TECH LINK

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New 9T65 Transmission

REPLACEMENT PILOT PROGRAM BULLETIN INFORMATION

The replacement program (U.S.) for the 9T65 9-speed automatic transmission (RPO M3V, M3W) on 2018-2021 Enclave, Traverse; 2019-2021 Blazer; and 2020-2021 Acadia, XT5, and XT6 models has recently been updated. All of the changes are covered in the latest version of Bulletin #20-NA-136.

The pilot program is designed to reduce the number of days needed to complete transmission repairs. After diagnosis of an internal fault, technicians are directed to replace the transmission assembly (following the necessary guidelines) instead of making internal repairs to the transmission.

Feedback on the program has shown a reduction in repeat repairs for transmission replacements as well as increased quality control for returned transmission inspections.

The program continues to apply to vehicles sold in the U.S. with less than 18,000 miles and less than 18 months from date of delivery (DOD).

Transmission assemblies replaced during the program may be requested to be returned to the Warranty Parts Center for engineering analysis. Refer to Bulletin #99-00-89-019 for the part return process. Early results of the program have seen the root causes of several concerns determined during teardown inspections of the returned transmissions. These root causes may not have been possible to identify if the assemblies had been disassembled for repairs at the dealership.

TRANSMISSION REPAIRS ALLOWED

The types of repairs that can still be made to the transmission under the program have been updated. These new repairs include:

- Replacement of the output speed sensor
- Replacement of the solenoid body and/or valve body, if certain conditions are met.

In addition, other repairs that can be made include:

- Replacement of external seals, including axle, valve body cover, and torque converter seals
- Replacement of transmission oil cooler, lines and accumulator
- Replacement of external mounts
- Replacement of external sensors, plugs, and caps
- Replacement of external transmission controls, including lever, cables, knobs, and module
- Replacement of torque converter assembly

REPAIR STRATEGY

To determine the repair or replacement strategy on a 9T65 transmission, begin diagnosis by first reviewing several previously released bulletins covering 9T65 transmission operating and performance conditions. For a complete list of the bulletins as well as other Service Information documents to review, refer to Bulletin #20-NA-136.

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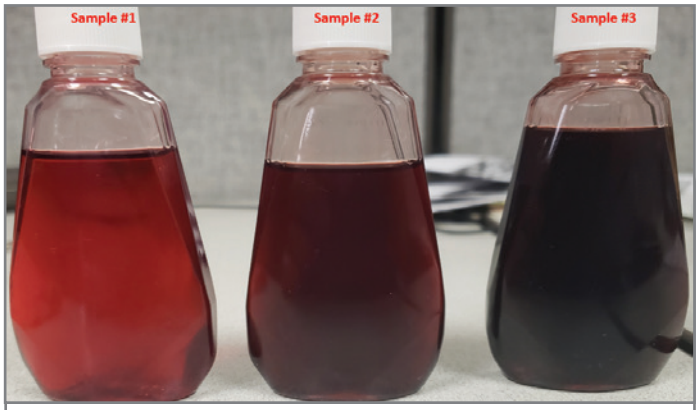
The bulletin also outlines the necessary steps to take to diagnose 9T65 transmission concerns. If diagnosis determines internal components are the root cause or if parts are needed to complete repairs internal to the transmission, the transmission assembly should be replaced and not repaired. The repair order for the transmission replacement should include the condition, cause, and correction information as well as details on any DTCs, transmission fluid level, and fluid pressure testing.

FLUID LEVELS

The transmission fluid level as well as the condition of the fluid should be checked as part of the diagnostic procedure. If the fluid level is correct, inspect the color of the fluid, which should be red or brown. It also should be transparent to the point where objects or writing can be seen through it. Refer to Bulletin #20-NA-136 for examples of acceptable fluid.



The color of the transmission fluid should be red or brown.

