INDEX

Refer to Page 3 Figure 2 for a Cross-sectional view and component identification chart.
Refer to Page 4 Figure 3 for a case comparison to the RE5R05A.
Refer to Page 5 Figure 4 for the Component application chart.
Refer to Page 5 Figure 5 for the available gear ratios.
Refer to Page 7 Figures 7 and 8 for the Solenoid location and TCM communication description.
Refer to Page 8 Figure 9 for the Solenoid function chart.
Refer to Page 9 Figures 10 and 11 for the Normally Applied and Normally Vented Solenoid description of operation.
Refer to Page 10 Figure 12 for the Normally Closed Solenoid description of operation.
Refer to Page 11 Figure 13 for TCM terminal identification and function.
Refer to Page 12 Figures 14 and 15 for the Output Shaft Speed sensor location and description of operation.
Refer to Page 13 Figure 16 for the internal electronic component locations.
Refer to Page 14 Figure 17 for the internal TCM partial wire schematic.
Refer to Page 15 Figure 18 for a list of diagnostic trouble codes.
Refer to Page 16 Figure 19 for case passage identification.
Refer to Page 17 Figure 20 for the front case and pump passage identification.
Refer to Page 18 Figure 21-23 for the drum support, Direct and Low Brake passage identification.
Refer to Page 19 Figure 24-25 for the F1 and F2 freewheel rotations.
Refer to Pages 20-36 for the Valve Body exploded views and check ball locations and functions and assembly procedures.
Refer to Page 37 Figure 49 for the Line Pressure Solenoid Theory of operation.
Refer to Page 38 Figure 50 for the Torque Converter Clutch Solenoid Theory of operation.
Refer to Page 39 Figure 51 for the Anti-Interlock Solenoid Theory of operation.
Refer to Page 40 Figure 52 for the Front Brake Solenoid Theory of operation.
Refer to Page 41 Figure 53 for the Low Brake Solenoid Theory of operation.
Refer to Page 42 Figure 54 for the High and Low Reverse Clutch Solenoid Theory of operation.
Refer to Page 43 Figure 55 for the Input Clutch Solenoid Theory of operation.
Refer to Page 44 Figure 56 for the 2346 Clutch Solenoid Theory of operation.
Refer to Page 45 Figure 57 for the Direct Clutch Solenoid Theory of operation (4th gear example).
Refer to Page 46 Figure 58 for the Direct Clutch Solenoid Theory of operation (5th gear example).

VALVE BODY MAPPING:

Refer to Page 47-53 for the Valve Body Mapping text (Passage I.D.)
Refer to Page 55 for the Valve Body Mapping Oil circuit diagram

OIL CIRCUIT DIAGRAMS:

Refer to Page 56 for Park/Neutral
Refer to Page 57 for Reverse
Refer to Page 58 for Drive 1st gear
Refer to Page 59 for Drive 2nd Gear
Refer to Page 60 for Drive 3nd Gear
Refer to Page 61 for Drive 4th Gear
Refer to Page 62 for Drive 5th Gear
Refer to Page 63 for Drive 6th Gear
Refer to Page 64 for Drive 7th Gear
Refer to Page 65 for Drive 7th Gear TCC ON

Technical Service Information

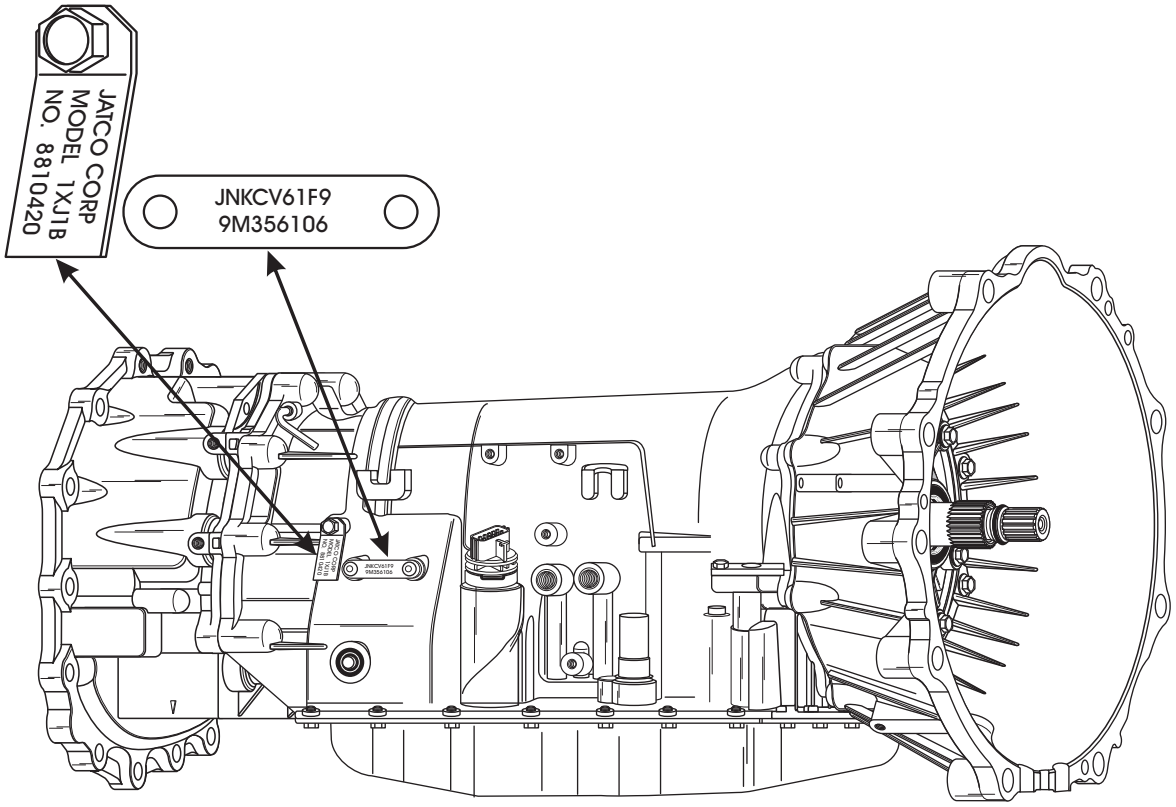
JATCO JR710E

The JATCO JR710E is manufactured by the Japanese Automatic Transmission Company and has seven forward speeds plus reverse. Fifth gear is one to one, 6th and 7th gear are both overdrive ratios.

We wish to thank ALTO USA for supplying us with the transmission that has made this presentation possible.

This manual will cover theory of operation of the electronic and hydraulic control. It also covers passage identification of the case, valve body and spacer plate. This manual includes hydraulic circuit diagrams for all ranges and a Valve Body Mapping section which is a numbering system for passage Identification and oil flow

IDENTIFICATION TAG LOCATIONS AND VEHICLE APPLICATIONS



VEHICLE APPLICATION CHART

VEHICLE	YEAR	ENGINE	COUNTRY	TRANSMISSION
Nissan 370Z (Z34)	*2008-Up*	*3.7L (V6), 5.0L (V8)*	*USA, CAN,*	*JR710E (RE7R01A)*
Infiniti FX37 SUV	*2009-Up*	*3.7L (V6)*	*USA, CAN,*	*JR710E (RE7R01A)*
Infiniti FX50 SUV	*2009-Up*	*5.0L, (V8)*	*USA, CAN,*	*JR710E (RE7R01A)*
Infiniti FX35 SUV	*2009-Up*	*5.9L, (V8)*	*USA, CAN,*	*JR710E (RE7R01A*
Infiniti FX30d SUV	*2009-Up*	*3.0L (V6) Turbo Diesel*	*USA, CAN,*	*JR710E (RE7R01A)*
Infiniti (J50) Sedan EX25	*2008-Up*		*USA, CAN,*	*JR710E (RE7R01A)*
Infiniti (J50) Sedan EX30	*2008-Up*		*USA, CAN,*	*JR710E (RE7R01A)*

Figure 1

JR710E (RE7R01A) COMPONENT LOCATION AND IDENTIFICATION

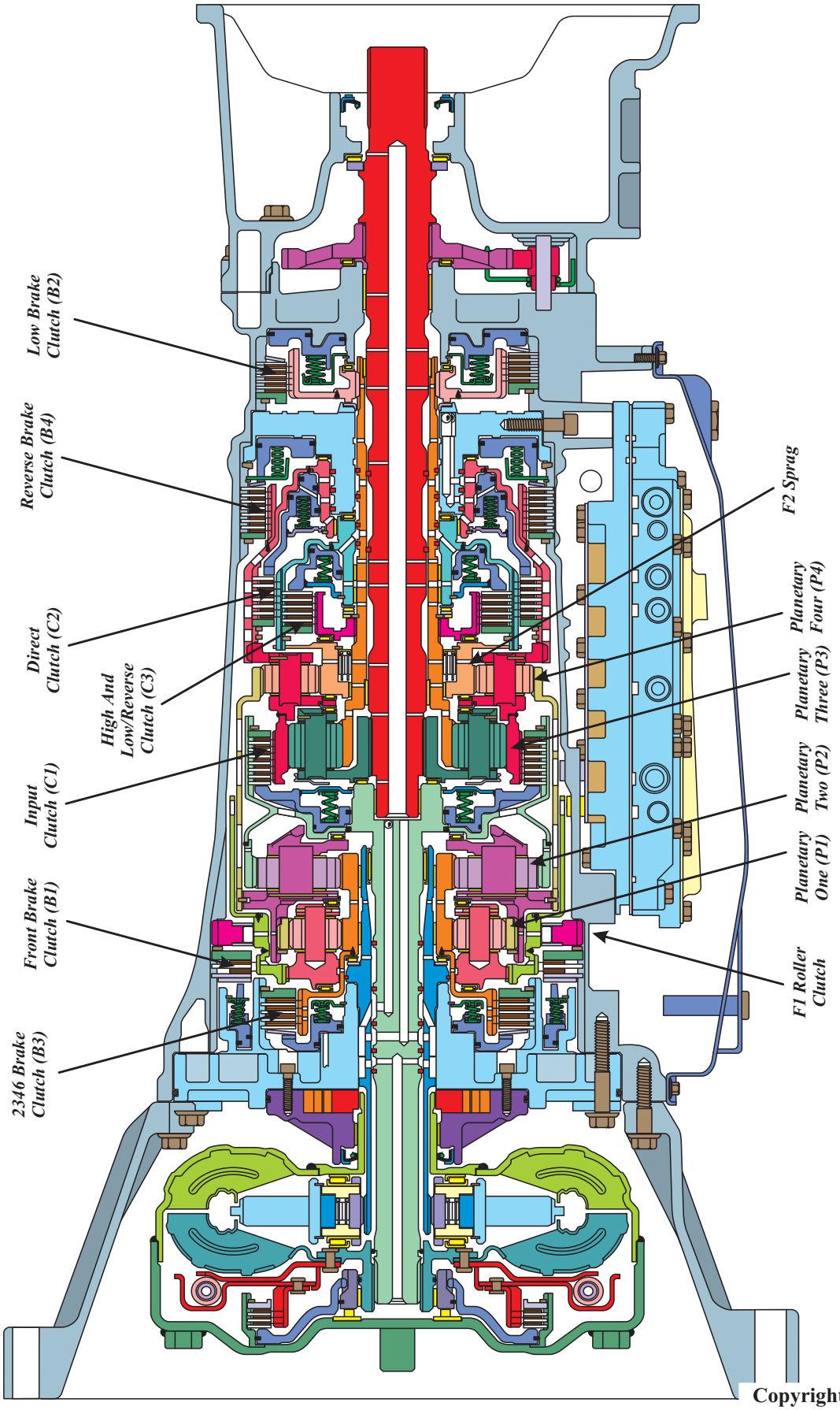
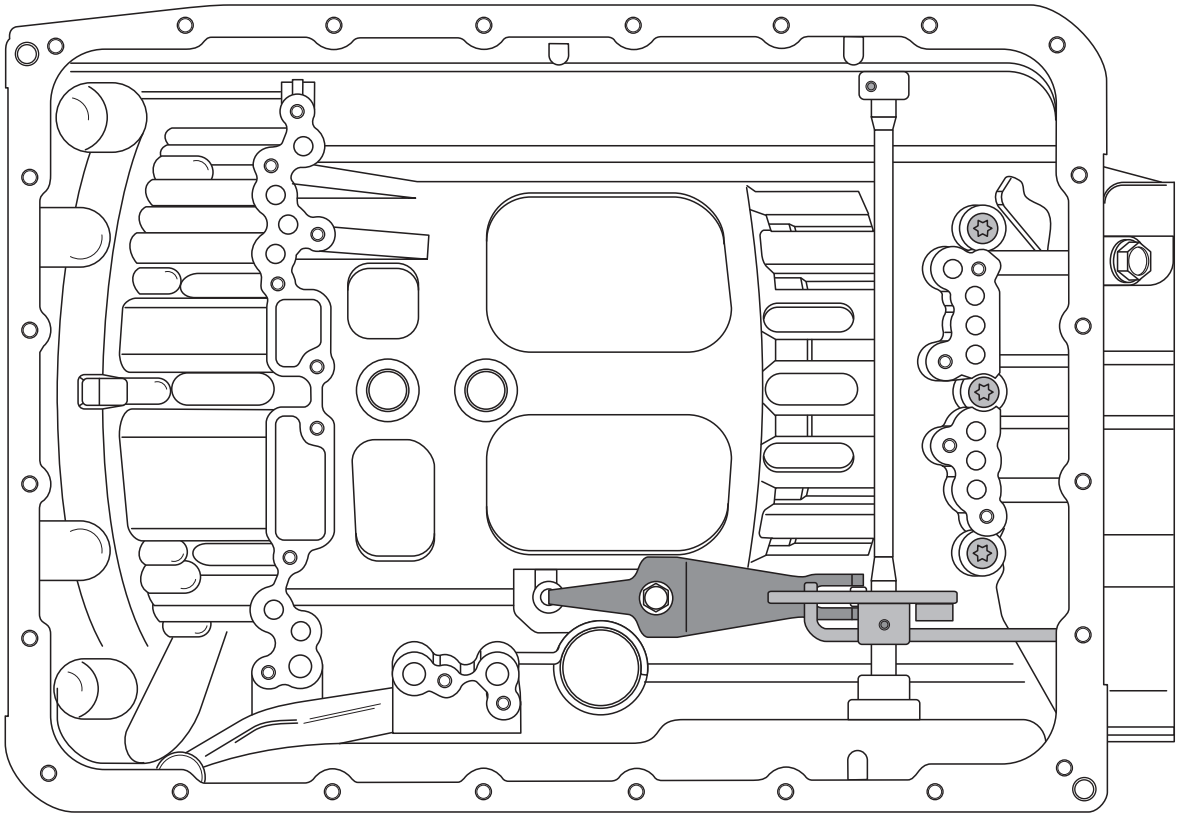


Figure 2

CASE COMPARISON

RE7R01A



RE5R05A

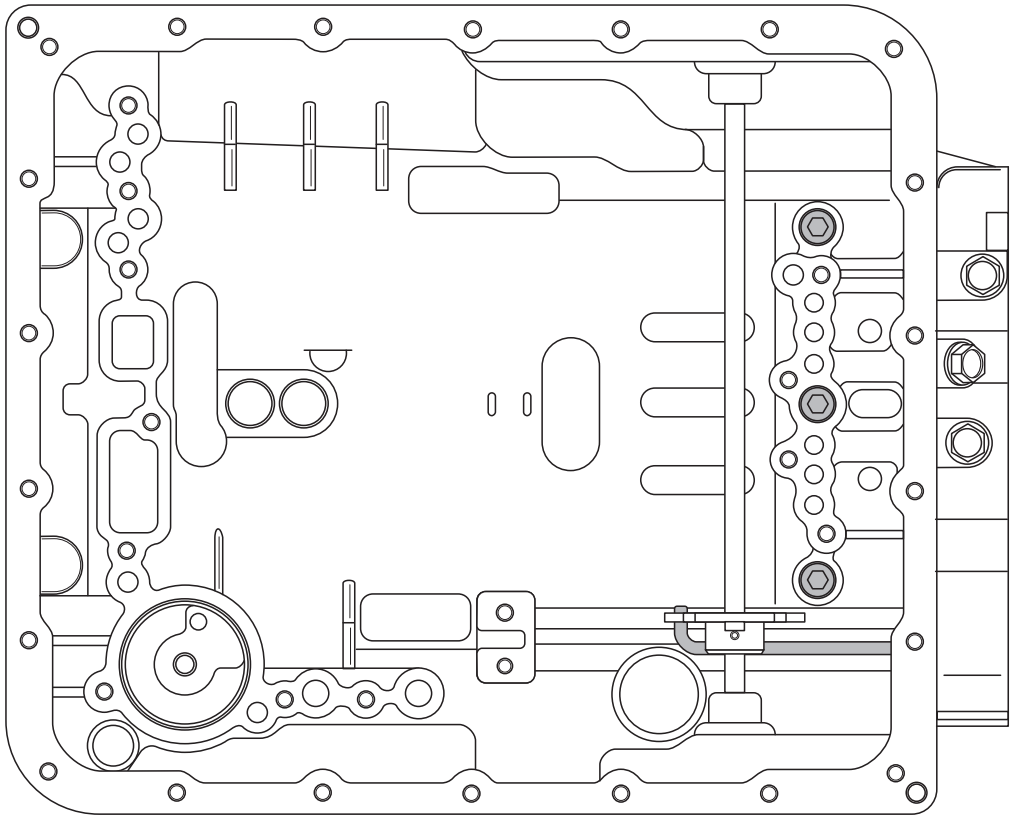


Figure 3

COMPONENT APPLICATION CHART

Gear	Front Brake (B1)	Input Clutch (C1)	Direct Clutch (C2)		Hi & LR Clutch (C3)	Low Brake (B2)		2,3,4,6 Brake (B3)	Reverse Brake (B4)	Roller Clutch (F1)	Sprag Clutch (F2)	Gear Ratio (Model Sensitive)
			Front	Rear		Inner	Outer					
Park	On				On							
Reverse	On				On				On	Hold	Hold	See Below
Neutral	On				On							
D-1st	On				On	On	On			Hold	Hold	See Below
D-2nd						On	On	On			Hold	See Below
D-3rd			On	On		On		On				See Below
D-4th			On	On	On			On				See Below
D-5th		On		On	On							See Below
D-6th		On			On			On				See Below
D-7th	On	On			On							See Below
"M"-1st	On				On	On	On			Hold	Hold	See Below

Figure 4

RATIO CHARTS

GEAR RATIOS	
Reverse Gear	3.5384
1st Gear	4.6837
2nd Gear	3.0602
3rd Gear	2.0161
4th Gear	1.3889
5th Gear	1.0000
6th Gear	0.8560
7th Gear	0.7588

GEAR RATIOS	
Reverse Gear	3.8028
1st Gear	5.6813
2nd Gear	3.5403
3rd Gear	2.2642
4th Gear	1.4717
5th Gear	1.0000
6th Gear	0.8340
7th Gear	0.7363

GEAR RATIOS	
Reverse Gear	4.5702
1st Gear	6.3508
2nd Gear	3.8417
3rd Gear	2.3530
4th Gear	1.5294
5th Gear	1.0000
6th Gear	0.8393
7th Gear	0.7494

Figure 5

SOLENOID LOCATION, IDENTIFICATION, AND APPLICATION CHART

Range	Line Pressure Sol "A" PWM (N.V.)	TCC Clutch PWM (N.V.)	Direct Clutch Sol "G" PWM (N.A.)	Front Brake Sol "C" PWM (N.V.)	Input Clutch Sol "B" PWM (N.A.)	High/LR Clutch Sol "D" PWM (N.A.)	Low Brake Sol "E" PWM (N.V.)	2346 Brake Sol "F" PWM (N.V.)	Anti-Interlock Sol "A" On/Off (NC)
Park	0.2-0.6A*	0A	0.6-0.8A	0.6-0.8A	0.6-0.8A	0-.05A	0-.05A	0-.05A	Off
Reverse	0.2-0.6A*	0A	0.6-0.8A	0.6-0.8A	0.6-0.8A	0-.05A	0-.05A	0-.05A	Off
D-1st	0.2-0.6A*	0A	0.6-0.8A	0.6-0.8A	0.6-0.8A	0-.05A	0.6-0.8A	0-.05A	ON
D-2nd	0.2-0.6A*	0.2-0.6A**	0.6-0.8A	0-.05A	0.6-0.8A	0.6-0.8A	0.6-0.8A	0.6-0.8A	ON
D-3rd	0.2-0.6A*	0.2-0.6A**	0-.05A	0-.05A	0.6-0.8A	0.6-0.8A	0.6-0.8A	0.6-0.8A	ON
D-4th	0.2-0.6A*	0.2-0.6A**	0-.05A	0-.05A	0.6-0.8A	0-.05A	0-.05A	0.6-0.8A	Off
D-5th	0.2-0.6A*	0.2-0.6A**	0-.05A	0-.05A	0-.05A	0-.05A	0-.05A	0-.05A	Off
D-6th	0.2-0.6A*	0.8A***	0.6-0.8A	0-.05A	0-.05A	0-.05A	0-.05A	0.6-0.8A	Off
D-7th	0.2-0.6A*	0.8A***	0.6-0.8A	0.6-0.8A	0-.05A	0-.05A	0-.05A	0-.05A	Off

*= Constantly modulating, based on engine load.
**= Slip Lock-Up is Activated.
***= TCC may be applied, based on engine load, fluid temp, and vehicle speed.

