

dodson[®]

CALIBRATION INSTRUCTIONS

BMW ISTA+ CLUTCH CALIBRATION

DMS-00-0069 REV 001

04 DECEMBER 2023

**PREPARED BY: JAN PISL
DATE: 05MAY2023**

**RELEASED BY: 
DATE: 04DEC2023**

REVISION UPDATE NOTES:

The following table indicates the changes we have made in either the disassembly or assembly of the product you have received. All changes are indicated by a revision bar in the margin.

If you have any questions email us at technical@dodsonmotorsport.com

Revision	Date	Description
REV.001	04DEC2023	- Broke out a separate document from BMW clutch install instructions.

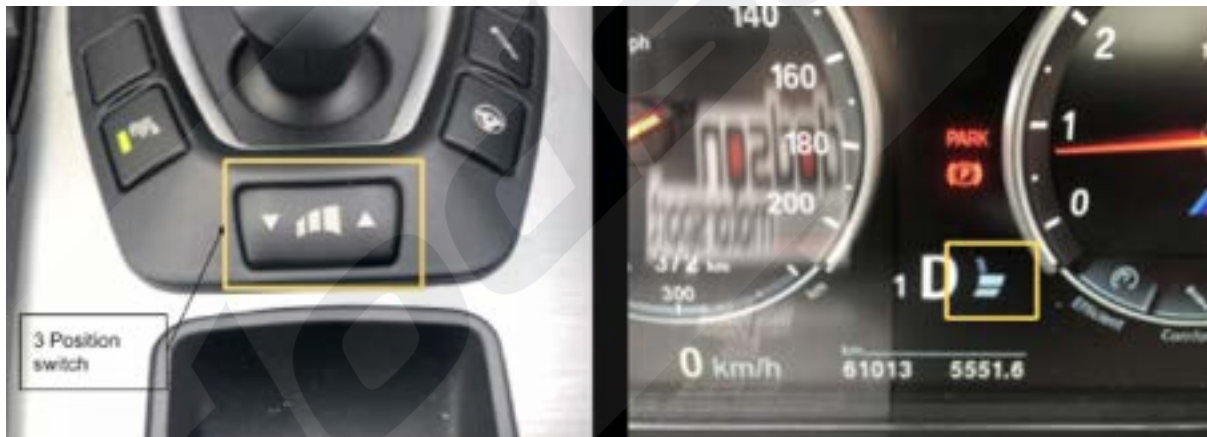
READ FIRST - THESE INSTRUCTIONS MUST BE FOLLOWED EXACTLY

A TRANSMISSION TUNE IS REQUIRED TO PREVENT DAMAGE TO THE CLUTCH AND TO GET THE BEST BENEFITS FROM IT.

We have seen great results when using the **OEM BMW M4 GTS** transmission tune, however, if an aftermarket tune is more desirable, the important aspects that need to be considered are:

- Increasing clutch pressure to ensure that the clutch is fully clamped when power is applied.
- Modifying the torque tables, as a modified car will be applying far more torque at lower RPM than the TCU is tuned for. The TCU also intentionally slips the clutch at low RPM for a more comfortable drive, but with engine and transmission modifications, this can burn the clutch.
- Since the "comfort mode" allows the clutch to slip, it is important to make sure this isn't a default setting on start up if possible.
- Moving the shift points so the car doesn't hold 2nd gear at low RPM (or even at a stop). Heavy torque applied in 2nd gear at low RPM can burn the small stack.
- Not every off-the-shelf transmission tune will resolve this, and so it's important that the aspects mentioned above have been considered and that they have been discussed with your tuner.

THE 3 POSITION SWITCH AS SEEN BELOW SHOULD BE IN MODE 3 FOR DRAG RACING. FOR HIGH HORSEPOWER CARS, IT SHOULD BE IN MODE 2 OR 3.



WE RECOMMEND ALWAYS USING MODE 2 AT A MINIMUM.

New fluid and filters must be used when installing a Dodson clutch. Once the clutch is installed and the calibration is successful, it is strongly recommended to drive ~10km and then perform the clutch calibration a second time.

After this, it is recommended to perform the next 50-100km in the following driving conditions: Split the distance into several trips. Do not constantly use light throttle. Do not use full power during this drive. A moderate amount of throttle is recommended. This procedure will allow the clutch to properly bed in and then automatically adjust to the conditions.

Disabling the traction control system or engaging the launch control system will accelerate wear or potentially damage the clutch and transmission. These functions are to be altered at the user's own risk.

BY OPENING AND USING THIS DOCUMENT YOU AGREE TO ABIDE BY THE FOLLOWING CONDITIONS. INFORMATION CONTAINED IN PART OR IN WHOLE REMAINS WITH DODSON MOTORSPORT. DODSON MOTORSPORT ACCEPTS NO RESPONSIBILITY FOR ANY REASON WHATSOEVER. DO NOT COPY / REPRODUCE IN ANY FORM OR MAKE PUBLIC WITHOUT THE PERMISSION OF DODSON MOTORSPORT.

