

IS20 WASTEGATE ACTUATOR CALIBRATION

TECHNICAL GUIDE · VCDS / OBDELEVEN · EA888 GEN 3 MQB

OVERVIEW

Set the actuator rod so the closed-position voltage reads **3.9-4.1 V**, then run the ECU basic setting **First adaptation of charge pressure actuator** with the ignition on and the engine off. That is the whole job; everything below is detail.

The EA888 Gen 3 (MQB) engines use an electronic wastegate actuator, so the ECU must learn its range of travel. If the rod is set too tight or too loose, the adaptation fails and sets a fault code. The IS20 is the only actuator supplied by EQT, so this procedure applies to the IS20 style actuator, only.

Run it after any of these:

- Replacing the turbo or the wastegate actuator
- Removing the actuator or adjusting the rod
- Wastegate position faults such as P2563, P00AF or P0045

BEFORE YOU START

ITEM	DETAIL
Scan tool	VCDS (HEX-V2 or HEX-NET) or OBDeleven with Pro/Ultimate access to Basic Settings
Hand tools	5 mm and 10 mm wrenches for the rod and jam nut
Battery support	Charger or tender connected the whole time; ignition stays on with the engine off
Access	Car on stands, or turbo on the bench with an actuator extension harness
Optional	Wastegate adaptation harness (powers the actuator to fully closed)

Bench pre-set (new turbo). EQT provides pre-calibrated wastegates when purchased with a new turbocharger. Technicians only need to run the first adaptation of charge pressure actuator. No manual adjustments of the wastegate are needed.

First steps

1. Loosen the jam nut on the actuator rod.
2. Back the rod off until the wastegate flap wiggles freely.
3. Turn it in slowly until the flap just seats against the turbine housing and stops wiggling.
4. Mark the rod, then turn it 1.5 more turns to preload the flap.
5. Tighten the jam nut and install the turbo, leaving the actuator reachable.

An EQT extension harness lets you set the voltage with the turbo out of the car, which is much easier than doing it in place.

PROCEDURE: VCDS

1. Connect a battery charger, switch the ignition on and leave the engine off.
2. If using an extension harness, connect it between the factory connector and the actuator.
3. Open **01-Engine > Adv. Meas. Values** and select **IDE00396 Charge air pressure actuator: acknowledgment**. This is the actuator position voltage.

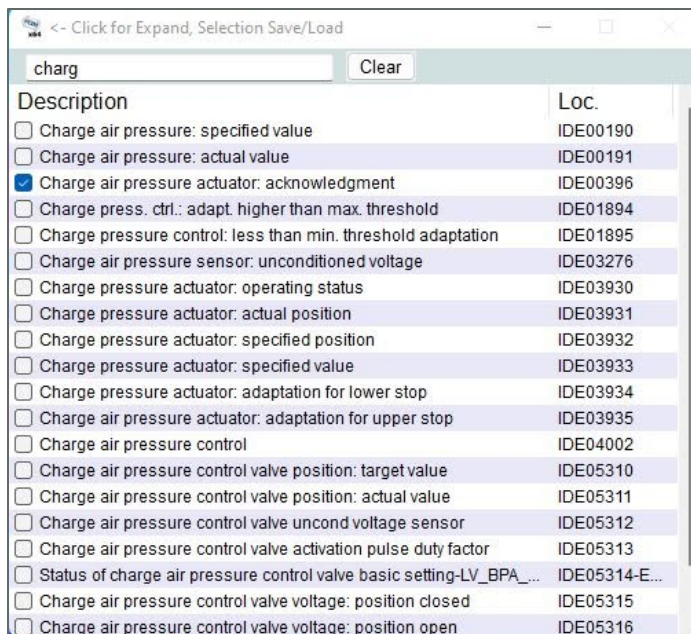


Figure 1. Search "charg" in the measuring-value list and tick IDE00396, Charge air pressure actuator: acknowledgment.

