




## ENGINE CRANKS, NO START AND/OR ENGINE COOLANT TEMPERATURE FAULTS

New information provided by this revision is preceded by this symbol  .

This Service Information bulletin replaces SI M17 01 15 dated **March 2015**

### What's New:

- Check DCS history for any open Service Actions related to the thermostat or engine temperature sensor (see Cause)
- Warranty has been updated (see Warranty)
- Part numbers have been update (see Parts)

### MODEL

R55 (Cooper S Clubman)	R56 (Cooper S)	R57 (Cooper S Convertible)	R58 (Cooper S Coupe)
R59 (Cooper S Roadster)	R60 (Cooper S Countryman)	R61 (Cooper S Paceman)	

### SITUATION 1

The engine either exhibits a crank, no start or a hard start (long crank), usually on a cold engine. No faults are stored in the DME. Proceed to Correction 1 for further diagnosis.

### SITUATION 2

NOTE: The engine may also exhibit the same starting behavior as in Situation1.

The Service Engine Soon lamp is illuminated, with one or more of the following fault codes stored in the DME:

Engine temperature sensor faults

- 2943 Coolant temperature sensor, signal change too fast
- 2937 Coolant temperature sensor, electrical: short circuit to positive
- 2936 Coolant temperature sensor, electrical: short circuit to earth
- 293A Coolant temperature sensor, plausibility, cold start: temperature too high
- 293B Coolant-temperature sensor, plausibility, cold start: Temperature too low
- 2947 Coolant-temperature sensor, signal: Fixed on low
- 2948 Coolant-temperature sensor, signal: Fixed
- 3393 Engine downtime, plausibility: Time too long in correlation with engine coolant cooling down
- 3392 Engine downtime, plausibility: Time too short in correlation with engine coolant cooling down

If any of the above fault codes are stored, proceed to Correction 2.


Engine thermostat faults:

- 348E Characteristic map thermostat, actuation: Short circuit to positive
- 348F Characteristic map thermostat, actuation: Short circuit to earth
- 3490 Characteristic map thermostat, actuation: Open circuit

If any of the above fault codes are stored then proceed to Correction 2:

The above fault codes for the engine temperature sensor and thermostat are the primary fault codes for turning the Service Engine Soon light on.

## CAUSE

1. Poor solder contacts in the engine coolant temperature sensor integrated into the engine thermostat housing
2. A faulty external or replaceable engine coolant temperature sensor (see below for identifying production changes in the thermostat and engine temperature sensors)
3. A faulty map-controlled thermostat
4.  Check if the vehicle is still affected by a Service Action related to the coolant temperature sensor or the thermostat. Vehicles which require a Service Action to be completed will show as "Open" when checked either in AIR, the "Service Menu" of DCSnet (Dealer Communication System) or with the Key Reader. Perform the repairs listed in the open Service Action (Do not continue with this SIM).

## CORRECTION 1

**NOTE:** After diagnosing with the steps below, it will be necessary to determine which thermostat is installed on the vehicle. See the Preliminary Work attachment for details.

If no fault codes are stored:

- Read out the ambient air temperature and engine coolant temperature in the DME through Diagnostic Query.
- If the vehicle has been sitting overnight, these two temperatures should be within  $\pm 5^{\circ}\text{C}$ .
- If the engine coolant temperature is still showing an engine at operating temperature when the engine is cold, the engine coolant temperature sensor has failed.

Replace the engine temperature sensor.

- The engine temperature detected by the sensor should climb steadily during warm up. It should not "jump" in degree increments greater than  $5^{\circ}$ . If the reading jumps during warm-up, replace the engine temperature sensor.
- The temperature sensor reading should also come down during fan operation. If the reading does not come down, replace the engine temperature sensor.

If the engine fails to start (crank, no start):

- Disconnect the electrical connector at the map thermostat. If the engine starts, **replace the thermostat**.
- If the engine still only cranks with the map thermostat unplugged, check and clean the spark plugs for fouling. Recheck the starting behavior of the engine (thermostat plugged/unplugged).

