Transmission Control Modules

Application Coverage

Programming / Installation

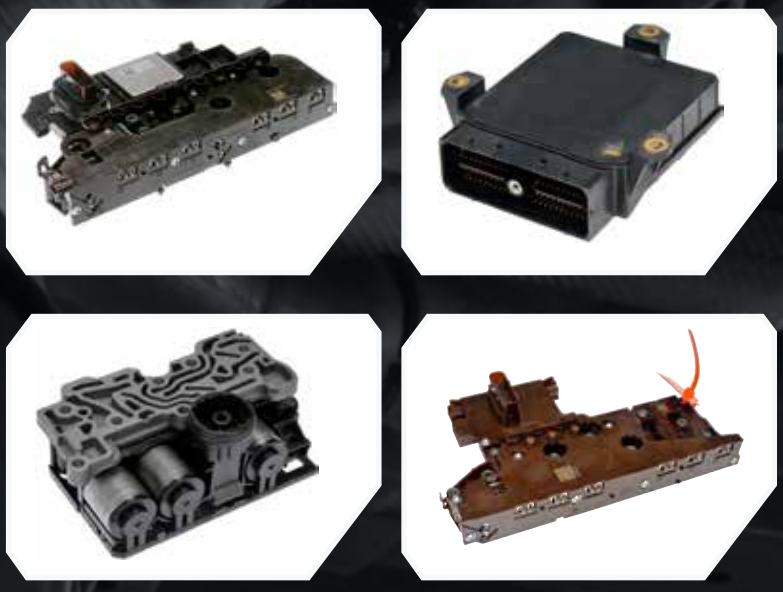
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Solenoid Function

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GM, FORD, NISSAN

TCM & TEHCM SERVICE GUIDE



DORMAN®

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Application Coverage, Internal Unit GM





Dorman SKU #	Year Range and Transmission Fitment	Application Notes
609-000	07/09 Saturn Outlook 6T75, 07/09 Saturn Aura 6T70, 07/09 Pontiac G6 6T70, 07/09 GMC Acadia 6T75, 08/10 Saturn Vue 6T70, 08/09 Pontiac Torrent 6T70, 08/09 Chevy Malibu 6T70, 08/09 Chevy Equinox 6T70, 08/09 Buick Enclave 6T75, 09 Chevy Traverse 6T75	See: Dormanproducts.com to confirm fit
609-001	10/11 GMC Terrain 6T45, 10/11 Chevy Equinox 6T45, 11 Chevy Malibu 6T40, 11/12 Chevy Cruze 6T40, 11/12 Buick Regal 6T45, 11/12 Buick Lacrosse 6T40, 12 Chevy Sonic 6T30, 12 Chevy Captiva 6T50	Sell until depleted: See: Dormanproducts.com for updated Sku 609-016/609-017/609-018/609-019
609-002	(10/11 GMC 1500, Yukon, XL, Chevrolet 1500,Tahoe, Suburban, Escalade, ESV, EXT, Corvette 6L80) (10/11 GMC Savana, Chevy Express 6L90) 11/13 Chevy Caprice 6L80, 11 Cadillac STS 6L50, CTS 6L45,6L80,6L90, 10/11 Camaro see DormanProducts.com to confirm fit	See: Dormanproducts.com to confirm fit
609-003	Cadillac 08/10, Chevrolet 07/13, GMC 07/13, Hummer 08/09, Pontiac 08/09 (6L80, 6L90) *Confirm OE number and Broadcast codes prior to ordering*	See: GM broadcasting codes and OE # identification in service packet
609-004	06/07 Chevy Corvette, 06/07 Cadillac XLR,STS, 07 Cadillac SRX, Escalade, Escalade ESV, EXT (6 speed automatic)	See: Dormanproducts.com to confirm fit
609-005	12/13 GMC Terrain 6T45, 12/13 Chevy Sonic 6T40, 12/13 Malibu 6T40, 12/13 Equinox 6T45, 12/13 Cruze 6T40, 12/13 Captiva 6T45, 12/13 Buick Verano 6speed, 12/13 Regal 6speed, 15/16 Regal 6speed 12/13 Lacrosse 6T40, 13 Encore 6speed,	See: Dormanproducts.com to confirm fit
609-006	Cadillac 12/15, Chevrolet 11/20, GMC 11/20 Isuzu 12/16 (6L80, 6L90) *Confirm OE number and Broadcast codes prior to ordering*	See: GM broadcasting codes and OE # identification in service packet
609-007	08-10 Chevy Malibu/09 Saturn Aura/09-10 Pontiac G6 (6T40)	See: Dormanproducts.com to confirm fit
609-008	10 Saturn Outlook 6T75, 10/12 GMC Terrain 6T70, 10/12 GMC Acadia 6T75, 10/12 Chevy Traverse 6T75, 10/12 Chevy Malibu 6T70, 10/12 Chevy Equinox 6T70, 10/12 Cadillac SRX 6T70, 10/13 Buick Lacrosse 6T70, 10/12 Buick Enclave 6T75, 12/13 Chevy Impala 6T70, 14/16 Chevy “Limited 6T70	See: Dormanproducts.com to confirm fit
609-009	Buick Enclave 2013, Cadillac SRX 2013, Cadillac XTS 2013, Chevrolet Traverse 2013, GMC Acadia 2013	See: Dormanproducts.com to confirm fit
609-015	Buick 14/17, Chevrolet 14/18, GMC 14/17 6T30/6T40 Contact Dorman Products to confirm fitment	See: Dormanproducts.com to confirm fit

Application Coverage, External Unit GM





Dorman SKU #	Year Range and Transmission Fitment	Application Notes
609-200	External Module Chevrolet 06/08, GMC 06/08 Allison 1000	See: Dormanproducts.com to confirm fitment
609-201	External Module Chevrolet 09/15, GMC 09/15 Allison 1000	See: Dormanproducts.com to confirm fitment
599-120	External Module General Motors 05/13, Isuzu 06/08 4 speed	See: Dormanproducts.com to confirm fitment

GM BROADCAST CODE/OE IDENTIFICATION:

OE NUMBER LOCATION ON THE FOLLOWING DORMAN TRANSMISSION CONTROL MODULES:

