

ATRA WEBINAR

6T70 Product Issues and Updates



Presented by:
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ATRA



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- ✿ 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

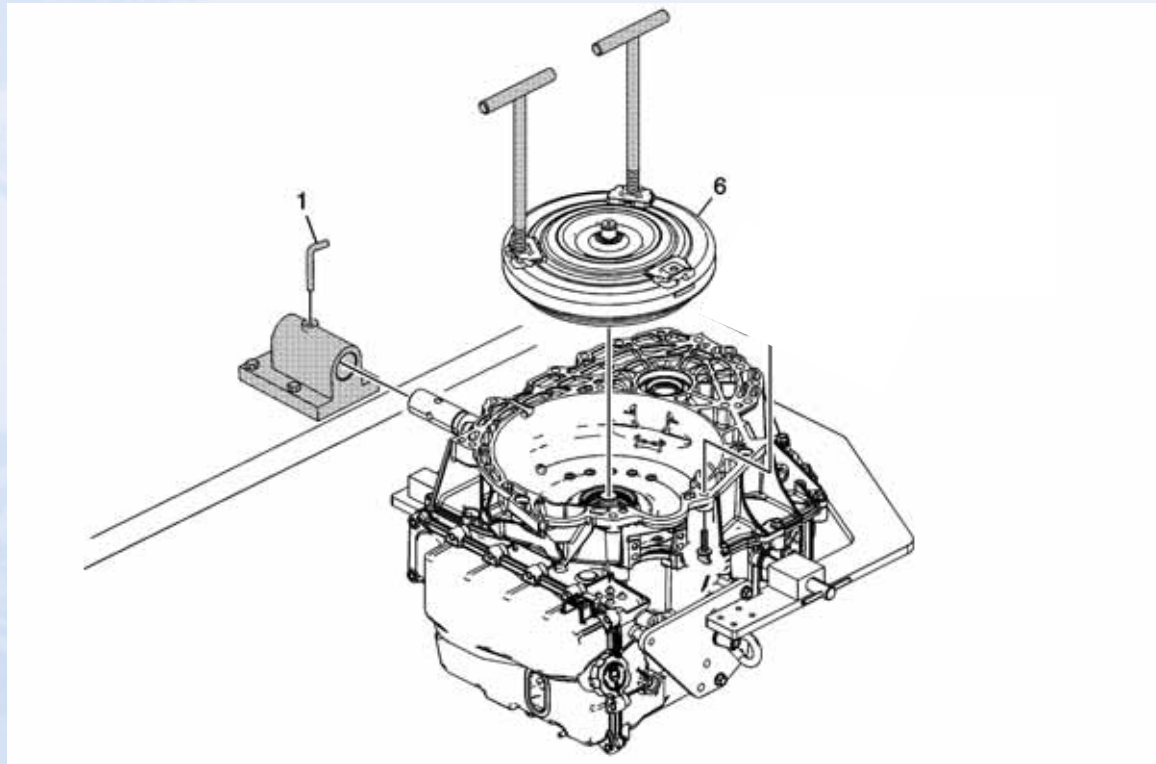
Fluid Only Service
100,000 mile
Regular service

50,000 mile
Severe service

Torque Converter Removal

Torque Converter needs to be 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

6T70

Converter Discolored

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, 3rd or 5th 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



New Shell comes with the #3 thrust bearing



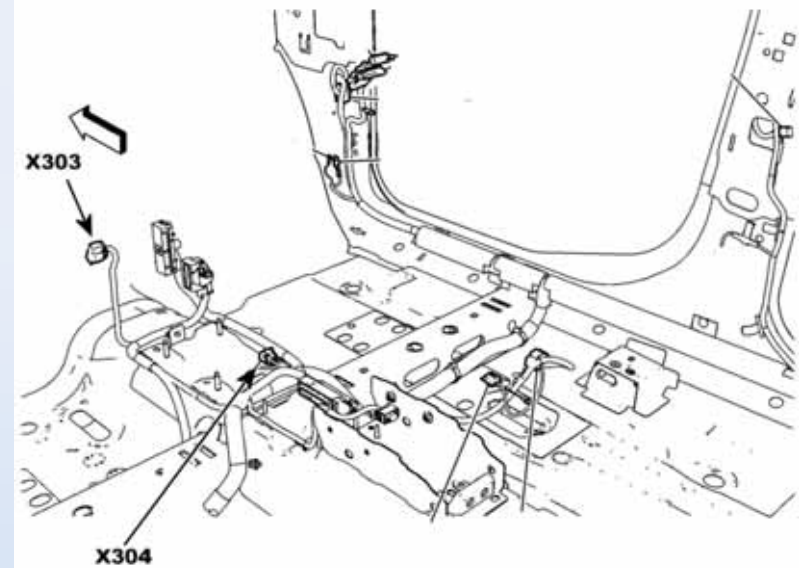
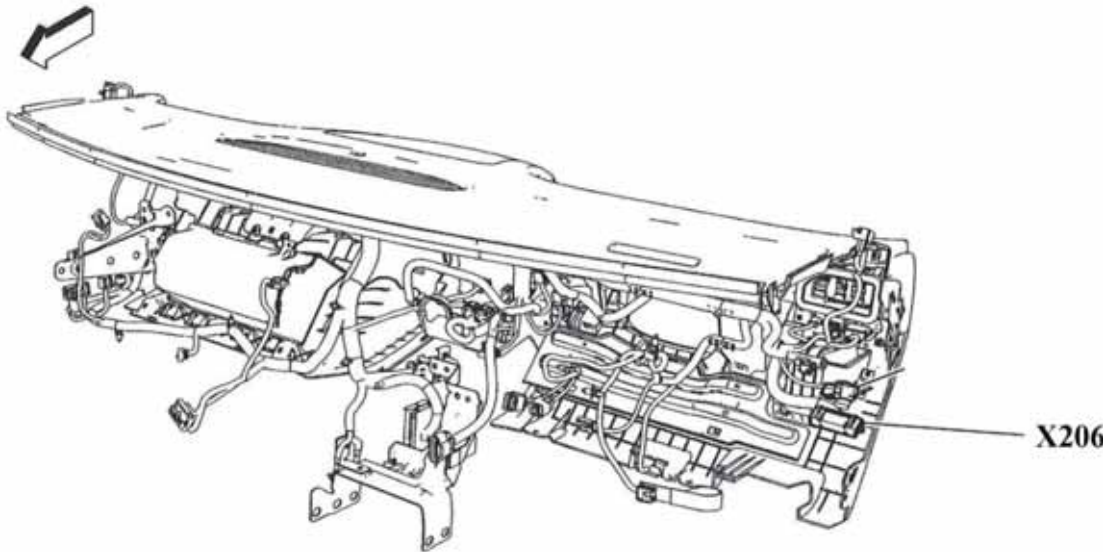
Keep diagnosis simple:
Unplug the transmission to see if Reverse is being prevented electrically. If reverse engagement is ok, the shell is not the problem.

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.

6T70 Delayed Shifts, Shift Points Incorrect, 2010 models

- ✿ An Updated Calibration is available to address this concern

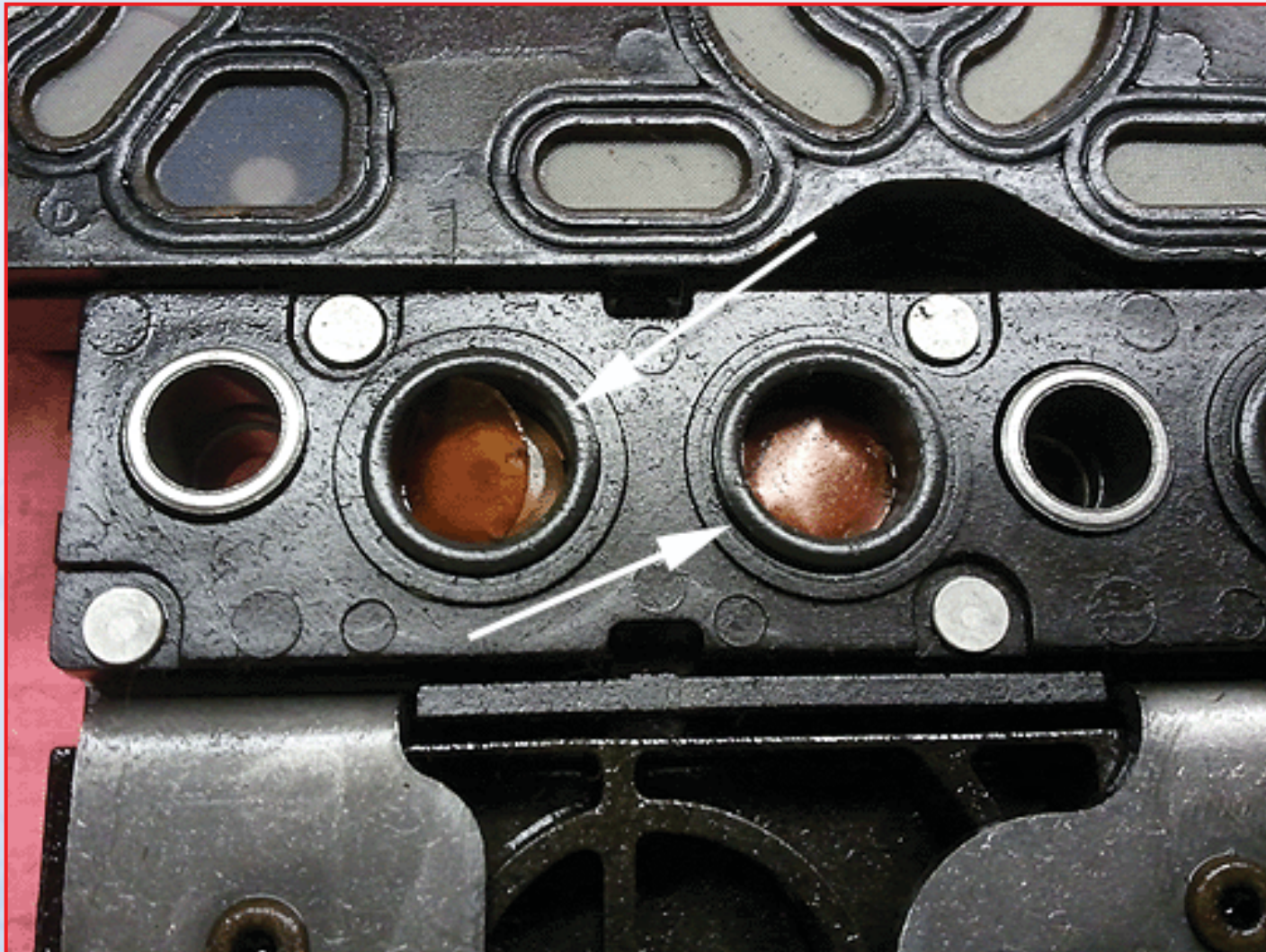
6T70-75 Delayed Engagement , Slip Concerns