## CORRECTION 2

- If engine temperature sensor faults are stored:

Replace the engine temperature sensor (see the Preliminary Work attachment and, if required, the Installing Temperature Sensor attachment).

- If engine thermostat faults are stored:


Replace the engine thermostat (see the Preliminary Work attachment).

The following faults may also be stored in combination with the primary engine temperature sensor or thermostat faults:

- 2EE2 misfiring, multiple cylinders: adversely affects exhaust gas after starting
- 2EE6 misfiring, cylinder 1: adversely affects exhaust gas after starting
- 2EE9 misfiring, cylinder 2: adversely affects exhaust gas after starting
- 2EEC misfiring, cylinder 3: adversely affects exhaust gas after starting
- 2EF0 misfiring, cylinder 4: adversely affects exhaust gas after starting
- 2F7C super knocking: injection cut-off
- 2F76 super knocking cylinder 1: injection cut-off
- 2F77 super knocking cylinder 2: injection cut-off
- 2F78 super knocking cylinder 3: injection cut-off
- 2F79 super knocking cylinder 4: injection cut-off
- 2789 air-mass sensor, correction signal, working range: period duration too low
- 277A air-mass sensor, signal: electrical fault
- 29DC charge-air temperature sensor, plausibility, cold start: temperature too high
- 29DD charge-air temperature sensor, plausibility, cold start: temperature too low
- 2C58 charge air pressure control system, cut off: Pressure build-up disabled

These fault codes are secondary fault codes which could be caused by a faulty engine temperature sensor or faulty thermostat. Always troubleshoot and repair the engine temperature sensor or thermostat first. Go to Correction 1 for further diagnostic tips if the engine cannot be started.

## PARTS INFORMATION



Part Number	Description	Quantity
13 62 8 603 908	Temperature sensor for the 11 53 7 588 876 and the 11 53 7 647 305 thermostat	1
61 13 8 383 722	Cable ties	2
Or:		
13 62 8 602 086	 Temperature sensor for the 11 53 7 647 751 or 11 53 8 674 895 thermostats	1


Or:		
11 53 8 674 895	Thermostat all N18 model years	1
12 51 8 611 289	Adapter harness up 07/12 production	1
Or:		
12 51 8 614 952	Adapter harness from 07/12 to 3/13 production	1

**Note:** This repair procedure involves draining a small quantity of coolant; refill the drained quantity with new MINI Long-term Antifreeze/Coolant (50/50 mixture). Do not reuse the drained coolant.


## WARRANTY INFORMATION

Covered under the terms of the MINI New Passenger Car Limited Warranty or the MINI NEXT Certified Pre-Owned Limited Warranty.

<b>Defect Code:</b>	<b>13 62 02 12 00</b>	<b>Temperature Sensor</b>
	<b>Or:</b>	
	<b>11 53 12 12 00</b>	<b>Thermostat</b>
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
00 00 006	Refer to KSD2	 Performing "vehicle test" (with vehicle diagnosis system – checking faults) (Main work)
Or:		
00 00 556	Refer to KSD2	 Performing "vehicle test" (with vehicle diagnosis system – checking faults) (Plus work)
And:		
61 21 528	Refer to KSD2	Connect an approved battery charger/power supply (indicated in KSD2 as "Charging battery")
And:		
11 99 000	4 FRU	Work time install/replace temperature sensor
Or:		
11 53 500	Refer to KSD2	Removing and installing/replacing coolant thermostat
Or:		
11 53 700	Refer to KSD2	Removing and installing/replacing coolant thermostat (Coolant drained)

 If you are using a Main labor code for another repair, use the Plus code labor operation 00 00 556 instead of 00 00 006.

 Refer to KSD2 for the corresponding flat rate unit (FRU) allowances.

 Work time labor operation code 11 99 000 is not considered a Main labor operation. Also, since the

“work time” FRU allowance to be claimed is specified, a separate punch time is not required. However, it still requires an explanation on the repair order and in the claim comments section.