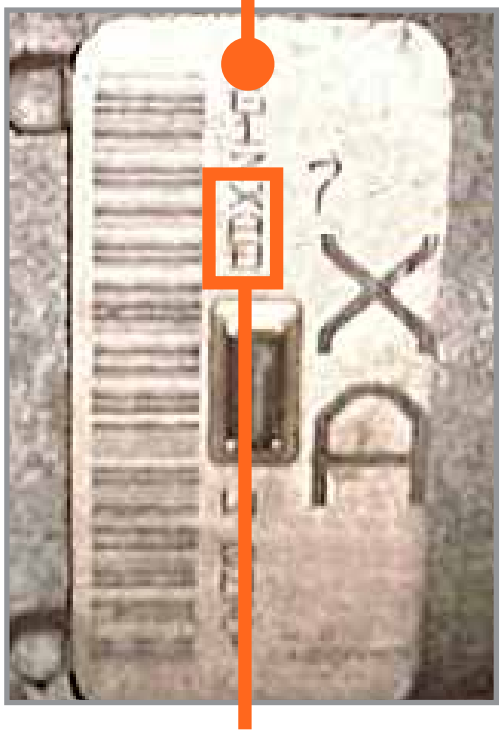

609-000


609-001


609-002


609-003


609-006



GM 6L80: TECH TIPS

609-002/609-003/609-006

CONCERNS BEFORE / AFTER REBUILD

In some instances, a vehicle may exhibit delayed engagement, or even a harsh thud or clunk into reverse. If the trans has not been serviced prior to this condition, the issue could lie in the crankshaft. We recommend checking endplay to be in factory spec, (.0015"/.0086")

Findings have shown, that after a rebuild you may see the 2,6 clutch engage harshly, fail to down shift from 3rd to 2nd or even overheat, which can lead to burnt and failed clutches. There are a few areas to place close attention on to avoid these potential concerns:

1. The 2,6 clutch plate could have been installed backwards, be sure to visually check that the inside fingers face the piston.
2. Also, the 2,6 clutch bushing can walk out of the clutch housing if not sealed in place with loc-tite.
3. Be sure to preload the stator clockwise prior to final torqueing of the pump. Also please pay special attention to the orifice that will snap into the housing. Failure to fully attach this orifice will result in over temperature concerns and clutch damage.

Tech Tip: If the vehicle application has reached normal operating temperature after a rebuild, and still having delayed engagement concerns in either Forward, Reverse or even both, the case could be warped. It is unfortunately common and GM has recognized this concern and come up with updated slide and rotor kits based off of your clearance. The measurement should never exceed past .002" across the rotor or .0015" across the slide.

GM 6L80: Shift Solenoid Control Function

Selection GM Gen-1 6L80 Control Valve command Function	Shift control solenoid (1) command status	Shift control solenoid (2) command status	Clutch Pressure control (5) 1 / 2 / 3 / 4-Clutch	Clutch Pressure control (4) 2/6-Clutch	Clutch Pressure Control (2) 3/5-Reverse Clutch	Clutch Pressure Control (3) 4/5/6-Low Reverse Clutch	TCC Pressure Control Solenoid Conv Clutch	Line Pressure control solenoid function	Applied Gear Ratio
PARK	ON	ON	OFF	OFF	ON	OFF	OFF	ON	NA
REVERSE	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON	3.06
NEUTRAL	ON	ON	OFF	OFF	ON	OFF	OFF	ON	NA
Applied 1st	ON	ON	ON	OFF	ON	ON	OFF	ON	4.03 Direct
Applied 2nd	OFF	ON	ON	ON	ON	ON	ON	ON	2.36 Direct
Applied 3rd	OFF	ON	ON	OFF	OFF	ON	ON	ON	1.53 Direct
Applied 4th	OFF	ON	ON	OFF	ON	OFF	ON	ON	1.15 Direct
Applied 5th	OFF	ON	OFF	OFF	OFF	OFF	ON	ON	.85 OD
Applied 6th	OFF	ON	OFF	ON	ON	OFF	ON	ON	.67 OD

GM 6L80: Diagnostic Trouble Codes	
Code	**Reference**
P0218	Trans Fluid Temp exceeds 270 degrees
P0562	Voltage in system found to be low < 11v
P0563	Voltage in system found to be high >18v
P0601	Read only Memory found in TCM
P0602	Not Programmed Trans module
P0603	memory reset long term
P0604	Random access Memory
P0634	Over temperature TCM
P0667	Temperature Sensor Perf. TCM
P0668	Temperature Sensor circuit low Voltage
P0669	Temperature Sensor circuit high Voltage
P0703	Circuit brake pedal switch invalid signal
P0711	Trans Fluid Temp sensor Performance
P0712	Trans Fluid Temp sensor low Voltage
P0713	Trans Fluid Temp sensor high Voltage
P0716	Trans input speed sensor performance
P0717	Trans input speed sensor low Voltage
P0719	Circuit brake pedal switch Voltage low
P0722	Trans output speed sensor low Voltage
P0723	Trans output speed sensor intermittent
P0724	Circuit brake pedal switch high Voltage
P0729	6th Gear incorrect Ratio
P0731	1st Gear incorrect Ratio
P0732	2nd Gear incorrect Ratio
P0733	3rd Gear incorrect Ratio
P0734	4th Gear incorrect Ratio
P0735	5th Gear incorrect Ratio
P0736	Reverse Gear incorrect Ratio
P0741	TCC clutch system stuck off
P0742	TCC clutch system stuck on
P0751	Shift Solenoid (1) valve stuck off
P0752	Shift Solenoid (1) valve stuck on
P0776	Solenoid (2) CPC stuck off
P0777	Solenoid (2) CPC stuck on
P0796	Solenoid (3) CPC stuck off
P0797	Solenoid (3) CPC stuck on
P0815	switch circuit on upshift error
P0816	switch circuit on downshift error
P0826	switch circuit up/downshift error
P0842	Trans fluid pressure switch (1) low Voltage
P0843	Trans fluid pressure switch (1) high Voltage
P0851	Park-neutral switch low Voltage
P0852	Park-neutral switch high Voltage