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



3-5 Reverse Wave Plate Broken

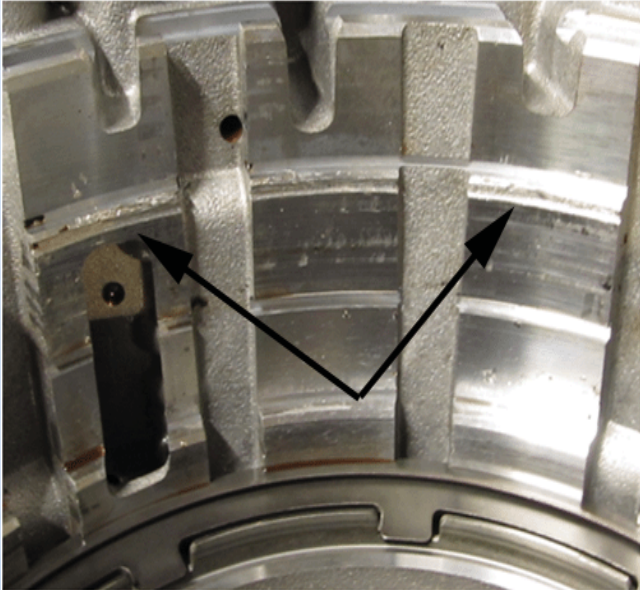
Possible P0776 (PCS 2 Stuck Off)

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.

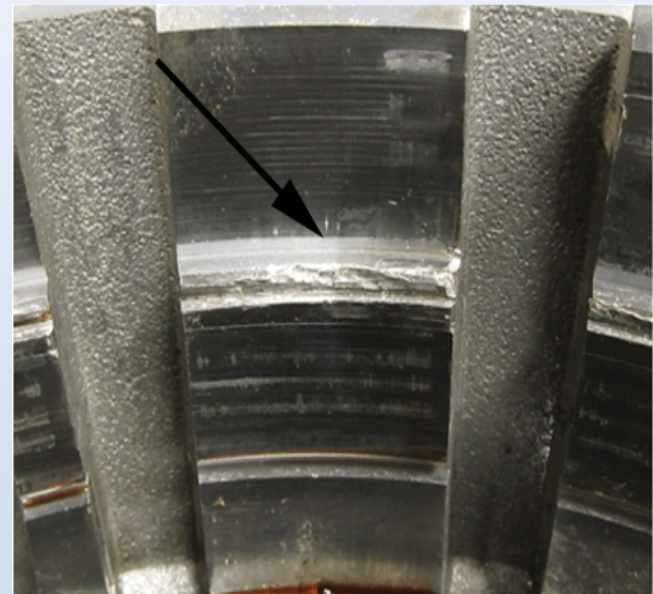
This condition may be caused by a broken 35R clutch wave plate allowing the apply piston to over-stroke, causing the piston to leak and causing loss of apply

3-5 Reverse Wave Plate Broken Possible P0776 (PCS 2 Stuck Off)

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

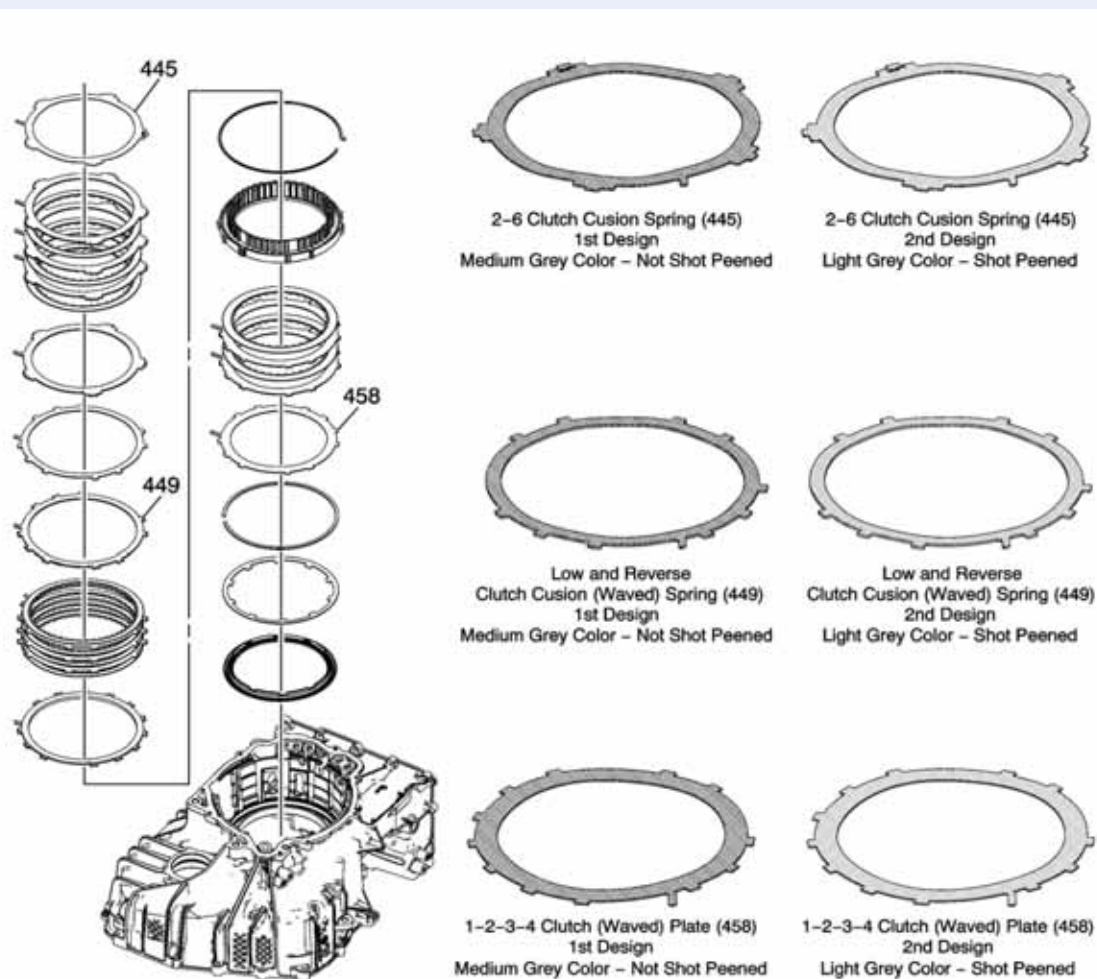
NOTE:

THE 3-5 REV

WAVE IS THE MOST

COMMON ONE TO

BREAK



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.

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

Planet Damage, No Movement, DTC 2723

Ring Gear
Snap Ring

(very difficult
To remove)