COMPONENT APPLICATION CHART

Gear	Front Brake (B1)	Input Clutch (C1)	Direct Clutch (C2)		Hi & LR Clutch (C3)	Low Brake (B2)		2,3,4,6 Brake (B3)	Reverse Brake (B4)	Roller Clutch (F1)	Sprag Clutch (F2)	Gear Ratio (Model Sensitive)
			Front	Rear		Inner	Outer					
Park	On*				On*							
Reverse	On				On				On	Hold	Hold	See Fig. 5
Neutral	On*				On*							
D-1st	On				On	On	On			Hold	Hold	See Fig. 5
D-2nd						On	On	On			Hold	See Fig. 5
D-3rd			On	On		On		On				See Fig. 5
D-4th			On	On	On			On				See Fig. 5
D-5th		On		On	On							See Fig. 5
D-6th		On			On			On				See Fig. 5
D-7th	On	On			On							See Fig. 5
"M"-1st	On				On	On	On			Hold	Hold	See Fig. 5

Figure 6

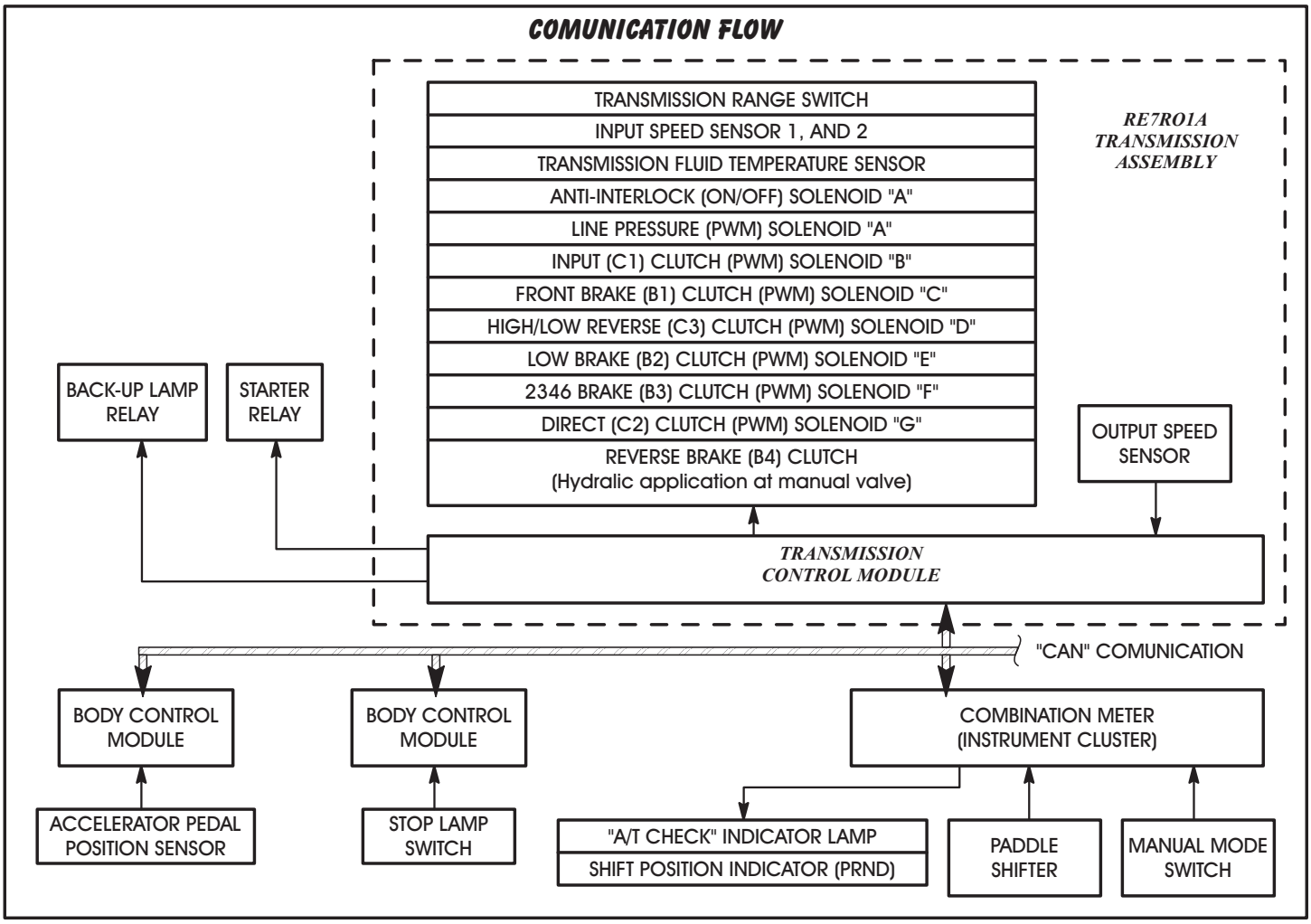


Figure 7

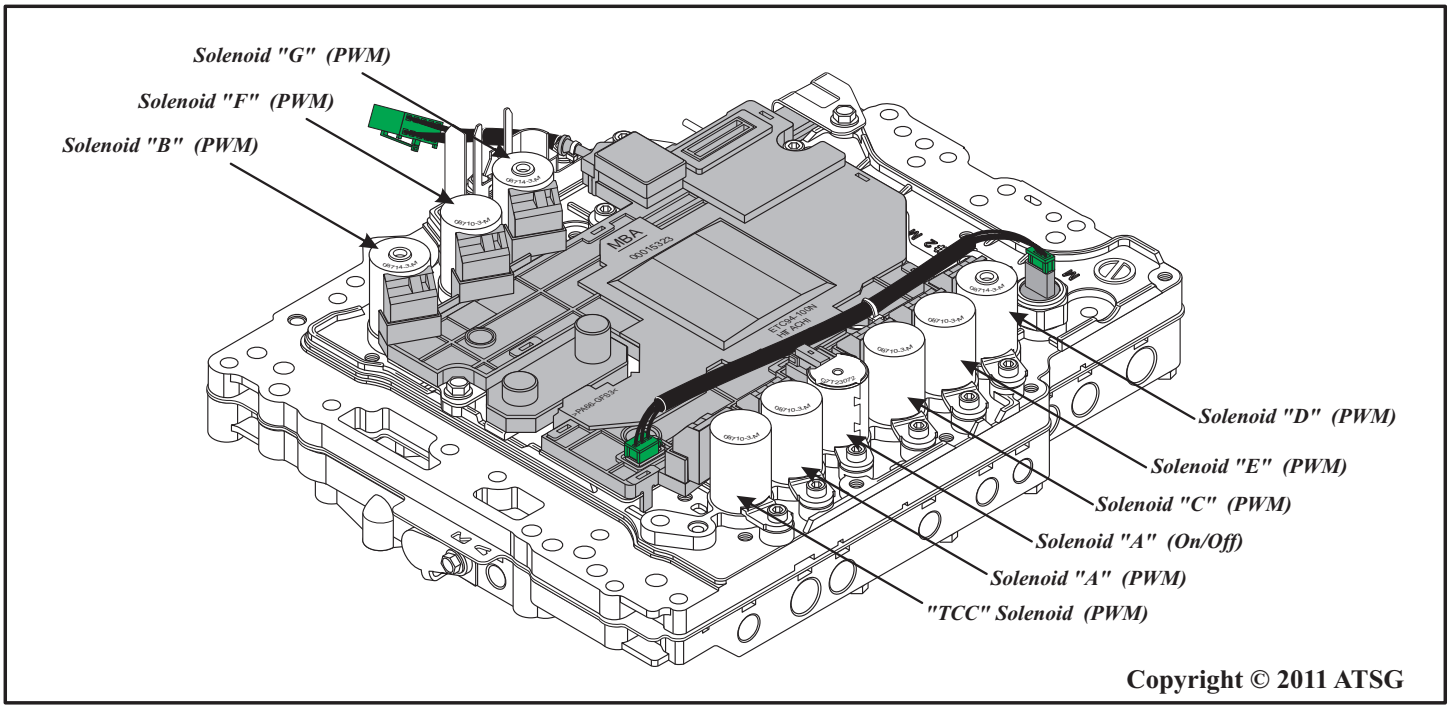


Figure 8

SOLENOID FUNCTION CHART		
Solenoid "A" (PWM) (Line Pressure Control)	***P0745***	The line pressure solenoid regulates the oil pump discharge pressure to suit the driving conditions in response to a signal transmitted from the TCM.
Solenoid "B" (PWM) (Input Clutch Pressure Control)	***P0775***	The input clutch pressure control solenoid controls the input clutch control valve in response to a signal transmitted from the TCM.
Solenoid "C" (PWM) (Front Brake Clutch Pressure Control)	***P0795***	The front brake clutch pressure control solenoid controls the front brake clutch control valve in response to a signal transmitted from the TCM.
Solenoid "D" (PWM) (High & Low Reverse Clutch Pressure Control)	***P2713***	The high & low reverse clutch pressure control solenoid controls the high & low reverse clutch control valve in response to a signal transmitted from the TCM.
Solenoid "E" (PWM) (Low Brake Pressure Control)	***P2722***	The low brake pressure control solenoid controls the low brake control valve in response to a signal transmitted from the TCM.
Solenoid "F" (PWM) (2, 3, 4, 6 Brake Pressure Control)	***P2731***	The 2346 brake pressure control solenoid controls the 2346 brake control valve in response to a signal transmitted from the TCM.
Solenoid "G" (PWM) (Direct Clutch Pressure Control)	***P2807***	The direct clutch pressure control solenoid controls the direct clutch control valve in response to a signal transmitted from the TCM.
Shift Solenoid "A" (On/Off) (Anti-Interlock Control)	***P0750***	The anti-interlock control solenoid prevents the simultaneous application of the input clutch and the low brake clutch.
TCC Solenoid (PWM) (Torque Converter Clutch Control)	***P0740***	The torque converter clutch solenoid may be activated in 2nd thru 7th gears (manual or automatic) by the TCM in response to signals transmitted from the OSS and APP sensor. Lock-up operation however, is inhibited when fluid temperature is too low.

Figure 9

SOLENOID MECHANICAL CHECKS

"Normally Applied" Duty Cycle Solenoids

The High & Low Reverse Clutch, Input Clutch, and Direct Clutch, are all "Normally Applied" duty cycle type solenoids (See Figure 10). This means that when the solenoid is OFF (De-energized), the exhaust passage is blocked, and feed oil pressure is allowed through the solenoid to the appropriate components and valves. When the solenoid is ON (Energized), feed oil pressure is blocked, exhaust is now open, and the components and valves are allowed to drain.

Note: Resistance specifications for this type of solenoid is 5.0-7.5 Ohms.

"Normally Vented" Duty Cycle Solenoids

The Line Pressure, Torque Converter Clutch, Front Brake , Low Clutch and 2346 Brake Solenoids are all "Normally Vented" duty cycle type solenoids (See Figure 11). This means that when the solenoid is OFF (De-energized), the feed oil pressure is blocked, the exhaust passage is open and the components and valves are allowed to drain. When the solenoid is ON (Energized), the feed oil pressure port is opened, the exhaust passage is blocked, and feed oil pressure is allowed through the solenoid to the appropriate components and valves.

Note: Resistance specifications for this type of solenoid is 5.0-7.5 Ohms.

The High & Low Reverse Clutch, Input Clutch, and Direct Clutch, are all "Normally Applied" duty cycle type solenoids.

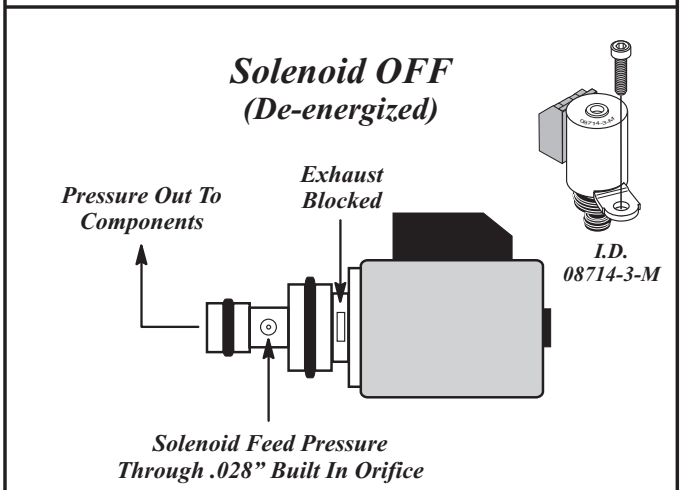


Figure 10

The Line Pressure, Torque Converter Clutch, Front Brake , Low Clutch and 2346 Brake are "Normally Vented" duty cycle type solenoids.

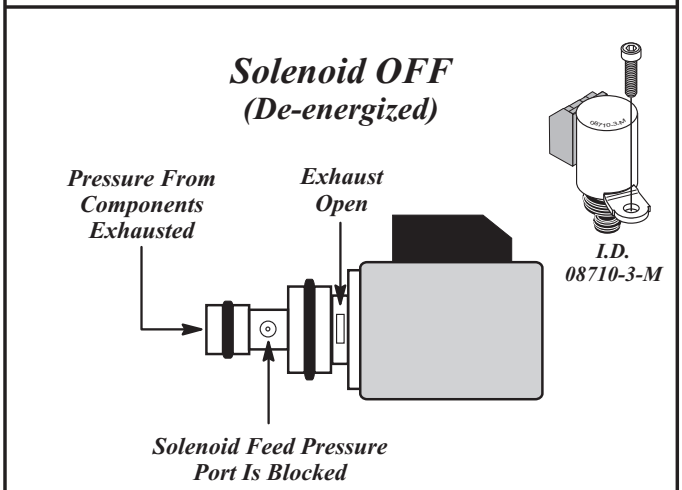


Figure 11

SOLENOID MECHANICAL CHECKS

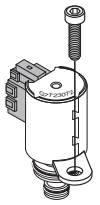
"Normally Closed" ON/OFF Solenoid

The Anti-Interlock Solenoid is a "Normally Closed", ON/OFF type solenoid, as shown in Figure 12. This means that when the solenoid is OFF (De-energized), the feed oil pressure is blocked to the Anti-Interlock valve. When the solenoid is ON (Energized), the feed oil pressure is connected to the Anti-Interlock valve.

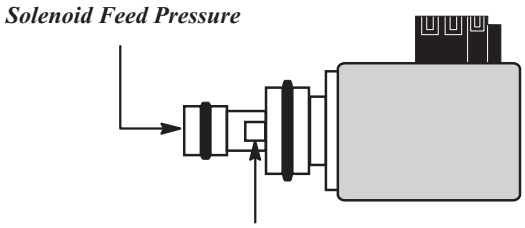
Note: Resistance specifications for this type of solenoid is 24-30 Ohms.

The Low Coast Brake is a "Normally Closed", ON/OFF type solenoid.

Solenoid OFF
(De-energized)



I.D.
G7T23072



Resistance Measurement Should be; actual 28 ohms, range is 24-30 ohms.

Solenoid ON
(Energized)

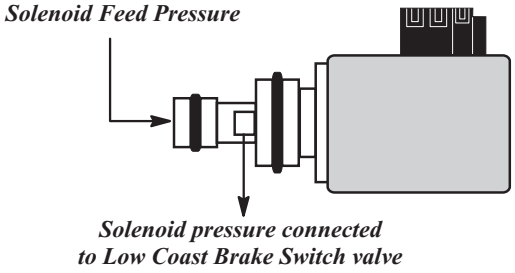
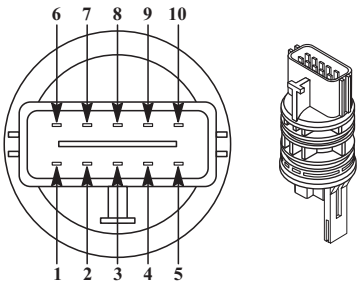
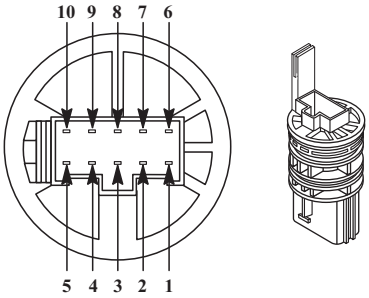


Figure 12

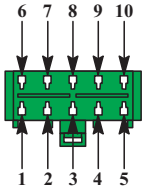
TCM CONNECTOR TERMINAL IDENTIFICATION AND FUNCTION



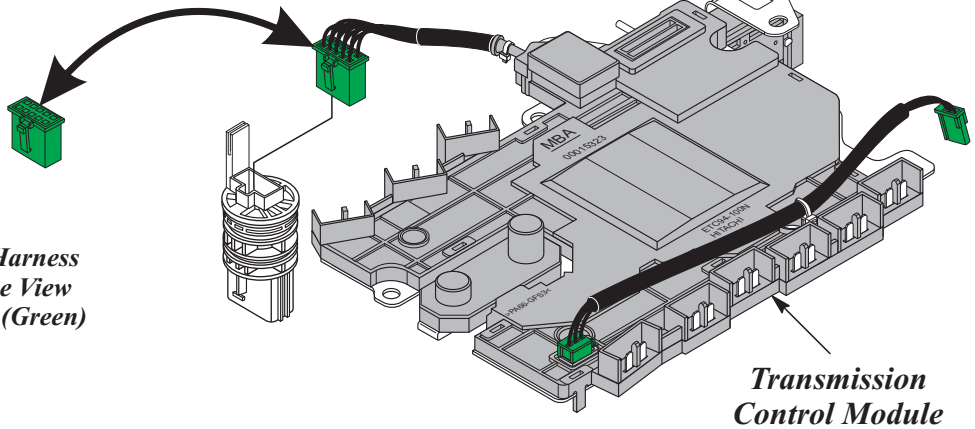
External Transmission Connector "Top Side" Face View Connector Number F-10 (Black)



External Transmission Connector "Bottom Side" Face View Connector Number F-10 (Black)



Internal Transmission Harness "Female" Coupler Face View Connector Number F-9 (Green)



Term No.	Function	Condition		Value (Approx)
1	Ignition Power Supply In	Ignition Switch On		Battery Voltage
		Ignition Switch Off		0 Volts
2	Battery Power Supply In (Memory Back-Up)	Always On		Battery Voltage
3	CAN-H			
4	K-Line			
5	Ground Supply 2	Always Grounded		0 Volts
6	Ignition Power Supply In	Ignition Switch On		Battery Voltage
		Ignition Switch Off		0 Volts
7	Back-Up Lamp Relay	Ignition "On"	Selector In "R"	0 Volts
			Selector Other Than "R"	Battery Voltage
8	CAN-L			
9	Starter Relay	Ignition "On"	Selector In "P" Or "N"	Battery Voltage
			Selector Other Than "P" Or "N"	0 Volts
10	Ground Supply 1	Always Grounded		0 Volts

Figure 13

ELECTRONIC COMPONENTS (CONT'D)

Output Shaft (Revolution) Sensor

The Output Shaft (Revolution) Sensor is a Hall Effect type sensor, as shown in Figure 14. It is located in the rear housing of the transmission, as shown in Figure 15. The output shaft sensor obtains its reading off of the park gear, and generates a VSS signal that is used by the TCM to assist in determining shift scheduling.

