Technical Service Bulletin

27 48V Reference: Charging 48V Battery with 12V Charger DTC P0A7D00
27 23 60 2067906/3 September 11, 2023. Supersedes Technical Service Bulletin Group 27 number 23-50 dated March 27, 2023 for reasons listed below.

Model(s)	Year	VIN Range	Vehicle-Specific Equipment
All Audi Vehicles	2017 – 2024	All	Not Applicable

Condition

REVISION HISTORY		
Revision	**Date**	**Purpose**
3	-	Revised *Technical Backgroun*d (added SoC info) Revised *Service* (added preconditions and notes) Revised *Warranty* (added service number/damage code)
2	03/27/2023	Revised *Service* (added 100A charger recommendation)
1	09/13/2022	Initial publication

Workshop findings:

The 48V battery is in a low voltage protection state and will not accept a charge.

- **DTC P0A7D00** Hybrid/EV Battery Pack State of Charge Low.

Technical Background

When the 48V battery falls below a predetermined state of charge (SoC) for any reason, the protection relays inside the battery open, insuring the internal cells remain above the safe minimum voltage limit.

The protection relays will not close until the appropriate adaption channel is set inside the battery.

As long as the 48V battery has a SoC between 5% and 15%, the battery can be charged via the 12V system manually by completing the procedure under “Service”.

48V Batteries **must not** be replaced and instead need to be recharged in such a case. Claims for erroneously replaced 48V batteries may be debited.

Production Solution

Not applicable.

Service

Preconditions

- The SoC of the 48V battery must be between 5% and 15%
- The SoC of the 12V battery must be between 40% and 60%
- The SoC of the 12V battery can be checked via GFF in the Data Bus On Board Diagnostic Interface control unit -J533- (address word 0019)

CAUTION

The 48V battery cannot be charged if the SoC of the 12V battery is above 60%! If necessary, drain the 12V battery to a SoC between 40% and 60% by switching on the ignition for approx. 20 minutes (longer if necessary).

Procedure

1. Attach an approved 12V charger, with a minimum output of 100 amps continuous to the 12V system of the vehicle.

NOTICE

The negative cable of the 12V charger must not be directly attached to the negative terminal post of the 12V battery. For the battery management system to read the incoming charge, the negative cable of the battery charger must be attached to the vehicle chassis, or jump-start ground post.

2. Shut off all non-essential electrical consumers in the vehicle.

3. In ODIS GFF run test plan “0021 – Close charging contactor” (Figure 1) to set the adaptation for protection relay closed, **do not exit the test plan** once the adaptation has been set.

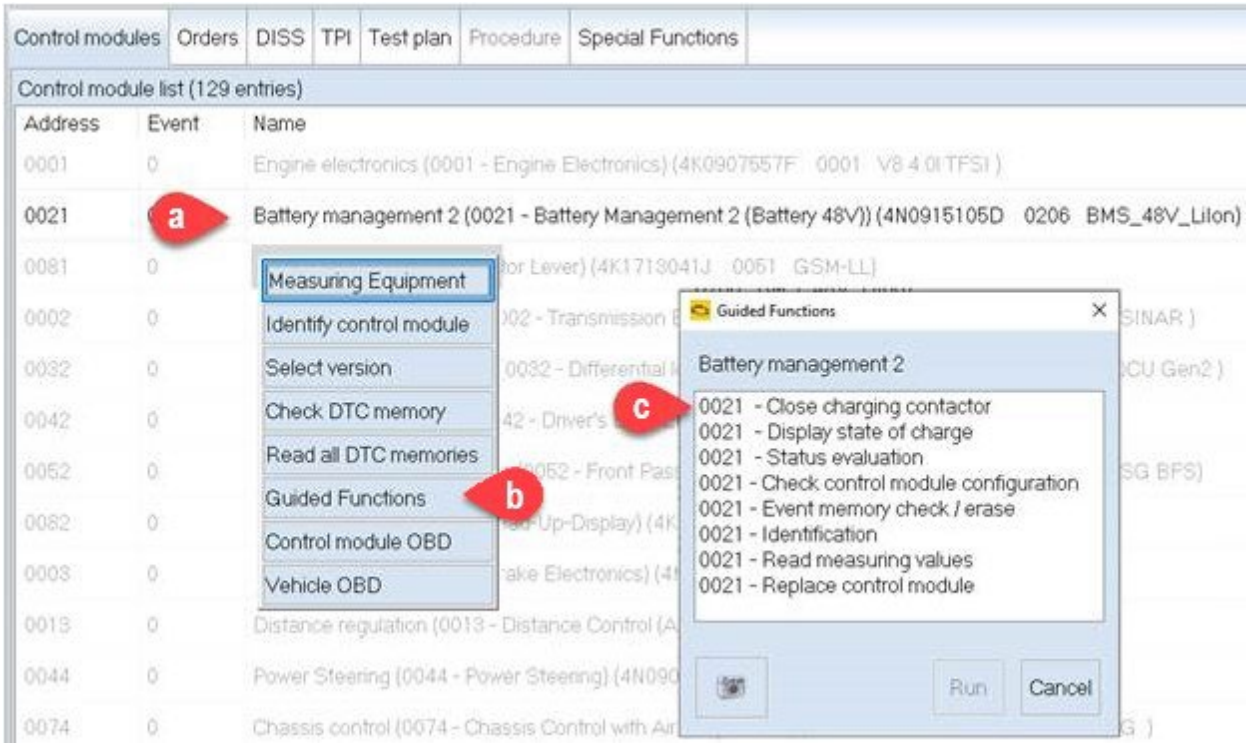

Figure 1: *Use the steps below to access the test plan.*

a. Right click on 0021 - Battery Management 2.

b. Select “Guided Functions”.

c. Select “0021 – close charging contactor”.

4. An automatic ignition cycle should be performed by the test plan. A clicking noise should be audible indicating that the battery contactors are closed.

NOTICE

The protection relay closed adaptation value and 48V SoC value may only be visible when the ignition is turned on.

The following conditions will cause the 48V battery to clear the adaptation for protection relay closed. Once the adaptation is cleared, and the 48V battery has not yet sufficiently charged, the protection relay will open and, charging will not be possible until the adaptation is set again.

- Door Open / Closed Status: Opening or closing a door will clear the adaption.

- Hood Open / Closed Status: Opening or closing the hood will clear the adaption.
- Trunk Open / Closed Status: Opening or closing the trunk will clear the adaption.
- Ignition On / Off Status: Pressing the Start/Stop ignition button will clear the adaptation
- Diagnostic Interface: Removing the Diagnostic Interface from the OBD2 port, or running any additional test plans will clear the adaptation.
- Key Location: Removing the key from inside the vehicle will clear the adaptation.

NOTICE

Charging the 48V battery takes significantly longer in comparison to charging the 12V battery. Under optimal conditions, you should plan to have the charger active for a minimum of two hours.

WARNING

The 48V battery must only be replaced if a DTC regarding a defective Battery or deep discharge (P0B2900) is stored. Batteries replaced for merely a low charge (between 5% and 15%) may be debited.

Warranty

Please bill using the existing Audi Warranty guidelines.

Use Service number/damage code: 2704/0040

Additional Information

The following Technical Service Bulletin(s) will be necessary to complete this procedure:

- TSB 2067937, *27 48V Reference: Diagnosis and system information.*

All part and service references provided in this TSB (**2067906**) are subject to change and/or removal. Always check with your Parts Department and/or ETKA for the latest information and parts bulletins. Please check the Repair Manual for fasteners, bolts, nuts, and screws that require replacement during the repair.