GM 6L80: Diagnostic Trouble Codes	
Code	**Reference**
P0872	Trans fluid pressure switch (3) low Voltage
P0873	Trans fluid pressure switch (3) high Voltage
P0877	Trans fluid pressure switch (4) low Voltage
P0878	Trans fluid pressure switch (4) high Voltage
P0961	system perf. Line pressure control solenoid
P0962	Line pressure control solenoid low Voltage
P0963	Line pressure control solenoid high Voltage
P0965	Solenoid (2) CPC system Perf.
P0966	Solenoid (2) CPC low Voltage
P0967	Solenoid (2) CPC high Voltage
P0969	Solenoid (3) CPC system Perf.
P0970	Solenoid (3) CPC low Voltage
P0971	Solenoid (3) CPC High Voltage
P0973	Shift solenoid (1) low Voltage
P0974	Shift solenoid (1) high Voltage
P0976	Shift solenoid (2) low Voltage
P0977	Shift solenoid (2) high Voltage
P0989	Trans fluid pressure switch (5) low Voltage
P0990	Trans fluid pressure switch (5) high Voltage
P1621	Long-Term Memory Perf.
P1684	Temp sensor Performance while power up
P1685	Temp sensor Perf. While power up low Voltage
P1686	Temp sensor Perf. While power up high Voltage
P1751	Valve 1 shift Perf. Select Valve 2
P1825	Invalid Range found mode switch
P1831	Driver 2# controls function of line pressure
P1832	Driver 2# controls function of line pressure
P1876	Up/down shift switch out of range Drive 3
P1915	mode switch starting in incorrect range
P2534	Ignition starter switch low Voltage
P2714	Solenoid (4) CPC stuck Off
P2715	Solenoid (4) CPC stuck On
P2719	Solenoid (4) CPC Perf
P2720	Solenoid (4) CPC low Voltage
P2721	Solenoid (4) CPC hight Voltage
P2723	Solenoid (5) CPC stuck Off
P2724	Solenoid (5) CPC stuck On
P2728	Solenoid (5) CPC Perf.
P2729	Solenoid (5) CPC low Voltage
P2730	Solenoid (5) CPC high Voltage
P2762	Torque convertor Clutch Solenoid Perf.
P2763	Torque convertor Clutch Solenoid high Voltage
P2764	Torque convertor Clutch Solenoid low Voltage

GM 6T30, 40, 45, 50: TECH TIPS

609-001/609-005/609-007/609-015

CONCERNS BEFORE / AFTER REBUILD

In some cases a P2723 will occur with a loss of the Output speed sensor. This is typically caused by the wire lead being pinched between the channel case. Be sure to route the signal wire as intended.

TCC slip, or not being applied condition, a P0741 may also be present. It is good practice to vacuum test the stator and clutch assembly. Typically your reading with a vacuum gauge should be no less then 15" @ the stator bushing. If necessary you can use a high temp sealer on the stator bushing during installation.

1,2,3,4 clutch not applying, also may set additional Trouble codes for solenoid engagement and slipping. This can be caused in the field during a rebuild by installing the snap ring on the 1,2,3,4 unit backwards. The indented side of the snap ring should always face up while being seated into the drum.

It is also important to note that Gen 1 vs Gen 2 Vs Gen 3 Transmission components such as clutch housings are not interchangeable. Not only are fluid passages different, but so are the inner and outer sealing surfaces. This can of course cause pressure control issues and failure. Be sure to use correct Gen specific components during installation.

Also , the front seal for the front fluid pump it self is different between these 3 units. The Gen1 seal will measure out @ .30" thick, where as the Gen2 .33" thick, and the Gen 3 .42" thick.

GM 6T30, 6T40, 6T45, 6T50: Shift Solenoid Control Function

Selection GM GEN-1 6T30-6T40 6T45-6T50 Control Valve Command Function	Shift Control Solenoid Command Status ON-OFF	Clutch Pressure Control (5) 1/2/3/4-Clutch	Clutch Pressure Control (4) 2/6-Clutch	Clutch Pressure Control (2) 3/5-Reverse Clutch	Clutch Pressure Control (3) 4/5/6-Low Reverse	Applied Gear Ratio
PARK	ON	OFF	OFF	ON	OFF	NA
REVERSE	ON	OFF	OFF	OFF	OFF	2.94 Direct
NEUTRAL	ON	OFF	OFF	ON	OFF	NA
1st Auto Stop (if equipped)	OFF	ON	OFF	ON	OFF	4.58 Direct
Applied 1st	OFF	ON	OFF	ON	ON	4.58 Direct
Applied 2nd	OFF	ON	ON	ON	ON	2.96 Direct
Applied 3rd	OFF	ON	OFF	OFF	ON	1.91 Direct
Applied 4th	OFF	ON	OFF	ON	OFF	1.44 Direct
Applied 5th	OFF	OFF	OFF	OFF	OFF	1.00 Direct
Applied 6th	OFF	OFF	ON	ON	OFF	.74 OD

GM 6T30, 40, 45, 50: Diagnostic Trouble Codes	
Code	**Reference**
P057B	Pedal Position sensor brake Perf
P057C	Pedal Position sensor brake low Voltage
P057D	Pedal Position sensor brake high Voltage
P0601	Read only Memory Perf.
P0603	Memory Reset (Long Term)
P0604	Random access memory Perf.
P062F	Memory Perf (Long Term)
P0634	Over Temperature TCM
P0658	Control circuit (1) low Voltage
P0659	Control circuit (1) high Voltage
P0667	Temperature sensor Perf.
P0668	Temp. sensor low Voltage
P0669	Temp. sensor high Voltage
P06AC	Power up Temp sensor Perf.
P06AD	Power up Temp sensor Perf. low Voltage
P06AE	Power up Temp sensor Perf. high voltage
P0711	Trans Fluid temp sensor Perf.
P0712	Trans Fluid temp sensor low Voltage
P0713	Trans Fluid temp sensor high Voltage
P0716	Input speed sensor Perf.
P0717	Input speed sensor no signal present
P07BF	Input speed sensor low Voltage
P07C0	Input speed sensor high Voltage
P0722	Output speed sensor no signal present
P0723	Output speed sensor intermittent
P077C	Output speed sensor low Voltage
P077D	output speed sensor high voltage
P0741	System Torque convertor clutch solenoid stuck off
P0742	System Torque convertor clutch solenoid stuck on
P0751	Shift Solenoid (1) Perf. stuck off
P0752	Shift Solenoid (1) Perf. stuck on
P0776	Solenoid (2) CPC stuck off
P0777	Solenoid (2) CPC stuck on
P0796	Solenoid (3) CPC stuck off
P0797	Solenoid (3) CPC stuck on
P0815	Switch circuit error while up shift
P0816	Switch circuit error while down shift
P0826	Switch circuit error up shift/down shift
P0842	Trans fluid pressure switch (1) low Voltage
P0843	Trans fluid pressure switch (1) high Voltage
P0850	PNP switch circuit concern
P0851	Cicuit low Voltage PNP switch