When inspecting the fluid, it's also normal to see a small amount of friction material or metal from the manufacturing process (observed as fine silver streaks) in the fluid. Excessive amounts of particles should be noted on the repair order and may require transmission replacement.

CHECK ALL DTCS

Updated Bulletin #20-NA-136 includes a list of all DTCs to look for during a road test. If any of the DTCs listed are set, follow the specific instructions in the bulletin for each DTC. Some DTCs, for example, require the replacement of the transmission assembly while others involve replacement of the solenoid body or valve body.

Refer to the bulletin for complete information about transmission diagnosis and guidelines for transmission replacement.

▶ Thanks to Mark Kevnick

Engine Vibration Diagnosis

When diagnosing an engine vibration condition that occurs when the vehicle is stationary or accelerating from a stop on some 4.3L V6 (RPO LV1, LV3), 5.3L V8 (RPO L82, L83, L84) and 6.2L V8 (RPO L86, L87, LT1, LT4) engines, the CH-51450 PicoScope can be used to help determine the root cause. The affected engines can be found on 2014-2021 Silverado, Sierra; 2015-2021 Tahoe, Suburban, Yukon, Escalade; 2016-2019 CTS-V, Corvette; 2016-2021 Camaro; and 2018-2021 Express and Savana models.

In some cases, the vibration may be caused by the engine being overfilled with oil. Inspect the engine oil level and check to determine if the oil was recently changed.

Check the engine oil level.

Using the PicoScope, a vibration caused by a crankcase overfilled with engine oil will typically display Engine 1 (E1) as the dominant vibration.

If the engine oil level is confirmed to be overfull, verify if the crankcase was overfilled with engine oil or if it is contaminated by an outside substance, such as fuel or coolant. If the oil level is overfull as a result of contamination, determine the source of the contamination and repair as needed.

If the engine was overfilled with only engine oil, adjust the oil level and re-evaluate the concern. The engine may have been overfilled during a recent oil change or other maintenance service.

▶ Thanks to Bryan Salisbury

AUTO STOP/START

No Longer Available on Certain 2021 Models

The Automatic Stop/Start feature is no longer available on some 2021 model year vehicles due to the industry-wide shortage of semiconductors. The affected models include 2021 Silverado 1500, Tahoe, Suburban, Sierra 1500, Yukon and Escalade models equipped with 5.3L V8 (RPO L84) and 6.2L V8 (RPO L87) engines mated to the 10L80 10-speed automatic transmission (RPO MQB, MQC). The change removing the Automatic Stop/Start feature went into production on June 7, 2021.

Affected vehicles produced on or after June 7, 2021 will have the added RPO NSS (Not Equipped with Automatic Stop/Start). RPO NSS will be used to identify vehicles built without Automatic Stop/Start. The Auto Stop button on the instrument panel also will be removed from the switch bank. These vehicles will receive revised EPA-certified fuel economy estimates.

Any vehicle that includes RPO NSS is not equipped with Automatic Stop/Start technology, even if the vehicle also includes RPO KL9 (Engine Control – Stop/Start System), which is retained based on other components that remain on the vehicle.

Vehicles with RPO NSS will not have the Auto Stop button

These production changes regarding the availability of Automatic Stop/Start are currently expected to remain in place for the remainder of the 2021 model year.

▶ Thanks to David MacGillis and Hassan Abdallah

LIN Bus Inputs

CAUSING INTERMITTENT PARASITIC DRAW

A dead battery as well as several other conditions, including slow engine crank, inoperative Auto Stop/Start (if equipped), radio on or fades out slowly after the ignition is off, and inoperative front or rear heated seats, may be found on some 2019-2020 Silverado 1500 and Sierra 1500 models. LIN Bus DTCs U1524, U1526, U1555, and U155D also may be set.