CLUTCH CALIBRATION INSTRUCTIONS

IMPORTANT NOTES

Make sure the car is in N (Neutral) when first starting the engine. **The car must remain in Neutral when warming up the transmission.**

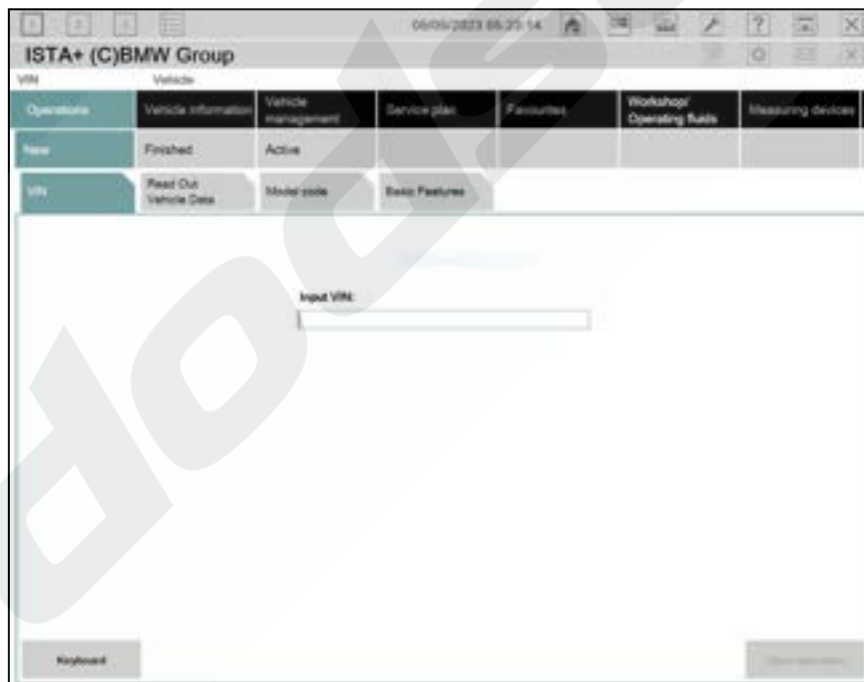
With the car still on the hoist, leave it off the ground. Run the car until the transmission fluid is above **60°C/140°F**. (Vehicle doors must be closed, otherwise the car will stay in P) With the car still in the air, select D for 2 seconds and then shift back to N. Do this 3 times. Now turn off traction control, select D and change to manual mode. Run through all the gears on minimal throttle. When the wheels have stopped rotating (apply brake when back in 1st gear and low RPM), put into P. If these tests were successful, move on to clutch calibration.

The following instructions show clutch calibration using a genuine BMW ISTA+ scan tool, however, many aftermarket scan tools will follow a similar procedure

STEP 1

Connect the scan tool to the OBD connector.

Input the VIN number of your vehicle (note: only the last 7 digits are needed), or use the “Read Out Vehicle Data” function.



STEP 2

When seeing this screen, click **“Start Vehicle Test”** and then select your connection.



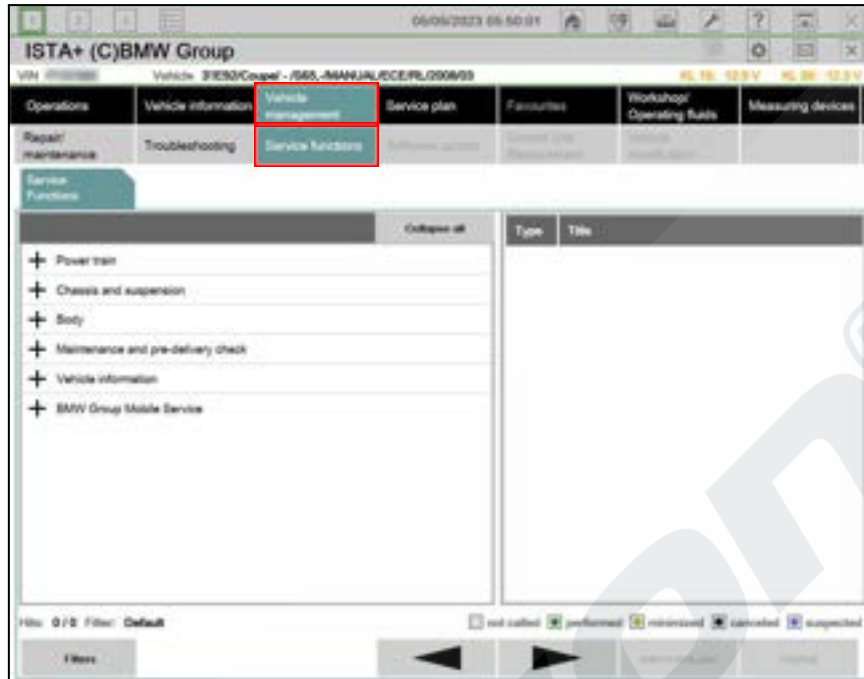
STEP 3

Upon seeing this screen, click **“Display Fault Memory”** and clear all error codes.