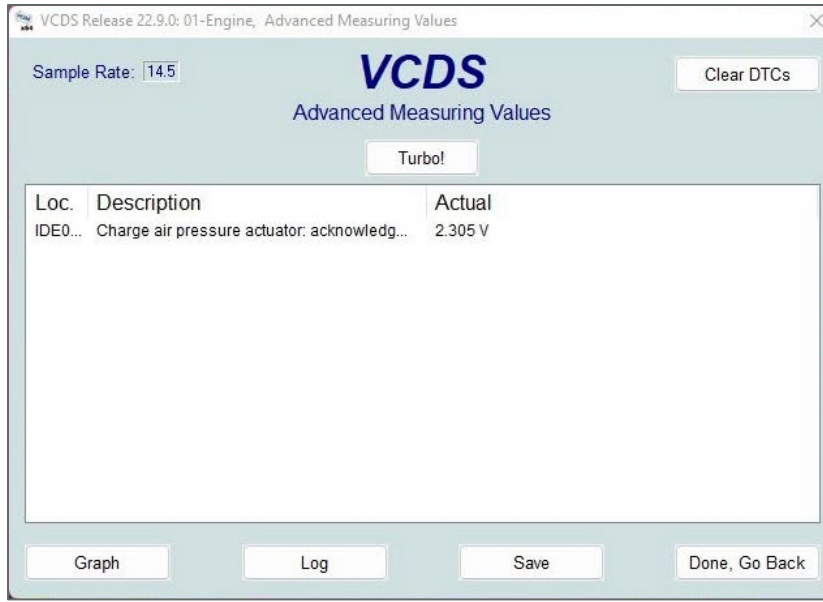


Figure 2. Advanced Measuring Values showing the IDE00396 voltage. Adjust the rod until this reads 3.9–4.1 V.

4. Loosen the jam nut and turn the rod until the reading sits between **3.9 – 4.1 V**. Counterhold the rod and tighten the jam nut, then re-check the reading.
5. Click **Done, Go Back**, then open **Basic Settings - 04**.
6. Select **IDE04304 Initial adaptation of charge-air pressure actuator** (some label files show "First adaptation of charge pressure actuator") and click **Go!**.
7. The actuator sweeps for up to about 10 seconds with a high-pitched whine. A good result reads **Finished correctly**.
8. Click **Done, Go Back**, remove any harness, clear codes and cycle the ignition.

If the status ends in a timeout or abort, check the voltage again before anything else; it is the usual cause

PROCEDURE: OBDELEVEN

1. Connect a battery charger, switch the ignition on and leave the engine off.
2. Connect the adaptation harness if you are using one.
3. In the app, open **Control Units > Engine > Live Data** and search **Charge Pressure Actuator: acknowledgment**.
4. Loosen the jam nut and turn the rod until the reading sits between **3.9 – 4.1 V**. Counterhold, tighten the jam nut and re-check.
5. Back in the engine control unit, open **Basic settings** and choose **First adaptation of charge pressure actuator**.
6. Slide the green arrow to the right to start it. A successful run reports as completed.
7. Remove any harness, clear fault codes and cycle the ignition.

OBDeleven runs the basic setting but cannot log live data while it runs, so read the voltage before and after rather than during.

VERIFYING THE RESULT

A good calibration is a clean basic setting, no returning faults and boost that tracks request.

- ☐ Basic setting reports Finished correctly (VCDS) or completed (OBDeleven)
- ☐ No stored faults after an ignition cycle
- ☐ Jam nut tight and rod marked so movement is visible later
- ☐ Test drive with a log of boost actual vs. specified and wastegate position actual vs. specified
- ☐ Re-scan for faults after the drive, once the engine is fully warm

The ECU flags the actuator when its position deviates from command by more than about 16%. Sustained position error in the log is the early warning.

TROUBLESHOOTING

SYMPTOM	LIKELY CAUSE	FIX
Basic setting aborts or times out	Closed voltage outside 3.9 - 4.1V	Re-adjust the rod, re-check after tightening the jam nut, rerun
Adaptation item missing from the list	Engine running, or label file/app out of date	Engine off, ignition on; update VCDS or the OBDeleven app
P2563 / P00AF after adaptation	Rod preload wrong, or actuator not tracking command	Reset the rod from the bench pre-set, rerun; run the turbo test to watch it sweep
P0045	Actuator circuit fault	Check connector, wiring and grounds before replacing the actuator
Faults return after a few drives	Worn wastegate flapper bushing or a sticking actuator	Check flapper play by hand; a loose or gritty flapper needs a turbo, not an actuator
Voltage won't change as the rod turns	Reading the wrong measuring value	Use IDE00396 / Charge Pressure Actuator: acknowledgment

Adaptation cannot compensate for mechanical wear. If the flapper shaft has visible play, the fault will come back however well the rod is set.