DTC P0720 is set when the TCM doesn't receive a proper voltage signal from the sensor while driving. This code can also be set when the ignition switch is turned "ON", and an improper signal is received from the Vehicle Speed Sensor MTR before the vehicle begins moving.

The Vehicle Speed Sensor MTR signal is sent from the instrument cluster/combination meter to the TCM by way of CAN bus signal through the CAN communication line. The instrument cluster receives its vehicle speed information through the CAN communication line via the ABS system from the Wheel Speed Sensors.

In the event of a Output/Revolution Shaft Sensor malfunction, the TCM will utilize the MTR signal for Vehicle Speed Input.

The Output Shaft (Revolution) Sensor connector plugs into the Park/Neutral Position Switch, as shown in Figure 14.

"Bench Testing"

Output Shaft (Revolution) Sensor

(1) Remove the tail housing or transfer case from the transmission, and the transmission oil pan.

(2) Unplug the Green Connector from the P/N Position Switch.

(3) Run 12 volts from a battery, to the Red Wire *(Pin 3)* of the Green Connector.

(4) Run a jumper lead from the Black Wire *(Pin 1)* of the Green Connector to battery ground.

(5) Using a DVOM or Graphing Meter, place the Red lead of the meter to the White Wire *(Pin 2)* of the Green Connector, place the Black lead of the meter to the Black Wire *(Pin 1)* of the Green Connector.

(6) Rotate output shaft slowly and you should see the meter toggle from voltage to infinite as the lugs on the park gear pass in front of the Output/Revolution Sensor Pick-up. Refer to Figure 14 and 15.

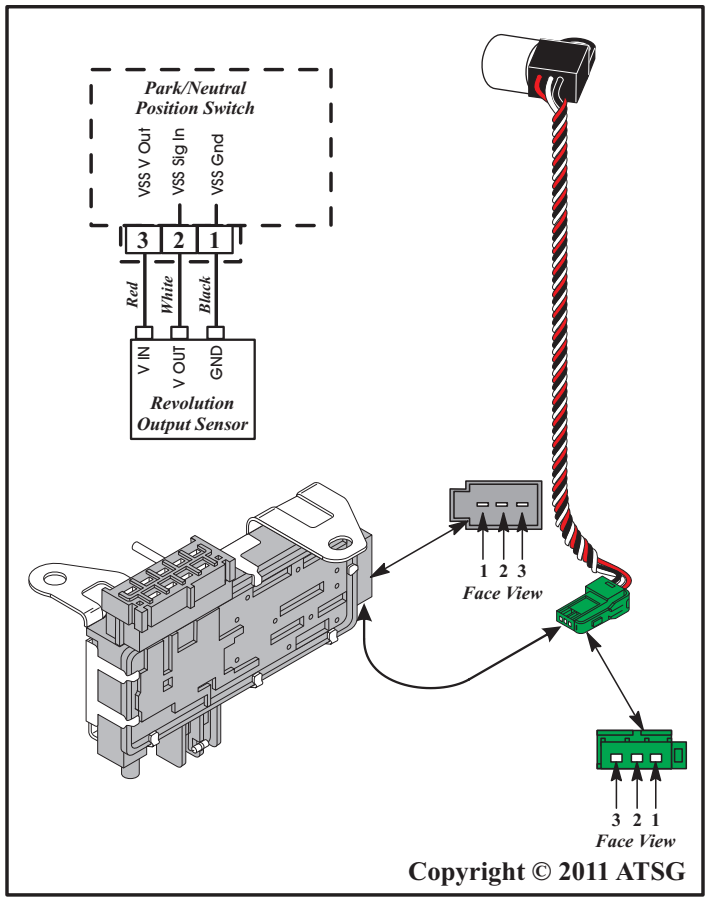


Figure 14

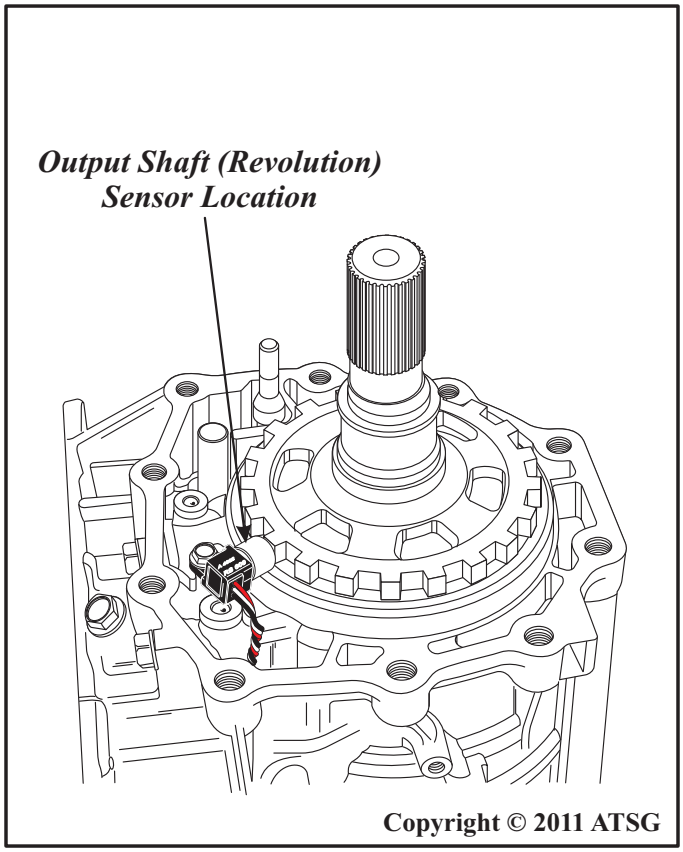


Figure 15

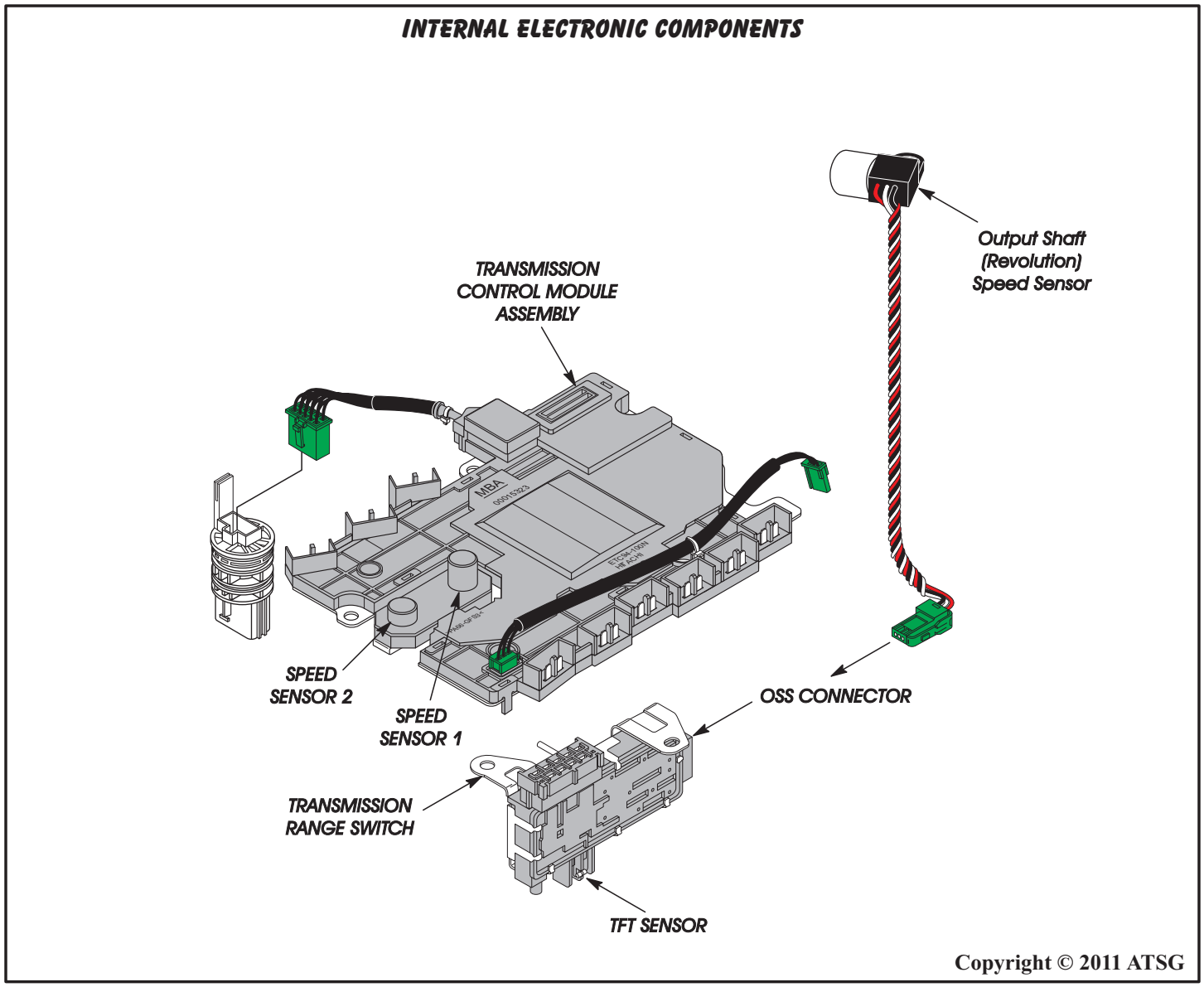

INTERNAL ELECTRONIC COMPONENTS
Output Shaft (Revolution) Speed Sensor
TRANSMISSION CONTROL MODULE ASSEMBLY
SPEED SENSOR 2
SPEED SENSOR 1
OSS CONNECTOR
TRANSMISSION RANGE SWITCH
TFT SENSOR
Copyright © 2011 ATSG

Figure 16

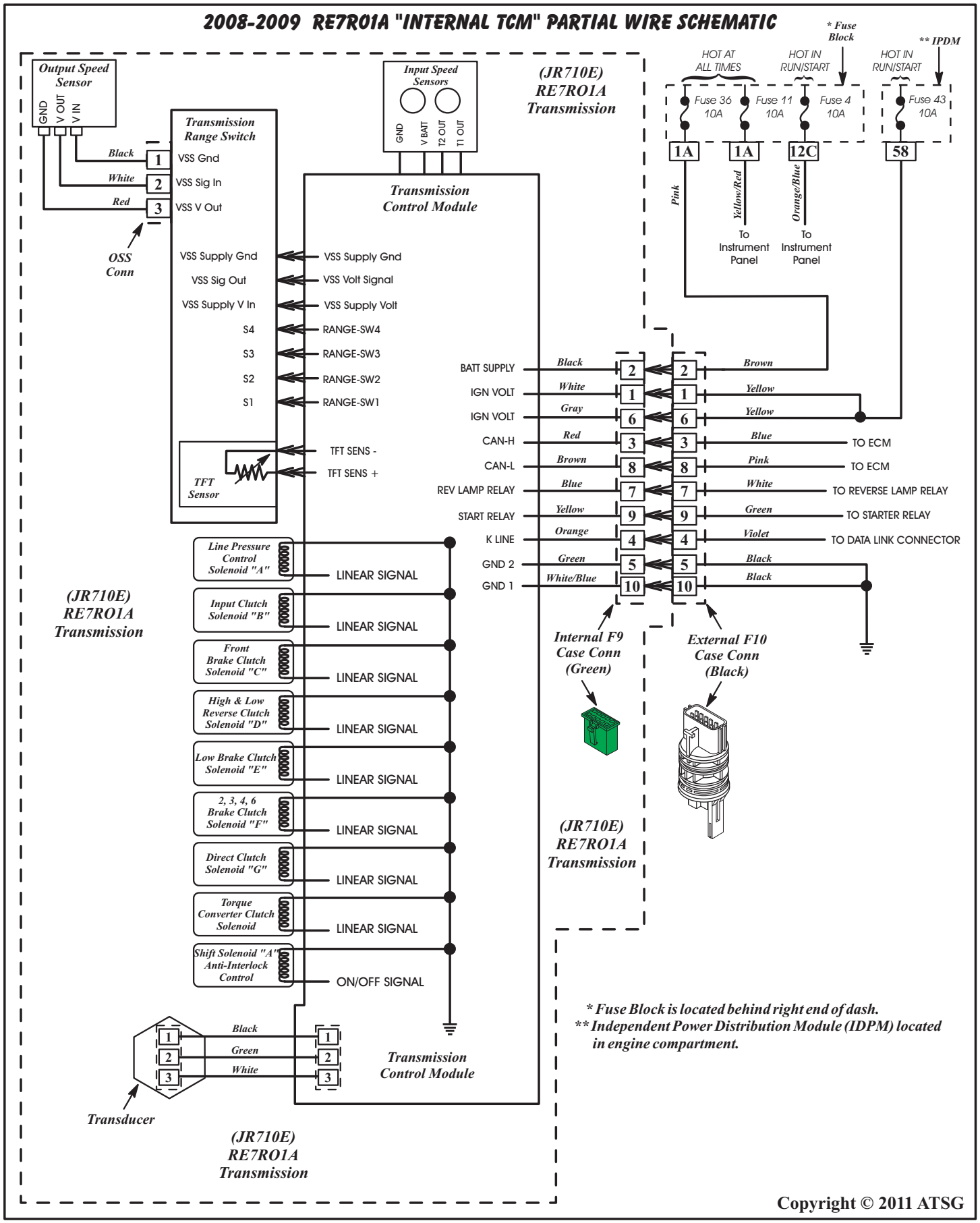

2008-2009 RE7R01A "INTERNAL TCM" PARTIAL WIRE SCHEMATIC
Output Speed Sensor
GND
V OUT
V IN
Input Speed Sensors
GND
V BATT
T2 OUT
T1 OUT
(JR710E) RE7R01A Transmission
* Fuse Block
** IPDM
HOT AT ALL TIMES
HOT IN RUN/START
HOT IN RUN/START
Fuse 36 10A
Fuse 11 10A
Fuse 4 10A
Fuse 43 10A
1A
1A
12C
58
Pink
Yellow/Red
Orange/Blue
To Instrument Panel
To Instrument Panel
Transmission Range Switch
Black
White
Red
1
2
3
VSS Gnd
VSS Sig In
VSS V Out
OSS Conn
Transmission Control Module
VSS Supply Gnd
VSS Sig Out
VSS Supply V In
S4
S3
S2
S1
VSS Supply Gnd
VSS Volt Signal
VSS Supply Volt
RANGE-SW4
RANGE-SW3
RANGE-SW2
RANGE-SW1
TFT SENS -
TFT SENS +
TFT Sensor
BATT SUPPLY
IGN VOLT
IGN VOLT
CAN-H
CAN-L
REV LAMP RELAY
START RELAY
K LINE
GND 2
GND 1
Black
White
Gray
Red
Brown
Blue
Yellow
Green
Orange
Green
White/Blue
2
1
6
3
8
7
9
4
5
10
2
1
6
3
8
7
9
4
5
10
Brown
Yellow
Yellow
Blue
Pink
White
Green
Violet
Black
Black
TO ECM
TO ECM
TO REVERSE LAMP RELAY
TO STARTER RELAY
TO DATA LINK CONNECTOR
Internal F9 Case Conn (Green)
External F10 Case Conn (Black)
Line Pressure Control Solenoid "A"
Input Clutch Solenoid "B"
Front Brake Clutch Solenoid "C"
High & Low Reverse Clutch Solenoid "D"
Low Brake Clutch Solenoid "E"
2, 3, 4, 6 Brake Clutch Solenoid "F"
Direct Clutch Solenoid "G"
Torque Converter Clutch Solenoid
Shift Solenoid "A" Anti-Interlock Control
LINEAR SIGNAL
LINEAR SIGNAL
LINEAR SIGNAL
LINEAR SIGNAL
LINEAR SIGNAL
LINEAR SIGNAL
LINEAR SIGNAL
LINEAR SIGNAL
ON/OFF SIGNAL
Black
Green
White
1
2
3
1
2
3
Transducer
Transmission Control Module
(JR710E) RE7R01A Transmission
(JR710E) RE7R01A Transmission
(JR710E) RE7R01A Transmission
* Fuse Block is located behind right end of dash.
** Independent Power Distribution Module (IDPM) located in engine compartment.
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Figure 17

RE7R01A DIAGNOSTIC TROUBLE CODE (DTC) DESCRIPTION	
TCM DTC	**DESCRIPTION**
P0615	*Starter Relay Circuit*
P0705	*Park/Neutral Position Switch Circuit*
P0710	*Transmission Fluid Temperature Sensor Circuit*
P0717	*Input Speed Sensor Circuit (Could be 1 or 2))*
P0720	*Output (Revolution) Speed Sensor Circuit (Transmission)*
P0725	*Engine Speed Sensor Circuit*
P0729	*6th Gear Ratio Error*
P0730	*Incorrect Gear Ratio*
P0731	*1st Gear Ratio Error*
P0732	*2nd Gear Ratio Error*
P0733	*3rd Gear Ratio Error*
P0734	*4th Gear Ratio Error*
P0735	*5th Gear Ratio Error*
P0740	*Torque Converter Clutch Solenoid Circuit*
P0744	*Torque Converter Clutch Function (Electrical or Mechanical)*
P0745	*Line Pressure Solenoid A Circuit*
P0750	*Interlock Shift Solenoid A Circuit (Anti-Interlock Control)*
P0755	*Pressure Control Solenoid B Circuit (Input Clutch Pressure Control)*
P0780	*Shift Error (Electrical or Mechanical)*
P0795	*Pressure Control Solenoid C Circuit (Front Brake Clutch Pressure Control)*
P1705	*Throttle Position Sensor or APP Circuit*
P1721	*Output (Revolution) Speed Sensor Circuit (Vehicle Speed)*
P1730	*OSS detects deceleration of 12 km/h (7 MPH) or more for 1 sec (Electrical or Mechanical)*
P1734	*7th Gear Ratio Error*
P1815	*Manual Mode Switch Circuit*
P2713	*Pressure Control Solenoid D Circuit (High & Low/Reverse Clutch Pressure Control)*
P2722	*Pressure Control Solenoid E Circuit (Low Brake Clutch Pressure Control)*
P2731	*Pressure Control Solenoid F Circuit (2346 Brake Clutch Pressure Control)*
P2807	*Pressure Control Solenoid G Circuit (Direct Clutch Pressure Control)*
U1000	*CAN Communication Circuit*

NOTE: Scanner is "Required" for DTC Retrieval.