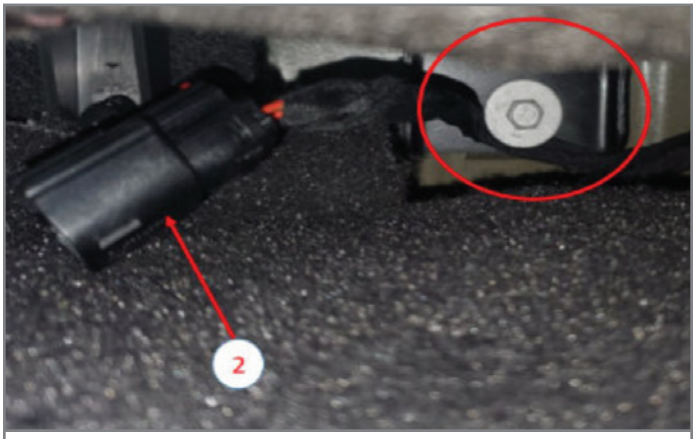
These conditions may be caused by the Body Control Module (BCM) staying awake due to an input from a LIN Bus. In many cases, the BCM is misdiagnosed as being at fault and is unnecessarily replaced.

Check for a pinched body harness under the left rear seat.

There are two known areas that can short out LIN Bus circuits 6133 and/or 4115 for the front/rear heated seats. If this occurs, the BCM may stay awake and draw down the battery. Keep in mind that even if a truck is not equipped with rear heated seats, these circuits are still in the harness.

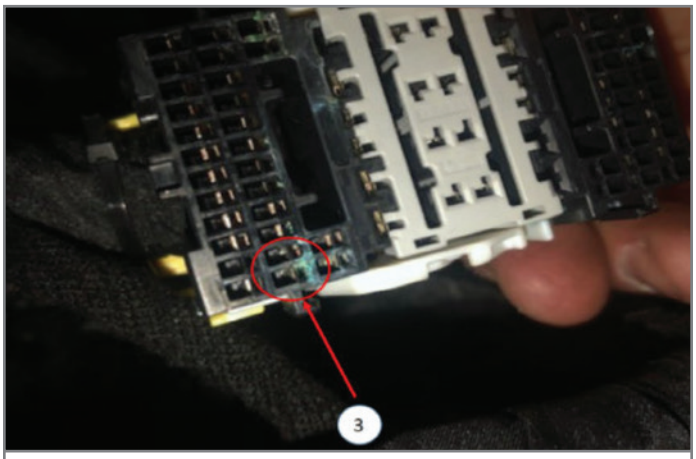
Inspect for a pinched body harness under the left rear seat where the seatback is attached to the back of cab.

Connector X370 is shown on a truck that was not equipped with rear heated seats. In this example, LIN Bus circuit 6133 was shorted to the B+ circuit in the harness.



Connector X370 on a truck not equipped with rear heated seats.

In addition, inspect connector X225 for terminal issues/corrosion. As shown, the LIN Bus circuit 4115 was corroded and shorting to other terminals in the connector.



Corroded LIN Bus circuit 4115

If corrosion is found at connector X225, inspect for a water leak. Water may be entering at the A-qpillar grommet for the door pass-through connector if the grommet is not fully seated.

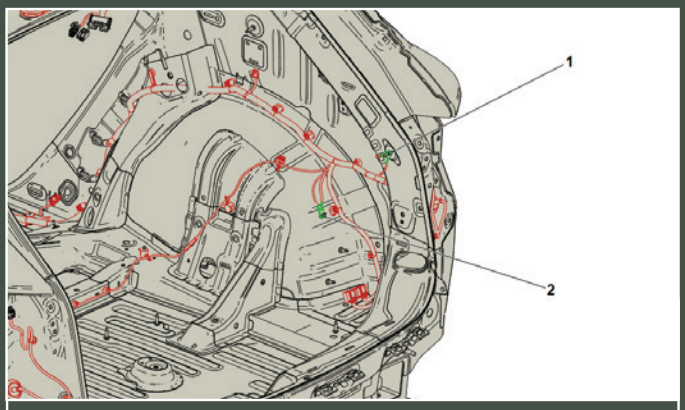
If any issues are found, follow the Wiring and Connector Repair instructions in the appropriate Service Information to correct the condition.