Input Ring
Gear

Parts Catalogs Show This
Planet Assembly As One Piece

Reaction Carrier



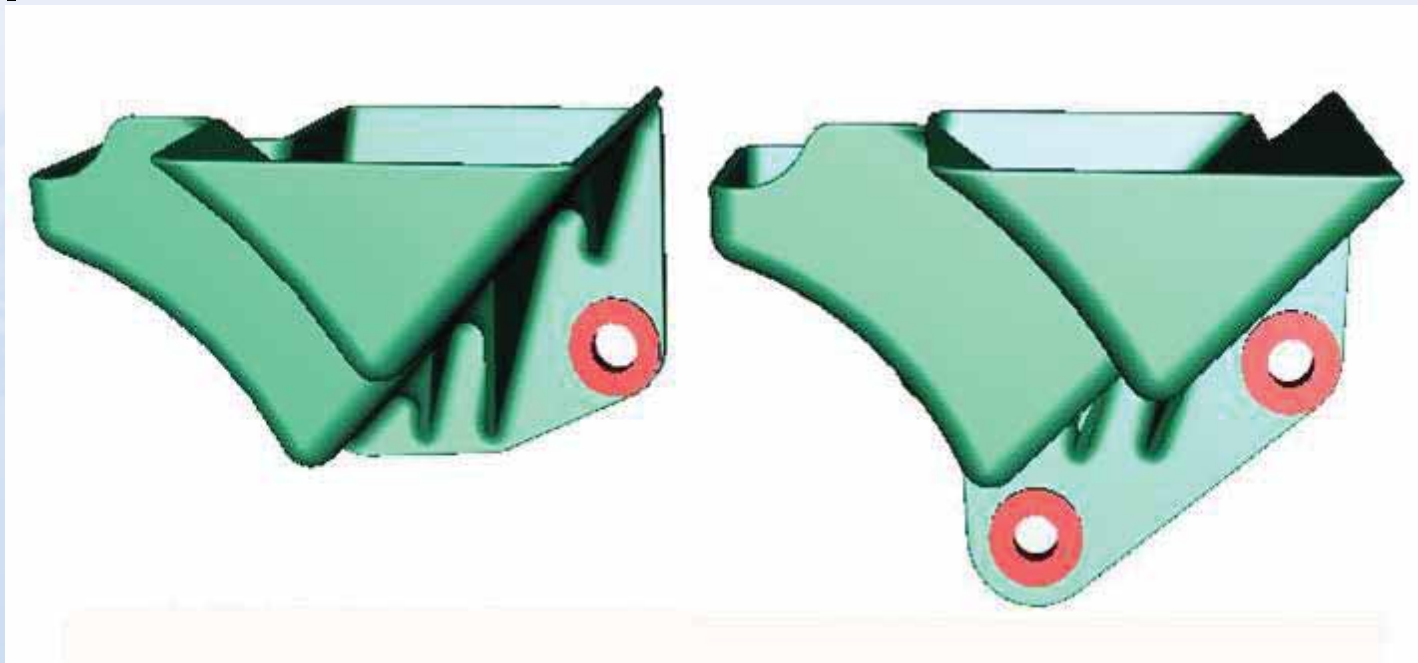
Updated Support 2007 and Later

- * 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



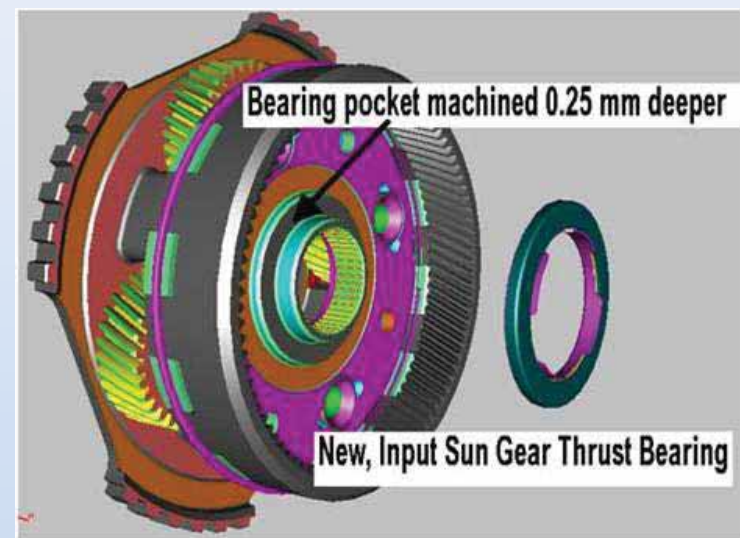
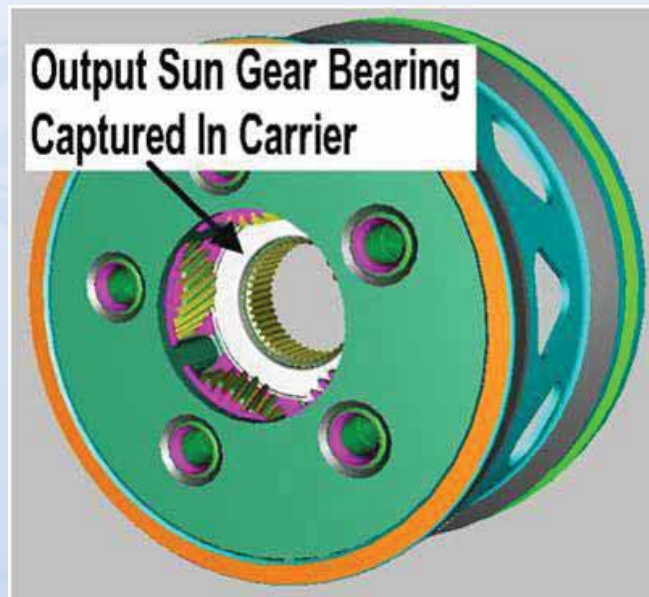
Lube Trough Update

*** 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.**



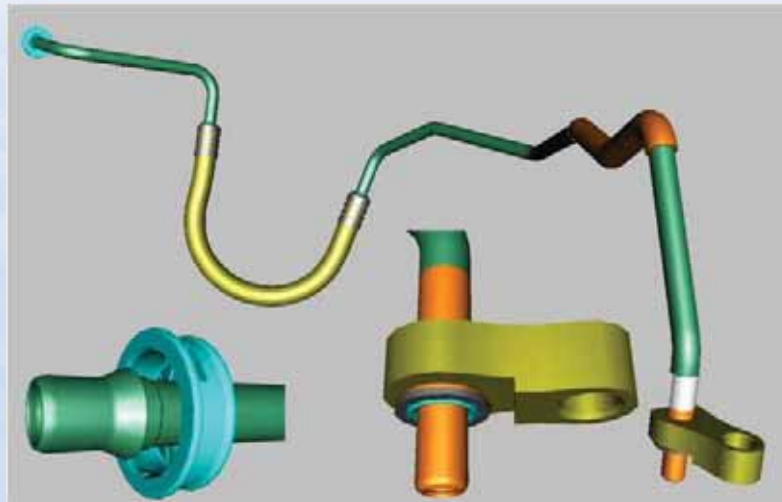
Carrier Updates

- 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.



Cooler Line Updates

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.



6T70-75 Controls Upgrade 2013

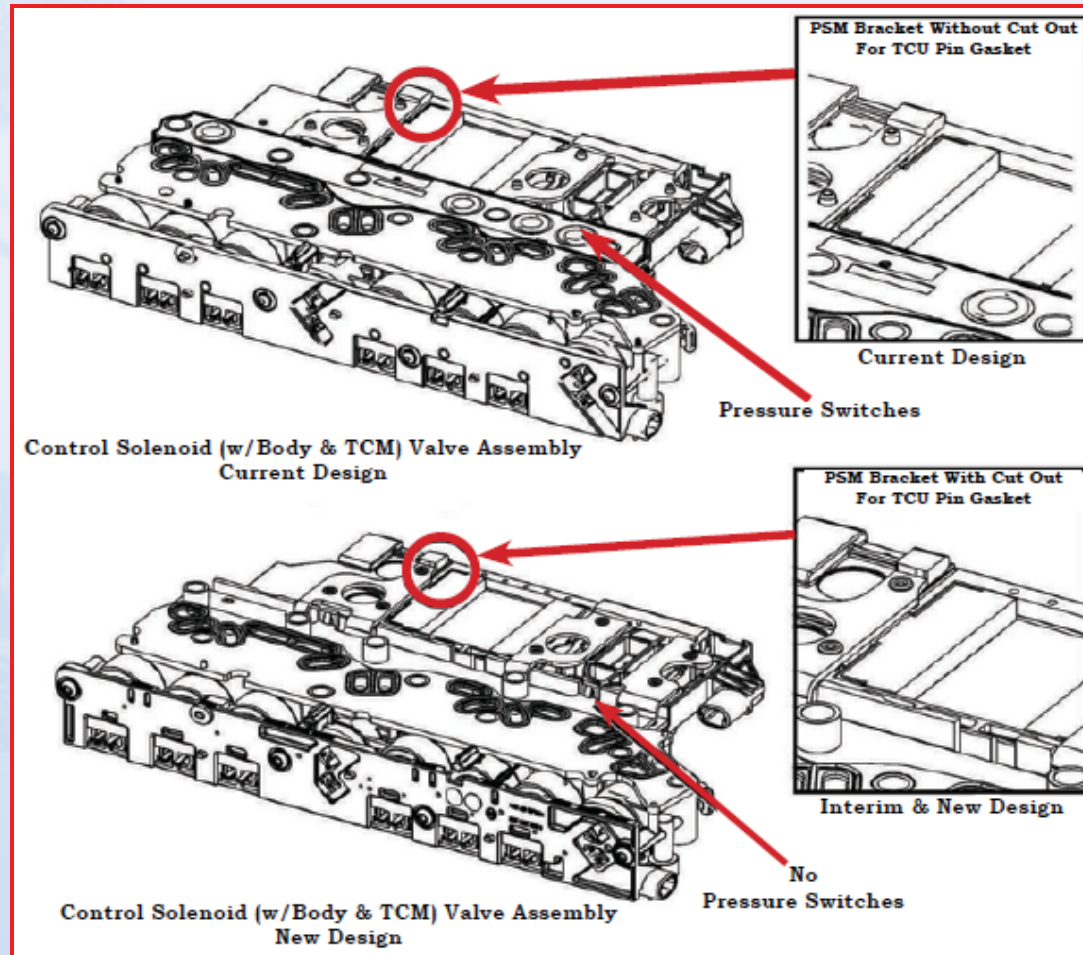
- The 6T70 (RPO M7W or M7U) and 6T75 (RPO M7V and M7X) received a major control system update for the 2013 model year. As with updates on other applications this major change was NOT implemented in all 6T70/75 applications.
- Because of parts availability issues, 6T70/75 applications with RPO codes other 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