GM 6T30, 40, 45, 50: Diagnostic Trouble Codes	
Code	**Reference**
P0852	circuit high Voltage PNP switch
P0872	Trans fluid pressure switch (3) low Voltage
P0873	Trans fluid pressure switch (3) high voltage
P0877	Trans fluid pressure switch (4) low Voltage
P0878	Trans fluid pressure switch 4 high Voltage
P0961	Line Pressure control solenoid Perf.
P0962	Line Pressure control solenoid low Voltage
P0963	Line Pressure control solenoid high Voltage
P0965	Solenoid (2) CPC Perf.
P0966	Solenoid (2) CPC low Voltage
P0967	Solenoid (2) CPC high Voltage
P0969	Solenoid (3) CPC Perf.
P0970	Solenoid (3) CPC low Voltage
P0971	Solenoid (3) CPC high Voltage
P0973	Shift solenoid (1) low Voltage
P0974	Shift solenoid (1) high Voltage
P0989	Trans fluid pressure switch (5) low Voltage
P0990	Trans fluid pressure switch (5) high Voltage
P1761	up/down shift counter signal incorrect
P182E	Mode switch range invalid
P1915	Mode switch not showing PRNDL during start
P1876	up/down shift low voltage enabled
P2714	Solenoid (4) CPC stuck off
P2715	Solenoid (4) CPC stuck on
P2719	Solenoid (4) CPC Perf.
P2720	Solenoid (4) CPC low Voltage
P2721	Solenoid (4) CPC high Voltage
P2723	Solenoid (5) CPC stuck off
P2724	Solenoid (5) CPC stuck on
P2728	Solenoid (5) CPC Perf.
P2729	Solenoid (5) CPC low Voltage
P2730	Solenoid (5) CPC high Voltage
P2762	Torque convertor Clutch Solenoid Perf
P2763	Torque convertor Clutch Solenoid high Voltage
P2764	Torque convertor Clutch Solenoid low Voltage

GM 6T70/6T75: TECH TIPS

609-000/609-008/609-009

CONCERNS BEFORE / AFTER REBUILD

It is important to note, that Gen1, Gen2, and Gen3 components are once again not compatible. The TEHCM's to begin with are not interchangeable as the Gen2 unit has no provision for pressure switches. Also the main valve body uses different passage ways for shift control.

During a rebuild, be sure to use correct generation parts, as installing a 1,2,3,4 clutch piston from a different generation trans, can cause delayed engagement and harsh slipping concerns. These pistons are actually different heights. (.63" Gen1, .78" Gen2) This can sometimes be falsely accused to a TEHCM concern.

During installation on the New TECHM pay important attention to the length of the bolts used to secure the module. These bolts are different lengths for different positions. You will notice different sized lengths of bolts. 42mm & 55mm. If these bolts are switched during install, you will thread the longer bolt through the TEHCM case resulting in pressure codes, delayed engagement and poor performance.

In some cases, engine DTC such as a P0300 series code can cause transmission slip concerns. In most cases this can be routed back to a failing oil control valve on the cylinder head.

Tech Tip: It is important to discuss and realize that even though a vehicle is having transmission concerns and drivability issues, the transmission may not be at fault in some cases. It is very important to read and scan all modules of the vehicle. Be sure to have a full 12v charge and a battery charger on the vehicle during these procedures. It will only take a voltage drop of .2v to set a communication concerns as well as false readings.

GM 6T70, 6T75: Shift Solenoid Control Function

Selection GM GEN-1 6T70-6T75 Control Valve Command Function	Shift Control Solenoid (1) Command Status ON-OFF	Shift Control Solenoid (2) Command Status ON-OFF	Clutch Pressure Control (5) 1/2/3/4-Clutch	Clutch Pressure Control (4) 2/6-Clutch	Clutch Pressure Control (2) 3/5-Reverse Clutch	Clutch Pressure Control (3) 4/5/6-Low Reverse Clutch	Applied Gear Ratio
PARK	ON	ON	OFF	OFF	OFF	ON	NA
REVERSE	ON	OFF	OFF	OFF	ON	ON	2.88 Direct
NEUTRAL	ON	ON	OFF	OFF	OFF	ON	NA
1st Auto Stop (if equipped)	ON	ON	ON	OFF	OFF	ON	4.48 Direct
Applied 1st	OFF	ON	ON	OFF	OFF	OFF	4.48 Direct
Applied 2nd	OFF	ON	ON	ON	OFF	OFF	2.87 Direct
Applied 3rd	OFF	ON	ON	OFF	ON	OFF	1.84 Direct
Applied 4th	OFF	ON	ON	OFF	OFF	ON	1.41 Direct
Applied 5th	OFF	ON	OFF	OFF	ON	ON	1.00 Direct
Applied 6th	OFF	ON	OFF	ON	OFF	ON	.74 OD

GM 6T70 / 6T75: Diagnostic Trouble Codes

Code	Reference
P0218	Trans Fluid Temp exceeds 270 degrees
P0562	Voltage in system found to be low < 11v
P0563	Voltage in system found to be high >18v
P0601	Read only Memory found in TCM
P0602	Not Programmed Trans module
P0603	memory reset long term
P0604	Random access Memory
P0634	Over temperature TCM
P0667	Temperature Sensor Perf. TCM
P0668	Temperature Sensor circuit low Voltage
P0669	Temperature Sensor circuit high Voltage
P0703	Circuit brake pedal switch invalid signal
P0711	Trans Fluid Temp sensor Perf.
P0712	Trans Fluid Temp sensor low Voltage
P0713	Trans Fluid Temp sensor high Voltage
P0716	Trans input speed sensor performance
P0717	Trans input speed sensor low Voltage
P0719	Circuit brake pedal switch Voltage low
P0722	Trans output speed sensor low Voltage
P0723	Trans output speed sensor intermittent
P0724	Circuit brake pedal switch high Voltage
P0729	6th Gear incorrect Ratio
P0731	1st Gear incorrect Ratio
P0732	2nd Gear incorrect Ratio
P0733	3rd Gear incorrect Ratio
P0734	4th Gear incorrect Ratio
P0735	5th Gear incorrect Ratio
P0736	Reverse Gear incorrect Ratio
P0741	TCC clutch system stuck off
P0742	TCC clutch system stuck on
P0751	Shift Solenoid (1) valve stuck off
P0752	Shift Solenoid (1) valve stuck on
P0756	Shift Solenoid (1) valve stuck off
P0776	Solenoid (2) CPC stuck off
P0777	Solenoid (2) CPC stuck on
P0796	Solenoid (3) CPC stuck off
P0797	Solenoid (3) CPC stuck on
P0815	switch circuit on upshift error
P0816	switch circuit on downshift error
P0826	switch circuit up/downshift error
P0842	Trans fluid pressure switch (1) low Voltage
P0843	Trans fluid pressure switch (1) high Voltage
P0851	Park-neutral switch low Voltage
P0852	Park-neutral switch high Voltage