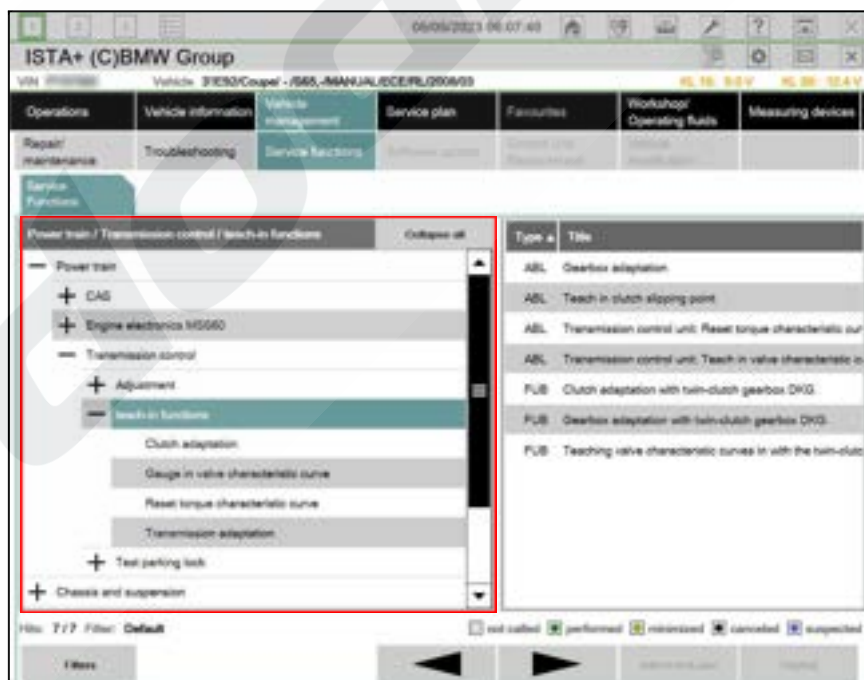
STEP 4

With no fault codes, you can follow the headings “Vehicle Management” -> “Service Function”.



STEP 5

Follow the menu options as seen on the left hand side. “Powertrain” -> “Transmission Control” -> “Teach-in Function”.

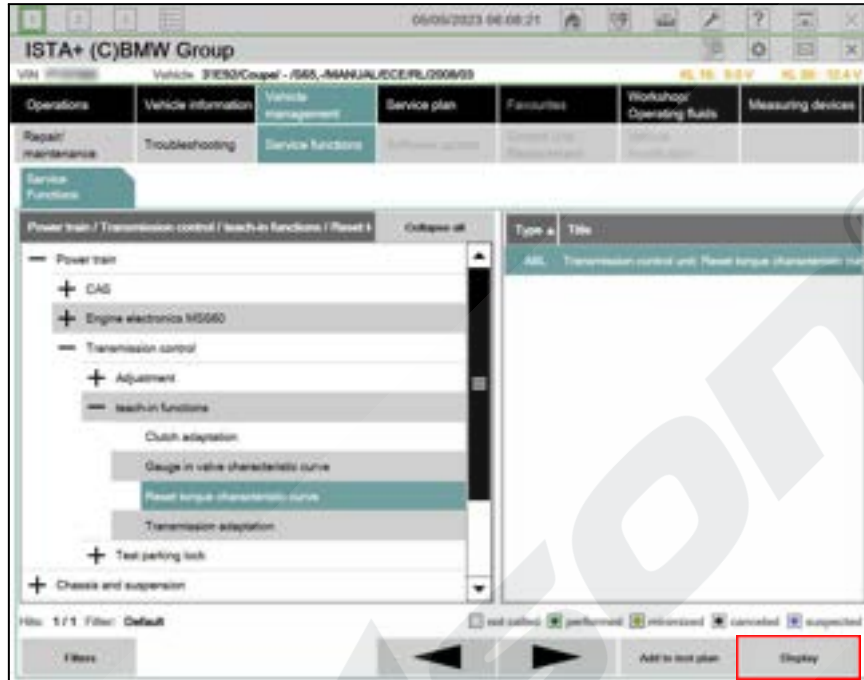


STEP 6

The correct order for the procedure when replacing a clutch is:

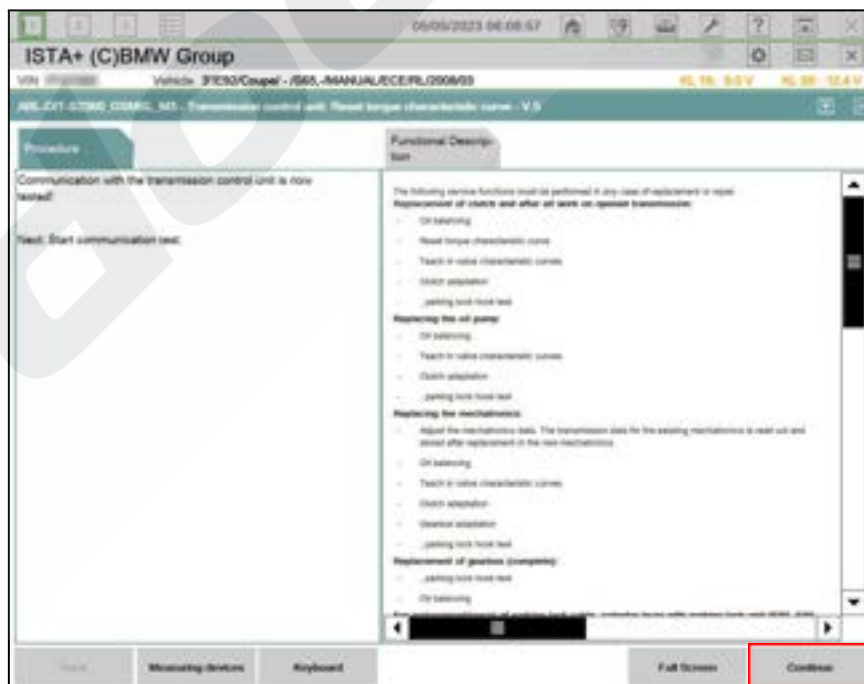
1. "Reset torque characteristic curve"
2. "Gauge in valve characteristic curve"
3. "Clutch adaptation".