6T70-75 Gen II Updates

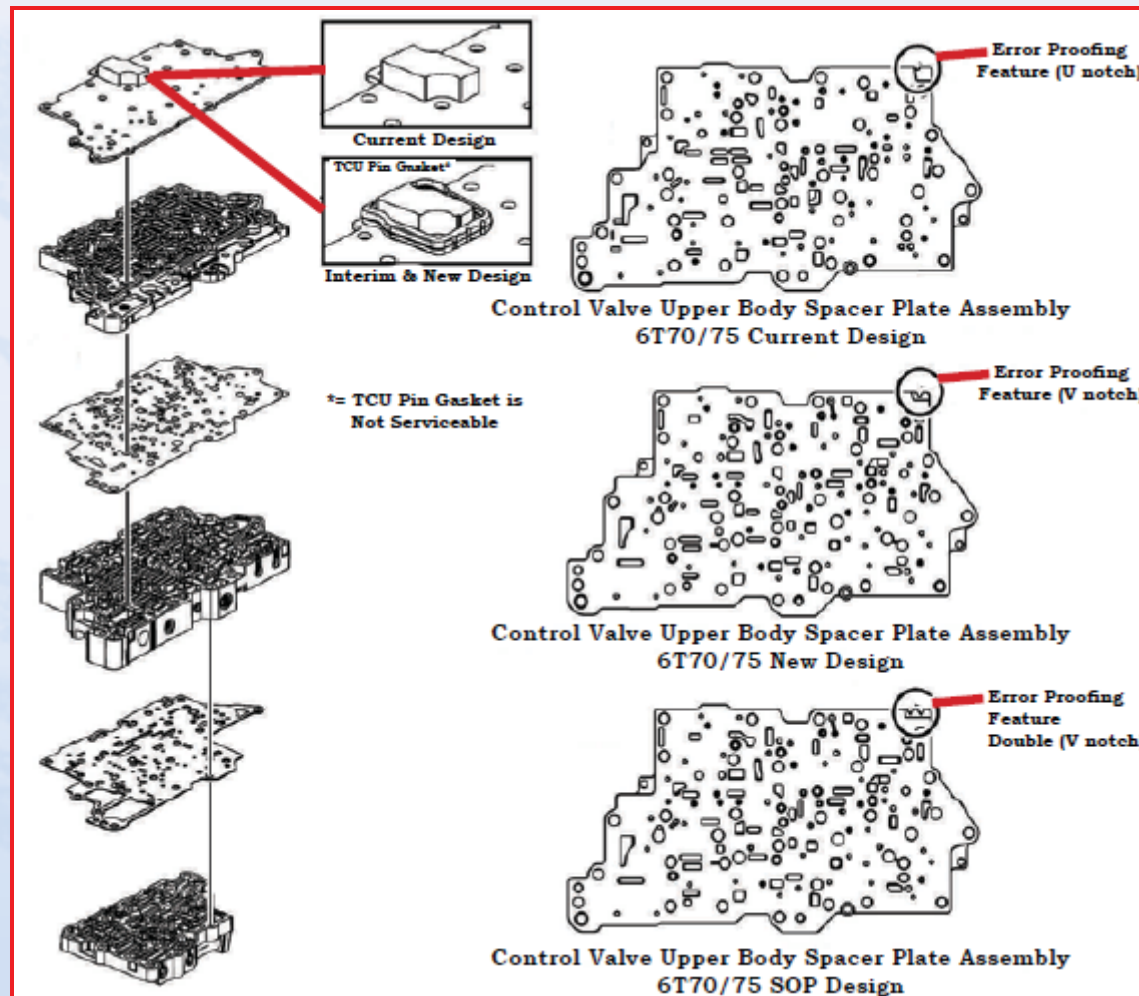
Clutch Pulse Learn

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 TEHCM



6T70-75 2013 Gen II

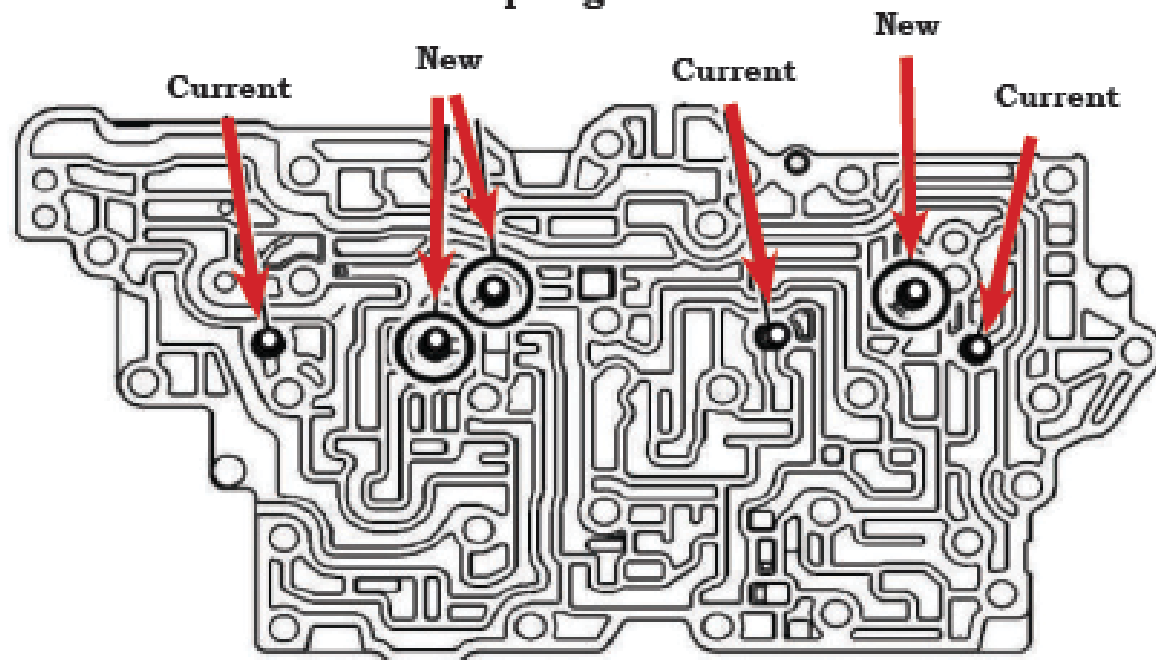


6T70-75 2013 Gen II

VB Accumulator Pistons Update

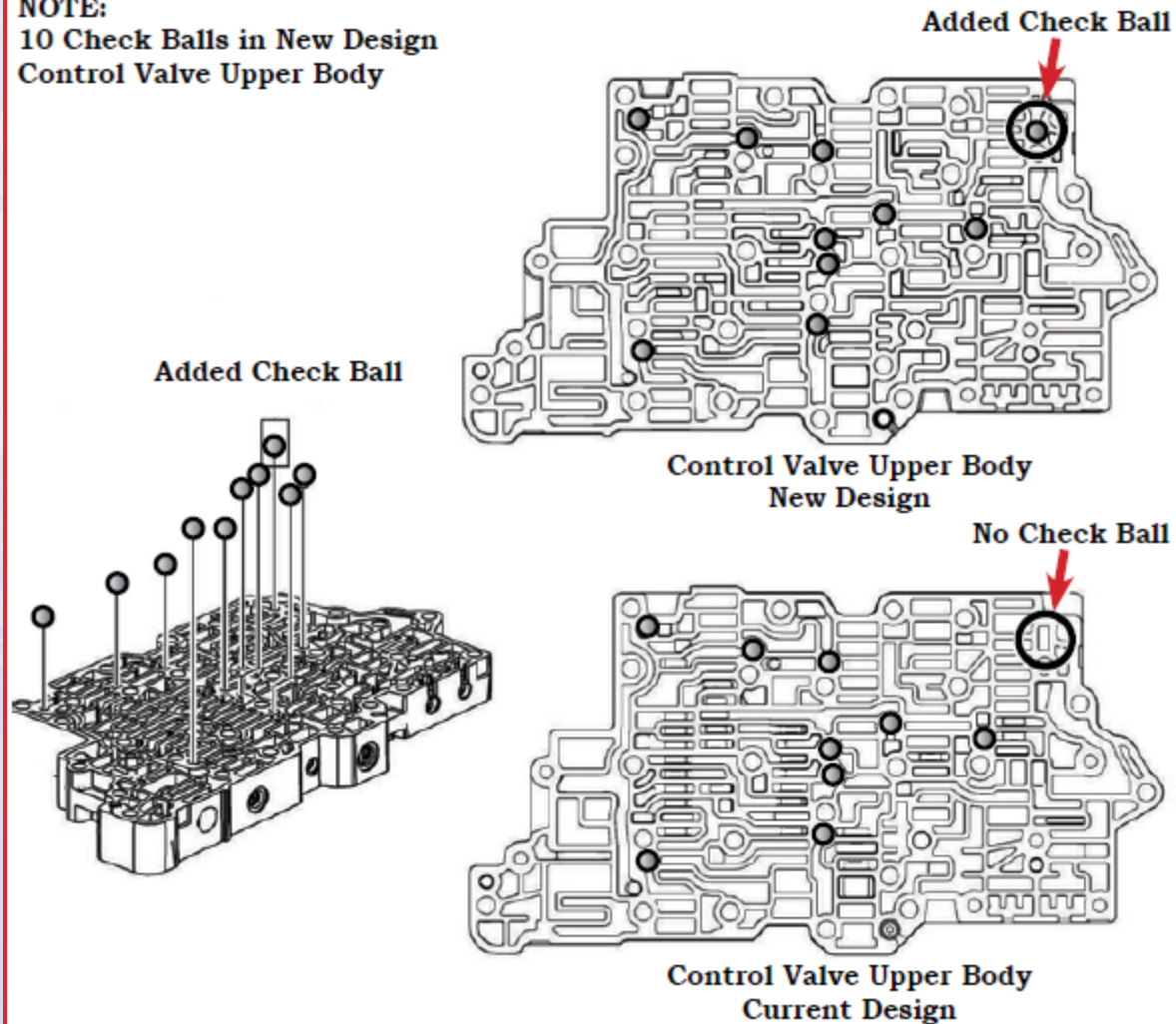
Control Valve Channel Plate New Design

**3 New Actuator Feed
Accumulator Pistons
& Springs**

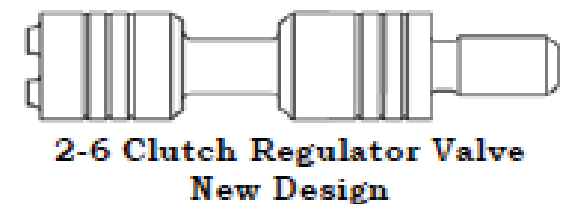
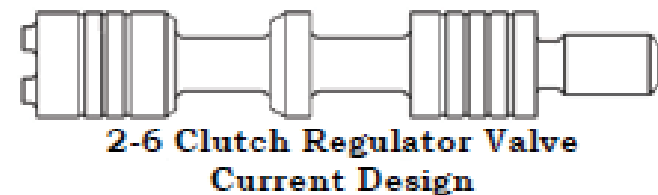
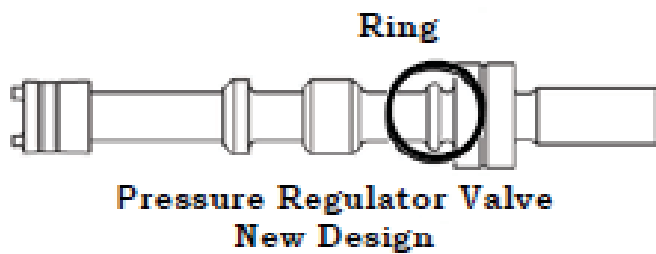
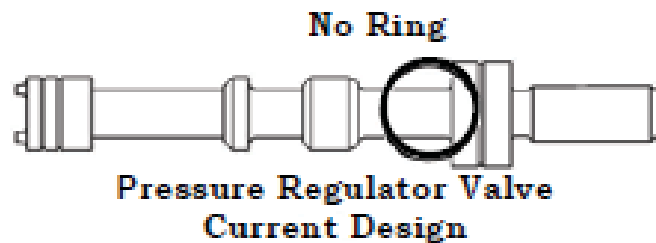
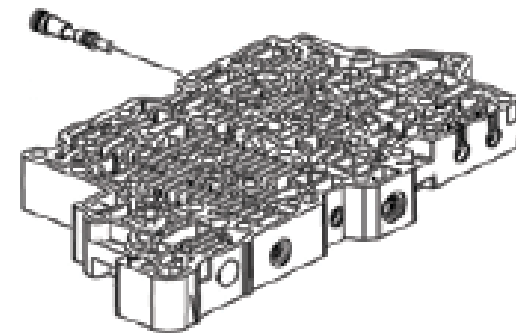
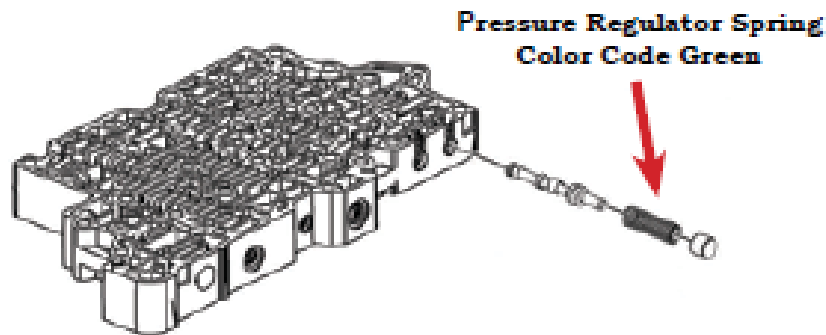


6T70-75 2013 Gen II Check Ball Update

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

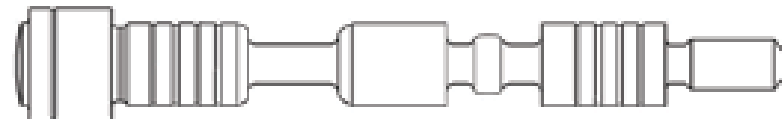
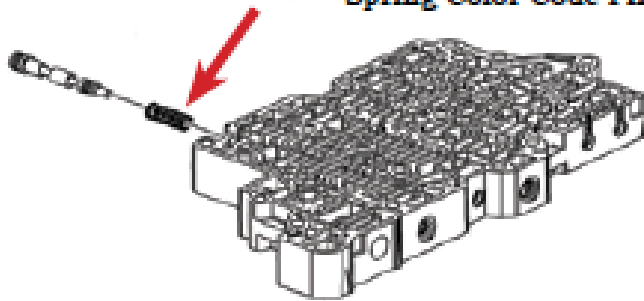


6T70-75 GEN II Valve Body Updates

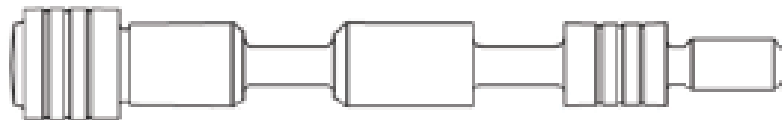


