

Technical Bulletin

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Toyota Auris, Aygo, Corolla, Yaris / Citroën C1 / Peugeot 107 – MMT Clutch Replacement Guide

Applicable References: ADT330265 / ADT330266 / ADT330274 / ADT330278

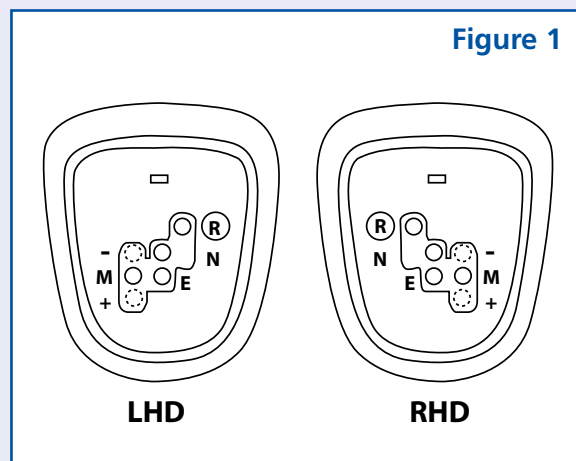
Applications: Toyota Auris 1.4 & 1.6, Aygo 1.0, Corolla 1.4, Yaris 1.0, 1.3 & 1.4 / Citroën C1 1.0 / Peugeot 107 1.0 1999>2014

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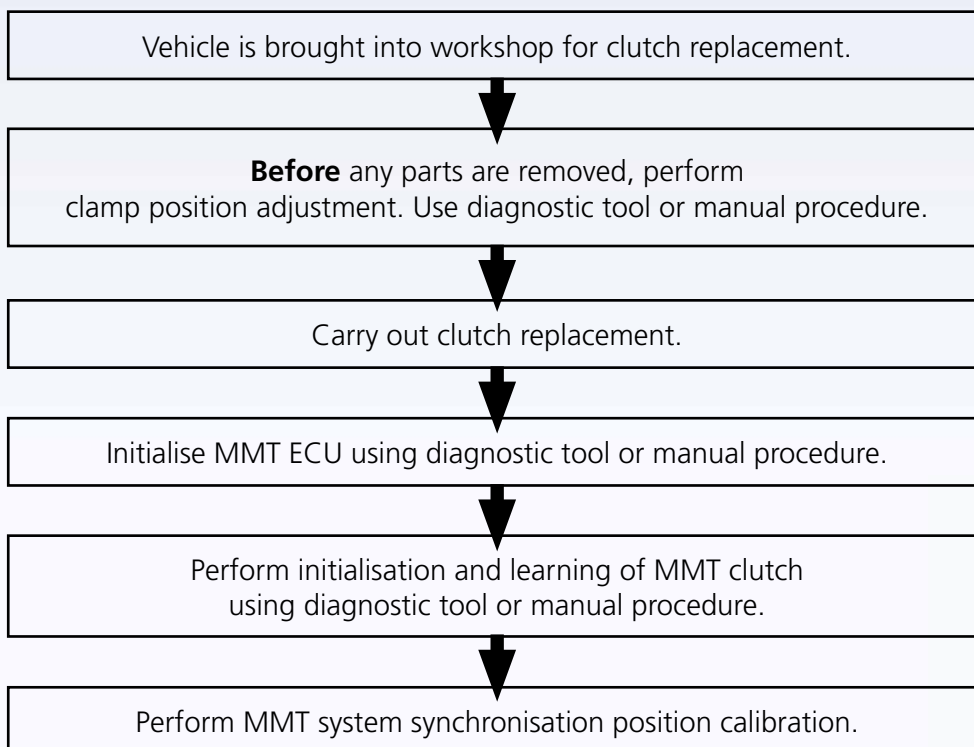
Multi-Mode Transmission, or MMT for short, is a type of sequential manual gearbox offered by Toyota. Instead of a conventional automatic transmission which uses hydraulics and a torque convertor, the MMT has a conventional friction clutch and mechanical gear selector mechanism which is controlled electronically. The most obvious way to identify whether a car is fitted with MMT, is the gear selector will have no transmission locking Park (P) position, as in Fig. 1.