Select "Reset torque characteristic curve" in the left menu and in the right, then press "Display".



STEP 7

All three procedures will start with a **communications test**. Click "Continue" and follow the on-screen prompts in the exact order to complete each process.



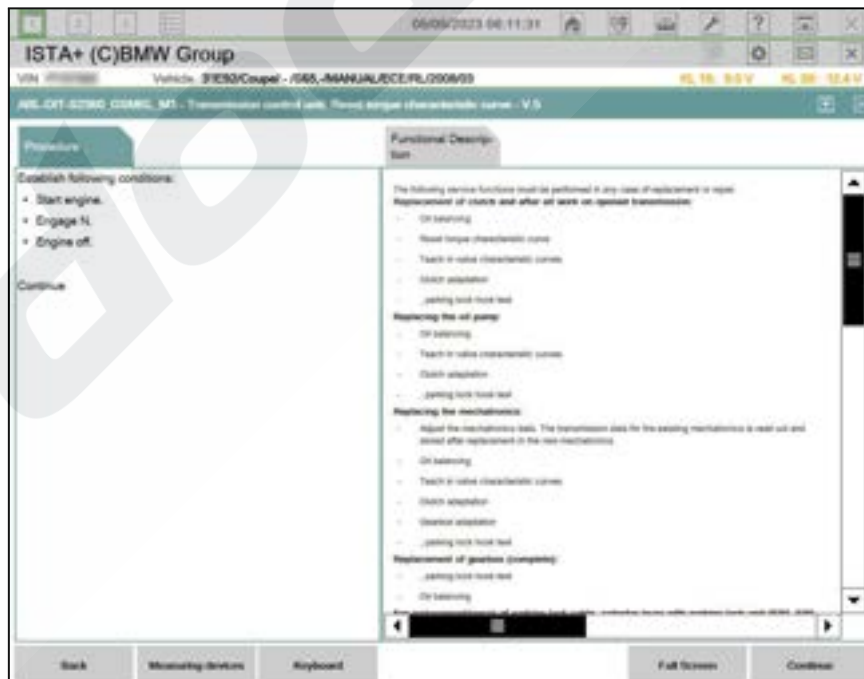
STEP 8

When the communications test is complete, you'll be prompted to turn **Engine OFF** and then turn **Terminal 15 ON**. (This is ignition ON, engine not running. Make sure it's not just in ACC mode)



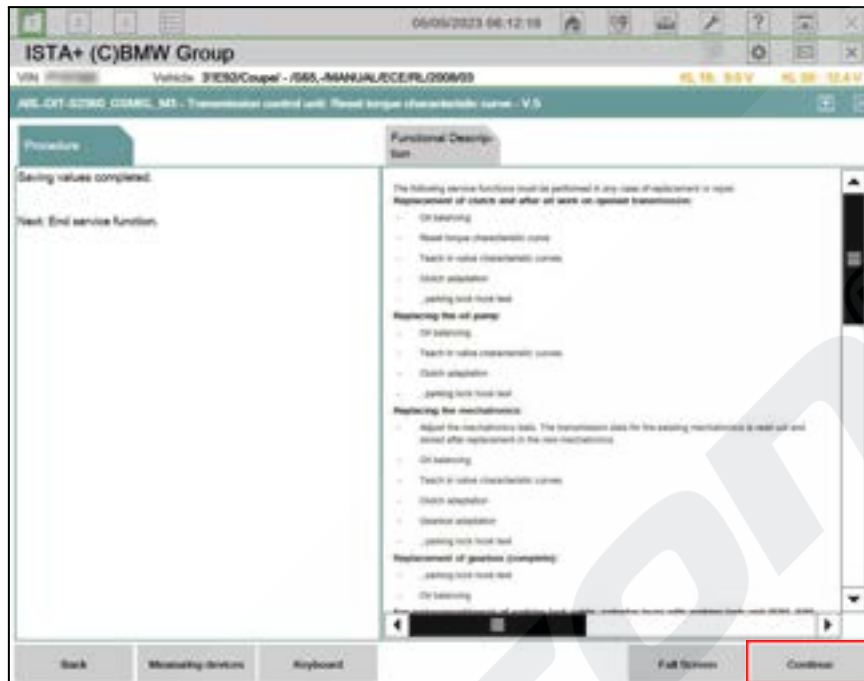
STEP 9

Now start the engine, shift into N and then turn the engine off again. **THE KEY MUST BE IN KEY SLOT.** (If the key is not in the key slot, the transmission may switch back into P when switched off)