Figure 18

CASE PASSAGE IDENTIFICATION

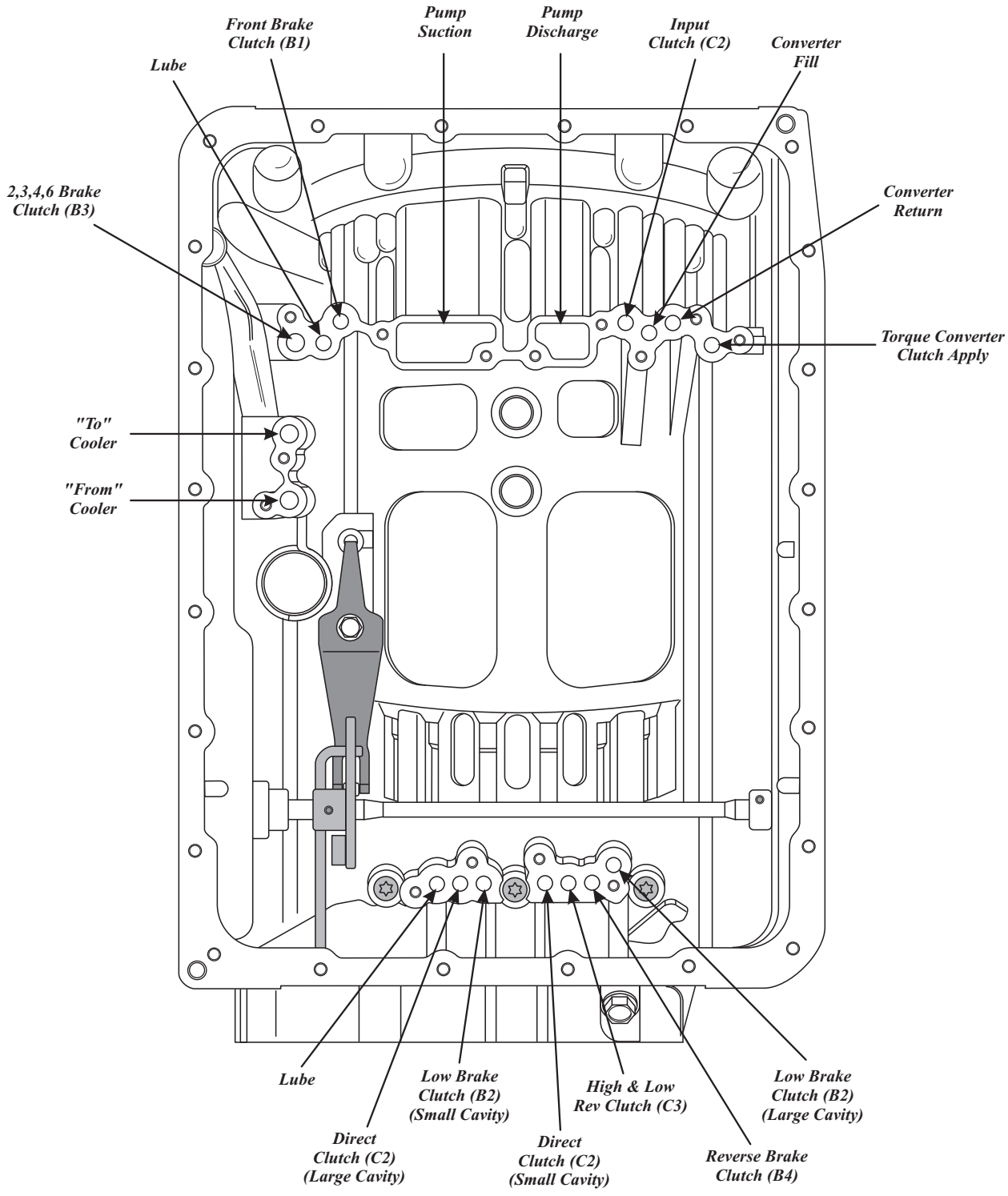
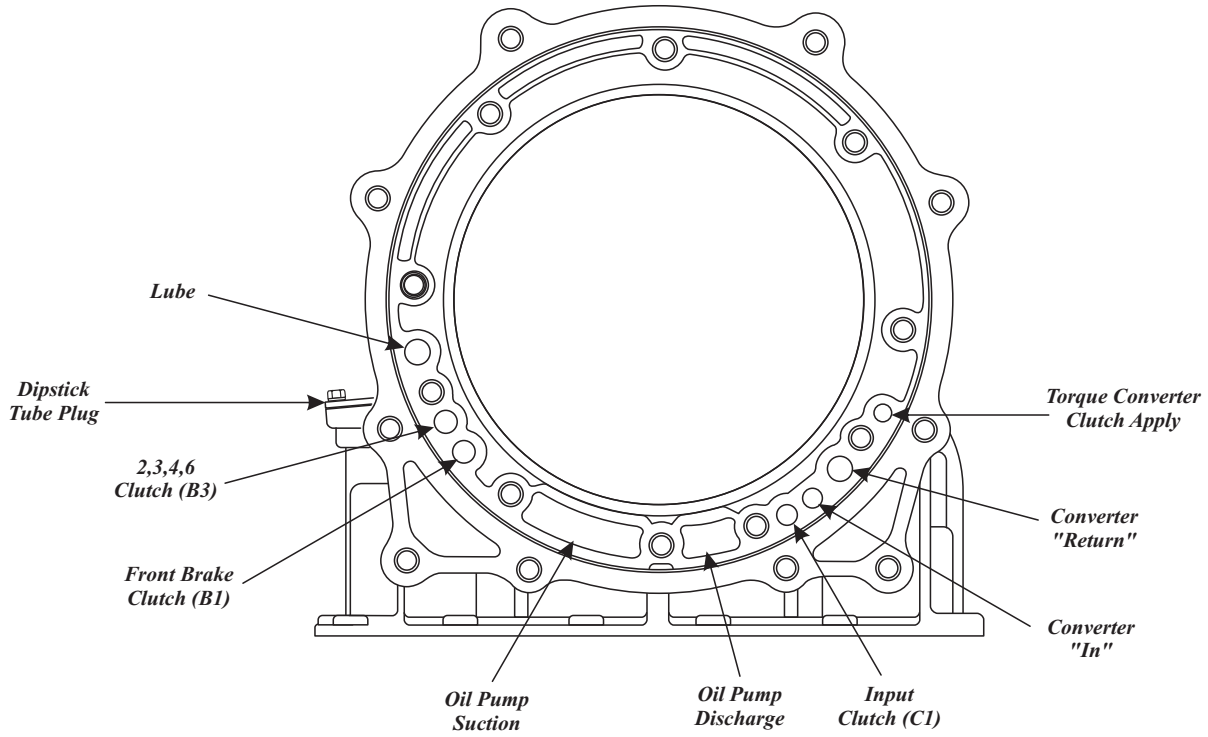


Figure 19

CASE FRONT PASSAGE IDENTIFICATION



OIL PUMP AND COVER PASSAGE IDENTIFICATION

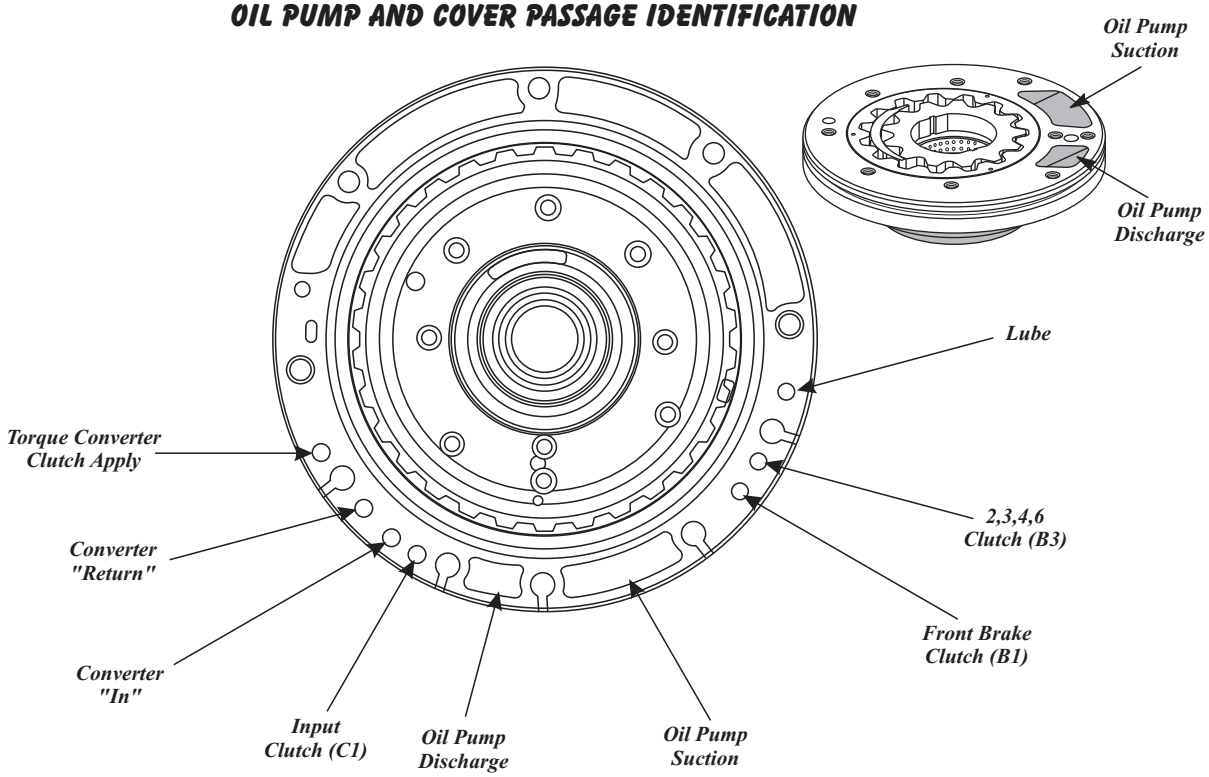


Figure 20

DRUM SUPPORT PASSAGE IDENTIFICATION

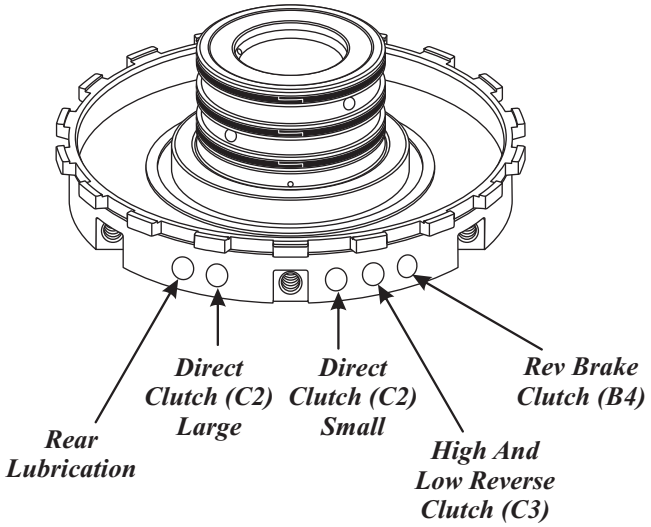


Figure 21

DIRECT CLUTCH (C2) PASSAGE IDENTIFICATION

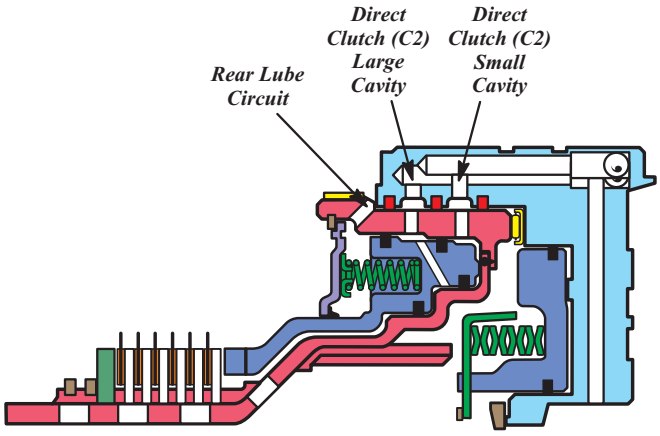


Figure 22

LOW BRAKE CLUTCH (B2) PASSAGE IDENTIFICATION

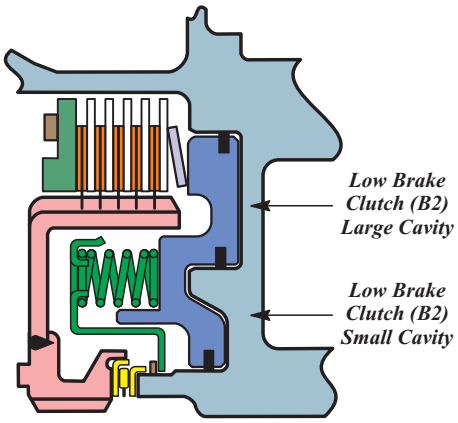


Figure 23

RE7R01A F1 ROLLER CLUTCH

F1 ROLLER CLUTCH OUTER RACE ASSEMBLY SHOULD FREEWHEEL COUNTER-CLOCKWISE AND LOCK CLOCKWISE, WHILE HOLDING FRONT PLANETARY AND DRUM ASSEMBLY

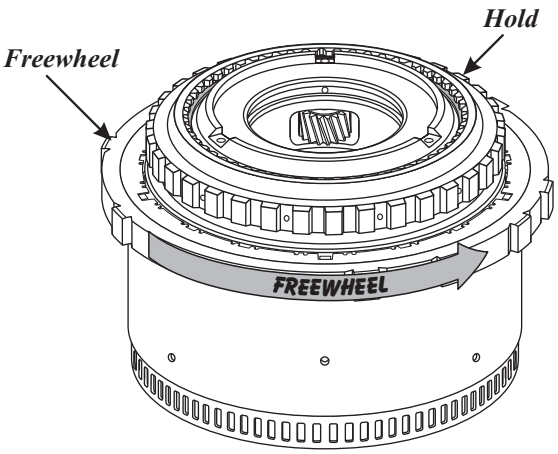


Figure 24

RE7R01A F2 SPRAG

SMALL SUN GEAR SHOULD FREEWHEEL COUNTER-CLOCKWISE AND LOCK CLOCKWISE WHILE HOLDING THE LARGE SUN GEAR

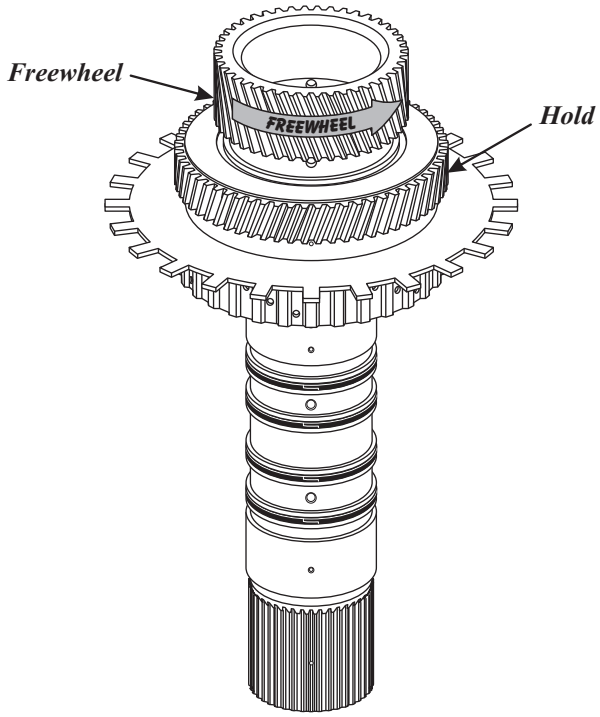


Figure 25

COMPLETED VALVE BODY

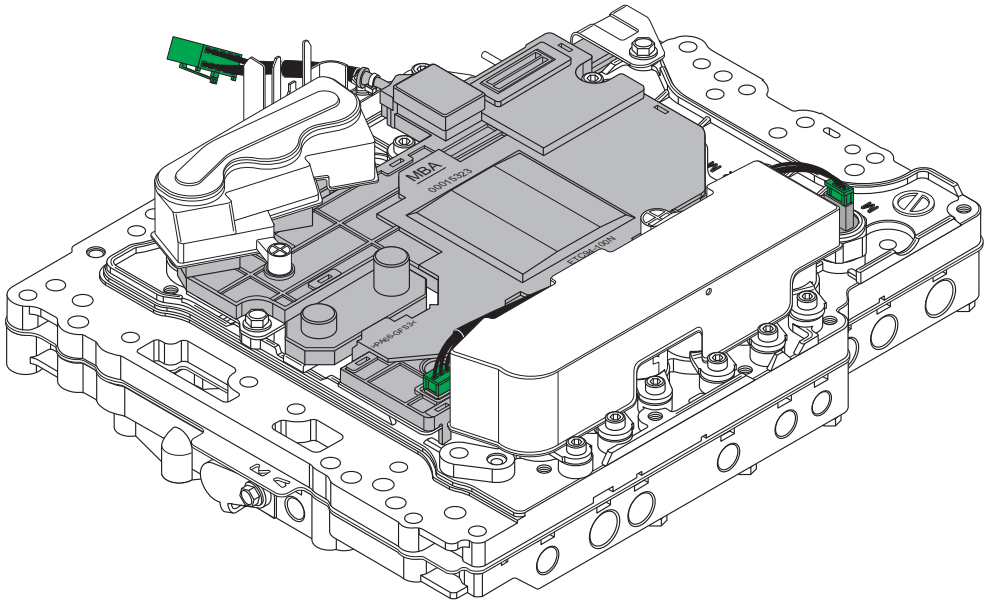
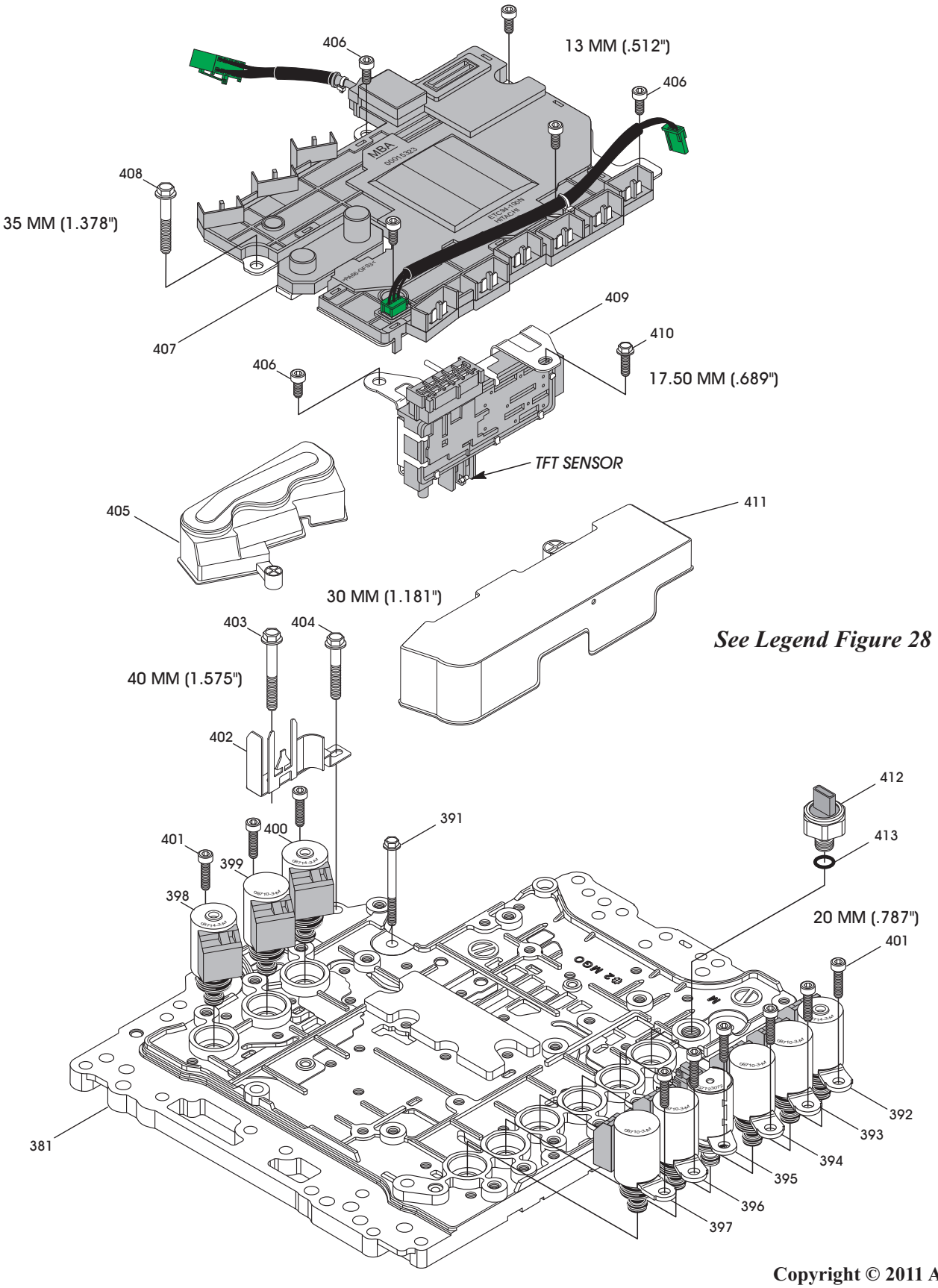


Figure 26

CHANNEL PLATE EXPLODED VIEW, SOLENOID SIDE



See Legend Figure 28

Figure 27

LEGEND FOR FIGURE 27 AND 29

380 RETAINING BOLT, 14.5 MM (.571") (2 REQUIRED).
381 CHANNEL PLATE CASTING.
382 STEEL CHECK BALL, 7.92 MM (.312") DIAMETER.
383 CHECK BALL SPRING (BARREL SHAPED).
384 STEEL CHECK BALLS, 5.5 MM (.218"), (9 REQUIRED).
385 VALVE BODY TO CHANNEL PLATE SPACER PLATE (MODEL SENSITIVE).
386 VALVE BODY SCREENS (5 REQUIRED).
387 MANUAL VALVE BODY CASTING.
388 RETAINING BOLTS, 35 MM (1.378"), (2 REQUIRED HERE).
389 NUT FOR 61 MM BOLT, NO. 391.
390 MANUAL VALVE.
391 RETAINING BOLT, 61 MM (2.401"), (1 REQUIRED).
392 HIGH/LOW REVERSE SOLENOID "D" ASSEMBLY (PWM).
393 LOW BRAKE SOLENOID "E" ASSEMBLY (PWM).
394 FRONT BRAKE SOLENOID "C" ASSEMBLY (PWM).
395 ANTI-INTERLOCK SOLENOID "A" ASSEMBLY (ON/OFF).
396 LINE PRESSURE SOLENOID "A" ASSEMBLY (PWM).
397 TORQUE CONVERTER CLUTCH SOLENOID ASSEMBLY (PWM).
398 INPUT CLUTCH SOLENOID "B" ASSEMBLY (PWM).
399 2346 BRAKE SOLENOID "F" ASSEMBLY (PWM).
400 DIRECT CLUTCH SOLENOID "G" ASSEMBLY (PWM).
401 ALLEN HEAD RETAINING BOLT, 20 MM (.787"), (9 REQUIRED).
402 INTERNAL HARNESS CONNECTOR RETAINING BRACKET.
403 RETAINING BOLT, 40 MM (1.575"), (1 REQUIRED HERE).
404 RETAINING BOLT, 30 MM (1.181), (1 REQUIRED HERE).
405 SMALL SOLENOID COVER.
406 ALLEN HEAD RETAINING BOLT, (13 MM (.512"), (6 REQUIRED).
407 TRANSMISSION CONTROL MODULE.
408 RETAINING BOLT, 35 MM (1,378"), (1 REQUIRED HERE).
409 TRANSMISSION RANGE SWITCH.
410 RETAINING BOLT, 17.5 MM (.689"), (1 REQUIRED HERE).
411 LARGE SOLENOID COVER.
412 LINE PRESSURE TRANSDUCER.
413 TRANSDUCER "O" RING.
414 RETAINING BOLT, 50 MM (1.969") (2 REQUIRED).
415 RETAINING BOLT, 45 MM (1.771") (12 REQUIRED).
416 RETAINING BOLT, 43 MM (1.692") (1 REQUIRED).

