6T70 Product Issues and Updates

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ATRA
Connections

Questions

Survey
Service Programming

Any time you replace the transaxle you will need to re-program the TCM remember the TCM is internal to the transaxle.
Fast Learn Procedure

Service Fast Learn Adapts is a procedure for 6 speed automatic transmissions in which a series of tests are run to allow the transmission control module (TCM) to learn individual clutch characteristics. Once the clutch data is learned, Service Fast Learn Adapts translates it into the adaptive data cells, which the TCM uses for clutch control during shifts. The scan tool provides initiation of the Service Fast Learn Adapts procedure. This procedure is to be used following transmission repair.

Once the procedure is complete, shut OFF the engine and power down the TCM. You will lose communication to the scan tool. Restart the engine. This will complete the Service Fast Learn Adapts procedure.
Fluid Checking Procedure

1. Level surface, apply parking brake.
2. Start engine, move gear selector.
3. Idle 1 minute.
4. TFT between 180°F and 200°F
5. Read level on dipstick

If the fluid was changed,
Reset the trans oil life monitor

Drive in 2nd to reach proper temp.
Non-serviceable Filter

Only replace after internal repair

Fluid Only Service

100,000 mile
Regular service

50,000 mile
Severe service
Torque Converter Removal
Torque Converter needs to raised vertically
Use J-46409 to lift Torque Converter

No seal on turbine shaft, lip seal is located inside of converter and can be damaged if converter is removed or installed horizontally.
Some 6T70 applications (RPO MH2, MH4, MH6 or MY9) may exhibit a dark or blue color in the metal of the torque converter. You may notice what looks like dark circles in the discoloration. This condition is typically on the hub side of the converter and is not present on all 6T70 torque converters.

If the whole converter is not discolored and evidence of an overheating condition is not present, DO NOT replace the torque converter.
6T70/75

Binding on a 3-4 and 4-3 Shift, Possible P0797 Set

On 6T70 and 6T75 applications the customer may comment regarding a bind on a 3-4 or 4-3 shift. A worn ring groove on the case cover hub sleeve will result in a leak between the 3-5 Reverse clutch and the 4-5-6 clutch fluid circuits.

This will result in the tie-up condition the customer is experiencing.

Remove the hub from the rear case cover and inspect the ring grooves and rings.

Measure the distance with a feeler gauge between the edge of the groove and the ring (Maximum clearance is .007”).

If the distance is too great replace the case cover.
6T70-6T75

No Reverse, 3\textsuperscript{rd} or 5\textsuperscript{th} Gears Possible P0776, P2723, P2715 set

This condition primarily affects transmission built prior to the 2010 model year.

Updated parts are available from GM and Ford to address the issue.

Keep diagnosis simple:
Unplug the transmission to see if Reverse is being prevented electrically. If reverse engagement is ok, the shell is not the problem.
6T70/75

PRNDL Doesn’t Illuminate

GM Z body (Malibu, Aura 6T40/45 (RPO MH7/MHC) 6T70/75 (RPO MH2/MH4/MY9/MH6) applications may exhibit a condition where the PRNDL display does not indicate the gear position the customer has selected.

This condition in many instances is intermittent and difficult to duplicate.

Inspect circuits 5981, 5982, 5983 and 5984 for poor or damaged connections between the Instrument Panel Cluster, Body Control Module and the Shift Lever assembly. Inspect connectors X206, X303 and X304 for damaged or loose terminals.
An Updated Calibration is available to address this concern
Check line pressure at idle, if low inspect the pump outlet seal for damage.
6T70
DTC’s P0752, P0872, P0877, P0989, Fluid Pressure Switch Issues
Some customers may comment about an SES light and/or no reverse and may also comment on a slip / flare or harsh shifts in drive range 3rd and/or 5th gear. Upon investigation, the technician may find DTC P0776 (Clutch Pressure Control (PC) Solenoid 2 - Stuck Off) set. Any one of the following codes may set independent of each other as a result of this wave plate breaking: P0777, P2723, P0717, P0716, P2715, P2714.

This condition may be caused by a broken 35R clutch wave plate allowing the apply piston to over-stroke, causing the piston to leak and causing loss of apply.
Install the updated wave plate anytime the transmission is apart for a repair
If it is a 2010 or earlier application. P/N 24254103
Inspect the case for signs of damage

Normal

Cause for concern
6T70/75

Planetary Damage Due To Wave Plate Breakage

To prevent damage from occurring to the new gear set or if you are repairing one of these units and the planetary is not yet damaged, you should install the new design wave plates in all of the clutches.

**Clutch & Part Number**

1-2-3-4 #24259063
2-6 #24259816
3-5 Reverse #24254103
Low-Reverse #24259817

**NOTE:**

THE 3-5 REV WAVE IS THE MOST COMMON ONE TO BREAK
No Movement, DTC 2723

A no movement and/or P2723 may be set after repair. This condition is usually associated with GM R/V/Z body style applications (Traverse, Acadia, Outlook, Enclave, Malibu, G6, Aura, Vue) and may exhibit a no drive condition after a repair, which typically includes replacement of the reaction planetary carrier. In addition a P2723 DTC may be set.

Missing Ring Gear

In many publications the reaction carrier and the input ring gear are shown as a one piece assembly. In reality, the reaction carrier, input ring gear and ring gear snap ring are serviced as separate pieces. If the technician fails to install the ring gear onto the reaction carrier a no drive condition will result. To repair the condition, install the ring gear.