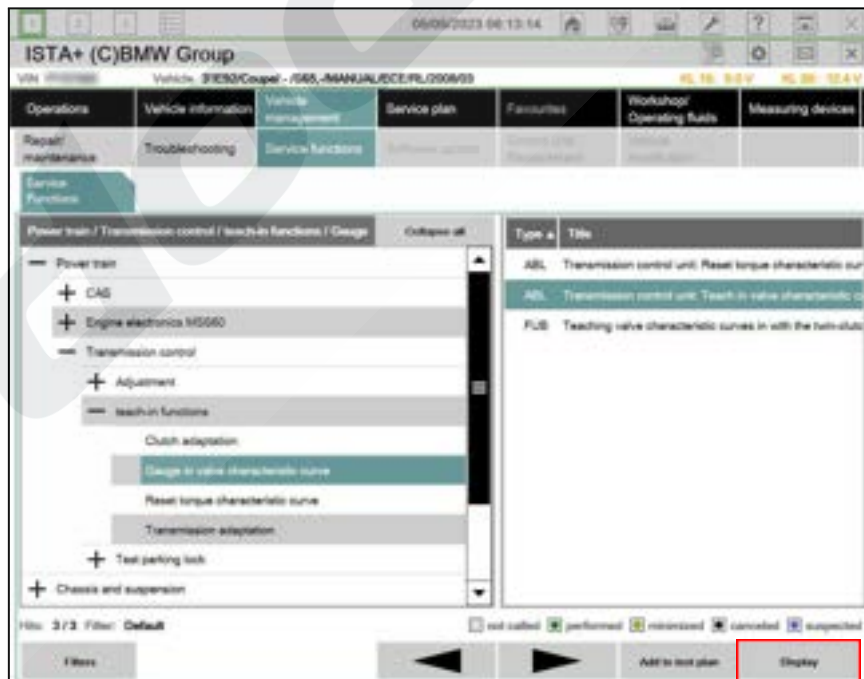
STEP 10

Continue onwards to complete this process until the **“Saving values completed”** message is shown and press **“Continue”**.



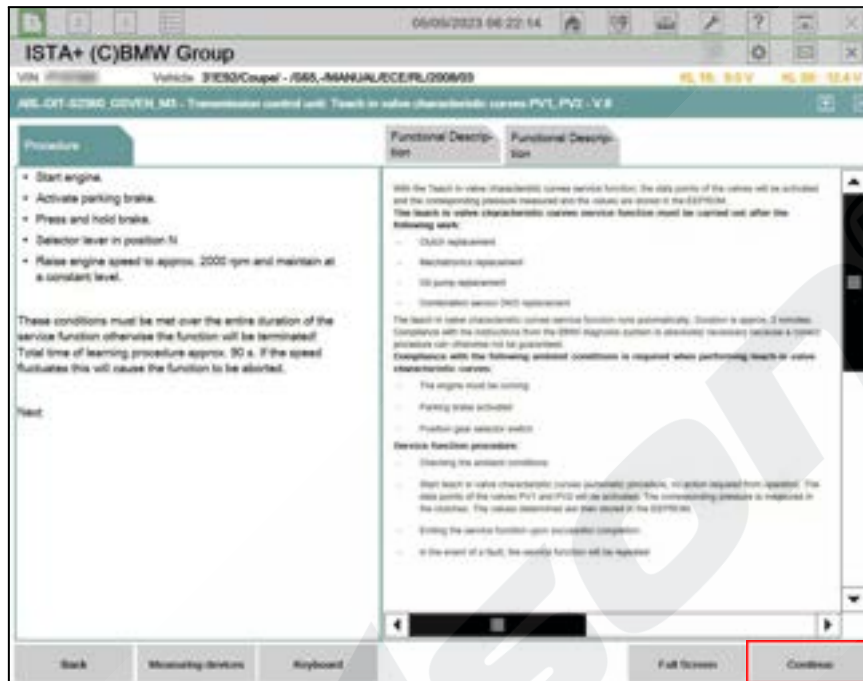
STEP 11

Select **“Gauge in valve characteristic curve”** in the left menu, then select **“Teach in valve characteristic curves PV1, PV2”** in the right menu and press **“Display”**.



STEP 12

After the communication test, follow the on-screen instructions. **Turn the Engine ON, apply the park brake and the foot brake.** The foot brake must be applied during the entire procedure. **Put the car into N.** Raise the engine speed to approx. **2000 RPM** (or whichever the program specifies) and **hold steady.** Press **“Continue”** to start the procedure.