Refer to #PIT5750A for additional information.

▶ Thanks to Jim Miller

Loose Terminals Result in Multiple Conditions

Some 2020-2021 Blazers may have a number of various conditions occurring, such as multiple instrument cluster indicators illuminated, instrument cluster gauges dropping out, door locks cycling, inoperative passive entry and other concerns. The following DTCs also may be set: B280D, B3978, B3979, B3980, B3981, C0293, C0800, P057C, P0650, P2122, P2127, P2128, U023A, U026A, U0078, U0100, U0101, U0121, U0131, U0140, U0146, U0151, U0159, U0168, and U0186.

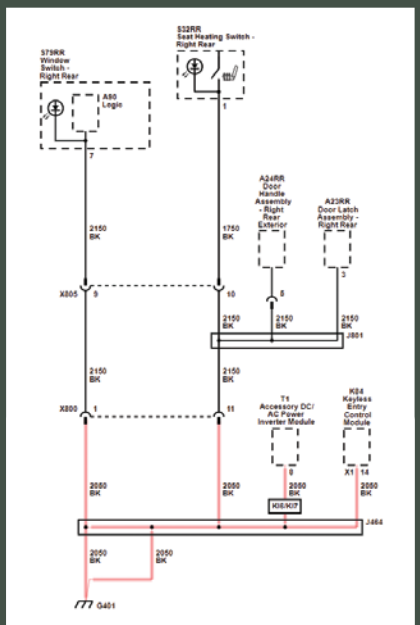


G401 (#2) is located on the right side of the rear compartment, slightly below and forward of G405 (#1).

If these conditions are present, they may be the result of terminals that are loose or not attached at G401.

Inspect G401, which is located under the trim panel on the right side of the rear compartment, to the rear of the right wheel well. G401 is located slightly below and forward of G405.

Ensure that there are two wires attached to G401 and that the nut is properly installed.

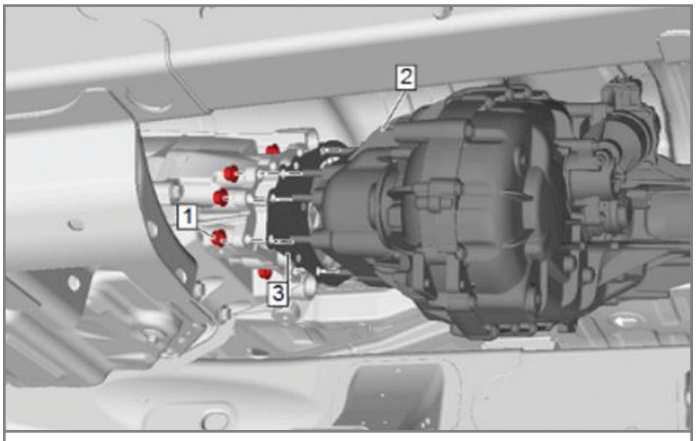


Ensure that there are two wires attached to G401.

▶ Thanks to Dave Goodrow

Transfer Case *Misalignment* May Lead to NVH Issues

Some 2020-2021 Silverado 2500HD/3500HD and Sierra 2500HD/3500HD models – equipped with the 6.6L Duramax diesel engine (RPO L5P), 10L1000 10-speed automatic transmission (RPO MGM, MGU) and the 2-speed transfer case RPO NQF (Electric Shift Cont, Two Speed Transfer Case) or NQH (Active, Two Speed, Switch Activated Transfer Case) – may have a transfer case noise, vibration and harness (NVH) concern after repairs have been made. If the transfer case was removed and reinstalled to the transmission, a harsh downshift, noise, vibration or a clunk sound may occur during a coast-down event.