### Sublet - Materials

Sublet Code 4	See sublet reimbursement calculation below	Reimbursement for replacing the drained quantity of antifreeze/coolant (bulk container reference P/N 82 14 0 031 133, one gallon container. Do not use this part number for claim submission)
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Sublet calculation: MINI antifreeze/coolant (bulk container reference P/N 82 14 0 031 133 only) -- partial refill/used quantity (50/50 mixture) at dealer net plus handling.

Enter this material cost in sublet and itemize the amount in the claim comment section.

Posted: Tuesday, July 17, 2018

## ATTACHMENTS

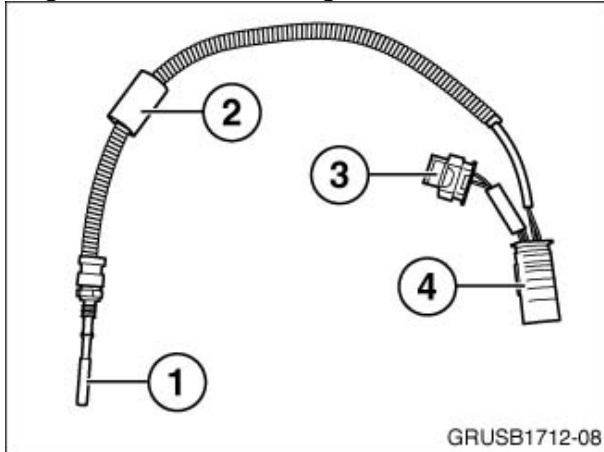
View PDF attachment [M170115\\_Installing\\_Temperature\\_Sensor.](#)

View PDF attachment [M170115\\_Preliminary\\_Work.](#)

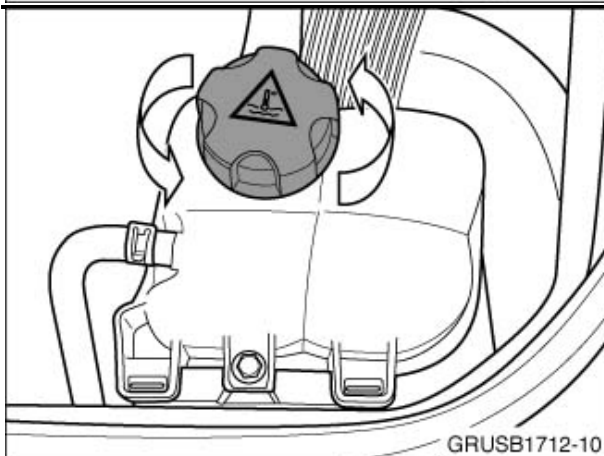
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### Installing a remote engine temperature sensor into the thermostat (N18 up to March 2013 production):

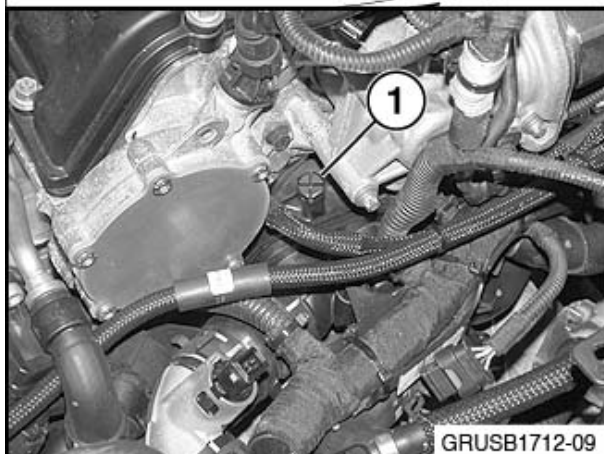
Remove the fresh air intake tube and charge air intake tube from the air box to the turbocharger to gain access to the engine harness at the thermostat.