GM 6T70 / 6T75: Diagnostic Trouble Codes

Code	Reference
P0872	Trans fluid pressure switch (3) low Voltage
P0873	Trans fluid pressure switch (3) high Voltage
P0877	Trans fluid pressure switch (4) low Voltage
P0878	Trans fluid pressure switch (4) high Voltage
P0961	system perf. Line pressure control solenoid
P0962	Line pressure control solenoid low Voltage
P0963	Line pressure control solenoid high Voltage
P0965	Solenoid (2) CPC system Perf.
P0966	Solenoid (2) CPC low Voltage
P0967	Solenoid (2) CPC high Voltage
P0969	Solenoid (3) CPC system Perf.
P0970	Solenoid (3) CPC low Voltage
P0971	Solenoid (3) CPC High Voltage
P0973	Shift solenoid (1) low Voltage
P0974	Shift solenoid (1) high Voltage
P0976	Shift solenoid (2) low Voltage
P0977	Shift solenoid (2) high Voltage
P0989	Trans fluid pressure switch (5) low Voltage
P0990	Trans fluid pressure switch (5) high Voltage
P1621	Long-Term Memory Perf.
P1684	Temp sensor Performance while power up
P1685	Temp sensor Perf. While power up low Voltage
P1686	Temp sensor Perf. While power up high Voltage
P1751	Valve 1 shift Perf. Select Valve 2
P1825	Invalid Range found mode switch
P1831	Driver 2# controls function of line pressure
P1832	Driver 2# controls function of line pressure
P1876	Up/down shift switch out of range Drive 3
P1915	mode switch starting in incorrect range
P2534	Ignition starter switch low Voltage
P2714	Solenoid (4) CPC stuck Off
P2715	Solenoid (4) CPC stuck On
P2719	Solenoid (4) CPC Perf
P2720	Solenoid (4) CPC low Voltage
P2721	Solenoid (4) CPC hight Voltage
P2723	Solenoid (5) CPC stuck Off
P2724	Solenoid (5) CPC stuck On
P2728	Solenoid (5) CPC Perf.
P2729	Solenoid (5) CPC low Voltage
P2730	Solenoid (5) CPC high Voltage
P2762	Torque convertor Clutch Solenoid Perf.
P2763	Torque convertor Clutch Solenoid high Voltage
P2764	Torque convertor Clutch Solenoid low Voltage

GM TEHCM TROUBLE SHOOTING: SOLENOID PERFORMANCE CONCERNS

A stuck pressure solenoid, whether it be stuck on and or stuck off, can sometimes indicate a potentially failed or malfunctioning TEHCM. However, they're multiple components and underlying concerns that can contribute to these conditions.

If you are diagnosing a TEHCM showing DTC's for performance and drivability that are not circuit related, a Clean Cycle is a proven method of corrective action as well as a great place to start while establishing a baseline on the present concern.

Please see "shift solenoid control Function" in this service packet based off of your transmission and application for proper solenoid readout and command status.

1. Begin by checking the fluid level as per the factory service manual for the transmission case and service if necessary.

2. Insert your factory scan tool and select "Clean Valve body" depending on your model tool it may be listed as a "service clean function". This will send a 12v signal to all solenoids to open and pulse rapidly on and off to self flush. If any debris is lodged in the solenoid this should clear the concern.

> **Tech Note: If a Clean Cycle is not available, you can power the individual solenoid on and off manually via a solenoid command status test. After this procedure is complete, Road test the vehicle and reevaluate codes. If codes persist perform a Line Pressure Test.**

Please see "Solenoid Performance Concerns (Line Pressure Test Procedure)

GM TEHCM TROUBLE SHOOTING: SOLENOID PERFORMANCE CONCERNS LINE PRESSURE TEST PROCEDURE

> **Tech Note: It is crucial that this detailed procedure be followed accurately. Please note that Line pressure must be within 5-PSI of the pressure value shown in your factory service manual. If pressure varies greater then PSI the concern will be internal to the case.**

1. Begin by insert a scan tool and starting the engine. Inspect the transmission for proper level of the case fluid.

2. Using your scan tool scan the vehicle for DTCs. (see DTC code references) At this time you can inspect the manual linkage for accurate engagement. You can now turn the engine off.

3. Remove the test hole plug and insert your factory equivalent pressure gauge. You can now access the Line pressure control solenoid through your factory scan tool.

4 For an accurate reading the following procedure should be performed at least 3 times so uniform results can be read and to avoid costly down time and misdiagnosis.

5. Start the vehicles engine and using the scan tool, increase/decrease line pressure by increments of 15 psi. during this time, the tool will automatically command the increment values.

6. Compare the pressure readings of the scan tool to the gauge inserted in the service port. If the pressure is varying more then 5 PSI the issue is internal .

Please see: "Internal Diagnosis of Solenoid performance issues"

GM TEHCM TROUBLE SHOOTING: SOLENOID PERFORMANCE CONCERNS "INTERNAL"

A stuck pressure solenoid, whether it be stuck on and or stuck off, can sometimes indicate a potentially failed or malfunctioning TEHCM. However, they're multiple components and underlying concerns that can contribute to these conditions.

If you are diagnosing a TEHCM showing DTC's for performance and drivability that are not circuit related, a Clean Cycle is a proven method of corrective action as well as a great place to start while establishing a baseline on the present concern.

Please see "shift solenoid control Function" in this service packet based off of your transmission and application for proper solenoid readout and command status.

