

## TEMPORARY REVISION

### OM-TR-MDC-E4-453

## Caution Handling Tables

This Temporary Revision OM-TR-MDC-E4-453 is approved in conjunction with the Design Change Advisory MDC-E4-453 and is valid in conjunction with the latest revision of the Operation Manual (OM) until this Temporary Revision has been incorporated into the OM.

The limitations and information contained herein either supplement or, in the case of conflict, override those in the OM.

The technical information contained in this document has been approved under the authority of DOA ref. EASA.21J.399.

Doc. Nr.	Affected Section(s)	Affected Page(s)
E4.01.01	7.6.3.3	7-17 a-g

### **Instruction:**

- Print this document on yellow paper (single-sided)
- Insert this cover page as the first page of the OM
- Insert the other pages of this Temporary Revision adjacent to or in front of the corresponding OM pages

### 7.6.3.3 Caution Handling Table Software

*The existing section is replaced as follows:*

#### Latched Caution Indication

Failure description	Failure Code	Caution Indication	Caution Latched	ECU Switch Over
Analogue-digital converter failure	2319	YES	YES	YES
CJ940 power monitoring chip failure	2329	YES	YES	YES
CJ940 power monitoring over voltage failure	2350	YES	YES	YES
Common rail pressure sensor failure	190	YES	YES	YES
Common rail, pressure control valve failure 0	2051	YES	YES	YES
Common rail, pressure control valve failure 1	2019	YES	YES	YES
Common rail, pressure control valve failure 2	2020	YES	YES	YES
Common rail, pressure control valve failure 3	2021	YES	YES	YES
Common rail, pressure control valve failure 4	2023	YES	YES	YES
Common rail, pressure control valve failure 5	2052	YES	YES	YES
Crank shaft sensor failure	2045	YES	YES	YES
Cylinder 1 - Injection valve failure	201	YES	YES	YES
Cylinder 2 - Injection valve failure	202	YES	YES	YES
Cylinder 3 - Injection valve failure	203	YES	YES	YES
Cylinder 4 - Injection valve failure	204	YES	YES	YES
ECU hardware encapsulation failure	2386	YES	YES	YES
ECU identity failure	1D11	YES	YES	YES
Engine oil pressure failure	1B14	YES	YES	NO
Injection monitoring failure	2322	YES	YES	YES
Injection valve Bank 1A failure	2123	YES	YES	YES
Injection valve Bank 1B failure	2139	YES	YES	YES
Injection valve Bank 2A failure	2124	YES	YES	YES
Injection valve Bank 2B failure	2140	YES	YES	YES
Injection valve Cylinder 1B failure	2141	YES	YES	YES
Injection valve Cylinder 2B failure	2142	YES	YES	YES
Injection valve Cylinder 3B failure	2143	YES	YES	YES
Injection valve Cylinder 4B failure	2144	YES	YES	YES
Injector driver chip failure A	2324	YES	YES	YES
Injector driver chip failure B	2325	YES	YES	YES
Pressure control valve power stage failure	2500	YES	YES	YES
Pressure control valve power stage failure	2501	YES	YES	YES
Pressure control valve power stage failure	2502	YES	YES	YES
Rail pressure control valve, electric current monitoring	2151	YES	YES	YES



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Failure description	Failure Code	Caution Indication	Caution Latched	ECU Switch Over
Redundant engine speed monitoring failure	2343	YES	YES	YES
Sensor supply voltage 1 failure	1611	YES	YES	YES
Sensor supply voltage 2 failure	2306	YES	YES	YES
Sensor supply voltage 3 failure	2332	YES	YES	YES
Test of redundant shut off paths	2122	YES	YES	YES
TPU monitoring failure	2342	YES	YES	YES
Watchdog connection failure	2323	YES	YES	YES