6T70-75 GEN II Valve Body Updates 2013

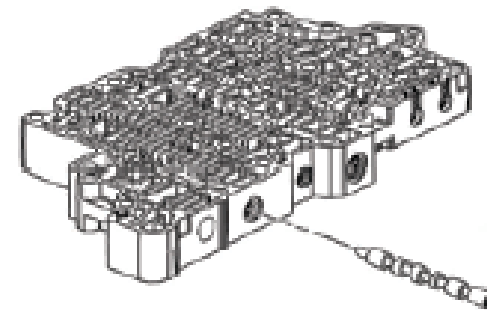
**Low & Reverse 4-5-6 Clutch Regulator Valve
Spring Color Code Pink**



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

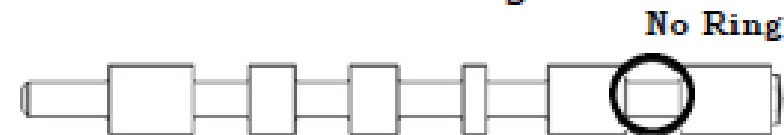


**Low & Reverse 4-5-6 Clutch Regulator Valve
New Design**



Ring

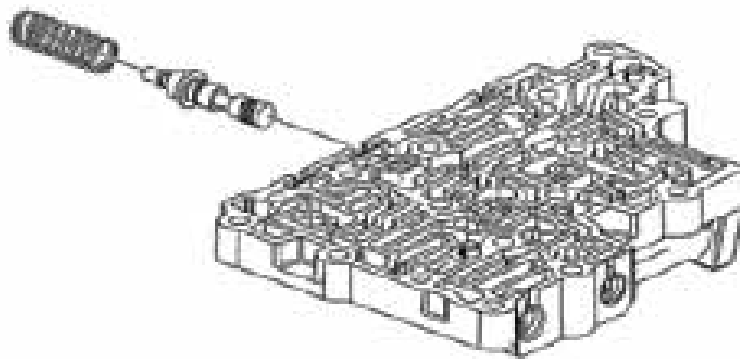
**Clutch Select Solenoid 2 Valve
Current Design**



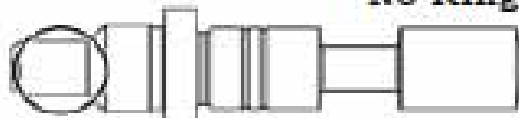
No Ring

**Clutch Select Solenoid 2 Valve
New Design**

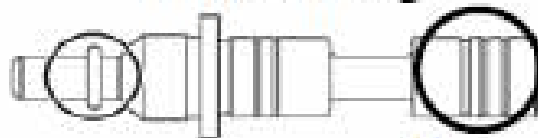
6T70-75 GEN II Valve Body Updates 2013



No Ring

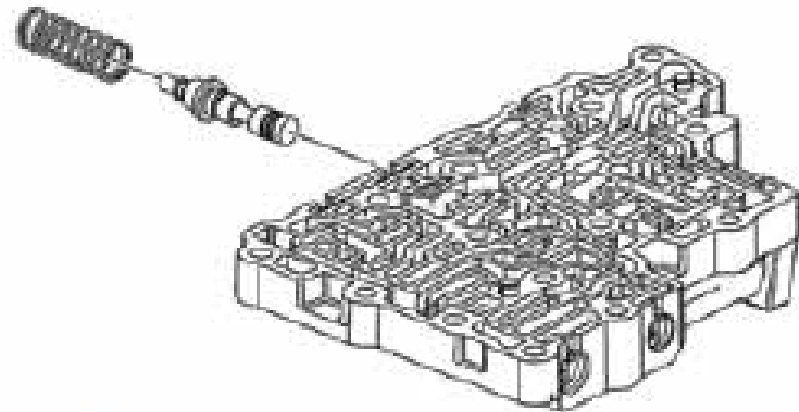


1-2-3-4 C456 C35R Clutch Boost Valve
Current Design

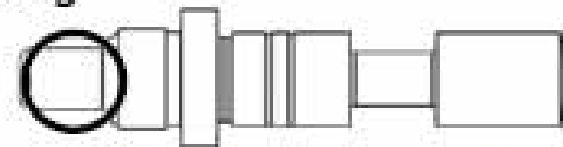


Rings

1-2-3-4 C456 C35R Clutch Boost Valve
New Design

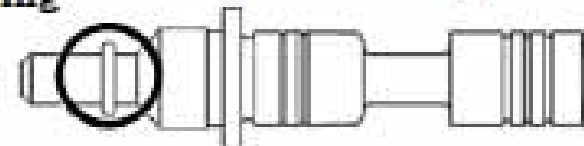


No Ring



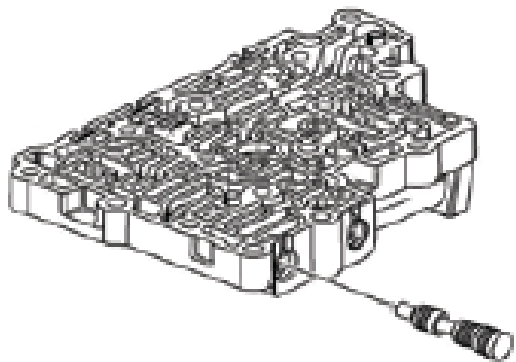
Actuator Feed Limit Valve
Current Design