IMPORTANT: Before removing an MMT gearbox for a clutch replacement you must first set the clutch actuator to the 'clutch clamp' position. Failure to carry out this operation is likely to cause the clutch actuator to be in the incorrect position on reassembly of the gearbox. This could result in a multitude of problems such as clutch slippage, harsh and delayed engagement, or no clutch operation at all which would prevent the selecting of any gears and possible damage to the clutch actuator.

A suitable diagnostic tool can facilitate this step, although it is possible to complete the procedure manually without a diagnostic tool by following the process outlined in this bulletin.

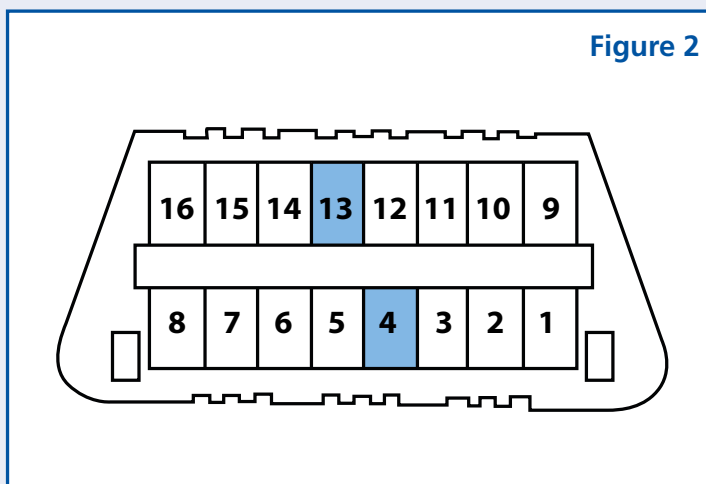


MMT Parts Removal and Installation Procedure



Clutch clamp position adjustment manual procedure (without diagnostic tool)

1. Ensure the ignition is switched off, the gear selector is in the 'N' position and that the parking brake is applied.
2. Use a jumper wire to connect terminals 4 and 13 of the 16pin OBD diagnostic socket as shown in fig. 2.
3. With your foot OFF of the brake pedal, turn the ignition switch to the ON position.
4. Pump the brake pedal (on>off) 7 times or more within a 3 second period.
5. A buzzer should now sound twice with an interval of 0.25 seconds.
6. Depress the brake pedal and hold it down.
7. Keeping the brake pedal held down, now shift the gear lever in the following sequence:



1	2	3	4	5	6	7	8	9	10	11	12	13
N	E	M	+	M	+	M	+	M	+	M	E	N

8. Release the brake pedal.
9. Press and release the brake pedal one time. A buzzer should now sound once. **Note:** If the buzzer does not sound, turn the ignition OFF and wait at least 15 seconds before starting the process from the beginning again.
10. Pump the brake pedal (on>off) 3 times or more within a 2 second period. A buzzer should now sound twice with an interval of 0.25 seconds.
11. Depress the brake pedal and hold it down whilst shifting the gear lever into the '-' position.
12. Release the brake pedal.
13. Turn the ignition OFF and wait at least 10 seconds.
14. Disconnect the jumper wire from the 16 pin OBD diagnostic socket.

The clutch is now in its clamped position and you can proceed with removing the transmission and replacing the clutch assembly.

IMPORTANT: After you have replaced the clutch you will have to initialise the MMT ECU and Clutch and perform the MMT system calibration.

Initialisation of the MMT ECU (All learned and calibrated values and DTC's are cleared)

1. Ensure the ignition is switched off and the gear selector is in the 'N' position.
2. Re-connect the jumper wire as shown previously in figure 2.
3. Wait at least 10 seconds and then turn the ignition to the ON position.
4. Pump the brake pedal (on>off) at least 7 times within a 3 second period.
5. A buzzer should now sound twice with an interval of 0.25 seconds.

Now you are ready to initialise the ECU...

