attach all the result print-outs from the diagnosis equipment to the repair order, as described in this Service News.

For the new Mopar Battery Tester instrument it is no longer necessary to print and attach the receipt. Make sure that the instrument is connected to the Internet via a W-iFi network and that at the end of the verification it has sent the result to the specific site in the cloud.

NOTE: Operations performed under warranty will not be refunded if the test results are not printed, even if this is due to an insufficient level of charge of the internal buffer battery of the test equipment in the event of a completely flat vehicle battery.

NOTE: The presence of non-genuine Mopar system or accessory device (electrical/ electronic) not installed according to the technical specifications of the manufacturer will invalidate the warranty of the battery and/or of other concerned systems or components.

The result print-outs must contain at least the following data:

- Date and time.
- Test result.
- Measured voltage.
- Measured amperage.
- Battery rated current and the relative standard.
- Indication of previous performed recharge.
- Location of the battery (in the vehicle, outside the vehicle).
- Position of the terminals (battery terminals, dummy terminals).
- Type of battery (normal, AGM, spiral) This information must be included in the message field in the Claim Form in the form of the test code. It is possible that paper copies of the print-outs could be requested during the claim assessment. If the information is incomplete, incorrect or if there is evidence of failure to apply the procedure described in this Service News, FCA reserves the right not to reimburse the repair costs.

OPERATION	OPERATION CODE	TIME
Preliminary diagnosis + battery replacement	Check and replace primary battery: 08080110	defined by Tempario
Good-Recharge (Good & Recharge)	Check and replace aux battery (if equipped): 08080103	defined by Tempario

POLICY:

Information Only