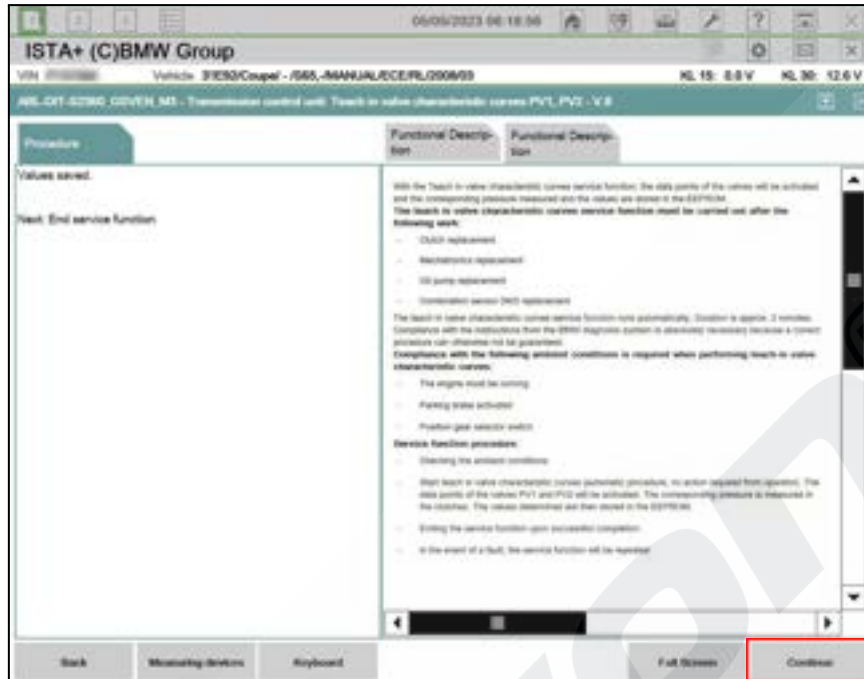
STEP 13

When the **“Next: to save the values”** message appears, the procedure is complete. Press **“Continue”**. Then turn the **Engine OFF**, and then turn **Terminal 15 ON.** Wait **5 seconds**, and then press **“Continue”** again.



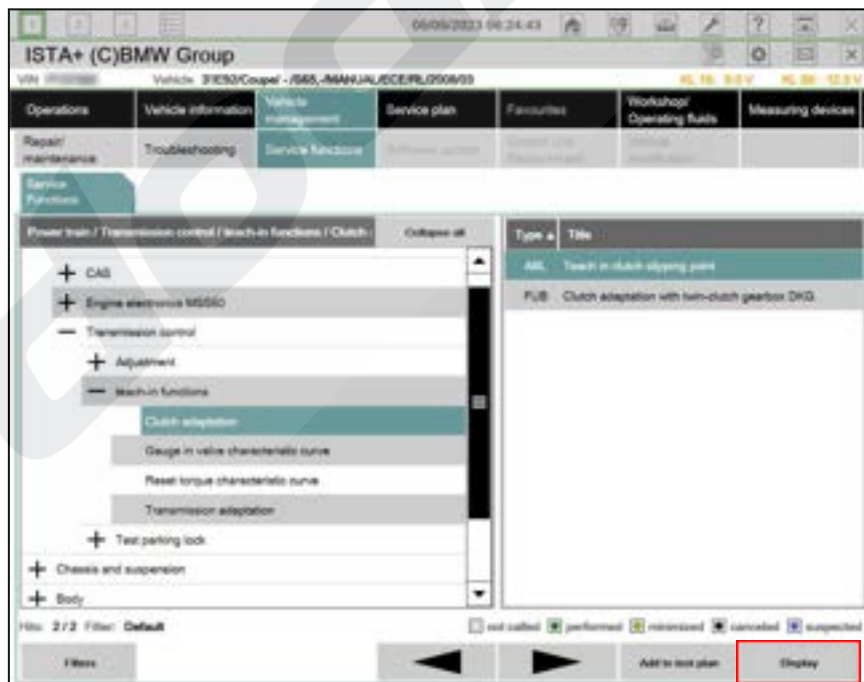
STEP 14

Ensure “Values saved” is displayed and press “Continue” again.



STEP 15

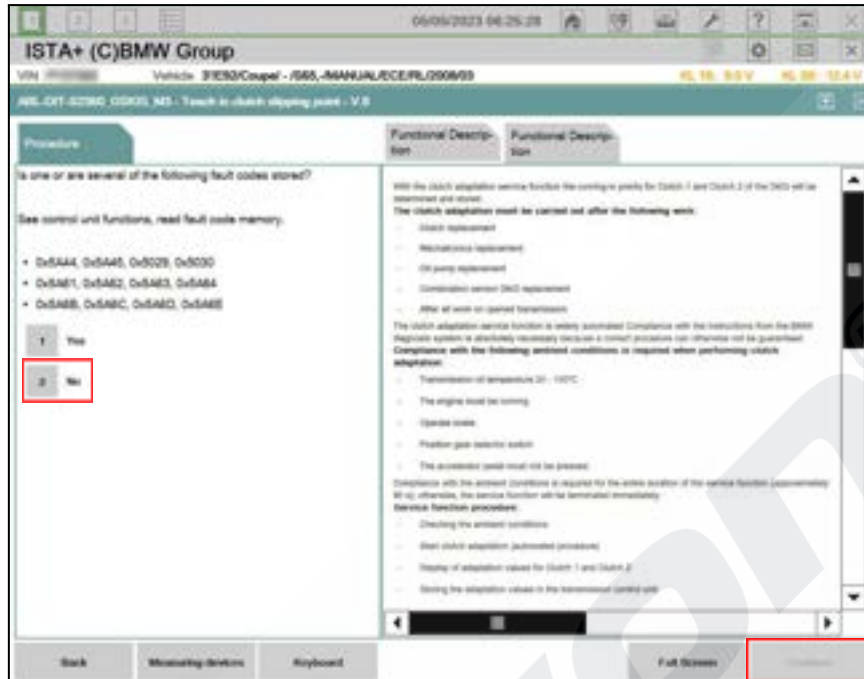
Now select “Clutch adaptation” in the left menu, followed by “Teach in clutch slipping point” in the right menu and press “Display”.



