

Diagnostic Sheet

FROM: Maserati TSO

TO: Maserati Network



PERSONAL SERVICE LAB

MASTERS OF CARE

MC20 – Gearbox diagnosis and repairability

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This Diagnostic Sheet serves as a guide and provides additional diagnostic info for possible MC20 gearbox anomalies and possible lower-level repair now available. Maserati also introduced a new Procedure available through the MDEVO called "**DCTM Service Fast Learn**". This new routine could be used to address issues related to sticky valve and performs a purge cycle and a valve readaptation to address pressure related issues.

SECTION: 03.10 - 1 GEARBOX HOUSINGS

MODEL: M240 MC20 & MC20 Cielo from MY23 (on MY22 the DCTM Service Fast Learn procedure is not available due to a technical constraint related to DTCM SW version)

CONCERN: Gearbox warning light on and storage in DCTM of one or multiple of the following DTCs.

DTC Type	DTC Code	DTC naming SAE_J2012
1	P0746	Pressure Control Solenoid "A" Performance/Stuck Off
1	P0747	Pressure Control Solenoid "A" Stuck On
1	P0776	Pressure Control Solenoid "B" Performance/Stuck Off
1	P0777	Pressure Control Solenoid "B" Stuck On
1	P0796	Pressure Control Solenoid "C" Performance/Stuck Off
1	P0797	Pressure Control Solenoid "C" Stuck On
1	P080E	Transmission System Pressure Relief Valve Performance
1	P0867	Transmission Fluid Pressure
1	P0868	Transmission Fluid Pressure Low
1	P0869	Transmission Fluid Pressure High
1	P2714	Pressure Control Solenoid "D" Performance/Stuck Off
1	P2715	Pressure Control Solenoid "D" Stuck On
1	P2723	Pressure Control Solenoid "E" Performance/Stuck Off
1	P2724	Pressure Control Solenoid "E" Stuck On
1	P2808	Pressure Control Solenoid "G" Performance/Stuck Off
1	P2809	Pressure Control Solenoid "G" Stuck On
1	P2817	Pressure Control Solenoid "H" Performance/Stuck Off
1	P2818	Pressure Control Solenoid "H" Stuck On
1	P2853	Clutch "A" Pressure Discharge Performance
1	P2854	Clutch "B" Pressure Discharge Performance
1	P2855	Clutch "A" Pressure Charge Performance
1	P2856	Clutch "B" Pressure Charge Performance
1	P2A18	Limited Slip Differential Pressure Too High
1	P2A19	Limited Slip Differential Pressure Too Low
2	P07E4	Unable to Engage Park
2	P07E6	Stuck in Park

2	P2820	Pressure Control Solenoid "J" Performance/Stuck Off
2	P2821	Pressure Control Solenoid "J" Stuck On
2	P08C4	Pressure Control Solenoid "M" Performance/Stuck Off
2	P08C5	Pressure Control Solenoid "M" Stuck On
2	P27B9	Pressure Control Solenoid "N" Performance/Stuck Off
2	P27BA	Pressure Control Solenoid "N" Stuck On
2	P27C1	Pressure Control Solenoid "P" Performance/Stuck Off
2	P27C2	Pressure Control Solenoid "P" Stuck On
2	P27C9	Pressure Control Solenoid "R" Performance/Stuck Off
2	P27CA	Pressure Control Solenoid "R" Stuck On
2	P27D1	Pressure Control Solenoid "S" Performance/Stuck Off
2	P27D2	Pressure Control Solenoid "S" Stuck On
2	P2829	Pressure Control Solenoid "K" Performance/Stuck Off
2	P282A	Pressure Control Solenoid "K" Stuck On
2	P284D	Shift Fork "A" Unrequested Movement
2	P284E	Shift Fork "B" Unrequested Movement
2	P284F	Shift Fork "C" Unrequested Movement
2	P2850	Shift Fork "D" Unrequested Movement
2	P286A	Shift Fork "E" Unrequested Movement
2	P072B	Stuck In Reverse
2	P072C	Stuck in Gear 1
2	P072D	Stuck in Gear 2
2	P072E	Stuck in Gear 3
2	P072F	Stuck in Gear 4
2	P073A	Stuck in Gear 5
2	P073B	Stuck in Gear 6
2	P073C	Stuck in Gear 7
2	P073E	Unable to Engage Reverse
2	P073F	Unable to Engage Gear 1
2	P074A	Unable To Engage Gear 2
2	P074B	Unable To Engage Gear 3
2	P074C	Unable To Engage Gear 4
2	P074D	Unable To Engage Gear 5
2	P074E	Unable To Engage Gear 6
2	P074F	Unable To Engage Gear 7
2	P07D7	Stuck in Gear 8
2	P07D8	Unable To Engage Gear 8
2	P1CAD	Gear Shift Actuator 1 Disengage Failure
2	P1CAE	Gear Shift Actuator 2 Disengage Failure
2	P1CAF	Gear Shift Actuator 3 Disengage Failure
2	P1CB1	Gear Shift Actuator 1 Engage Failure
2	P1CB2	Gear Shift Actuator 2 Engage Failure
2	P1CB3	Gear Shift Actuator 3 Engage Failure

Diagnostic Action

Please refer to the diagnostic path below:

- 1) Read DTCs stored in DCTM (save a complete vehicle scan report DTC+ Parameters)
- 2) If DTCs stored in DCTM are included in the above table, perform the diagnostic procedure.
DCTM → Procedures → DCTM Service Fast Learn
- 3) Road test the car and check if the complained anomaly and related DTCs could be reproduced.
 - If the anomaly does not appear anymore, replace Gearbox oil and filter, road test again the car and in case of good outcome the car could be delivered back to the customer.
 - If the anomaly and DCTM DTCs appear again, save a complete vehicle scan report DTC+ Parameters.
 - If DTC stored in DCTM is classified as Type1 (according to the above table), go to Step **4)**
 - If DTC stored in DCTM is classified as Type2 (according to the above table), go to Step **5)**

- 4) Replace Mechatronic Assembly + gearbox Oil and filter (component #54 in table 03.10.1 Gearbox housings).

After installing the new parts, perform again the diagnostic procedure DCTM → Procedures → DCTM Service Fast Learn.

Road test the car and check if the complained anomaly and related DTCs could be reproduced.

- If the anomaly does not appear anymore, the car could be delivered back to the customer.
 - If the anomaly and DTCs appear again, the complete Gearbox needs to be replaced (save a complete vehicle scan report DTC+ Parameters).
- 5) Perform and record in pdf an acquisition of below indicated DCTM parameters to identify the causal component.

1F35 - System Pressure Sensor Raw with Zero Correction

1EFA - System Pressure Sensor Raw

1F37 - System Pressure Target

NOTE: System Pressure should maintain between 20 and 30 bar of pressure when the engine is running or driving the car, the "commanded" pressure will vary in this range depending on torque requirements. For diagnostics we look for pressure oscillation or frequent pressure drops below 5 bar indicating the system pressure control valve is having trouble maintaining stable pressure.

- If the System Pressure is stable, the complete Gearbox needs to be replaced.
- If the System Pressure is unstable, go to Step **4)**

It is required to open a Blue on Line as Support Request by providing evidence and step by step outcome of the above indicated diagnosis.

REPAIR NOTE: In case of Mechatronic Assembly replacement, only screws PN 673016908 (component #55 in table 03.10.1 Gearbox housings) they do not necessarily need to be replaced but they can be re installed.

Please do not hesitate to contact us for any questions you may have.
Kind regards,

TECHNICAL SERVICE OPERATIONS