Note: Valve names were assigned by ATSG, based on their function

Figure 28

CHANNEL PLATE EXPLODED VIEW, SPACER PLATE SIDE

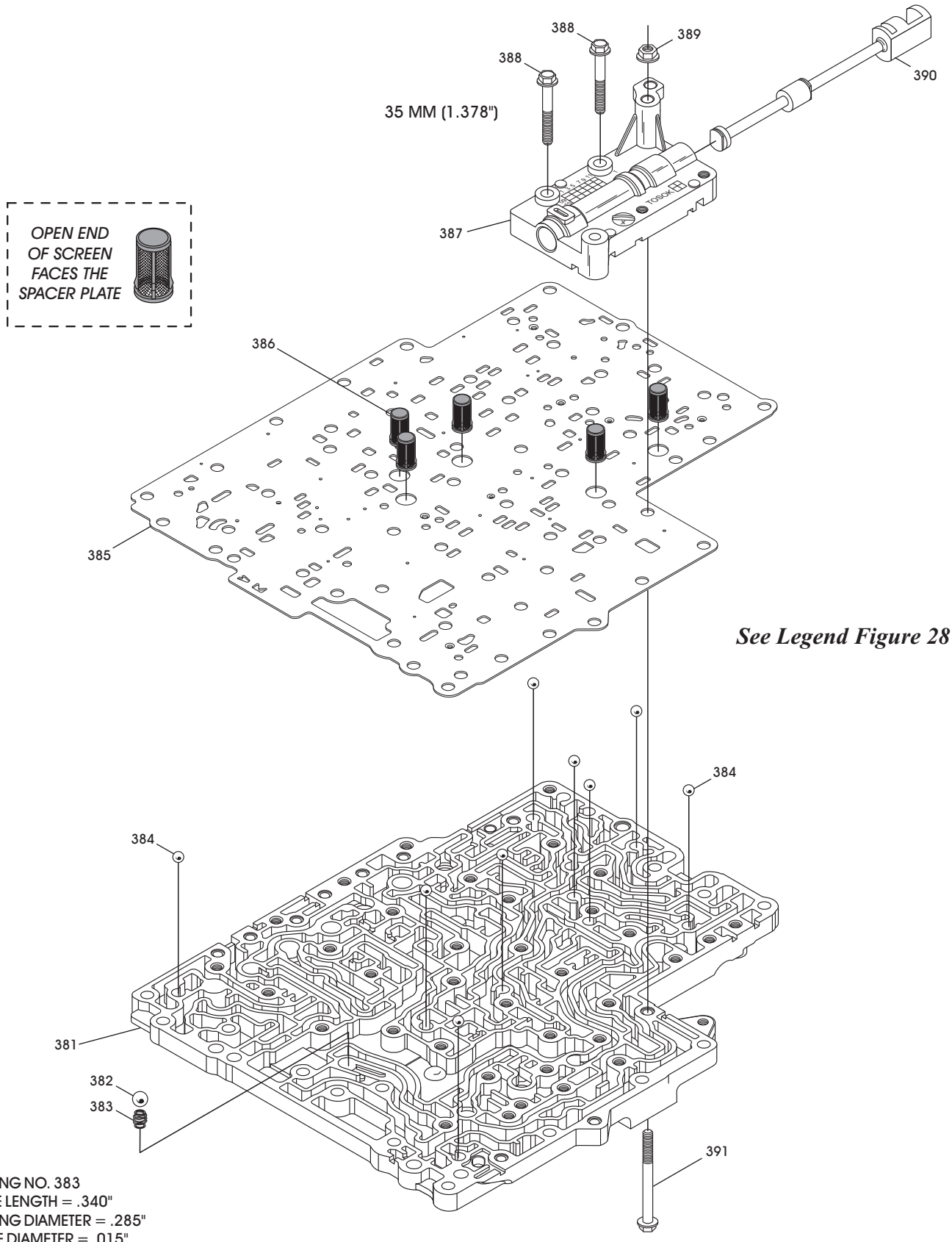
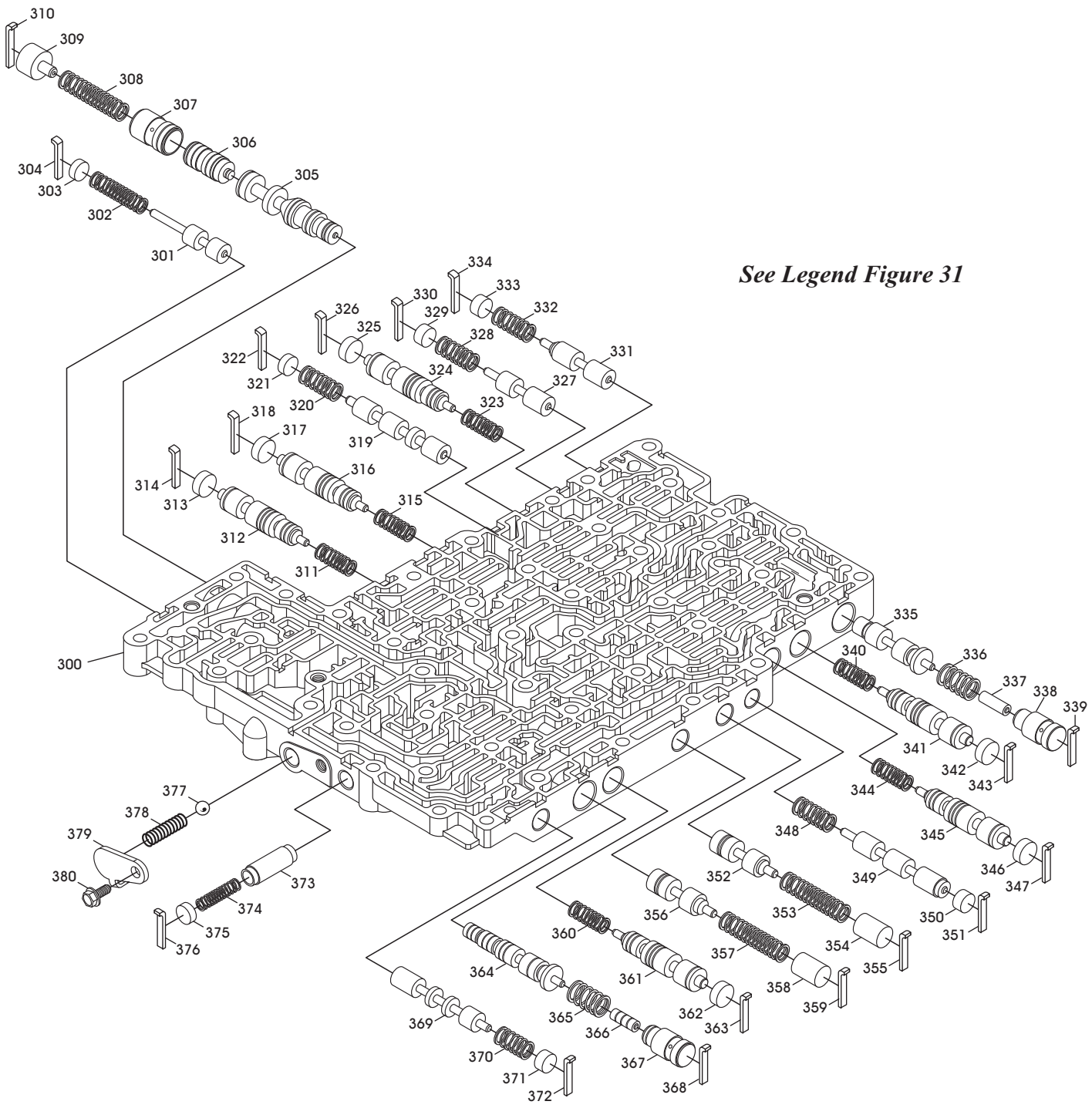


Figure 29

JR710E (RE7R01A) VALVE BODY, EXPLODED VIEW



See Legend Figure 31

Figure 30

LEGEND FOR FIGURE 30

300 VALVE BODY CASTING.
301 TORQUE CONVERTER REGULATOR VALVE.
302 TORQUE CONVERTER REGULATOR VALVE SPRING.
303 TORQUE CONVERTER REGULATOR VALVE BORE PLUG.
304 TORQUE CONVERTER REGULATOR VALVE RETAINER.
305 PRIMARY PRESSURE REGULATOR VALVE.
306 PRIMARY PRESSURE REGULATOR BOOST VALVE.
307 PRIMARY PRESSURE REGULATOR BOOST VALVE SLEEVE.
308 PRIMARY PRESSURE REGULATOR SPRING.
309 PRIMARY PRESSURE REGULATOR VALVE BORE PLUG.
310 PRIMARY PRESSURE REGULATOR BORE PLUG RETAINER.
311 2346 CLUTCH REGULATOR VALVE SPRING.
312 2346 CLUTCH REGULATOR VALVE.
313 2346 CLUTCH REGULATOR VALVE BORE PLUG.
314 2346 CLUTCH REGULATOR VALVE RETAINER.
315 INPUT CLUTCH REGULATOR VALVE SPRING.
316 INPUT CLUTCH REGULATOR VALVE.
317 INPUT CLUTCH REGULATOR VALVE BORE PLUG.
318 INPUT CLUTCH REGULATOR VALVE RETAINER.
319 DIRECT/REVERSE BRAKE SEQUENCE VALVE.
320 DIRECT/REVERSE BRAKE SEQUENCE VALVE SPRING.
321 DIRECT/REVERSE BRAKE SEQUENCE VALVE BORE PLUG.
322 DIRECT/REVERSE BRAKE SEQUENCE VALVE RETAINER.
323 DIRECT CLUTCH REGULATOR VALVE SPRING.
324 DIRECT CLUTCH REGULATOR VALVE.
325 DIRECT CLUTCH REGULATOR VALVE BORE PLUG.
326 DIRECT CLUTCH REGULATOR VALVE RETAINER.
327 REVERSE BRAKE CONTROL VALVE.
328 REVERSE BRAKE CONTROL VALVE SPRING.
329 REVERSE BRAKE CONTROL VALVE BORE PLUG.
330 REVERSE BRAKE CONTROL VALVE RETAINER.
331 DIRECT CLUTCH PISTON SWITCH VALVE.
332 DIRECT CLUTCH PISTON SWITCH VALVE SPRING.
333 DIRECT CLUTCH PISTON SWITCH VALVE BORE PLUG.
334 DIRECT CLUTCH PISTON SWITCH VALVE RETAINER.
335 LOW BRAKE PISTON SWITCH VALVE.
336 LOW BRAKE PISTON SWITCH VALVE SPRING.
337 LOW BRAKE PISTON SWITCH VALVE SPRING BOOST VALVE.
338 LOW BRAKE PISTON SWITCH VALVE SPRING BOOST VALVE SLEEVE.
339 LOW BRAKE PISTON SWITCH VALVE SPRING RETAINER.
340 HIGH LOW/REVERSE CLUTCH REGULATOR VALVE SPRING.
341 HIGH LOW/REVERSE CLUTCH REGULATOR VALVE.
342 HIGH LOW/REVERSE CLUTCH REGULATOR VALVE BORE PLUG.
343 HIGH LOW/REVERSE CLUTCH REGULATOR VALVE RETAINER.
344 HIGH LOW/REVERSE CLUTCH REGULATOR VALVE SPRING.
345 LOW BRAKE CLUTCH REGULATOR VALVE.
346 LOW BRAKE CLUTCH REGULATOR VALVE BORE PLUG.
347 LOW BRAKE CLUTCH REGULATOR VALVE RETAINER.
348 LOW BRAKE SPRING.
349 ANTI-INTERLOCK CONTROL VALVE.
350 ANTI-INTERLOCK CONTROL VALVE BORE PLUG.
351 ANTI-INTERLOCK CONTROL VALVE RETAINER.
352 PILOT "A" VALVE.
353 PILOT "A" VALVE SPRING.
354 PILOT "A" VALVE BORE PLUG.
355 PILOT "A" VALVE RETAINER.
356 PILOT "B" VALVE.
357 PILOT "B" VALVE SPRING.
358 PILOT "B" VALVE BORE PLUG.
359 PILOT "B" VALVE RETAINER.
360 FRONT BRAKE CLUTCH REGULATOR VALVE SPRING.
361 FRONT BRAKE CLUTCH REGULATOR VALVE.
362 FRONT BRAKE CLUTCH REGULATOR VALVE BORE PLUG.
363 FRONT BRAKE CLUTCH REGULATOR VALVE RETAINER.
364 TCC CONTROL VALVE.
365 TCC CONTROL VALVE SPRING.
366 TCC CONTROL VALVE BOOST VALVE.
367 TCC CONTROL VALVE BOOST VALVE SLEEVE.
368 TCC CONTROL VALVE RETAINER.
369 TORQUE CONVERTER LUBRICATION SWITCH VALVE.
370 TORQUE CONVERTER LUBRICATION SWITCH VALVE SPRING.
371 TORQUE CONVERTER LUBRICATION SWITCH VALVE BORE PLUG.
372 TORQUE CONVERTER LUBRICATION SWITCH VALVE RETAINER.
373 TCC SOLENOID ACCUMULATOR VALVE.
374 TCC SOLENOID ACCUMULATOR VALVE SPRING.
375 TCC SOLENOID ACCUMULATOR VALVE BORE PLUG.
376 TCC SOLENOID ACCUMULATOR VALVE RETAINER.
377 LINE PRESSURE "BLOW-OFF" BALL, 7.92 MM (.312").
378 LINE PRESSURE "BLOW-OFF" BALL SPRING.
379 LINE PRESSURE "BLOW-OFF" BALL RETAINER.
380 RETAINING BOLT, 14.5 MM (.571") (2 REQUIRED).
415 RETAINING BOLT, 45 MM (1.771") (12 REQUIRED).

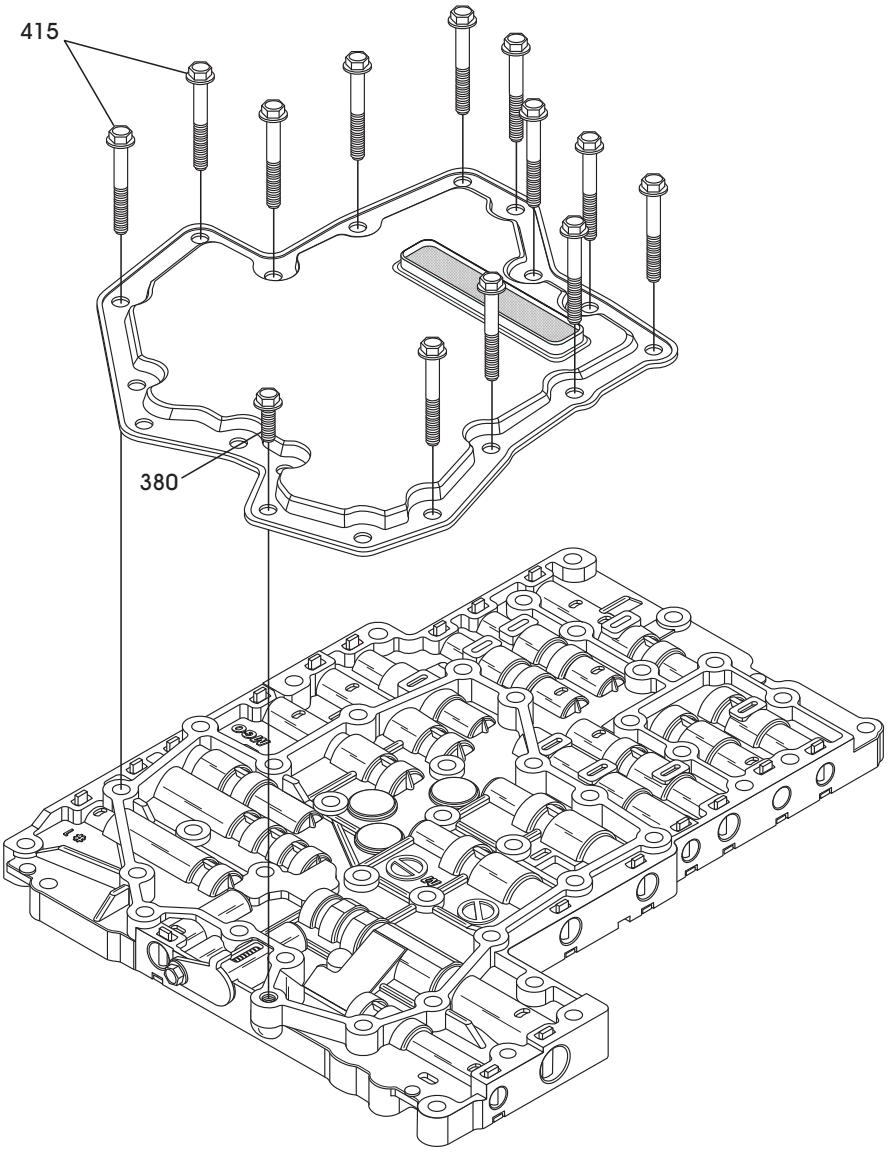
Note: Valve names were assigned by ATSG, based on their function