Ring

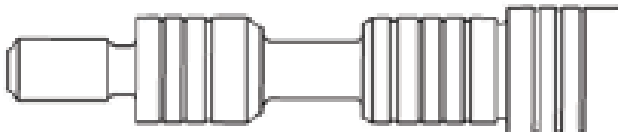


Actuator Feed Limit Valve
New Design

6T70-75 GEN II Valve Body Updates 2013

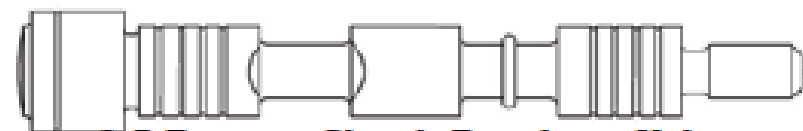
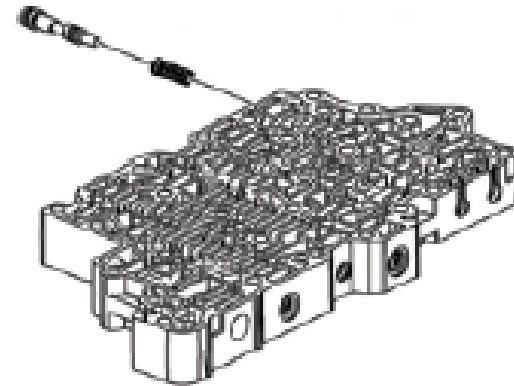


**1-2-3-4 Clutch Regulator Valve
Current Design**

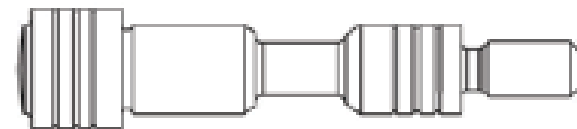


**1-2-3-4 Clutch Regulator Valve
New Design**

**3-5 Reverse Clutch Regulator Valve
Spring Color Code Pink**

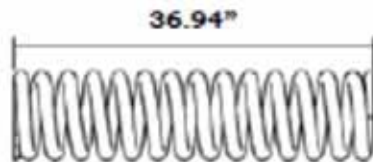
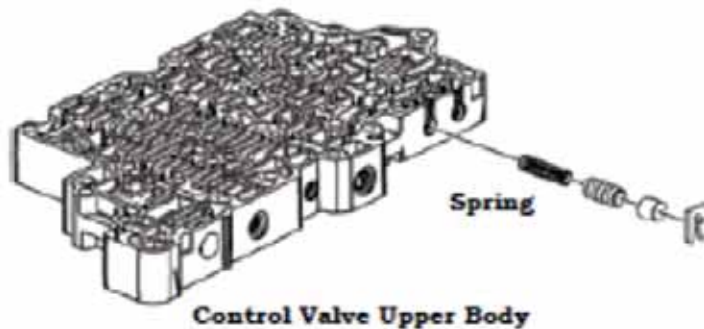


