



Technical Service Bulletin

| | |
|---|----------------------------|
| Technical Service Bulletin: TSB130055 | Released Date: 13-May-2013 |
| Heavy Duty Thermostat Stuck Open and/or Missing Flange Seal | |

Heavy Duty Thermostat Stuck Open and/or Missing Flange Seal

Core Issue

Heavy Duty (HD) engines have been experiencing excessive cooling of the engine coolant as a result of thermostat failures. This document addresses two failure modes for HD thermostats: thermostat stuck/seized in the open position and thermostat flange seal failures. During operation, fluid forces were greater than the return force of the spring, preventing the thermostat from closing fully and leading to a stuck open/seized thermostat. Also, during operation, the elastomer covering the thermostat flange fails, causing the elastomer seal to chunk out and in some cases a loss of the elastomer seal. Both failures lead to excessive cooling by allowing for continuous coolant flow to the radiator.

Confirmation

Cases have been reported in which repair facilities have noticed the thermostat valve stuck open in the thermostat housing cover. When they remove the thermostat from the thermostat housing cover the thermostat closes and no longer appears to be stuck open. A thermostat in which the elastomer seal has failed will show a loss of elastomer material on the thermostat flange seal exposing the metal flange.

Resolution

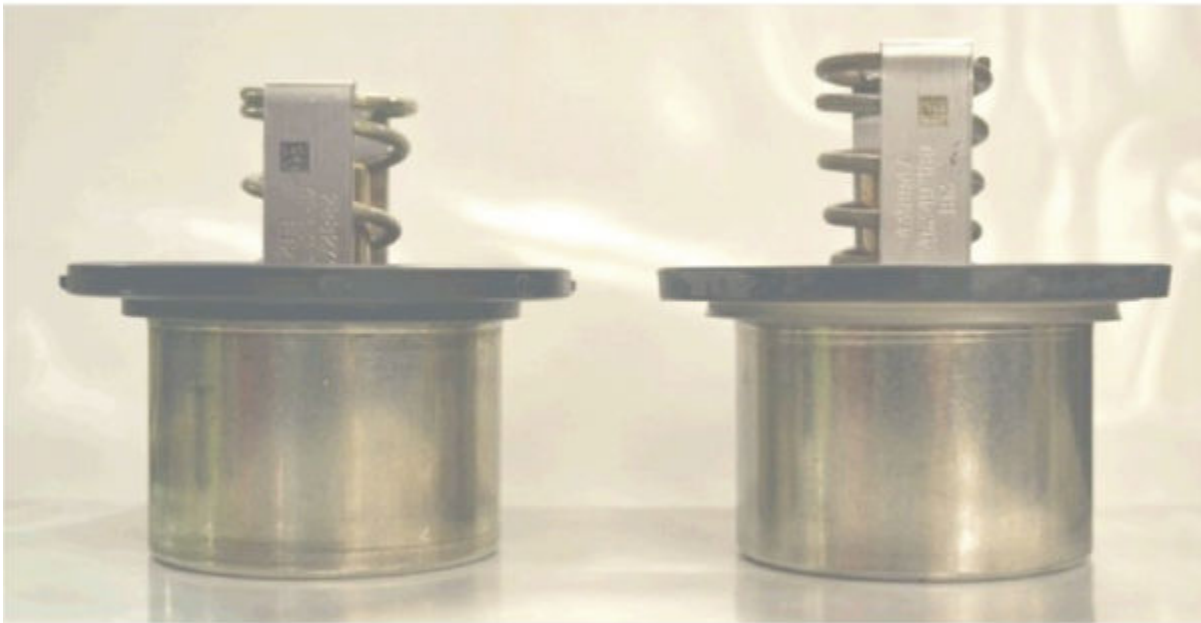
A new thermostat has been released to address both the stuck open and the flange seal failure modes that were reported. The new Cummins Part Number is 4318947, with the engine serial number (ESN) firsts from the plant in Table 1: ESN Firsts below. This new thermostat design has a higher force return spring which resulted in taller spring retaining arms. The flange seal of the thermostat has reverted back to a previous design using a 3-piece construction. This 3-piece flange consists of a metal flange, elastomeric seal, and steel retaining ring. Refer to Figure 1: Old Thermostat, Part Number 4318197 vs New Thermostat, Part Number 4318947, below for comparison of old and new thermostat.

Note : This new thermostat, Part Number 4318947, is **not** compatible with engines

assembled with dual thermostat housing options. The result of longer spring and spring retaining arms results in contact with the dual thermostat housing, preventing the thermostat from functioning properly. For engines using dual thermostat housing, use Part Number 4336659 for repairs.

| New Thermostat Housing | | |
|------------------------|----------------------------------|-------------|
| Engine | Engine Serial Number (ESN) First | Part Number |
| ISX15 | 79640644 | 4318947 |
| ISX12 | 75017533 | 4318947 |
| ISM | 35312357 | 4318947 |

©Cummins Inc.



08100020

Figure 1: Old Thermostat, Part Number 4318197 vs New Thermostat, Part Number 4318947

Warranty Statement

The information in this document has no effect on present warranty coverage or repair practices, nor does it authorize TRP or Campaign actions.

Document History

| Date | Details |
|------|---------|
|------|---------|

| Date | Details |
|-----------|--|
| 2013-3-17 | Module Created |
| 2013-4-4 | QSOL Quick Fix Reason: Incorrect Part Number Notes: none |
| 2013-5-13 | Part number updates required for repair procedures |

Last Modified: 13-May-2013