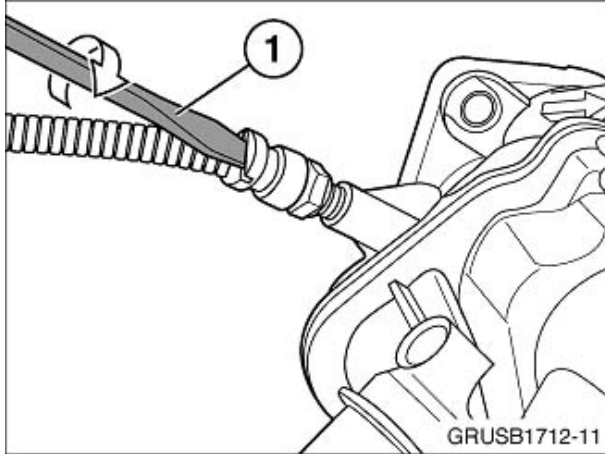
The improved sensor (P/N 13 62 8 603 908) includes the temperature probe (1) and insulating sleeve (2), a two-pin female connector (3) for the map thermostat, and a four-pin connector (4) for the engine harness.



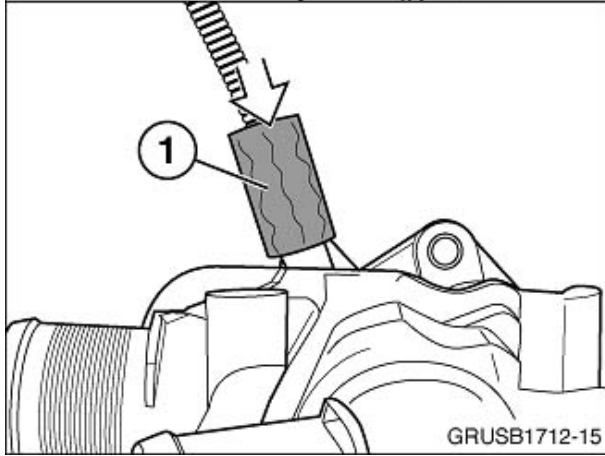
Relieve the coolant pressure by removing the reservoir cap, and then re-tighten.



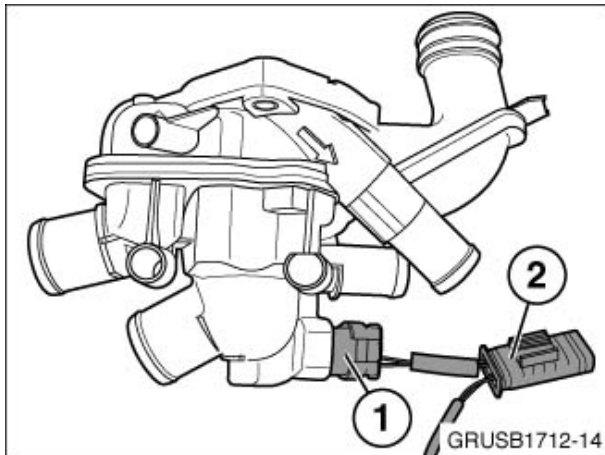
Remove the bleeder screw (1) from the thermostat. This screw will not be reused.



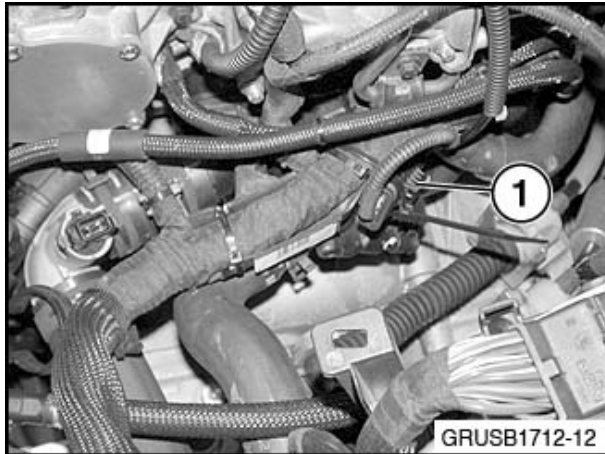
The back of the temperature sensor is slotted to accept a bladed screwdriver (1). Install the sensor into the bleeder screw hole, and torque to 2Nm.