**3-5 Reverse Clutch Regulator Valve
Current Design**

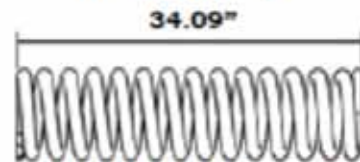


**3-5 Reverse Clutch Regulator Valve
New Design**

6T70-75 GEN II Valve Body Updates 2013

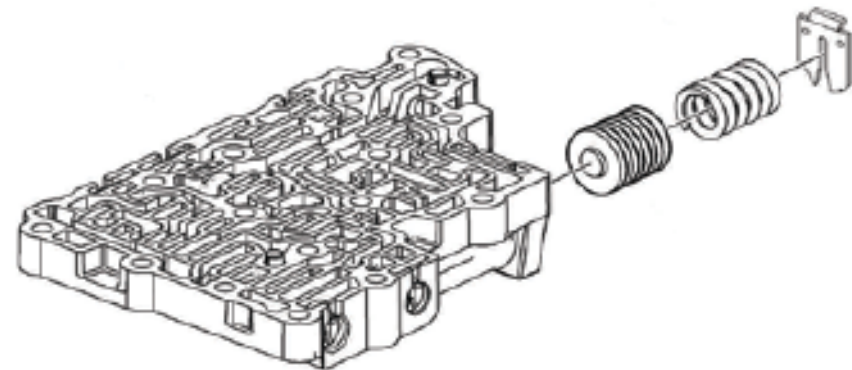


**Isolator Valve Spring
Current Design**

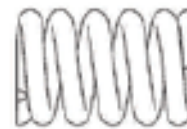


**Isolator Valve Spring
New Design**

**4-5-6 Clutch Accumulator Piston
Spring Color Code White**



**4-5-6 Clutch Accumulator Piston Spring
Current Design**



**4-5-6 Clutch Accumulator Piston Spring
New Design**

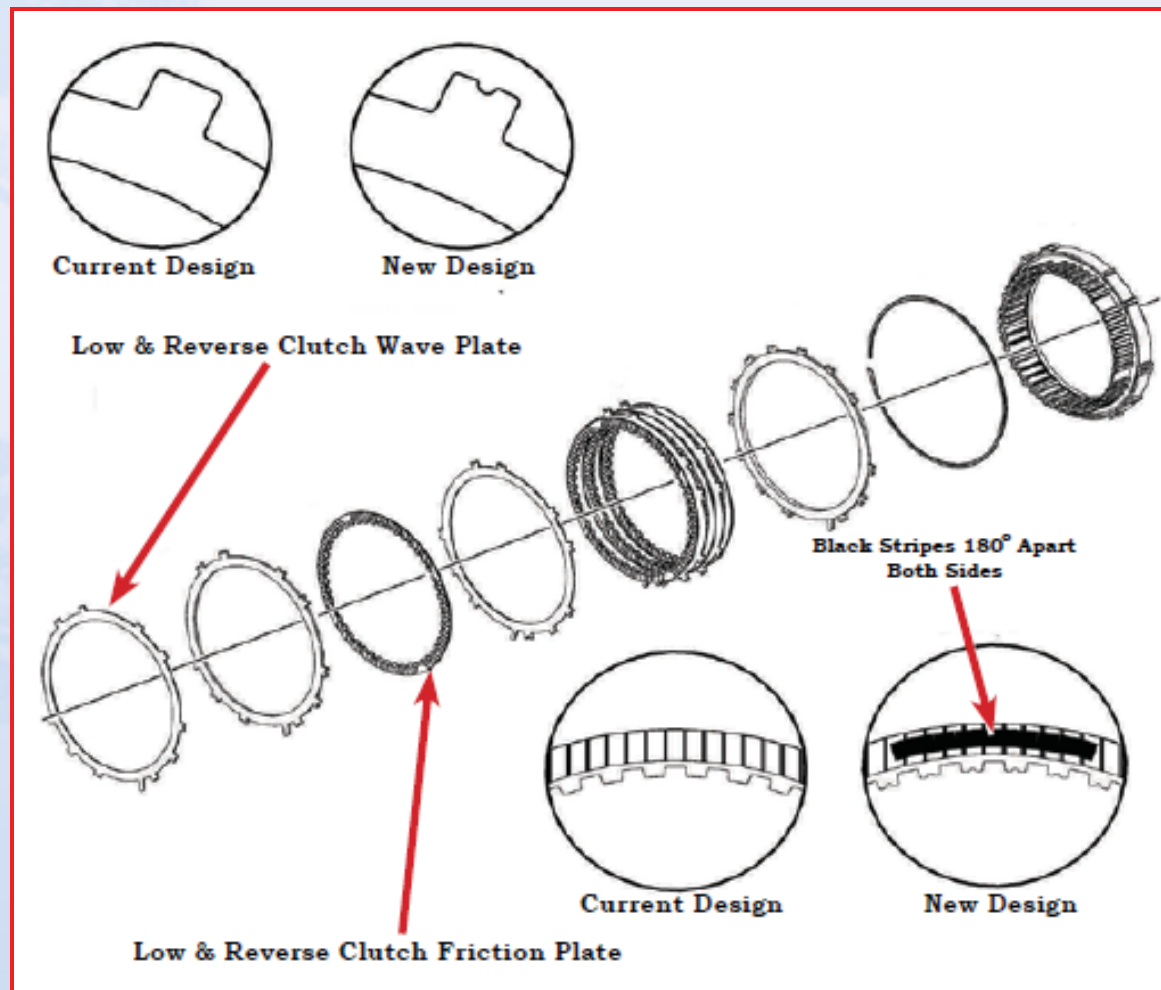


**4-5-6 Clutch Accumulator Piston Retainer
Current Design**

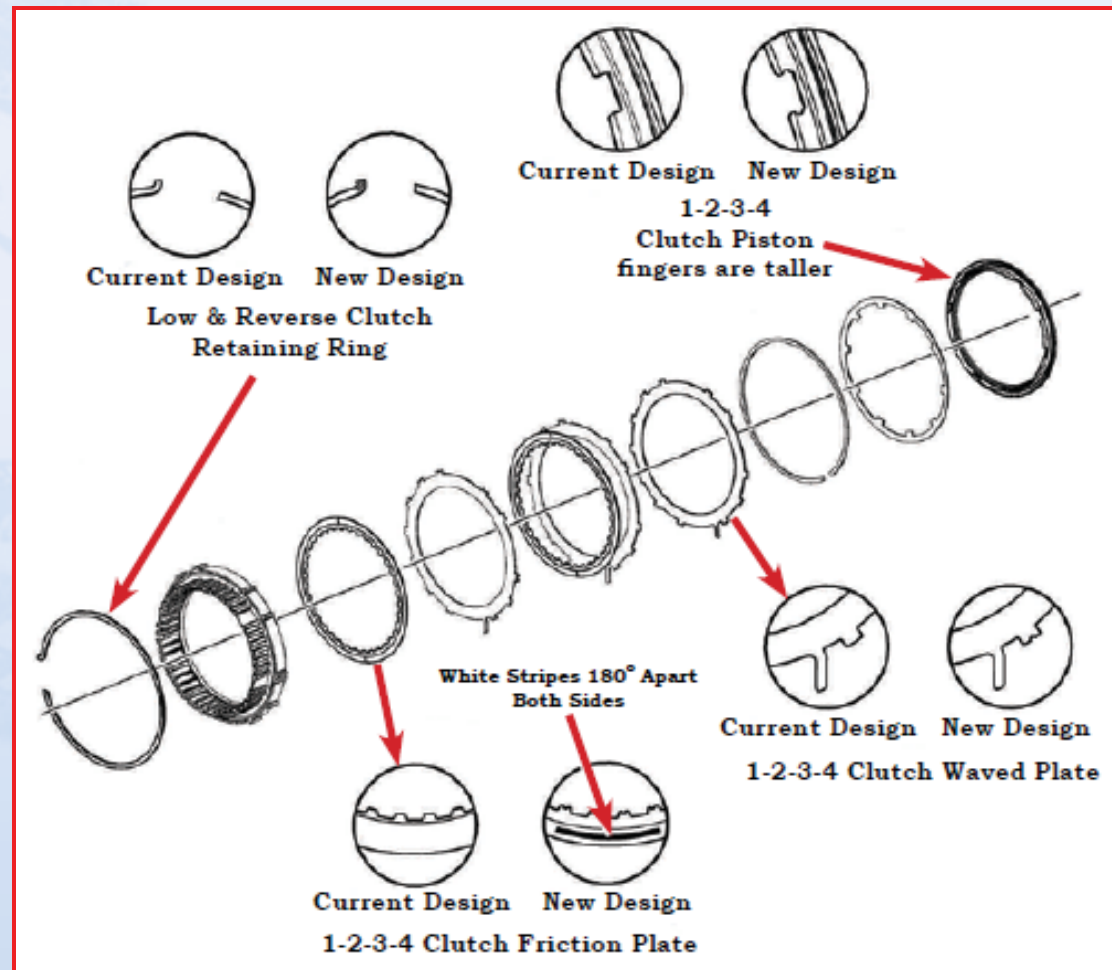


**4-5-6 Clutch Accumulator Piston Retainer
New Design**

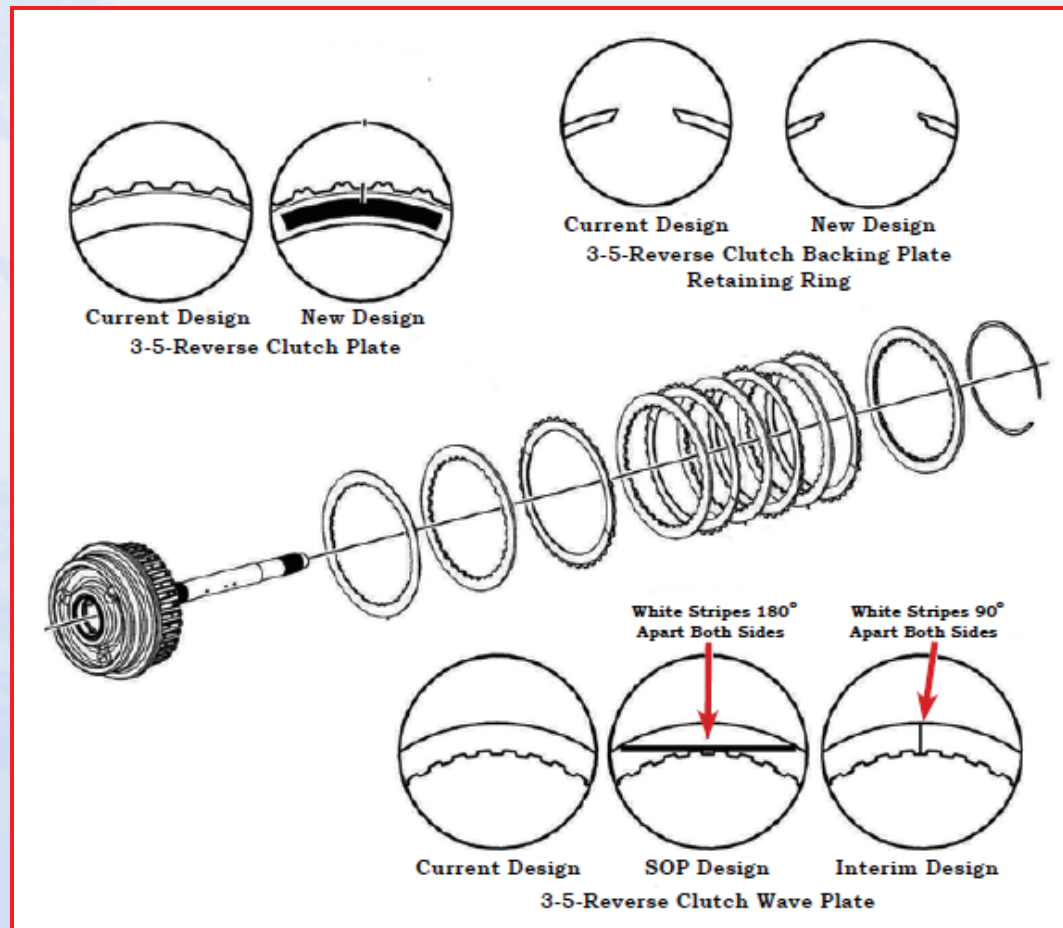
6T70-75 GEN II Valve Body Updates 2013



6T70-75 GEN II Valve Body Updates 2013



6T70-75 GEN II Valve Body Updates 2013



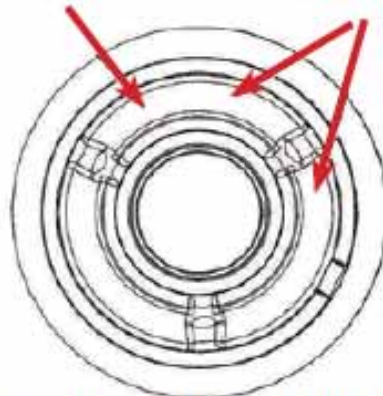
6T70-75 GEN II Valve Body Updates 2013



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

No 2D Matrix Added

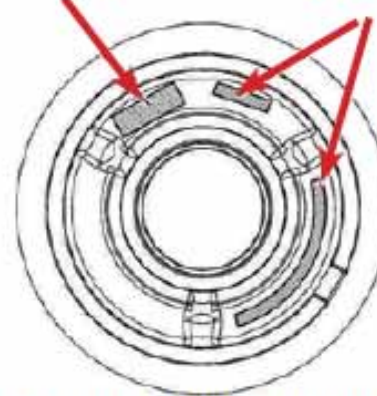
No
Readable Text



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

