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Document Information

Location: Powertrain Systems – Cooling System

Topic: During driving the clutch over temperature warning is displayed in the instrument cluster

Condition: During driving high temperature coolant passes through to the low temperature cooling circuit, this can cause the clutch to overheat and charge air to overheat

Diagnostic Trouble Codes:

PCCU:

P121A92 Clutch Inlet Oil Temperature Too High

P278700 Clutch Temperature Too High

Measure

If the measured clutch cooling oil temperature exceeds 105 °C then;

- A maximum engine torque limit ramping at a calibratable rate down to 100 Nm will be applied
- A driver warning will be displayed in the instrument cluster if the current maximum engine torque limit is less than the current engine torque at any point

If the measured clutch cooling oil temperature continues to rise and exceeds 110C then;

- A clutch cooling oil temperature DTC will be logged
- Neutral will be selected
- A clutch over temperature message will be displayed on the cluster (and the previous warning will be cleared)

Once the measured clutch cooling oil temperature falls below 105C (provided that it is more than 5 seconds since it exceeded the 110C limit) then;

- The driver will be allowed to engage gear again
- The clutch over temperature message and/or temperature warning will be cleared
- The engine torque limit will be removed (ramp back to maximum torque at a calibratable rate)

Initial vehicle integrity checks

1. Check that the tyre spoilers are fitted and are in good condition, as missing or damaged tyre spoilers can affect cooling performance. Replace as required - replacement is not covered under the manufacturer's warranty
2. Check the front and rear guide vanes, as missing or damaged guide vanes can affect cooling performance. Replace as required - replacement is not covered under the manufacturer's warranty
3. Check the coolant displacement using the coolant displacement tool (part number 11S4797CP). The displacement should not exceed 800ml, if it does this indicates air in the cooling system so bleeding is required
4. Check for external coolant leaks, repair if any are found
5. Check the low and high temperature radiators (LTR and HTR) for external debris that could affect airflow through the radiators

Engine coolant pump test

The purpose of the following test is to confirm that the internal seal of the engine coolant pump that seals the low from the high pressure circuit is not damaged. A potential internal leak from one side of the circuit to the other will cause temperature increase into the low temperature circuit and as result a compromised cooling performance of the transmission clutch.

Care point: Ensure the cooling system has cooled down to a coolant temperature of less than 60 °C before you proceed to the next steps.

1. Clamp the two coolant pipes that relate to the low temperature cooling circuit at the coolant pump (1)



2. Remove the two coolant pipes from the coolant pump (1)
3. Only a cup full of coolant should come out of the coolant pump, if coolant keeps coming out, then the water pump internal seal is leaking and the coolant pump must be replaced
4. If no coolant comes out from the pump, attach the coolant pressure tester and apply 1 bar pressure
5. If coolant comes out the coolant pump then the internal seal is leaking. The coolant pump must be replaced
6. If no coolant comes out from either test, the coolant pump is ok
7. Submit a Technical Request if no conclusive results have been collected from all the above checks

KA Updates Information

23/04/2021 KA Review

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