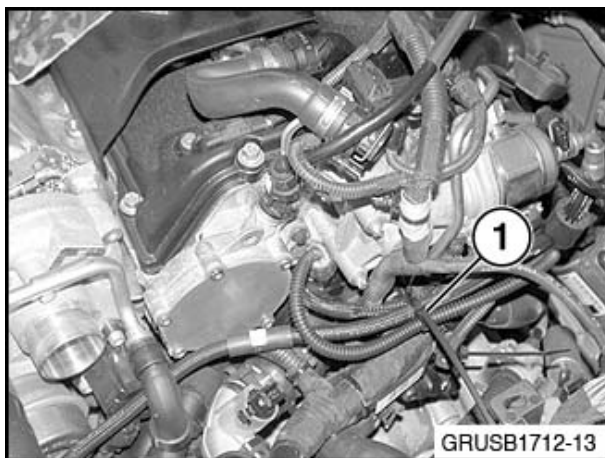
Slide the insulating sleeve (1) onto the temperature sensor. The sleeve must completely cover the sensor.



Install the two-pin female connector (1) into the thermostat, and the four-pin male connector (2) into the engine wiring harness.



Secure the connector (1) with a cable tie to the engine wiring harness.



Secure the wiring from the temperature sensor (1) with a cable tie.

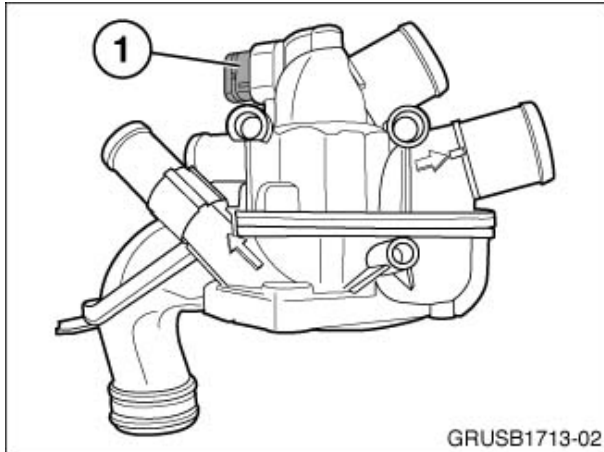
Reinstall the intake components and vent/refill the cooling system (Repair Instruction 17 00 039).

**Note:** This repair procedure involves draining a small quantity of coolant. Refill the drained quantity with new MINI Long-term Antifreeze/Coolant (50/50 mixture). Do not reuse the drained coolant.



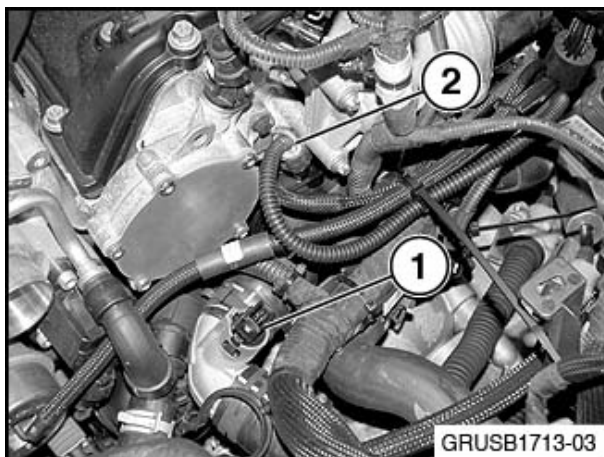
**PRELIMINARY WORK**

Several versions of the engine temperature sensor and thermostat were used during the N18 production run. Identifying these different parts is necessary to perform the correct repair.

