Solution K91214678
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Solution

Title (customer effect)	Automated Manual Transmission (AMT) Faults - Diagnostic Trouble Codes (DTCs) P1052 - 18 , PID 33 FMI 5 Intermittent Fault In Cold Weather
Cause	When the weather gets colder, chassis equipped with an AMT (I-Shift, mDrive) may set DTC P1052-18 or fault code MID 130 PID 33 FMI 5. The fault may then go inactive after the unit warms up. An active fault in cold conditions can also go inactive after the unit sits in a warm shop.

Solution

If the fault is always active regardless of conditions or is intermittent in warm weather then there is a real failure of a component. Follow Guided Diagnostics (GD) in this situation. The fault will have to be ACTIVE during fault tracing to find the issue and the unit may have to be operated in the conditions that trigger the fault.

- Symptoms of this fault are:

1. Check for transmission messages on the Instrument Cluster (IC)
2. Check lamp illuminated
3. Reduced clutch performance
4. Reduced gearbox comfort at start
5. Gear changes are slow

- Conditions that activate this fault are:

1. Open circuit on any of the sensor signals is detected when one of the sensor signals is within normal range and the other sensor signal is below normal range
2. Open circuit on ground, detected when both the sensor signals are within the normal range and the sum of the sensor signals is above a specific value

If the unit drives normally and the fault lamp goes out after the unit warms up then it is unlikely replacing a component will fix the issue.

- If the chassis is equipped with an AMT-F, updated software is available to correct a fault detection setting that made the condition worse. If the fault is active, update the AMT-F gearbox to the latest software, then recreate the conditions that triggered the fault. This may include letting the unit sit outside overnight in cold weather and rechecking for the fault.
- If the software does not improve the condition, replace the Clutch Position Sensor.

- There is not currently a software solution for the AMT-D gearboxes. Active faults should be addressed by replacing the Clutch Position Sensor.

Internal comments (BO)	This is a known fault and is under investigation. Recent data shows that the faults listed here are showing up at an increased rate. The fault frequency data from Telematics Gateway (TGW) shows this to be a cold weather related fault with virtually no faults occurring in the hotter months of the year. The supplier of the position sensor has identified a possible root cause for this fault and is in the process of verifing. The supplier of the sensor has identified a root cause with the sensor and is currently working on a solution. For the short term, updating SW is still the best option. A more agressive SW solution is being considered to bridge the gap between current conditions and the release of the new sensor. Even with replacement of the sensor the fault may still return. Clutch position sensor part number 21695307.
Solution visibility	Dealer distribution

Function(s)/component(s) affected

Function affected	automatic transmission , Diagnostic tool

Function Group

Function Group	41 clutch , 431 gearbox, manual

Customer effect

Main customer effect	diagnostics/methodology , fault code/display
Road behaviour	driveability

Fault code(s)

OBD 2013 Diagnostic Trouble Codes	POWERTRAIN , P1052 , P105218
NA_MIDs	MID 130 TECU

Conditions

Warning light/lamps /pictograms	yellow
External temperature	<-20 °C , -20 / -10 °C , -10 / 0 °C , 0 / 10 °C

Administration

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NA_MACK_Vehicle_Range

NA_MACK_Vehicle_Range	Conventional

NA_VOLVO_Vehicle_Range

NA_VOLVO_Vehicle_Range	Conventional

Engine family

Engine family	Volvo , Mack

Emission Standard

Emission Standard	2018 , OBD2017 , US17 GHG , US16 , US15 , US07 , US10 , US13 OBD , US14 GHG