BY OPENING AND USING THIS DOCUMENT YOU AGREE TO ABIDE BY THE FOLLOWING CONDITIONS. INFORMATION CONTAINED IN PART OR IN WHOLE REMAINS WITH DODSON MOTORSPORT. DODSON MOTORSPORT ACCEPTS NO RESPONSIBILITY FOR ANY REASON WHATSOEVER. DO NOT COPY / REPRODUCE IN ANY FORM OR MAKE PUBLIC WITHOUT THE PERMISSION OF DODSON MOTORSPORT.

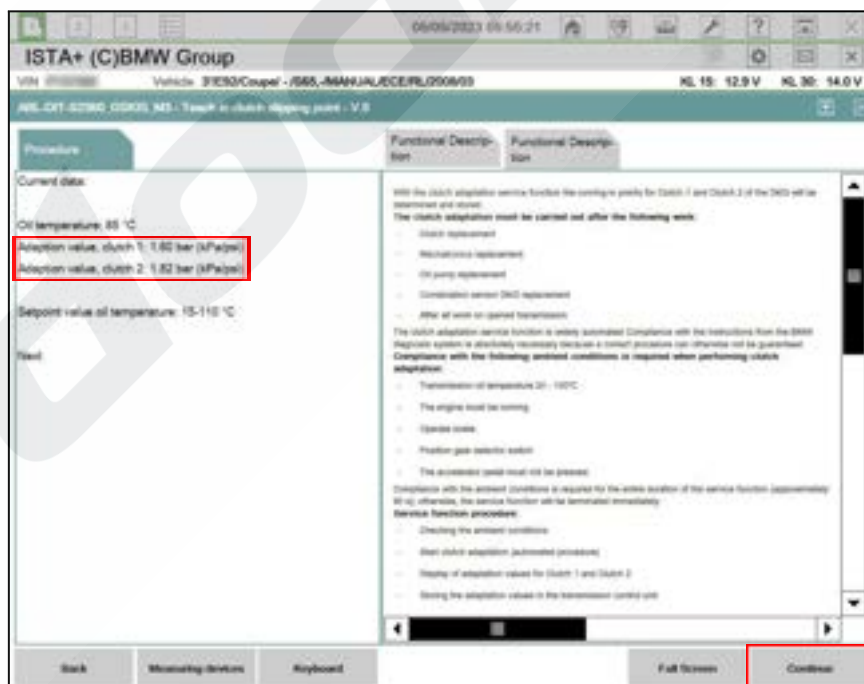
STEP 16

After the communications test, select “No” to the error codes and press “Continue”.



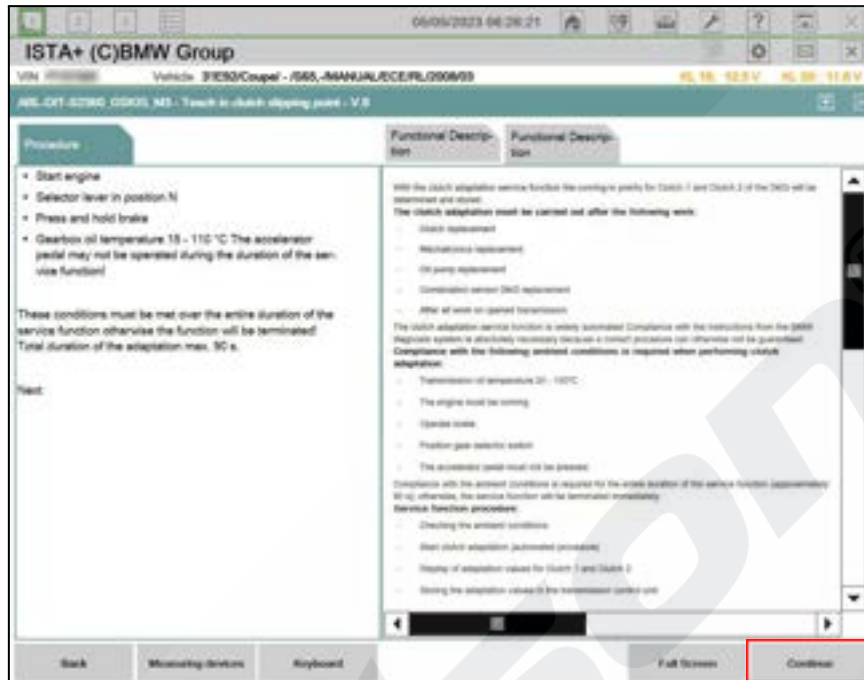
STEP 17

It is a good idea to note down the current “Adaption values” for future reference, before proceeding with “Continue”.



STEP 18

From this point the **engine must be running, foot brake applied through the entire procedure and the accelerator pedal must not be pressed.** The transmission temperature must be between **15-110°C** and the gear selector in N. Press **“Continue”**.