6. Depress the brake pedal and hold it down.
7. Keeping the brake pedal held down, now shift the gear lever in the following sequence:

1	2	3	4	5	6	7	8	9	10	11	12
N	E	M	-	M	-	M	-	M	-	E	N

8. Release the brake pedal.
9. Press and release the brake pedal one time. A buzzer should sound twice with an interval of 0.5 seconds.
Note: If the buzzer does not sound, turn the ignition OFF and wait at least 15 seconds before restarting the process from the beginning again.
10. Pump the brake pedal (on>off) 3 times or more within a 2 second period. A buzzer should now sound twice with an interval of 0.25 seconds when initialising the ECU.
11. Turn the ignition switch off and wait at least 10 seconds. (15 Seconds for Aygo 2012>)
12. Disconnect the jumper wire from 16 pin OBD diagnostic socket.

Initialisation of the MMT ECU is complete.

Initialisation of the clutch

1. Ensure the ignition is switched off and the gear selector is in the 'N' position.
2. Re-connect the jumper wire as shown previously in figure 2.
3. Wait at least 10 seconds and then turn the ignition to the ON position.
4. Pump the brake pedal (on>off) at least 7 times within a 3 second period. A buzzer should sound twice with an interval of 0.25 seconds.

Now you are ready to initialise the clutch...

5. Depress the brake pedal and hold it down.
6. Keeping the brake pedal held down, now shift the gear lever in the following sequence:

1	2	3	4	5	6	7	8	9	10	11	12
N	E	M	+	M	-	M	+	M	-	E	N

7. Release the brake pedal.
8. Press and release the brake pedal one time. A buzzer should now sound 3 times to confirm initialisation of the transmission. **Note:** If the buzzer does not sound, turn the ignition OFF and wait at least 15 seconds before restarting the process.
9. Pump the brake pedal (on>off) 3 times or more within a 2 second period. A buzzer should now sound twice with an interval of 0.25 seconds.
10. Turn the ignition switch to OFF and wait at least 10 seconds. (15 Seconds Aygo 2012>)
11. Disconnect the jumper wire from 16 pin OBD diagnostic socket.

Initialisation of the MMT clutch is complete.

MMT system learning

Performing this procedure will ensure that the initialised clutch position and/or gear position is stored.

1. Ensure the ignition is switched off and the gear selector is in the 'N' position.
2. Turn the ignition to the ON position and wait at least 40 seconds. (50 Seconds Aygo 2012>) You will hear the gear shift and selector actuator selecting gears.
3. Turn the ignition to the OFF position and wait at least 15 seconds. (20 Seconds Aygo 2012>)
4. Ensuring that the Shift lever is in the 'N' position, depress and hold down the brake pedal, turn the ignition on and start the engine. The shift indicator on the instrument panel should blink when the engine is started.
5. Wait at least 10 seconds, checking that the shift 'N' position indicator has stopped blinking and is on continuously.

The MMT system learning is complete.

MMT system synchronisation and position calibration

The vehicle must now be road tested to allow the transmission to learn gear position and synchronisation.

Drive the vehicle in the manual mode (gear position M) and move through all the gears leaving at least 2 seconds between changes.

Gear Change	Gear Position	Vehicle Speed
Up-shift	1st > 2nd	Between 16.2-21.7 mph (26-35 km/h)
	2nd > 3rd	Between 29.2-41.6 mph (47-67 km/h)
	3rd > 4th	Between 38.5-60.9 mph (62-98 km/h)
	4th > 5th	Between 47.2-82 mph (76-132 km/h)
Down-shift	2nd > 1st	Between 16.2-21.7 mph (26-35 km/h)

If after the synchronisation process the gear changes jolt or are not smooth, then perform the position calibration again.

Please always abide by local speed limits.

Disclaimer: Any technical tips are produced in good faith. Automotive Distributors Ltd always recommends that vehicle maintenance and diagnostics are only carried out by suitably experienced people using appropriate tools in a safe manner within a workshop environment. Automotive Distributors Ltd and their customers cannot be held responsible for the correctness of, or misinterpretation of the above technical information. Images shown are for illustrative purposes only and may not be representative of the products or vehicles described.



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