1. Front Pump housing, check for loose bolts that can potentially back out of the housing, damage to oil filter and outer seals.

2. The line pressure valve can also become stuck or slow to respond.

3. The torque converter seal and front gear support should be checked next. Inspect for damage on the flat fluid passage gasket and be sure the fluid tube is not damaged.

4. The upper and lower valve body should be inspected next. Sticking and faulty pressure regulator valves (upper valve body) or a leaking main gasket or separator plate(upper/lower valve body) can all contribute to pressure concerns which can lead to TCM valve issues.

5. Check the TCM for torn or damaged seals. Replace/Repair components as necessary.

GM TEHCM SERVICE PROGRAMMING:

Prior to programming the new Remanufactured unit, there are a few important steps to take to insure a successful programming cycle.

Most importantly: Application When using Dormanproducts.com to search by application you may notice that some applications will list more then 1 TEHCM for the same transmission model. Though both units would physically fit in the case and bolt to the valve body correctly, the internal circuitry and programmer structure will differ. This will typically result in communication concerns. When these listings arise however there are multiple tools to help you through the selection process:

1. OE Part # cross reference off of original unit
2. Matching Transmission broadcast code off of GM case (see GM broadcast code/OE identification in TEHCM service manual)
3. Vin # verification: if listing is still unclear, please contact the Dorman Techline @ 800-868-5777 with your vin # for assistance.

Once you have determined you have the correct TEHCM, prior to installing the unit, check mating pins on the TEHCM and vehicle side connector for bent or damaged pins. This quick tip can avoid communication concerns.

A battery charger must always be on during programming as it is very important to maintain at least 12v.

A droppage of just .2V is enough to cause communication concerns and programming errors. If you notice the voltage dropping on the vehicle, check the system for aftermarket accessories: alarms, radio and Performance programmers can all cause these types of concerns and should be removed or disabled during the programming sequence of a new module.

When using a Delco Based subscription service be sure to load the most updated software into the unit. When using the drop down bar this will typically be displayed as the newest service part # in the listing. If programming or communication concerns arise during installation, please contact the Dorman Techline @ 866-933-2911.

If using a RAP KIT by Drew-Tech see Dorman Rap Kit procedure in service manual.

DORMAN REMOTE ASIST PROGRAMING / BY DREW-TECH









STEP 1: Please Call Drew Technologies Customer Service @ 844.REFLASH (844.733.5274) to schedule the programming session.

This may take several hours depending on workload and demand. Please be sure to attach jumper cables from the vehicles 12v battery to the corresponding positive and negative ports on the side of the RAP tool.

STEP 2: When contacted, plug the 110v service plug to a power outlet and plug the OBDII adapter to the diagnostic service port.

STEP 3: from this point Drew Technologies will flash the module with the newest available software.

Remember that the Flash is guaranteed by Dorman Products, if communication issues arise or trouble codes are present, please first check connection points on the TEHCM and vehicle harness.

Bent, missing or even corroded pins can cause communication errors while programming the module. contact the Dorman Products Techline @ 866-933-2911.

NOTES:



FORD MOTOR CO.

TCM & TEHCM SERVICE GUIDE

Application Coverage, Ford Motor Company





Dorman SKU #	Year Range and Transmission Fitment	Application Notes	Programming Required
609-021	04/05 Aviator 04/10 Explorer/Mountaineer 04/05 Thunderbird 04/06 LS 04/05 Aviator 05/10 Mustang 07/10 Explorer Sport Trac	5R55S	Programming not required
609-022	02/03 Explorer 02/03 Mountaineer 03 Aviator 03 Thunderbird 03 LS	5R55W, 5R55S	Programming not required
609-024	09/10 Explorer/Mountaineer/Sport Trac 09/11 Expedition/Navigator 2010 F150	6R60, 6R80	Must flash per factory service procedure
609-030	11/18 Fiesta, 12/18 Focus	DPS6	Must flash per factory service procedure and follow adaptive relearn
609-035	11/12 Explorer 08/12 Taurus 08/09 Taurus X 08/09 Sable 07/14 Edge 16 Edge 09/18 Flex 17/18 Fusion MKS 10/18 MKT 10/18 MKX 07/12 18 Continental 13/18 MKZ 13/18 P.I. Sedan SUV	6F50, 6F55	Must flash per factory service procedure

FORD MOTOR COMPANY DPS6: RELEARNING GUIDE

609-030

DPS6 ADAPTIVE RELEARN PROCEDURE (REQUIRES FORD IDS OR COMPATIBLE SCAN TOOL)

1. 1st program the Adaptive Shift Relearn.
2. Next, please relearn the Shift Drum
3. The Transmission Range Sensors can now be relearned
4. Please run through Clutch Adapt Cycle 1, and then Clutch Adapt Cycle 2.
5. Once the above has been completed, the application will require a full drive cycle, this typically takes 20-50 miles or until monitors have been reset.

Tech Note: For complete installation instructions and Torque specs please refer to: https://static.dormanproducts.com/document/609-030_is.pdf

Failure to complete this procedure correctly can result in: DTCs, No start, No movement, loss of power and or engagement. (please see DPS6 Trouble shooting)

FORD MOTOR COMPANY DPS6: TROUBLE SHOOTING PRELIMINARY

609-030

Before condemning a TCM to be faulty, whether it being a replacement unit or original Ford module, it is always best practice to verify the concern through preliminary testing. Voltage drops in the 12v system can cause these types of concerns. So be sure to check the 12v system first including battery and alternator.

Tech Note: A faulty brake light bulb, whether being failed or incorrect voltage has been known to create shifting and communication concerns. It has been verified that less then .6v is enough to cause an issue and or concern.

Though the Ford Focus and Ford Fiesta from 2011/2015 do share the same Transmission module, the software does vary slightly depending on year breaks and thus so does the diagnosis procedure. In some cases it will indeed be unavoidable to replace the module, but in some instances the application may only need a factory re-flash followed by the Adaptive Relearn previously discussed.

Refer to DPS6 Trouble shooting replacement vs reprogramming guide.

FORD MOTOR COMPANY DPS6: TROUBLE SHOOTING REPLACING VS REPROGRAMMING GUIDE

609-030

In some cases reprogramming of the software will be all that is necessary in correcting certain concerns such as a no start or lack of engagement and please note that trouble codes may or not be present in the application.