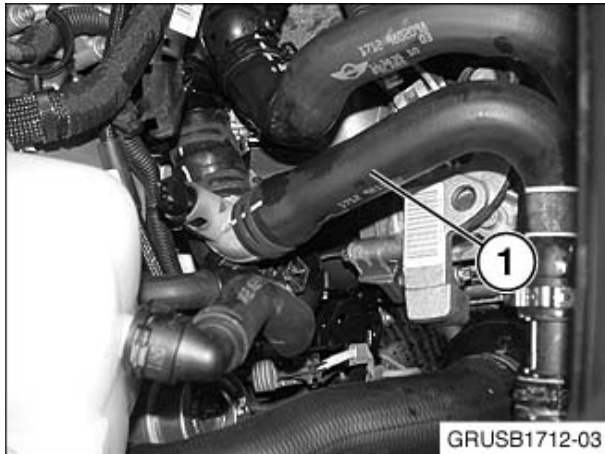
**Early version thermostat and temperature sensors**

N18 engines up to July 1013 production were equipped with the thermostat P/N 11 53 7 588 876 or 11 53 7 647 305. These thermostats are identified with a single, four-pin connector on the thermostat housing. The temperature sensor is integrated into the thermostat housing (1). This temperature sensor is not replaceable.

The early version of the N18 built from August 2010 (the start of N18 production) to March 2013 also fell under the following engine temperature sensor Service Actions. Check the B-pillar for label code number 53 (Service Actions M17 06 12, M17 07 12, M17 08 12 and M17 09 12) or label code 60 (M17 02 13). These Service Actions were to install a remote engine temperature sensor to eliminate the temperature sensor integrated into the thermostat (see the illustration below). Also check to see if the vehicle is affected by one of these Service Actions by checking the "Service Menu" of DCSnet (Dealer Communication System) or with the Key Reader. If the DME has faults stored related to engine temperature, perform the necessary Service Action.

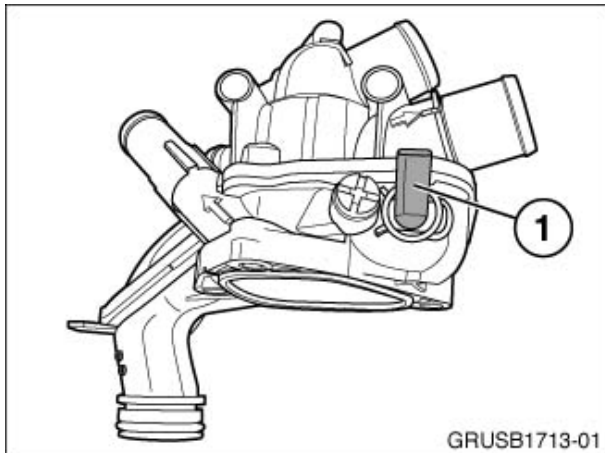


Checking for Service Action: The first version of the Service Action instructed the technician to install a remote temperature sensor inline of the upper coolant hose, coming off the thermostat (1). A later version of the Service Action had a remote temperature sensor installed in the thermostat bleeder screw (2). It is possible that both sensors are installed on the engine. Only the bleeder screw-type sensor should be wired into the engine harness in these situations. (See the attachment Installing Temperature Sensor for installing the 13 62 8 603 908 temperature sensor.)



The remote coolant temperature sensor (1) was also used in production on N18 engines built from March 2013 until July 2013. This temperature sensor is no longer available as a spare part. The screw-in sensor for the bleeder screw will also not fit as a replacement part for N18s in this production range. If, during diagnosis, it is determined that this style sensor has failed, the thermostat would need to be replaced (see the Late Version thermostat below).

### Late version thermostat and temperature sensor



Thermostat P/N 11 53 7 647 751: This thermostat was used in production from July 2013 onwards. This thermostat can be identified by a low profile and replaceable temperature sensor (1). The sensor can be ordered using P/N 13 62 8 602 086.

**Note:** This thermostat is now also used as the replacement part for all N18 engines. An adapter harness will be needed to retrofit this thermostat into cars built before July 2013. Refer to the Parts information section of this bulletin for details.

**Note:** This thermostat is not designed to work with a 13 62 8 603 908 (bleeder screw) temperature sensor.

Do not perform any Service Action if the DME has faults stored for a failed MAP thermostat. The replacement thermostat will come with a new engine temperature sensor installed. Submit the appropriate Service Action defect code, but use labor operation 00 61 608 "Technical campaign was implemented as part of another measure."

Refer to Repair Instruction RA11 53 000, "Removing and installing or replacing coolant thermostat (N18)."