Check for a misalignment of the transmission and transfer case.

The NVH condition may be the result of a misalignment between the transmission output shaft and the transfer case input. The misalignment could cause the transfer case shift collar to slip out of engagement.

If these conditions are found, monitor transmission shift data using GDS 2 during a road test to determine if the noise/clunk/roughness occurs during the downshift or if the condition occurs randomly during deceleration. If the sound or roughness is verified to be from the transfer case, the transmission output shaft may be misaligned. It will be necessary to disconnect and reconnect the transfer case to the transmission. The transfer case does not need to be completely removed from the vehicle.


Slide the transfer case rearward so there is a minimum gap and then forward.

MISALIGNMENT CORRECTION

Follow the appropriate Service Information for Transfer Case Assembly Replacement (with MGM MGU Automatic Transmission). Loosen the transfer case bolts, but do not remove the bolts, to allow the transfer case to be separated from the transmission. It may be helpful to use a transmission jack or adjustable jack stand to provide support in holding the transfer case to the transmission.

With the bolts loosened, slide the transfer case rearward so there is a minimum gap of 1/2 inch (13 mm), but not more than 1 inch (25 mm). Next, slide the transfer case forward until it is contacting the transmission again.

Tighten the transfer case bolts in sequence following the appropriate Service Information.

Refer to Bulletin #21-NA-120 for additional information.

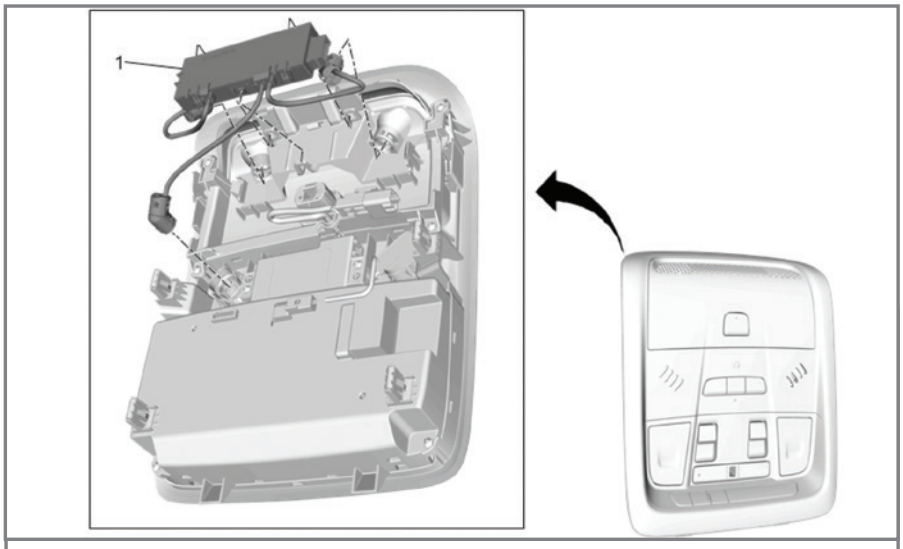
Thanks to Mark Gordon

SERVICE THEFT DETERRENT Message

A Service Theft Deterrent message may be displayed on the Driver Information Center (DIC) on some 2018-2021 XT5 and 2020-2021 XT6 models equipped with RPO UTU (Vehicle Inclination Sensor) and RPO UTV (Vehicle Interior Movement Sensor). The DIC message may be the result of a poor connection of the Theft Deterrent Sensor in the overhead console or a self-test in the inclination sensor that may fail due to a mismatch of data.

The intrusion sensor in the overhead console uses two ultrasonic sensors to detect any motion inside the vehicle. If motion is detected inside the vehicle while the Content Theft Deterrent system is armed, the system will transition to the alarm mode. The intrusion sensor also acts as an inclination sensor. The inclination sensor determines if the vehicle is level when the Content Theft Deterrent system is armed.