This will NOT apply to Ford Focus models built after 11/6/15 up to 3/9/16.)

VEHICLE APPLICATIONS PRIOR TO 11/05/2015
(FIESTA 10/27/15 AND PRIOR & FOCUS 11/5/15 AND PRIOR)

1. Verify area of concern if issue is intermittent, (loss of power, no start, loss of PRNDL, parking proximity sensors erratic)

2. If no codes are present, attempt to Re-Flash and Reprogram unit and Run through Ford adaptive Relearn Procedure.

3. If codes U0100,U0101 or U1013 persist, please replace the TCM.

VEHICLE APPLICATIONS AFTER 11/05/2015
(FORD FIESTA 10/28/15 AND UP)

1. Check system for DTC trouble codes (U0100, U0101, U1013 may be present)

2. Attempt to Re-Flash/Reprogram with newest software available.

3. Run through Ford Adaptive Relearn procedure previously discussed in this service manual.

Ford Motor Co. 6F50, 6F55: Shift Solenoid Control Function

Selection Ford Motor Co. 6F50/55 Control Valve Command Function	Shift Control Solenoid (1) Command Status ON-OFF	Clutch Pressure Control (5) 1/2/3/4-Clutch	Clutch Pressure Control (4) 2/6-Clutch	Clutch Pressure Control (2) 3/5-Reverse Clutch	Clutch Pressure Control (3) 4/5/6-Low Reverse Clutch	Applied Gear Ratio
PARK	ON	OFF	OFF	OFF	ON	NA
REVERSE	ON	OFF	OFF	ON	ON	2.88 Direct
NEUTRAL	ON	OFF	OFF	OFF	ON	NA
1st Auto Stop (if equipped)	ON	ON	OFF	OFF	ON	4.48 Direct
Applied 1st	OFF	ON	OFF	OFF	OFF	4.48 Direct
Applied 2nd	OFF	ON	ON	OFF	OFF	2.87 Direct
Applied 3rd	OFF	ON	OFF	ON	OFF	1.84 Direct
Applied 4th	OFF	ON	OFF	OFF	ON	1.41 Direct
Applied 5th	OFF	OFF	OFF	ON	ON	1.00 Direct
Applied 6th	OFF	OFF	ON	OFF	ON	.74 OD

Ford Motor Co. 6F50/6F55: Diagnostic Trouble Codes	
Code	**Reference**
P0700	TCM MIL Illumination Requested
P0703	Circuit brake pedal switch invalid signal
P0705	Trans Range Switch Circuit
P0711	Trans Fluid Temp sensor Perf.
P0712	Trans Fluid Temp sensor low Voltage
P0713	Trans Fluid Temp sensor high Voltage
P0716	Trans input speed sensor performance
P0717	Trans input speed sensor low Voltage
P0722	Trans output speed sensor low Voltage
P0723	Trans output speed sensor intermittent
P0741	TCC clutch system stuck off
P0742	TCC clutch system stuck on
P0751	Shift Solenoid (1) valve stuck off
P0752	Shift Solenoid (1) valve stuck on
P0756	Shift Solenoid (1) valve stuck off
P0757	2/3 Solenoid Valve Perf. Loss of 3rd/4th gear
P0776	Solenoid (2) CPC stuck off
P0777	Solenoid (2) CPC stuck on
P0787	Down shift timing solenoid Circuit Voltage low
P0788	Down shift timing solenoid Circuit Voltage high
P0796	Solenoid (3) CPC stuck off
P0797	Solenoid (3) CPC stuck on
P0815	switch circuit on upshift error
P0816	switch circuit on downshift error
P0826	switch circuit up/downshift error
P0842	Trans fluid pressure switch (1) low Voltage
P0843	Trans fluid pressure switch (1) high Voltage
P0850	Park-neautral switch circuit concern
P0851	Park-neutral switch low Voltage
P0852	Park-neutral switch high Voltage
P0856	TCS inhibited see:C0242
P0872	Trans fluid pressure switch (3) low Voltage
P0873	Trans fluid pressure switch (3) high Voltage
P0877	Trans fluid pressure switch (4) low Voltage
P0878	Trans fluid pressure switch (4) high Voltage
P0961	system perf. Line pressure control solenoid
P0962	Line pressure control solenoid low Voltage
P0963	Line pressure control solenoid high Voltage
P0965	Solenoid (2) CPC system Perf.
P0966	Solenoid (2) CPC low Voltage
P0967	Solenoid (2) CPC high Voltage

Ford Motor Co. 6F50/6F55: Diagnostic Trouble Codes	
Code	**Reference**
P0969	Solenoid (3) CPC system Perf.
P0970	Solenoid (3) CPC low Voltage
P0971	Solenoid (3) CPC High Voltage
P0973	Shift solenoid (1) low Voltage
P0974	Shift solenoid (1) high Voltage
P0976	Shift solenoid (2) low Voltage
P0977	Shift solenoid (2) high Voltage
P0989	Trans fluid pressure switch (5) low Voltage
P0990	Trans fluid pressure switch (5) high Voltage
P1684	Temp sensor Performance while power up
P1685	Temp sensor Perf. While power up low Voltage
P1686	Temp sensor Perf. While power up high Voltage
P1751	Valve 1 shift Perf. Select Valve 2
P1808	Trans fluid pressure switch stuck off
P1809	Trans fluid solenoid switch stuck on
p1810	Trans fluid pressure switch circuit
p1811	Maximum adapt and long shift pattern
P1816	Trans fluid pressure switch show P/N while Drive
P1818	Trans fluid pressure switch show Drive while P/N
P1825	Invalid Range found mode switch
P1831	Driver 2# controls function of line pressure
P1832	Driver 2# controls function of line pressure
P1876	Up/down shift switch out of range Drive 3
P2544	Trans Torque Request Circuit Concern
P2610	Timer Perf:Ignition control module off
P2714	Solenoid (4) CPC stuck Off
P2715	Solenoid (4) CPC stuck On
P2719	Solenoid (4) CPC Perf
P2720	Solenoid (4) CPC low Voltage
P2721	Solenoid (4) CPC hight Voltage
P2723	Solenoid (5) CPC stuck Off
P2724	Solenoid (5) CPC stuck On
P2728	Solenoid (5) CPC Perf.
P2729	Solenoid (5) CPC low Voltage
P2730	Solenoid (5) CPC high Voltage
P2762	Torque convertor Clutch Solenoid Perf.
P2763	Torque convertor Clutch Solenoid high Voltage
P2764	Torque convertor Clutch Solenoid low Voltage
P2796	Aux Trans. Fluid Pump Relay Control Circuit