### Non-Latched Caution Indications

Failure description	Failure Code	Caution Indication	Caution Latched	ECU Switch Over
Actuator supply voltage failure	1A04	YES	NO	YES
Atmospheric pressure sensor failure	1105	YES	NO	YES
Barometric air pressure sensing of ECU A and B not consistent	1B03	YES	NO	NO
Battery voltage failure	1615	YES	NO	YES
Boost pressure actuator power stage failure	2526	YES	NO	YES
Boost pressure actuator power stage failure	2510	YES	NO	NO
Boost pressure governor failure	2359	YES	NO	NO
Boost pressure sensing of ECU A and B not consistent	1B04	YES	NO	NO
Boost pressure sensor failure	105	YES	NO	YES
Cam shaft and crank shaft synchronisation failure	2606	YES	NO	NO
Cam shaft sensor failure	2043	YES	NO	YES
Cam shaft speed sensing of ECU A and B not consistent	1B05	YES	NO	NO
Caution lamp power stage failure	1C11	YES	NO	NO
CJ940 power monitoring low voltage failure	2351	YES	NO	NO
Common rail pressure sensing of ECU A and B not consistent	1B0E	YES	NO	NO
Common rail, metering unit failure 0	2047	YES	NO	YES
Common rail, metering unit failure 1	2015	YES	NO	YES
Common rail, metering unit failure 2	2016	YES	NO	YES
Common rail, metering unit failure 3	2017	YES	NO	YES
Common rail, metering unit failure 4	2018	YES	NO	YES
Coolant temperature sensing of ECU A and B not consistent	1B07	YES	NO	NO
Crank shaft speed sensing of ECU A and B not consistent	1B06	YES	NO	NO
Cylinder 5 - Injection valve failure	205	YES	NO	NO
Cylinder 6 - Injection valve failure	206	YES	NO	NO
Dummy fault for testing	1EFC	YES	NO	NO
ECU actuator connector failure	1D02	YES	NO	NO
ECU initialization failure (no comm. with twin ECU)	1D12	YES	NO	NO
ECU recovery has occurred (locked)	2356	YES	NO	YES
ECU recovery has occurred (suppressed)	2357	YES	NO	YES
ECU recovery has occurred (visible)	2358	YES	NO	YES
ECU self test timeout failure	1D07	YES	NO	NO

Failure description	Failure Code	Caution Indication	Caution Latched	ECU Switch Over
ECU switchover due to internal CAN message timeout	1D13	YES	NO	NO
ECU temperature sensor failure	2361	YES	NO	YES
ECU XA connector failure	1D01	YES	NO	NO
ECU XB connector failure	1D03	YES	NO	NO
Electric fuel (Pre-supply) pump power stage failure	2100	YES	NO	YES
Engine master switch signal failure	1612	YES	NO	YES
Engine oil level failure	1B12	YES	NO	NO
Engine oil pressure sensing of ECU A and B not consistent	1B0C	YES	NO	NO
Engine oil pressure sensor failure	1B13	YES	NO	YES
Engine oil temperature sensing of ECU A and B not consistent	1B0D	YES	NO	NO
Event recorder failure	1E03	YES	NO	NO
Event: Battery voltage operating range	1E1C	YES	NO	NO
Event: Boost pressure operating range	1E12	YES	NO	YES
Event: Coolant temperature operating range	1E17	YES	NO	NO
Event: ECU status change	1E16	YES	NO	NO
Event: Engine oil pressure operating range	1E1E	YES	NO	NO
Event: Engine oil temperature operating range	1E1B	YES	NO	NO
Event: Engine speed operating range	1E11	YES	NO	NO
Event: Fuel pressure MONITORING range	1E06	YES	NO	NO
Event: Fuel pressure operating range	1E13	YES	NO	YES
Event: Fuel pressure WARNING range	1E07	YES	NO	NO
Event: Fuel temperature operating range	1E18	YES	NO	NO
Event: Gearbox oil temperature operating range	1E19	YES	NO	NO
Event: Intake air temperature operating range	1E1A	YES	NO	NO
Event: Power operating range	1E15	YES	NO	NO
Event: Propeller speed deviation	1E1D	YES	NO	NO
Event: Rail pressure operating range	1E14	YES	NO	NO
Excessive boost pressure	2632	YES	NO	NO
External CAN bus failure	600	YES	NO	NO
External CAN transmit failure	2214	YES	NO	NO
Fuel pressure sensing of ECU A and B not consistent	1B08	YES	NO	NO
Fuel pressure sensor failure	2006	YES	NO	YES
Fuel temperature sensing of ECU A and B not consistent	1B09	YES	NO	NO
Gearbox oil temperature sensing of ECU A and B not consistent	1B0A	YES	NO	NO