The Theft Deterrent Sensor is located in the overhead console.



Check the connection of the three Theft Deterrent Sensor leads.

Lower the overhead console and verify the proper connection of the three Theft Deterrent Sensor leads.

After checking the connections, reprogram the Body Control Module with the latest available calibrations. Be sure the VIN selected in the drop-down menu is the same as the vehicle connected before beginning programming.

Once programming is completed, lower the driver's window, lock the vehicle with the key fob and check for proper operation of the Content Theft Deterrent system. With the system armed, extending your arm through the open window should activate the alarm.

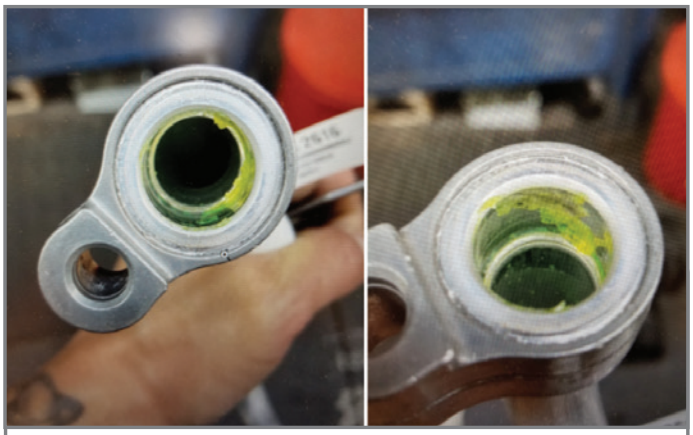
Refer to Bulletin #21-NA-039 for additional information.

▶ Thanks to Tom Burlingame

A/C Blows Warm Intermittently

Possible A/C refrigerant contamination may be causing the air conditioning to take longer than usual to cool the vehicle on some 2020-2021 Equinox and 2021 Blazer models. Check the latest version of #PIT5834 for the VIN breakpoints of the affected models.

If the A/C is slow to cool and the condition can be duplicated on the vehicle, recover the refrigerant using the GE-50957 Contaminated Refrigerant Recovery Machine. Inspect for possible contamination by removing the compressor solenoid, the inlet and outlet lines from the condenser and the Thermal Expansion Valve (TXV). Look for contamination as shown.



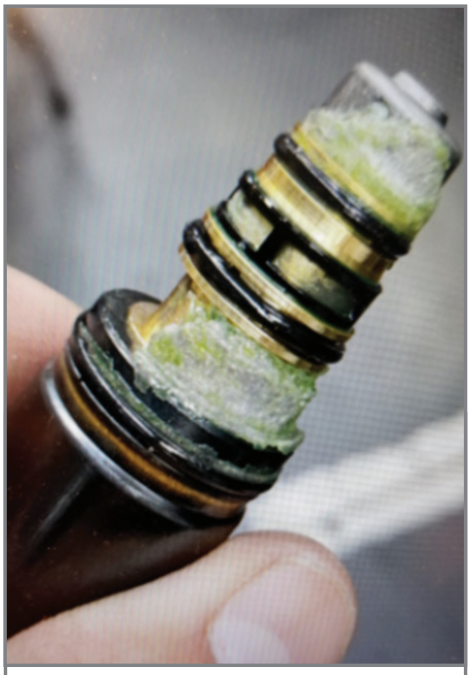
Look for contamination of the compressor solenoid, inlet and outlet lines from the condenser and at the TXV.

If contamination is found, take pictures of the solenoid, TXV and each of the fittings, open a Technical Assistance Center (TAC) case and attach them to the case. Pictures at all these points are required for review.

If visible contamination as shown is not seen, reinstall the lines and diagnose the A/C system using the performance chart and diagnostics in the appropriate Service Information.

Refer to #PIT5834 for additional information.

Thanks to Ken Cole



Attach pictures of the contamination to the TAC case.

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