Figure 31

JR710E (RE7R01A) SPRING SPECIFICATIONS

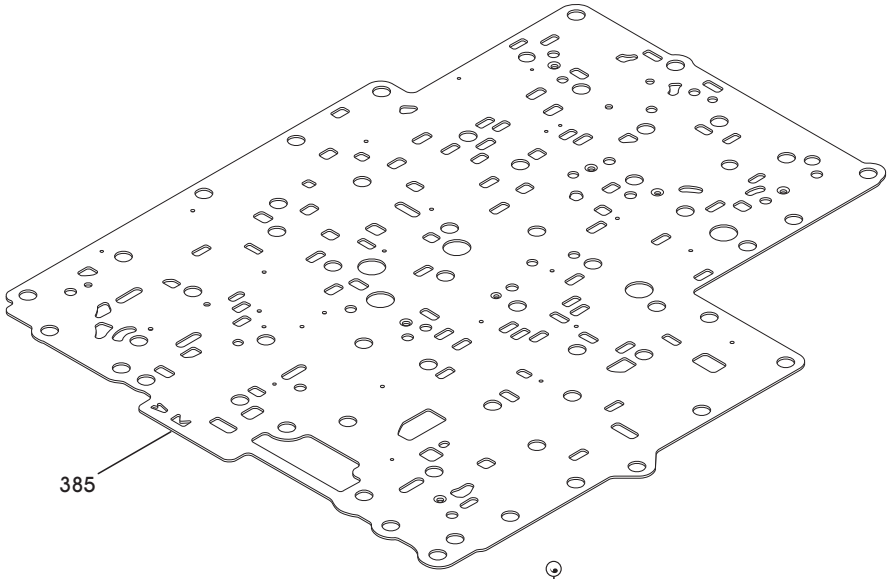
SPRING NO. 302 FREE LENGTH = 1.428" SPRING DIAMETER = .354" WIRE DIAMETER = .055" APPROX COILS = 13	SPRING NO. 308 FREE LENGTH = 1.818" SPRING DIAMETER = .431" WIRE DIAMETER = .055" APPROX COILS = 15	SPRING NO. 311 FREE LENGTH = .905" SPRING DIAMETER = .375" WIRE DIAMETER = .035" APPROX COILS = 10	SPRING NO. 315 FREE LENGTH = .905" SPRING DIAMETER = .375" WIRE DIAMETER = .035" APPROX COILS = 10	SPRING NO. 320 FREE LENGTH = .830" SPRING DIAMETER = .352" WIRE DIAMETER = .031" APPROX COILS = 7
SPRING NO. 323 FREE LENGTH = .905" SPRING DIAMETER = .375" WIRE DIAMETER = .035" APPROX COILS = 10	SPRING NO. 328 FREE LENGTH = .830" SPRING DIAMETER = .352" WIRE DIAMETER = .031" APPROX COILS = 7	SPRING NO. 332 FREE LENGTH = .844" SPRING DIAMETER = .338" WIRE DIAMETER = .031" APPROX COILS = 8	SPRING NO. 336 FREE LENGTH = .849" SPRING DIAMETER = .550" WIRE DIAMETER = .035" APPROX COILS = 6	SPRING NO. 340 FREE LENGTH = .905" SPRING DIAMETER = .375" WIRE DIAMETER = .035" APPROX COILS = 10
SPRING NO. 344 FREE LENGTH = .905" SPRING DIAMETER = .375" WIRE DIAMETER = .035" APPROX COILS = 10	SPRING NO. 348 FREE LENGTH = .830" SPRING DIAMETER = .352" WIRE DIAMETER = .031" APPROX COILS = 7	SPRING NO. 353 FREE LENGTH = 1.725" SPRING DIAMETER = .425" WIRE DIAMETER = .055" APPROX COILS = 14	SPRING NO. 357 FREE LENGTH = 1.725" SPRING DIAMETER = .425" WIRE DIAMETER = .055" APPROX COILS = 14	SPRING NO. 360 FREE LENGTH = .905" SPRING DIAMETER = .375" WIRE DIAMETER = .035" APPROX COILS = 10
SPRING NO. 365 FREE LENGTH = .805" SPRING DIAMETER = .550" WIRE DIAMETER = .036" APPROX COILS = 6	SPRING NO. 370 FREE LENGTH = .765" SPRING DIAMETER = .391" WIRE DIAMETER = .031" APPROX COILS = 7	SPRING NO. 374 FREE LENGTH = 1.046" SPRING DIAMETER = .251" WIRE DIAMETER = .043" APPROX COILS = 16	SPRING NO. 378 FREE LENGTH = 1.340" SPRING DIAMETER = .354" WIRE DIAMETER = .055" APPROX COILS = 13	

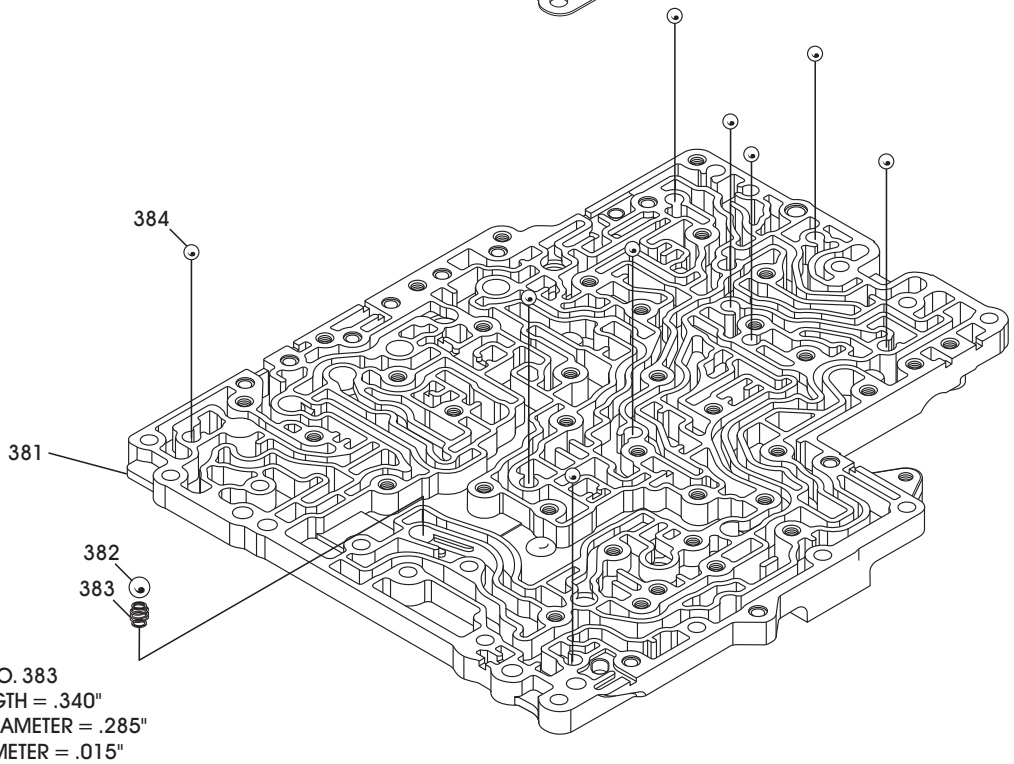
Figure 32



380 RETAINING BOLT, 14.5 MM (.572") (1 REQUIRED HERE).
415 RETAINING BOLT, 45 MM (1.771") (12 REQUIRED).

Figure 33





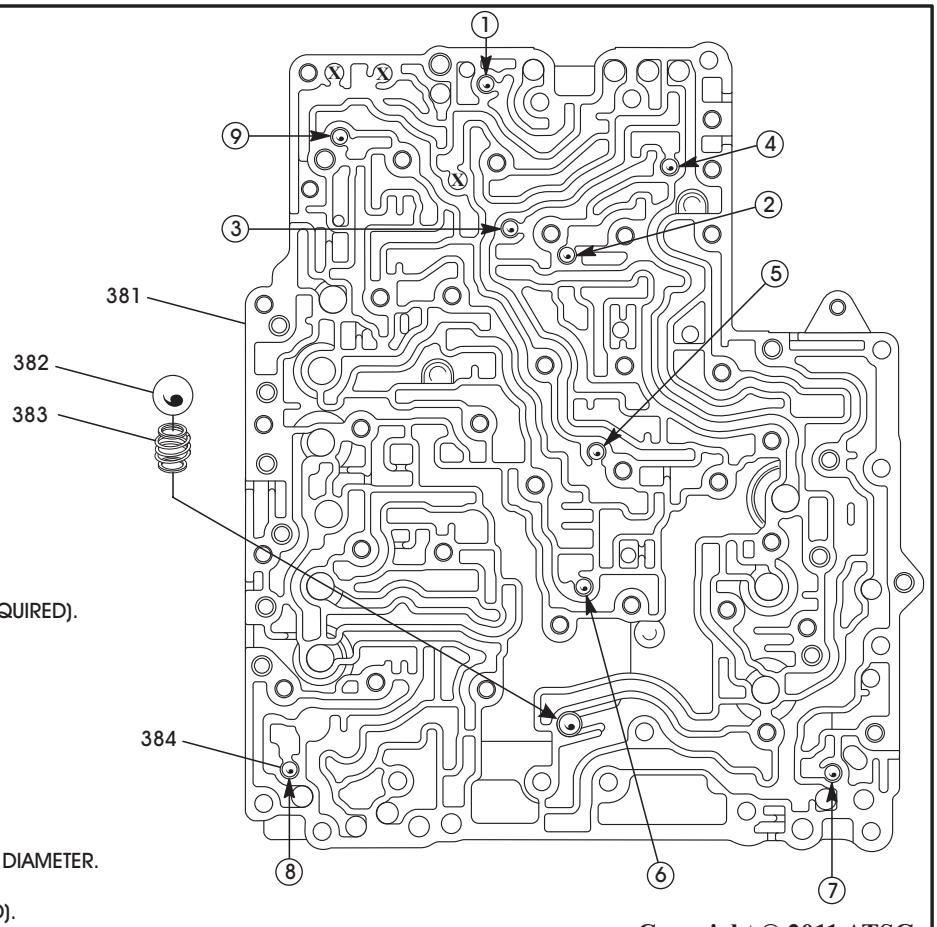
SPRING NO. 383
FREE LENGTH = .340"
SPRING DIAMETER = .285"
WIRE DIAMETER = .015"
APPROX COILS = 5 "BARREL SHAPE"

381 CHANNEL PLATE CASTING.
382 DRAIN BACK STEEL CHECK BALL, 7.92 MM (.312") DIAMETER.
383 CHECK BALL SPRING (BARREL SHAPED).
384 STEEL CHECK BALLS, 5.5 MM (.218"), (9 REQUIRED).
385 VALVE BODY TO CHANNEL PLATE SPACER PLATE (MODEL SENSITIVE).

Figure 34

CHECK BALL FUNCTION

1 REVERSE BRAKE CLUTCH (B4).
2 TO REVERSE BRAKE CLUTCH (B4) CONTROL VALVE.
3 DIRECT CLUTCH (C2) SMALL OR REAR CAVITY.
4 DIRECT CLUTCH (C2) LARGE OR FRONT.
5 FORWARD FEED FROM MANUAL VALVE.
6 2346 BRAKE CLUTCH (B3).
7 FRONT BRAKE CLUTCH (B1).
8 INPUT CLUTCH (C1).
9 HIGH & LOW REVERSE CLUTCH (C3).

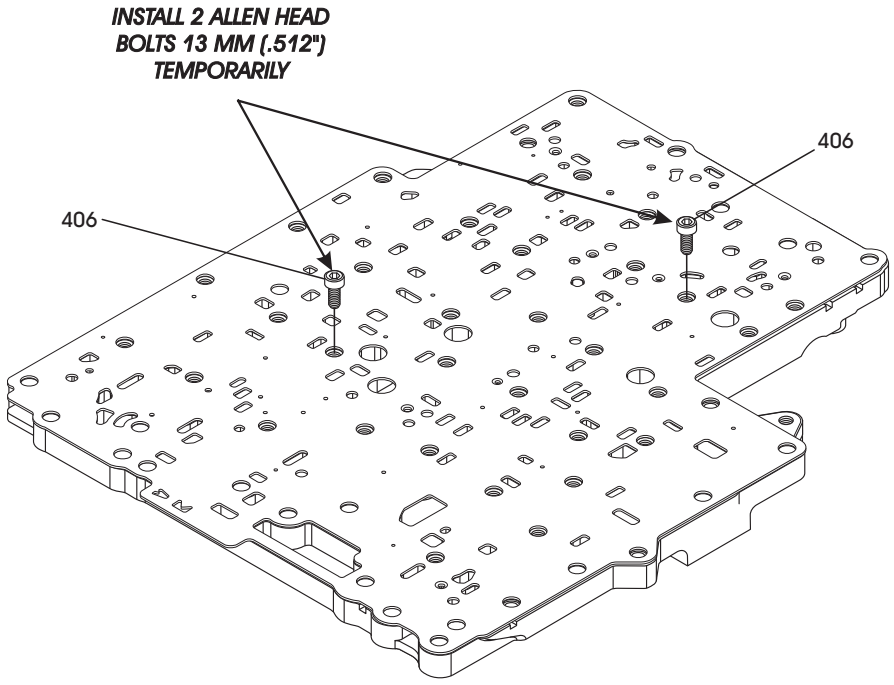


X = NO CHECK BALL.
⊙ = STEEL CHECK BALLS, 5.5 MM (.218") DIA. (9 REQUIRED).

SPRING NO. 383
FREE LENGTH = .340"
SPRING DIAMETER = .285"
WIRE DIAMETER = .015"
APPROX COILS = 5 "BARREL SHAPE"

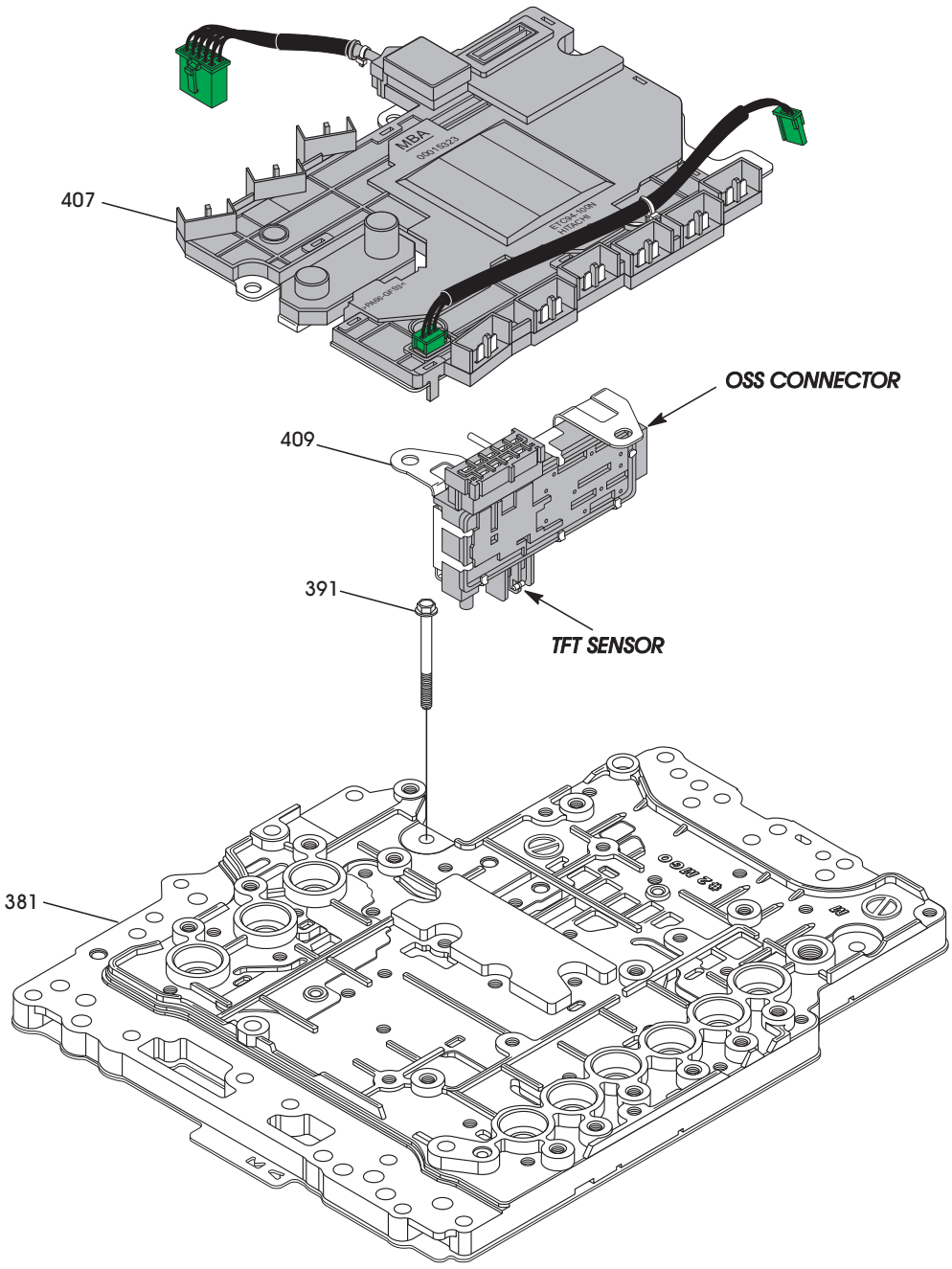
381 CHANNEL PLATE CASTING.
382 DRAIN BACK STEEL CHECK BALL, 7.92 MM (.312") DIAMETER.
383 CHECK BALL SPRING (BARREL SHAPED).
384 STEEL CHECK BALLS, 5.5 MM (.218"), (9 REQUIRED).

Figure 35



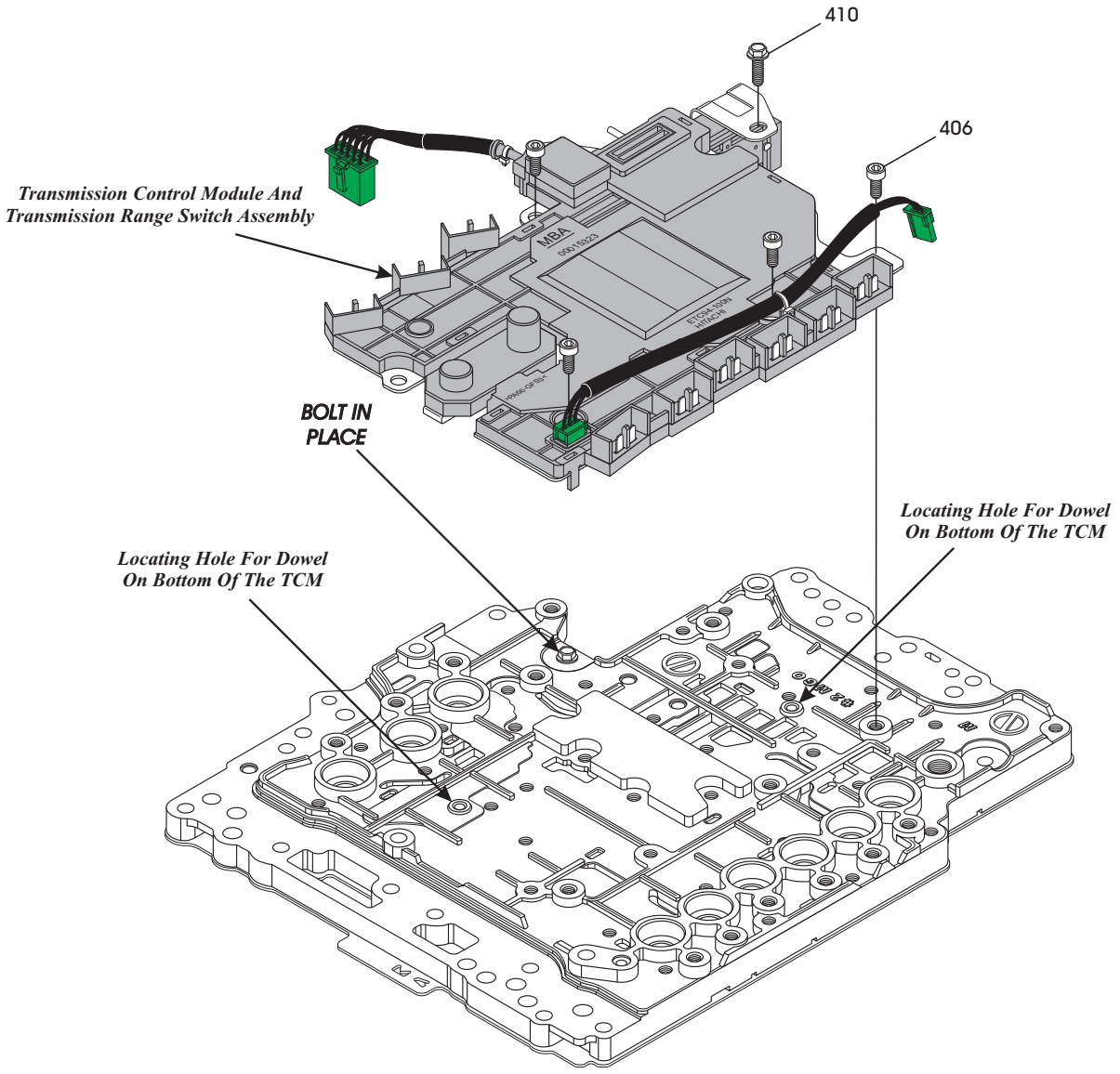
406 ALLEN HEAD RETAINING BOLT, (13 MM (.512"), (6 REQUIRED).