2D Matrix Added

Readable Text

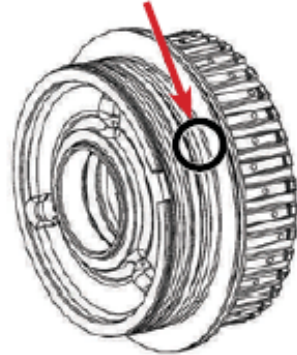


4-5-6/3-5-Reverse Housing
New Design

6T70-75 GEN II Valve Body Updates 2013

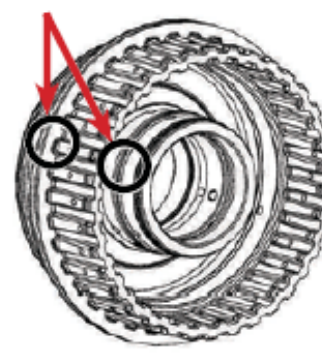
4-5-6 / 3-5-Reverse Housing

No 4-5-6 Dam Hole



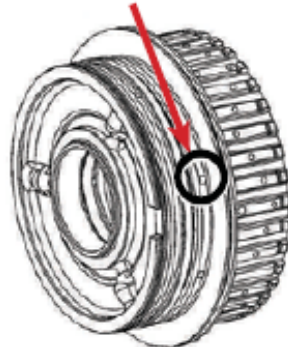
Current Design

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

4-5-6 Clutch Piston

4 Holes

12 Holes

Current Design

New Design

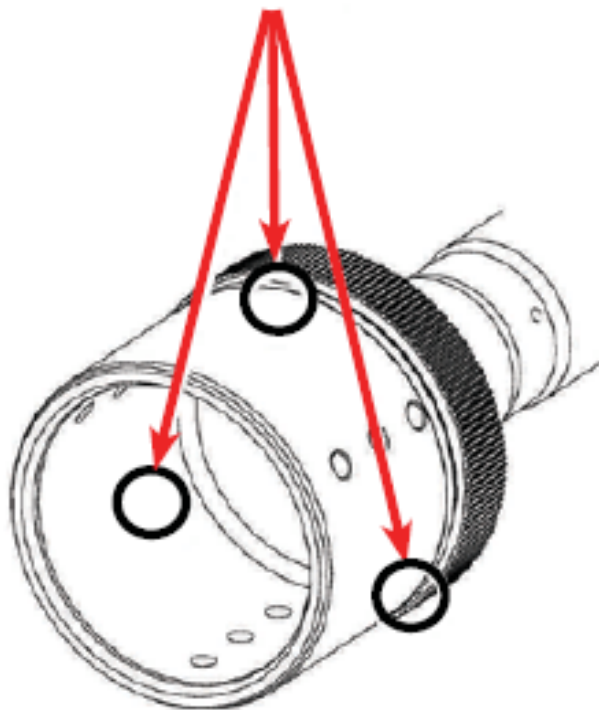
4-5-6 Clutch Spring

Current Design

New Design

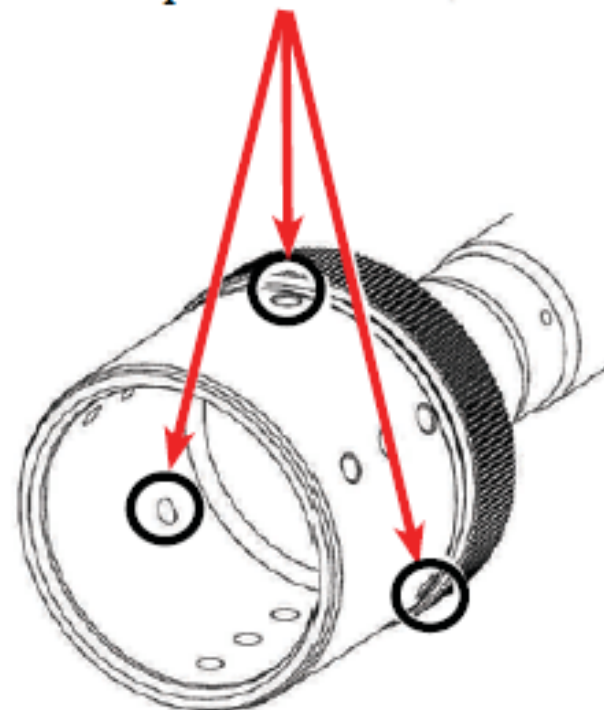
6T70-75 GEN II Valve Body Updates 2013

No Holes



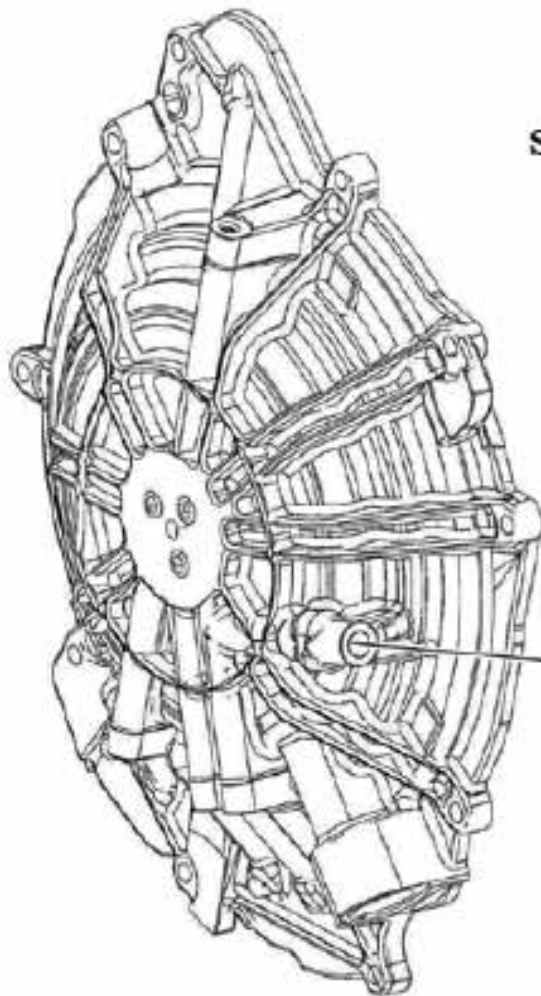
**Turbine Shaft
Current Design**

**3 Added Holes To Improve
Compensator Feed oil**

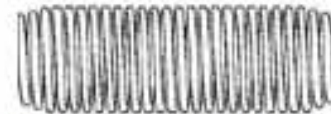


**Turbine Shaft
New Design**

6T70-75 GEN II Valve Body Updates 2013



**Compensator Feed Blow Off
Spring (No Color) Current Design**



**Compensator Feed Blow Off
Spring (Red) New Design**



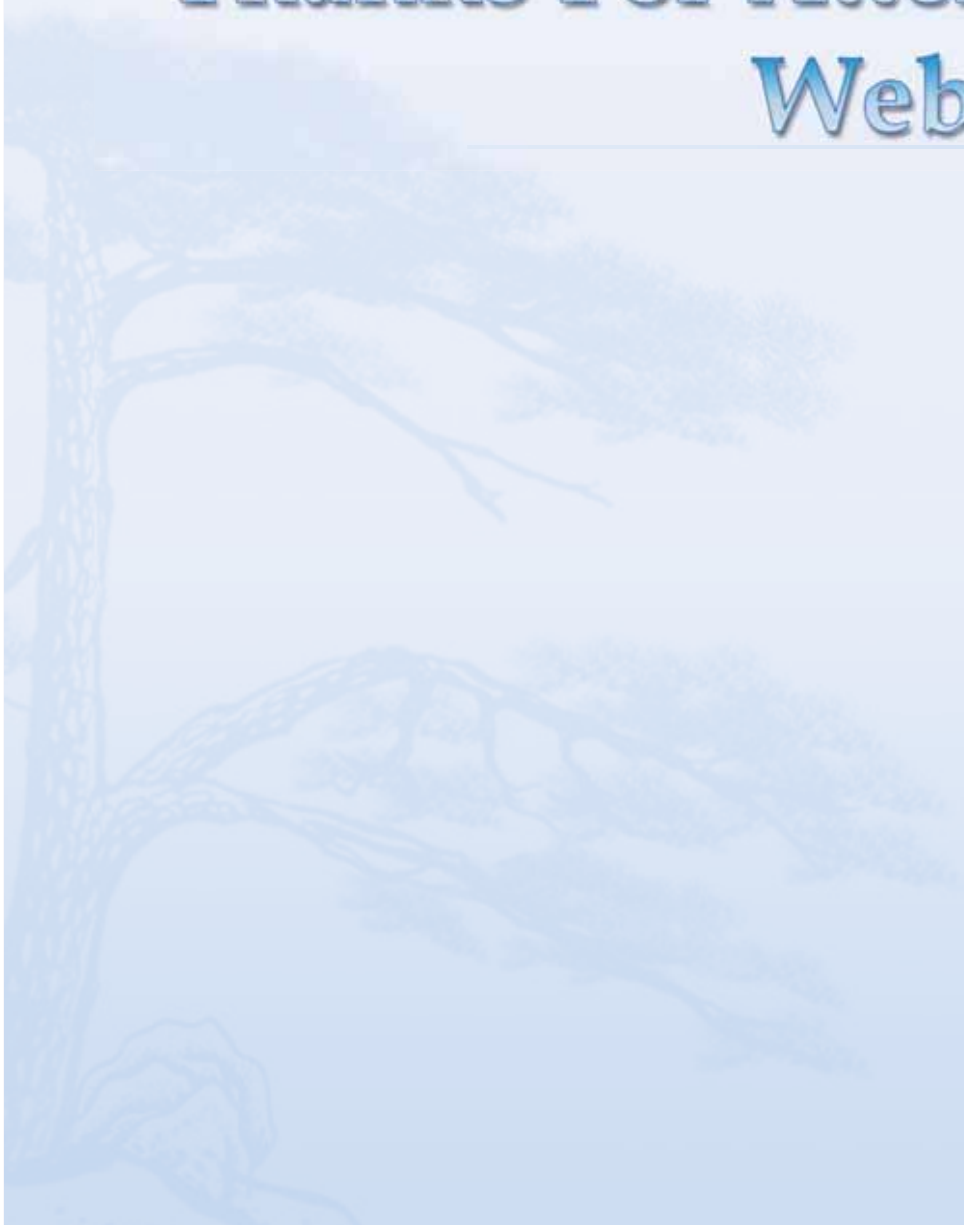
**Compensator Feed
Blow Off Spring**

6T70-75 GEN II Valve Body Updates 2013

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