Failure description	Failure Code	Caution Indication	Caution Latched	ECU Switch Over
Indicator: ECU self test is active	1D08	YES	NO	NO
Indicator: High pressure test is active	1EF8	YES	NO	NO
Indicator: Run up test is active	1EF4	YES	NO	NO
Indicator: set if ECU is active, controlling the actuators	1D16	YES	NO	NO
Indicator: set if weight-on-wheels switch is active	1C05	YES	NO	NO
Indicator: Shut off test ist active	1EF0	YES	NO	NO
Injection limitation occurred	2352	YES	NO	YES
Injection quantity to torque conversion function failure	2340	YES	NO	NO
Injection valve Cylinder 5B failure	2145	YES	NO	NO
Injection valve Cylinder 6B failure	2146	YES	NO	NO
Intake air temperature sensing of ECU A and B not consistent	1B0B	YES	NO	NO
Intake air temperature sensor failure	110	YES	NO	YES
Internal CAN receive message failure	1D04	YES	NO	NO
Internal CAN transmit message failure	1D05	YES	NO	NO
Main relay (ECU) failure	1610	YES	NO	NO
Main relay path 1 failure	1A01	YES	NO	YES
Main relay path 2 failure	1A02	YES	NO	YES
Main relay path 3 failure	1A03	YES	NO	YES
Metering unit, electric current monitoring	2149	YES	NO	YES
Metering unit, power stage open circuit	2197	YES	NO	YES
Metering unit, power stage short to BATT	2198	YES	NO	YES
Metering unit, power stage short to GND	2199	YES	NO	YES
MOK-sensor hardware failure	2061	YES	NO	YES
MOK-sensor PWM-signal failure	2062	YES	NO	YES
Oil level sensor (MOK-sensor) failure	2040	YES	NO	NO
Oil temperature sensor (MOK-sensor) failure	2014	YES	NO	YES
Power lever position sensor 1 of ECU A and B not consistent	1B01	YES	NO	NO
Power lever position sensor 2 of ECU A and B not consistent	1B02	YES	NO	NO
Power lever sensor 1 failure	1222	YES	NO	YES
Power lever sensor 2 failure	1234	YES	NO	YES
Propeller governor-actuator end stop switch failure	1C04	YES	NO	YES
Propeller governor-actuator failure	1C03	YES	NO	YES
Propeller governor-actuator power stage failure	1C02	YES	NO	YES



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Failure description	Failure Code	Caution Indication	Caution Latched	ECU Switch Over
Propeller self test failure	1C01	YES	NO	NO
Shaft speed diagnosis - cam shaft to crank shaft speed relation	2046	YES	NO	NO
Voter control or cockpit switch failure	1D15	YES	NO	NO
Voter relay failure	1D14	YES	NO	YES

### Not indicated faults

Failure description	Failure Code	Caution Indication	Caution Latched	ECU Switch Over
Coolant temperature sensor failure	115	NO	NO	NO
Data logger failure	1E02	NO	NO	NO
ECU EEPROM failure	1617	NO	NO	YES
Fuel temperature sensor failure	180	NO	NO	NO
Gearbox oil temperature sensor failure	1B11	NO	NO	NO
Real time clock failure	1D06	NO	NO	NO
Record manager failure (writing of datalogger, eventrecorder)	1E01	NO	NO	NO
Watchdog communication failure	2321	NO	NO	YES

### Default Values in case of a failure

Failure description	Failure Code	Default Value	Effect on Engine Performance	Engine power display
Power lever sensor 1 failure	1222	Sensor 2 or if both fail 80%	No effect, or if both fail about 80% available,	Correct
Power lever sensor 2 failure	1234	Sensor 1 or if both fail 80%	No effect, or if both fail about 80%,	Correct
Atmospheric pressure sensor failure	1105	800mbar	Limitation of the engine	Correct
Battery voltage failure	1615	24V	No effect	Correct
Boost pressure sensor failure	105	2600mbar	About 80%of the engine power shall be available.	Deviates
Coolant temperature sensor failure *)	115	-20°C or 60°C depending on oil temperature	No effect	Correct
ECU temperature sensor failure	2361	100°C	No effect	Correct
Fuel pressure sensor failure	2006	3,75bar	No effect	Correct
Fuel temperature sensor failure	180	21°C	No effect	Correct
Gearbox oil temperature sensor failure *)	1B11	0°C	No effect	Correct
Intake air temperature sensor failure	110	60°C	As stated in the Performance Diagrams at 60°C Intake Air Temperature	Deviates
Engine oil pressure sensor failure *)	1B13	1,35bar	No effect	Correct
Oil temperature sensor *)	2014	70°C	No effect	Correct
Common Rail pressure Sensor failiure	190	Control Set Point	About 80%of the engine power shall be available	Deviates

\*) If the sensor is faulty an error value will be transmitted to the display instrument (e.g. Garmin G1000) which marks the corresponding value as faulty.