NOTES:



NISSAN

TCM & TEHCM SERVICE GUIDE

Application Coverage, Nissan		
Dorman SKU #	**Updated Applications Year Make Model Drive Type Transmission**	**Programming Required**
609-250	2005 Nissan Frontier 4WD 4.0L RE505A Trans 2005 Nissan Pathfinder 4WD 4.0L RE505A Trans	Programming not required
609-251	2005 Nissan Frontier 2WD 4.0L RE505A Trans 2005 Nissan Xterra 2WD 4.0L RE505A Trans	Programming not required
609-252	2006 Nissan Pathfinder 4WD 4.0L RE505A Trans 2006 Nissan Xterra 4WD 4.0L RE505A Trans	Programming not required
609-253	2006 Nissan Frontier 2WD 4.0L RE505A Trans 2005 - 2007 Nissan Pathfinder 2WD 4.0L RE505A Trans 2006 - 2007 Nissan Xterra 2WD 4.0L RE505A Trans	Programming not required
609-254	2007 - 2008 Nissan Frontier 4WD 4.0L RE505A Trans 2007 - 2008 Nissan Xterra 4WD 4.0L RE505A Trans	Programming not required
609-255	2007 Nissan Frontier 2WD 4.0L RE505A Trans	Programming not required
609-256	2008 Nissan Pathfinder 4WD 4.0L RE505A Trans	Programming not required
609-257	2008 Nissan Pathfinder 2WD 4.0L RE505A Trans	Programming not required

NISSAN TCM RE505A: INSTALLATION GUIDE

INSTALLATION TIPS:

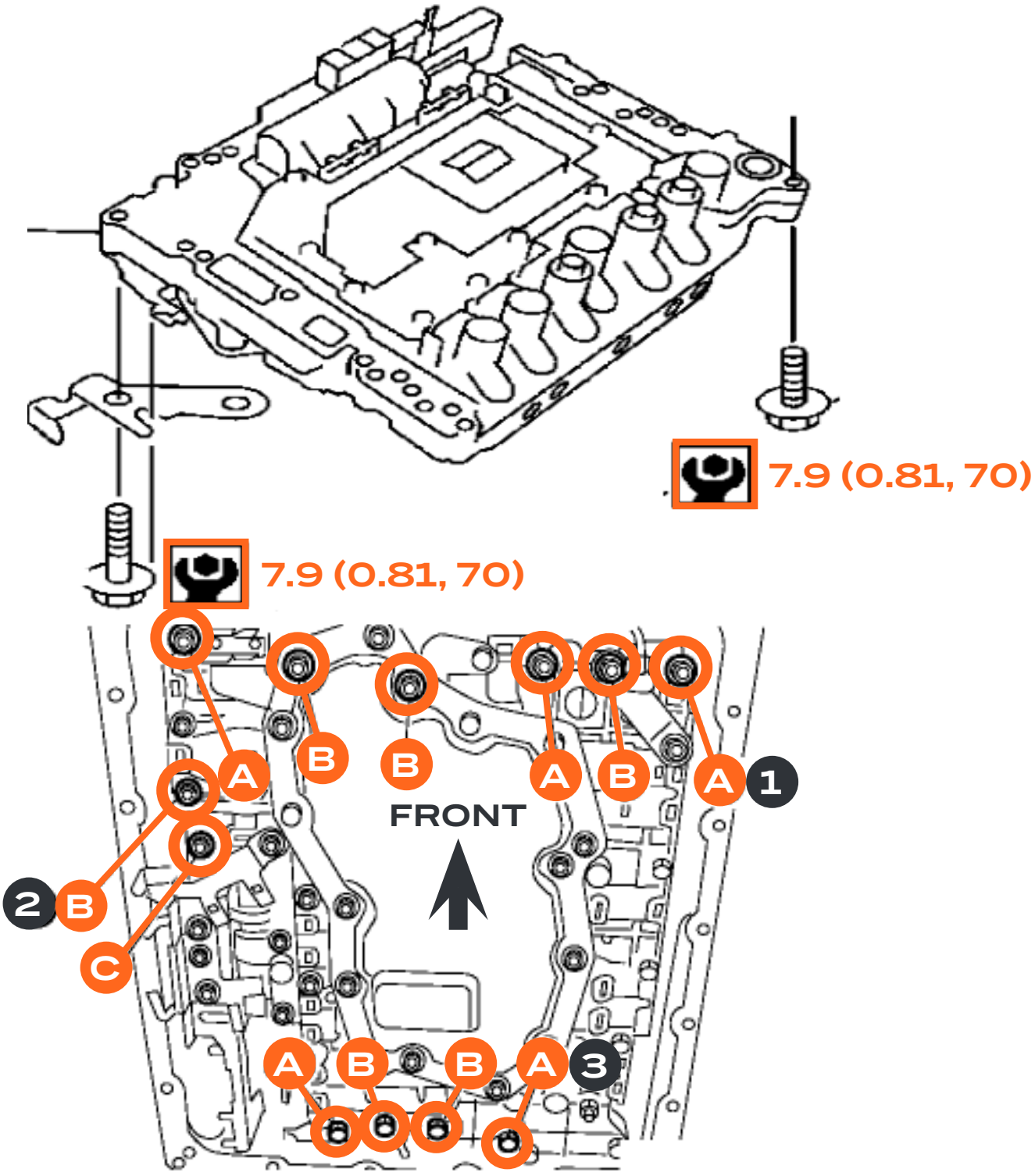
When removing the factory fluid temp sensor, be sure to turn the alignment clips prior to tugging on the wire lead. Failure to do so, can result in damage to the connector.

When removing the mounting bolts for the TCM to the main body, please take notice to the different lengths on these bolts.

- 42mm Quantity (5) see chart
- 55mm Quantity (6) see chart
- 40mm Quantity (1) see chart

Be sure to plug in the factory speed sensor prior to raising the new assembly, failure to do so, can result in drivability concerns, missing or lost gears and erratic shifting patterns.

TORQUE SPECIFICATIONS/BOLT LOCATION:



NOTES:

NOTES:



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