6T70/75

Broken Wave Plate

In many instances the transmission was disassembled originally to address a no 3rd, 5th or reverse condition which is typically associated with a P0776 DTC. Upon inspection a broken wave plate in the 3-5-Reverse clutch is generally determined to be the cause and the reaction carrier was damaged from debris.
6T70/75
Planet Damage, No Movement, DTC 2723

Ring Gear
Snap Ring
(very difficult To remove)

Input Ring Gear

Reaction Carrier

Parts Catalogs Show This Planet Assembly As One Piece
* 2007 and later models have eliminated one bolt from the torque converter housing area. The updated transaxle will utilize a 9 bolt support. The updated converter housing is not tapped for the bolt so it is not necessary for you to do any modifications to assist you with interchange of the parts. The updated support will backservice previous models as you will simply eliminate the bolt. When installing the updated support on an earlier application, simply follow the torque sequence for the 9 bolt system
The lube trough design was updated on 2008 applications. The updated design uses only one bolt to retain the trough in the case. In later case designs only one bolt hole is drilled in the case. The updated trough will backservice previous design applications.
An update to the design of the Output and Reaction carriers occurred for the 2009 model year. The Output carrier bearing pocket has been machined .01” (.3mm) deeper to accept a thicker sun gear bearing design. The Reaction carrier sun gear bearing has also been modified. The bearing pocket on the updated carrier has been machined .009” (.25mm) deeper to allow for a more robust bearing design. The updated carriers will backservice if the updated bearings are used.
A updated cooler line was developed to reduce the chance of leakage from the cooler circuit. The updated lines have longer snouts and the cooler line holes in the case were modified to accept the longer snouts. This update was designed for 2008 and later applications and it will NOT backservice into the previous design cases.
The 6T70 (RPO M7W or M7U) and 6T75 (RPO M7V and M7X) received a major control system update for the 2013 model year. As with updates on other applications this major change was NOT implemented in all 6T70/75 applications.

Because of parts availability issues, 6T70/75 applications with RPO codes other than M7W, M7U, M7V or M7X will not receive the update until 2014 production.

This means that two versions of the 6T70/75 transmission will be available in 2013, Generation I and Generation II

- GEN I: Units that do not contain the controls update package
- GEN II: Units that contain the controls update package
The TCM calculates fill time based on the learned volume. The CP Learn is conducted during steady conditions in 3rd, 5th and 6th gear. The CP Learn for the 4-5-6 clutch is enabled in 3rd gear. CP Learn for the 1-2-3-4 clutch and 2–6 clutch is enabled in 5th gear. CP Learn for the 3-5-R clutch is enabled in 6th gear. A rough road condition could give a false reading for transmission input speed interruption. When rough road conditions are detected, CP Learn is aborted until road conditions improve.
6T70-75 2013 Gen II

Control Valve Upper Body Spacer Plate Assembly
6T70/75 Current Design

Control Valve Upper Body Spacer Plate Assembly
6T70/75 New Design

Control Valve Upper Body Spacer Plate Assembly
6T70/75 SOP Design
Control Valve Channel Plate New Design
3 New Actuator Feed
Accumulator Pistons & Springs

Current
New
Current
New
Current
NOTE:
10 Check Balls in New Design
Control Valve Upper Body

Added Check Ball

Control Valve Upper Body
New Design

No Check Ball

Control Valve Upper Body
Current Design
6T70-75 GEN II Valve Body Updates 2013

Low & Reverse 4-5-6 Clutch Regulator Valve
Spring Color Code Pink

Low & Reverse 4-5-6 Clutch Regulator Valve
Current Design

Low & Reverse 4-5-6 Clutch Regulator Valve
New Design

Clutch Select Solenoid 2 Valve
Current Design

Clutch Select Solenoid 2 Valve
New Design

Ring

No Ring
6T70-75 GEN II Valve Body Updates 2013
6T70-75 GEN II Valve Body Updates 2013

1-2-3-4 Clutch Regulator Valve
Current Design

1-2-3-4 Clutch Regulator Valve
New Design

3-5 Reverse Clutch Regulator Valve
Current Design

3-5 Reverse Clutch Regulator Valve
New Design

3-5 Reverse Clutch Regulator Valve
Spring Color Code Pink
6T70-75 GEN II Valve Body Updates 2013
6T70-75 GEN II Valve Body Updates 2013

Current Design

New Design

Low & Reverse Clutch Wave Plate

Low & Reverse Clutch Friction Plate

Black Stripes 180° Apart Both Sides
6T70-75 GEN II Valve Body Updates 2013

- Current Design vs. New Design
- Low & Reverse Clutch Retaining Ring
- Clutch Piston fingers are taller
- White Stripes 180° Apart Both Sides
- 1-2-3-4 Clutch Waved Plate
- 1-2-3-4 Clutch Friction Plate
6T70-75 GEN II Valve Body Updates 2013

4-5-6/3-5-Reverse Housing

No 2D Matrix Added

2D Matrix Added

No Readable Text

Readable Text

4-5-6/3-5-Reverse Housing
Current Design

4-5-6/3-5-Reverse Housing
New Design
6T70-75 GEN II Valve Body Updates 2013

4-5-6 / 3-5-Reverse Housing

No 4-5-6 Dam Hole
Current Design

No 4-5-6 Dam Holes
Current Design

4 Added 4-5-6 Dam Hole
New Design

3 Added 4-5-6 Dam Holes
New Design
6T70-75 GEN II Valve Body Updates 2013
6T70-75 GEN II Valve Body Updates 2013

No Holes

3 Added Holes To Improve Compensator Feed Oil

Turbine Shaft Current Design

Turbine Shaft New Design
2-6 Clutch, Snap ring
And Case Snap ring
Groove Updated
Thanks For Attending the ATRA Webinar
6T70-75 GEN II Valve Body Updates 2013