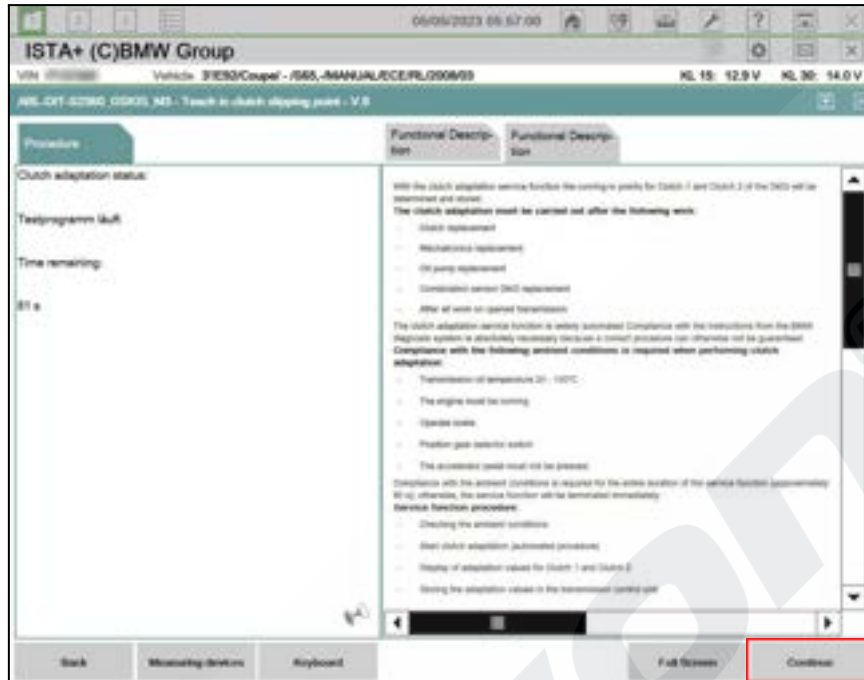
STEP 19

Follow the prompts to start the **clutch adaptation**. You may feel the car move or hear it clunk, this is normal. The screen will display the time remaining.



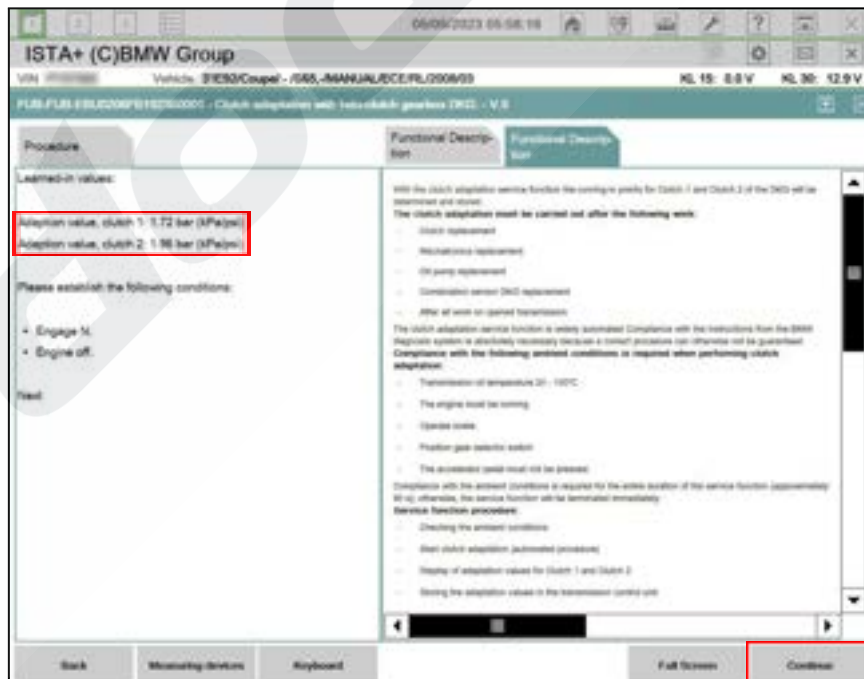
STEP 20

Once completed, ensure “The clutch function has been carried out!” is displayed. then press “Continue”.



STEP 21

The next screen will show the new clutch “Adaption values”. Record these with the old values. With the gear selector in **N**, turn the **Engine OFF**, turn **Terminal 15 ON**, wait **5 seconds** and then press “Continue” to complete the clutch adaptation.



IMPORTANT STEPS FOLLOWING A SUCCESSFUL CALIBRATION

- Run the car on a hoist, with wheels off the ground and traction control off, through all the gears in Manual and Auto modes.
- Test-drive the car.
- **Do not drive with minimal throttle or full throttle.**
- Light to medium throttle is advised.
- Avoid steep driveways.
- **After 5-10kms, perform the calibration process again.**
- Once happy with the behaviour of the clutch/transmission, keep driving the car with multiple power cycles (turning car off and on). This will allow the car's self-adaptation process to operate.
- After approx. **100kms**, the car should be good to be driven at full power.
- Please monitor clutch slip during full power driving and highway cruising to make sure there is no slip at all. This can sometimes be hard to tell without data.
- Make sure the car is always driven in **Mode 2 or above** (if applicable) or in its transmission **Sport mode**.

If you have any questions email us at technical@dodsonmotorsport.com