Figure 36



381 CHANNEL PLATE AND SPACER PLATE.
391 RETAINING BOLT, 61 MM (2.401"), (1 REQUIRED).
407 TRANSMISSION CONTROL MODULE.
409 TRANSMISSION RANGE SWITCH.

Figure 37



406 ALLEN HEAD RETAINING BOLT, (13 MM (.512"), (6 REQUIRED).
410 RETAINING BOLT, 17.5 MM (.689"), (1 REQUIRED HERE).

Figure 38

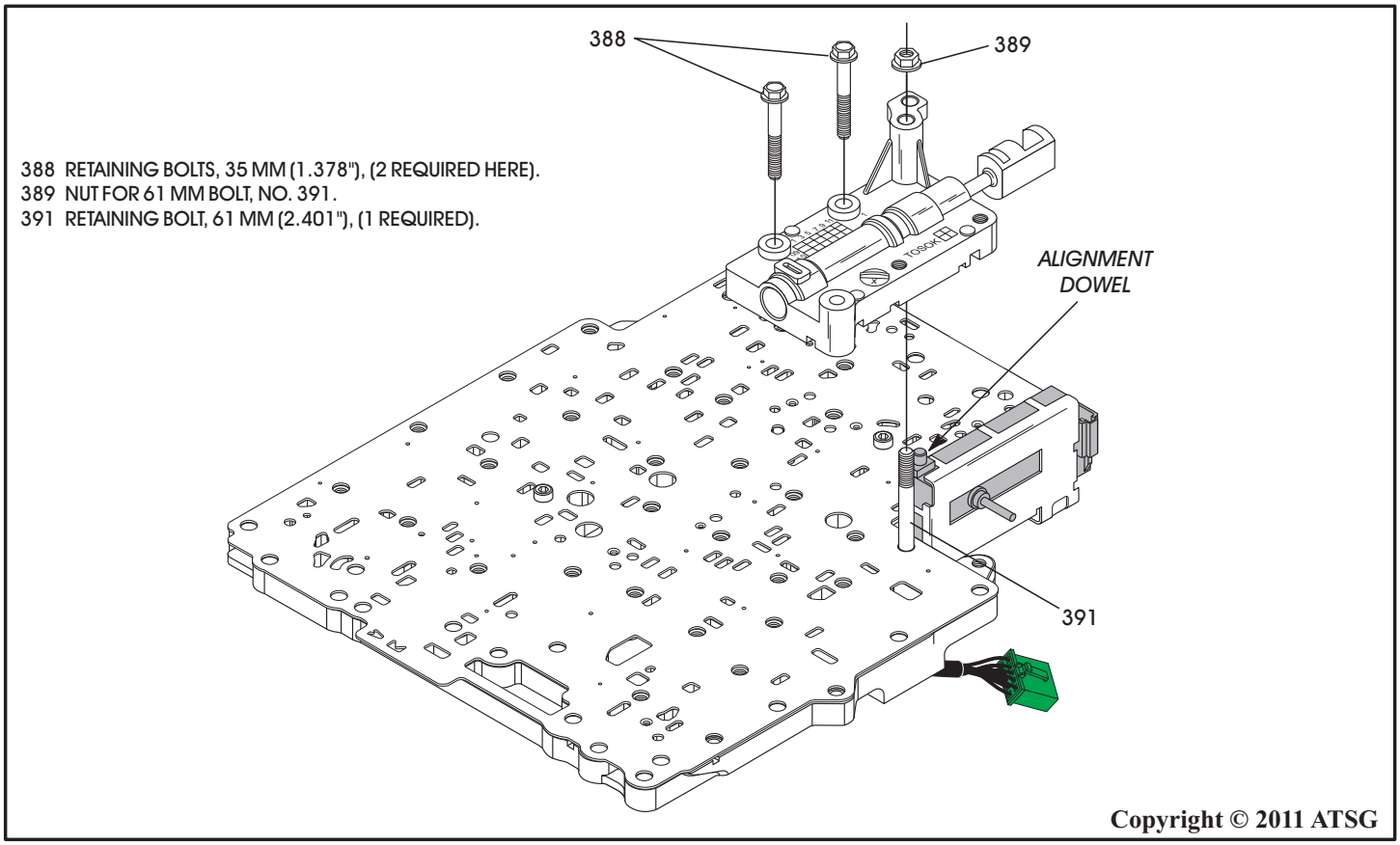


Figure 39

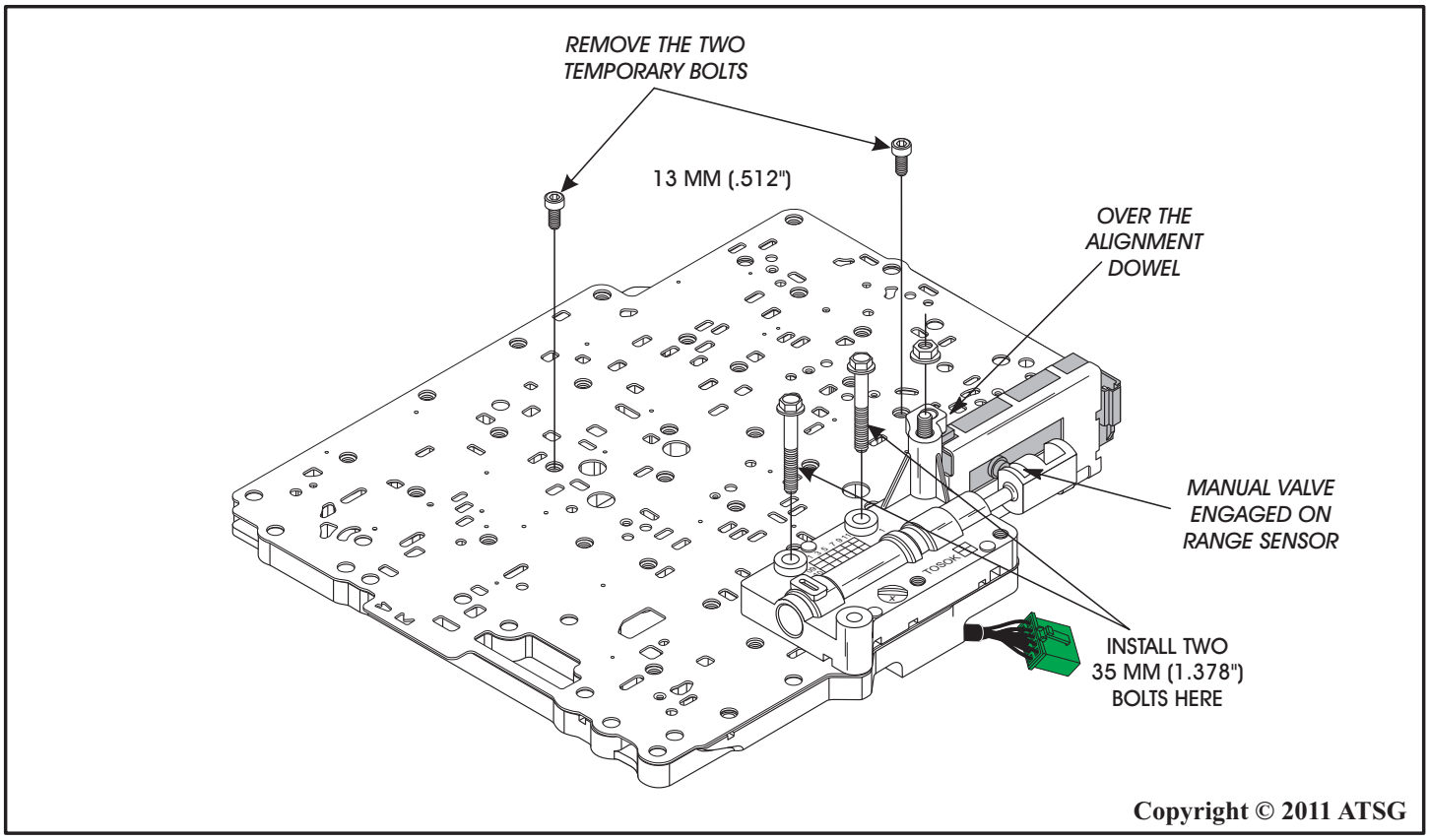
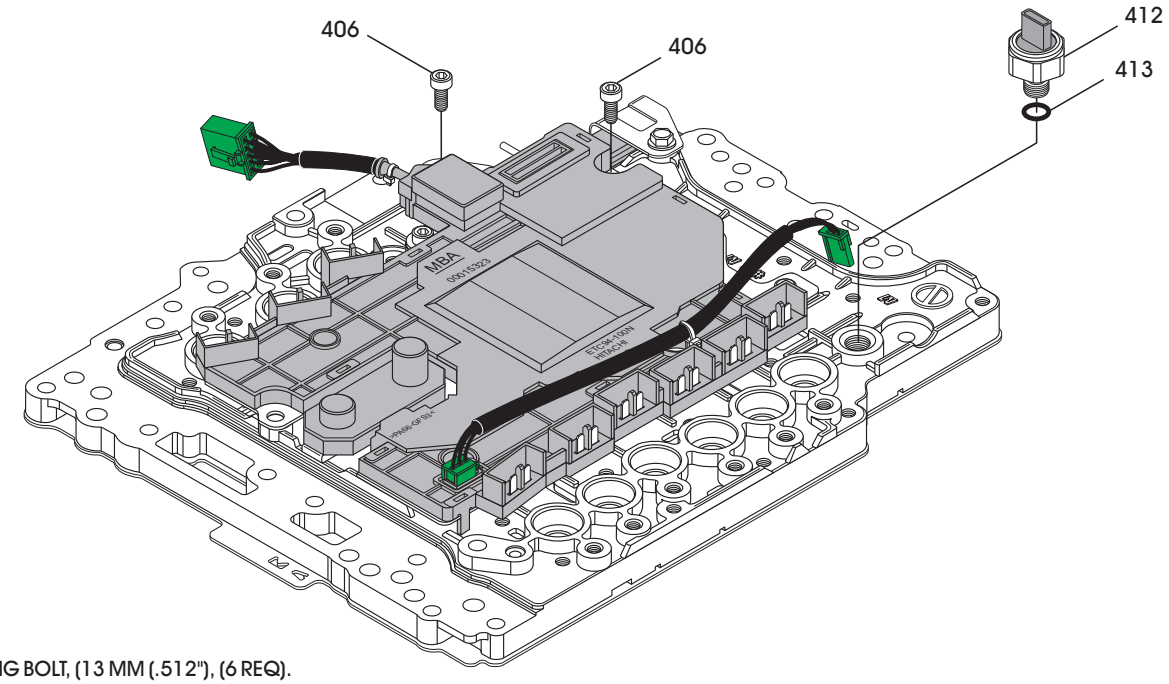
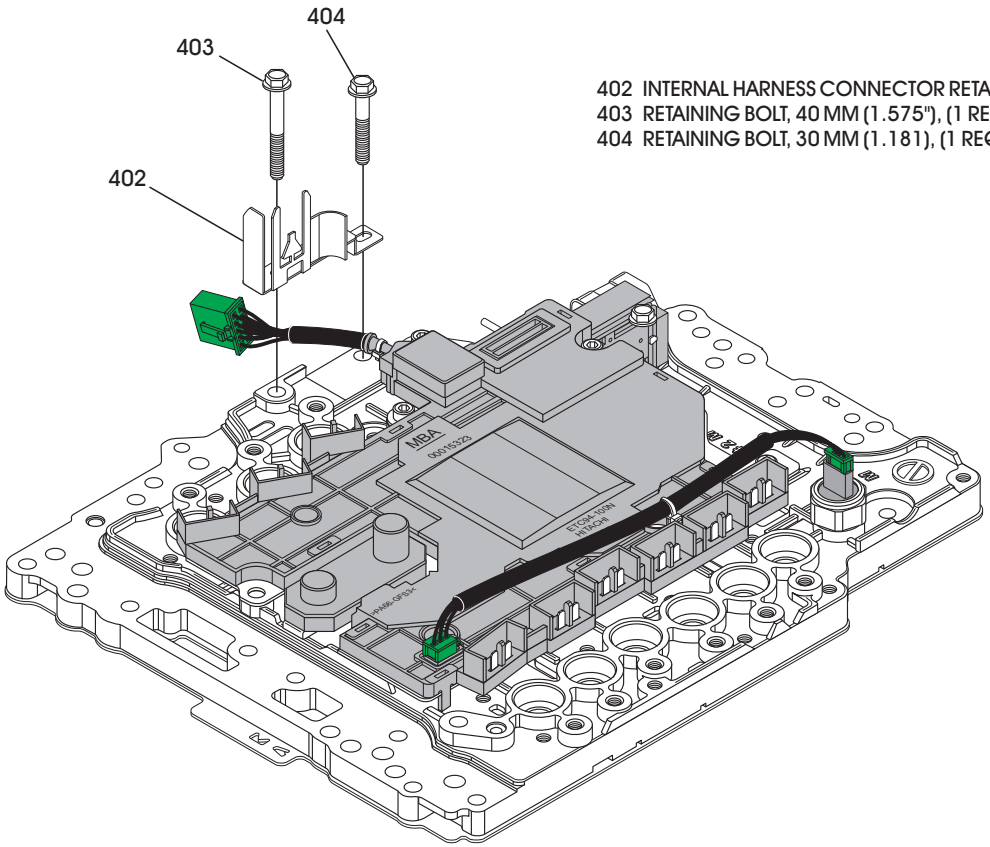


Figure 40



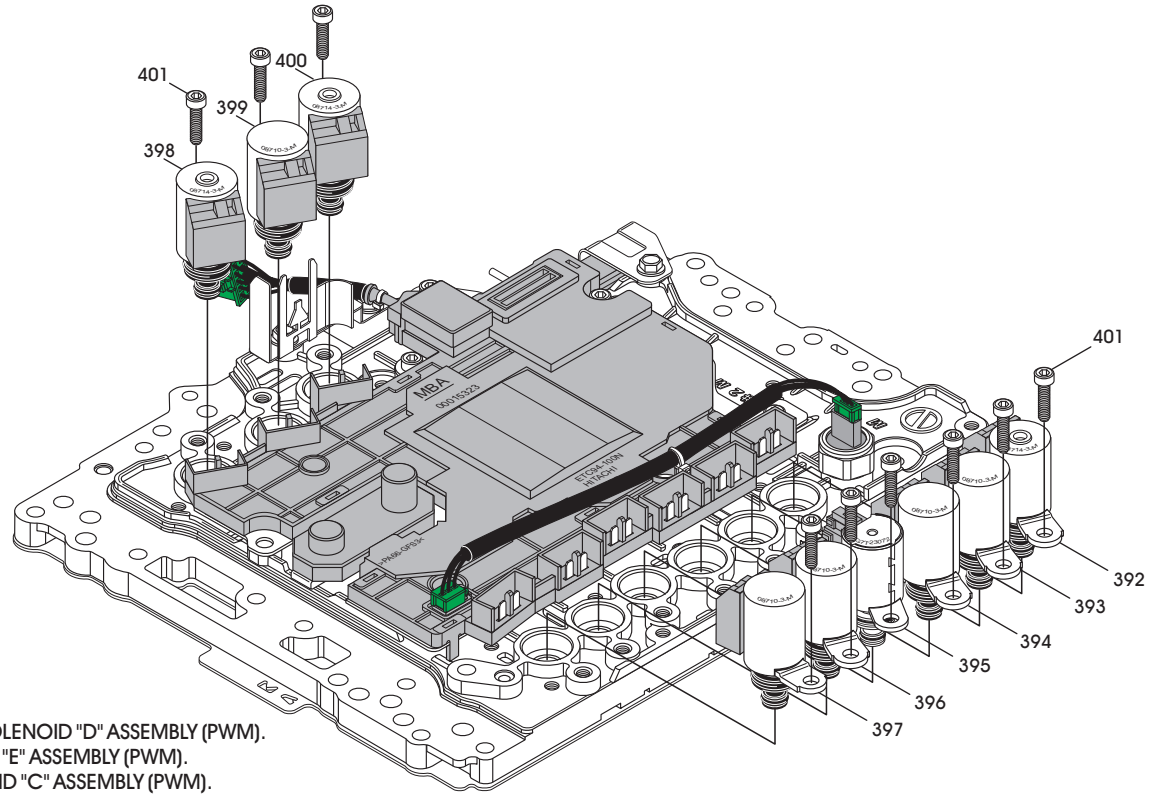
406 ALLEN HEAD RETAINING BOLT, (13 MM (.512"), (6 REQ).
412 PRESSURE TRANSDUCER (IN THE HIGH/LOW REVERSE CIRCUIT).
413 TRANSDUCER "O" RING.

Figure 41



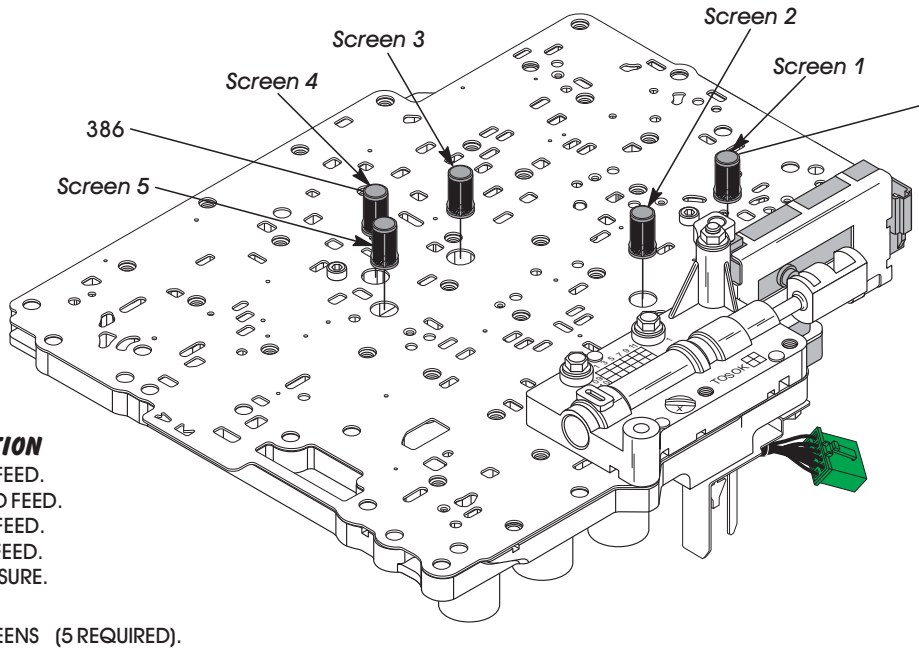
402 INTERNAL HARNESS CONNECTOR RETAINING BRACKET.
403 RETAINING BOLT, 40 MM (1.575"), (1 REQUIRED HERE).
404 RETAINING BOLT, 30 MM (1.181), (1 REQUIRED HERE).

Figure 42



392 HIGH/LOW REVERSE SOLENOID "D" ASSEMBLY (PWM).
393 LOW BRAKE SOLENOID "E" ASSEMBLY (PWM).
394 FRONT BRAKE SOLENOID "C" ASSEMBLY (PWM).
395 ANTI-INTERLOCK SOLENOID "A" ASSEMBLY (ON/OFF).
396 LINE PRESSURE SOLENOID "A" ASSEMBLY (PWM).
397 TORQUE CONVERTER CLUTCH SOLENOID ASSEMBLY (PWM).
398 INPUT CLUTCH SOLENOID "B" ASSEMBLY (PWM).
399 2346 BRAKE SOLENOID "F" ASSEMBLY (PWM).
400 DIRECT CLUTCH SOLENOID "G" ASSEMBLY (PWM).
401 ALLEN HEAD RETAINING BOLT, 20 MM (.787"), (9 REQUIRED).

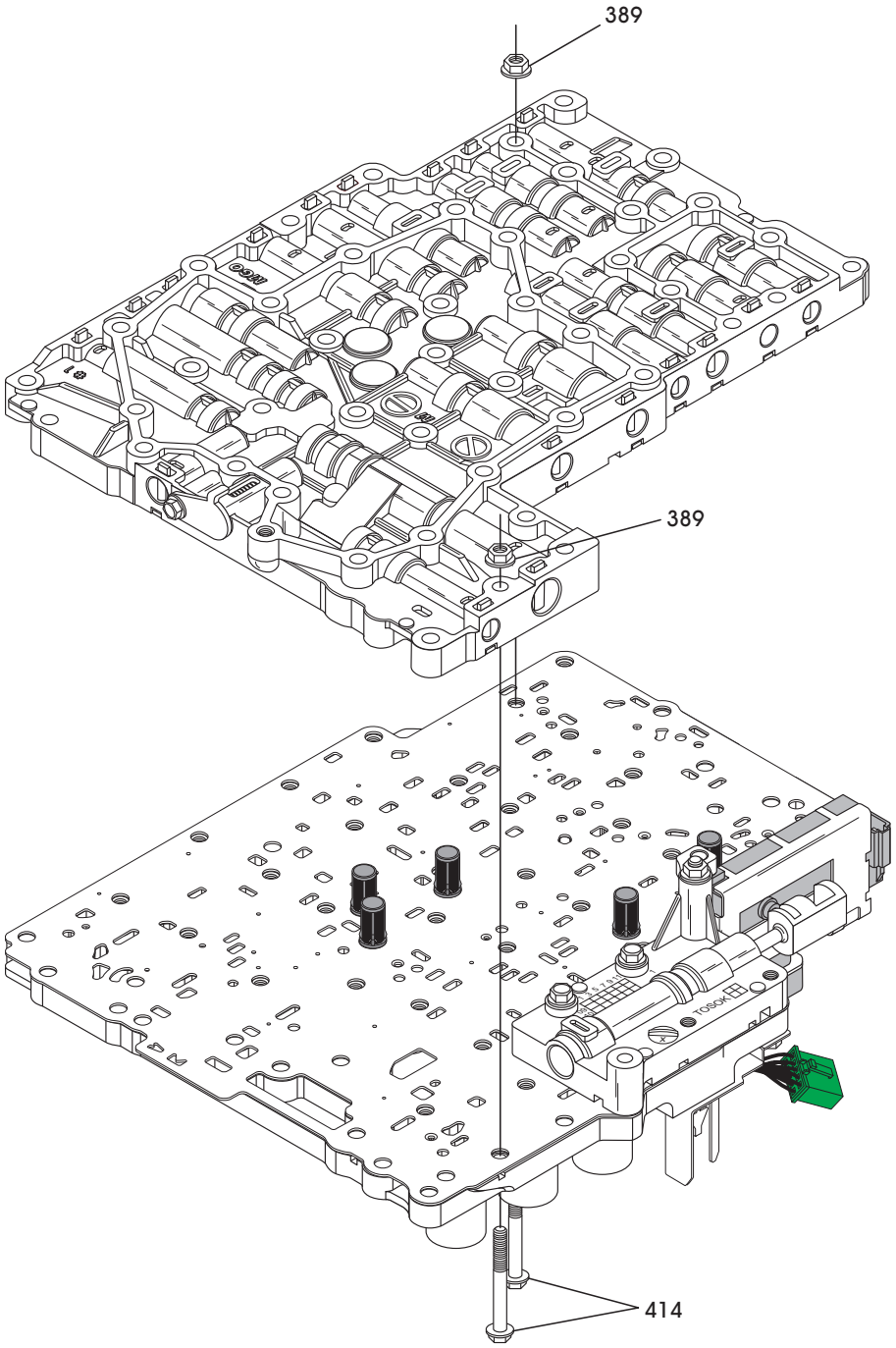
Figure 43



SCREEN FUNCTION
SCREEN 1 = REVERSE FEED.
SCREEN 2 = FORWARD FEED.
SCREEN 3 = PILOT "A" FEED.
SCREEN 4 = PILOT "B" FEED.
SCREEN 5 = LINE PRESSURE.

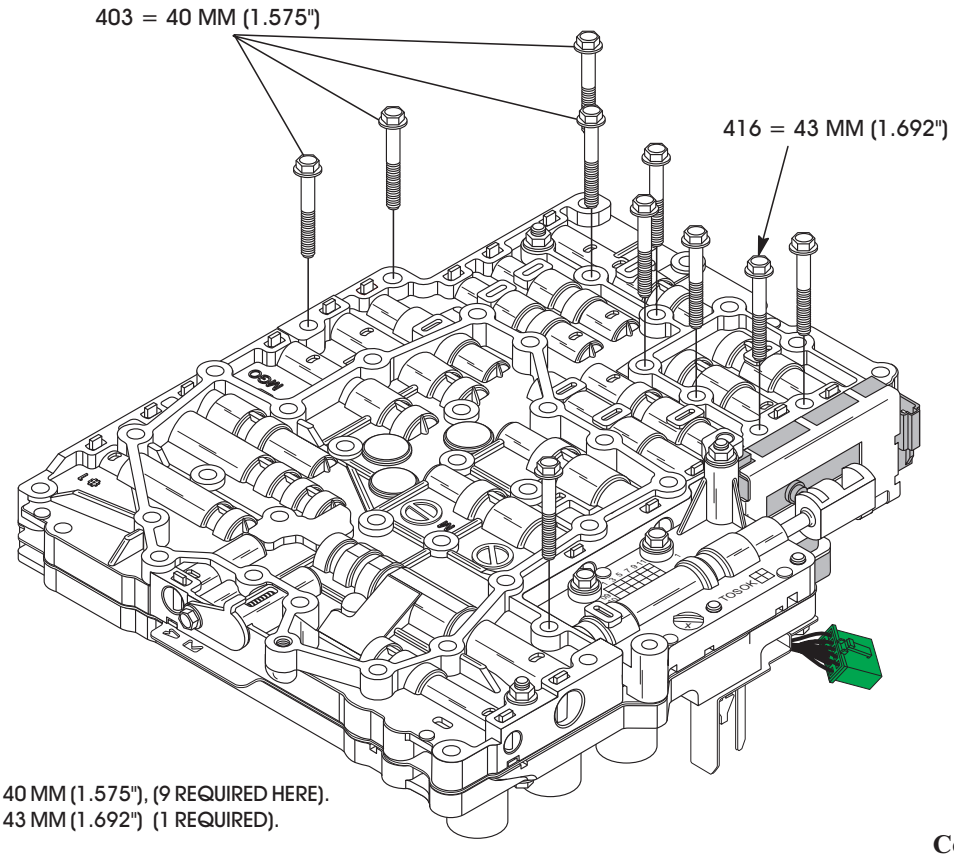
386 VALVE BODY SCREENS (5 REQUIRED).

Figure 44



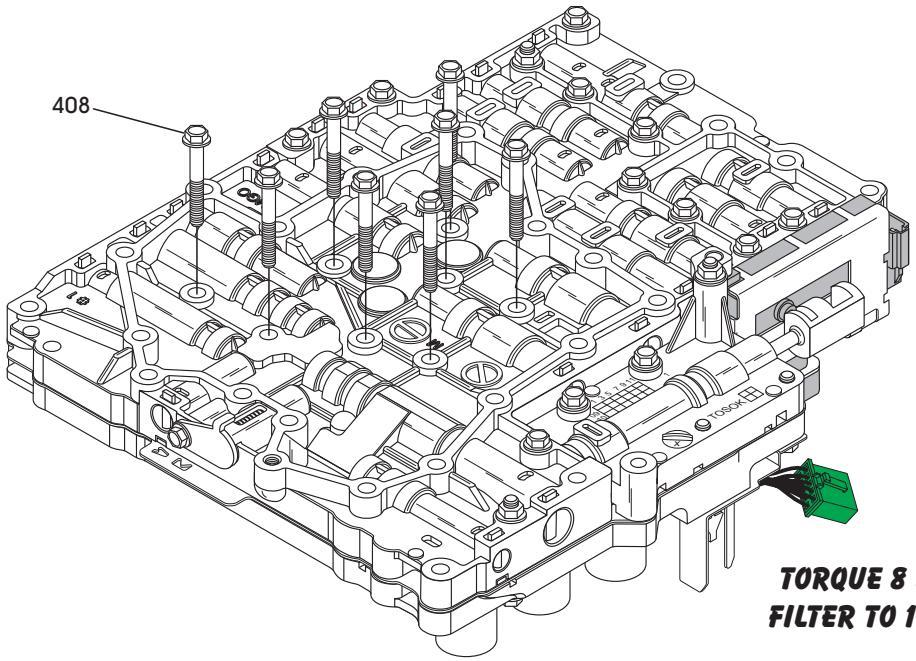
389 RETAINING NUT FOR 50 MM BOLTS, (2 REQUIRED HERE).
414 RETAINING BOLT, 50 MM (1.969") (2 REQUIRED).

Figure 45



403 RETAINING BOLT, 40 MM (1.575"), (9 REQUIRED HERE).
416 RETAINING BOLT, 43 MM (1.692") (1 REQUIRED).

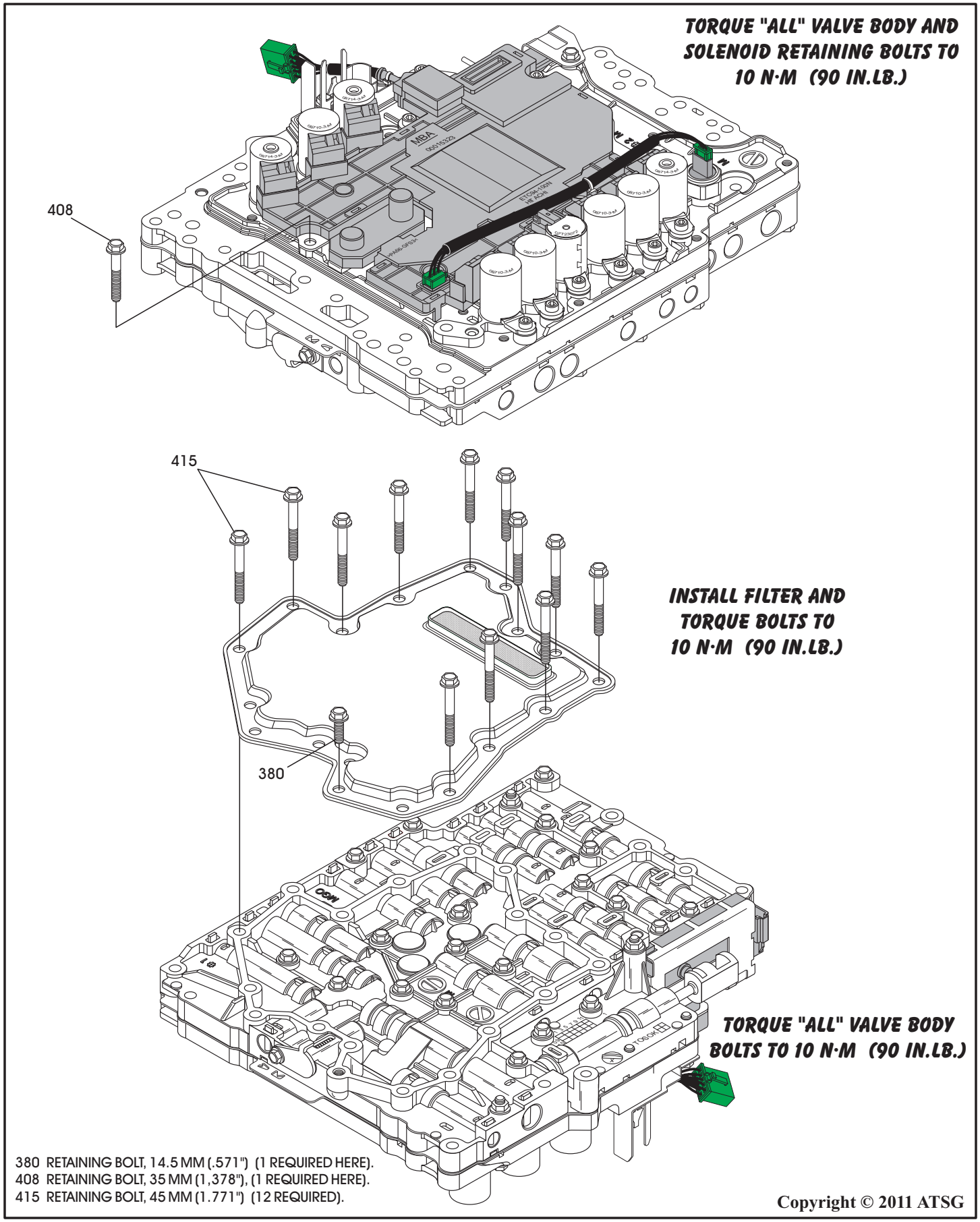
Figure 46



TORQUE 8 BOLTS UNDER THE FILTER TO 10 N·M (90 IN.LB.)

408 RETAINING BOLT, 35 MM (1,378"),(8 REQUIRED HERE).

Figure 47



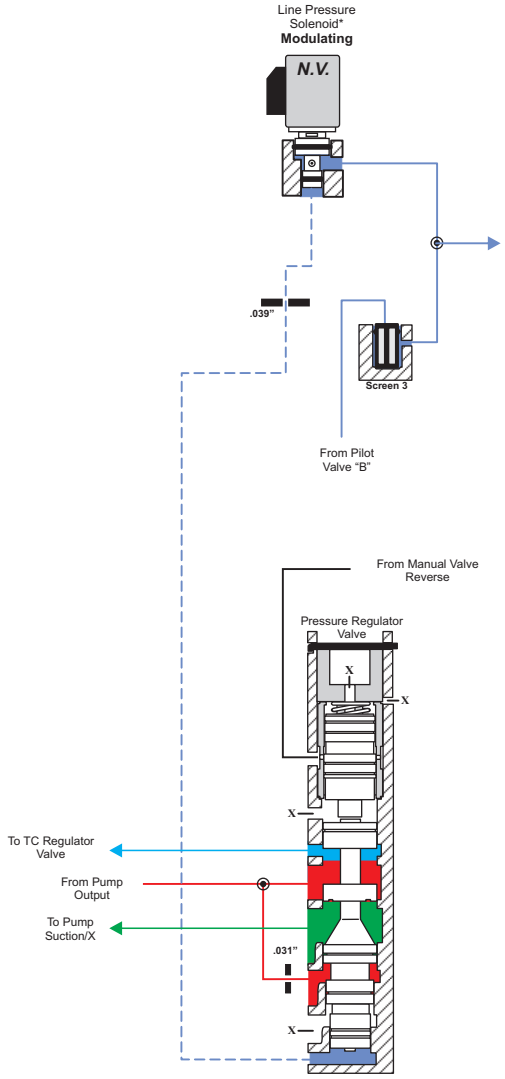
380 RETAINING BOLT, 14.5 MM (.571") (1 REQUIRED HERE).
408 RETAINING BOLT, 35 MM (1,378"), (1 REQUIRED HERE).
415 RETAINING BOLT, 45 MM (1.771") (12 REQUIRED).

Figure 48

LINE PRESSURE SOLENOID THEORY OF OPERATION

Scanner PID

Line Pressure Solenoid Amperage 0.2-0.6A (Based on Engine Load)



The Line Pressure solenoid is a Normally Vented solenoid. The Solenoid is fed solenoid pressure from Pilot Valve "B." When the solenoid is energized it allows solenoid feed to pass thru it to the first land of the Pressure Regulator Valve, which reduces line pressure.
When the solenoid is at a "Low" Duty cycle, the Line Pressure will be High. When the solenoid is at a "High" Duty cycle the Line Pressure will be Low.

Figure 49

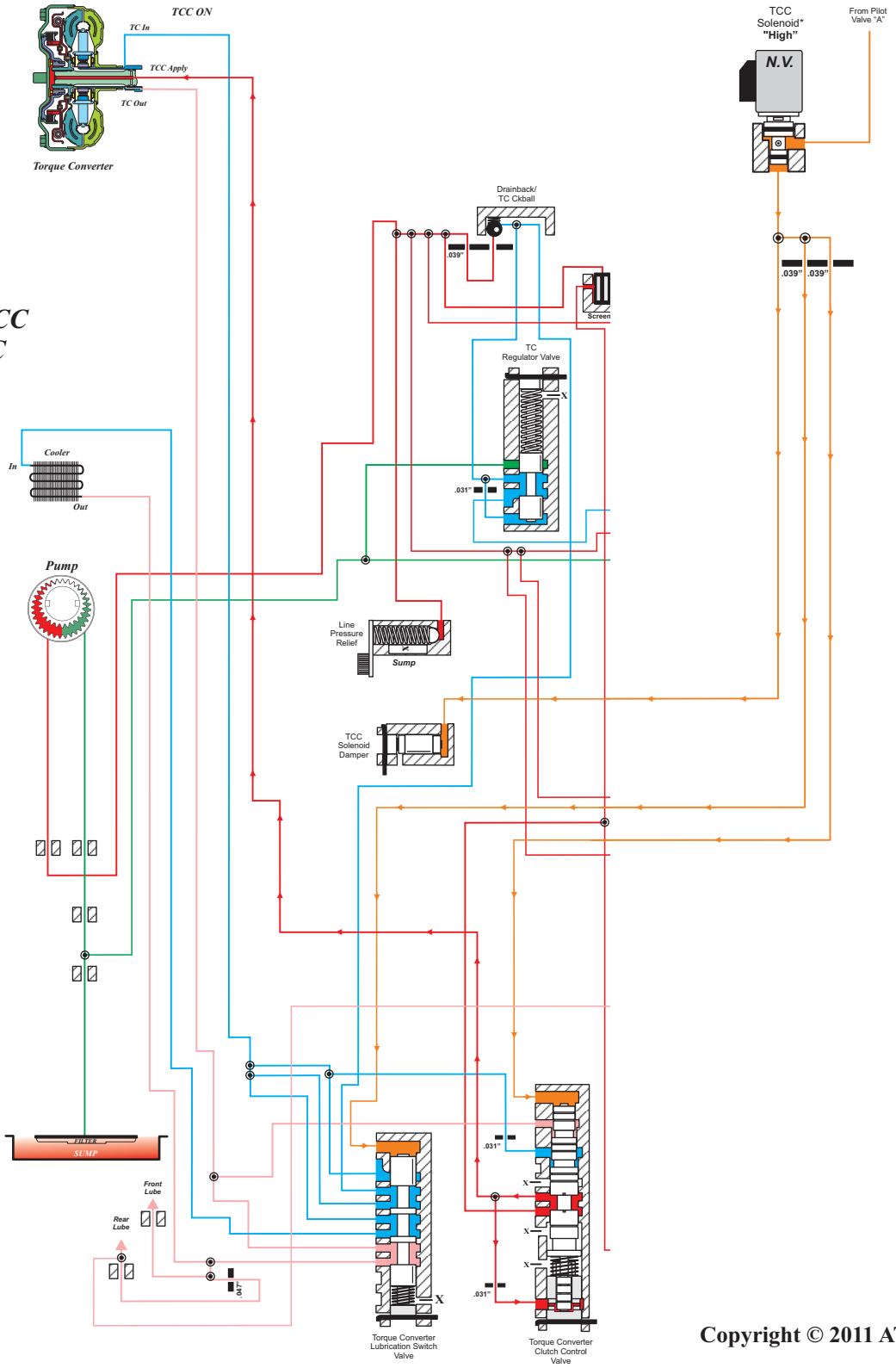
TORQUE CONVERTER CLUTCH SOLENOID THEORY OF OPERATION

Scanner PID

TCC Solenoid Amperage

0.2-0.6A = Slip TCC

0.8A= Full TCC



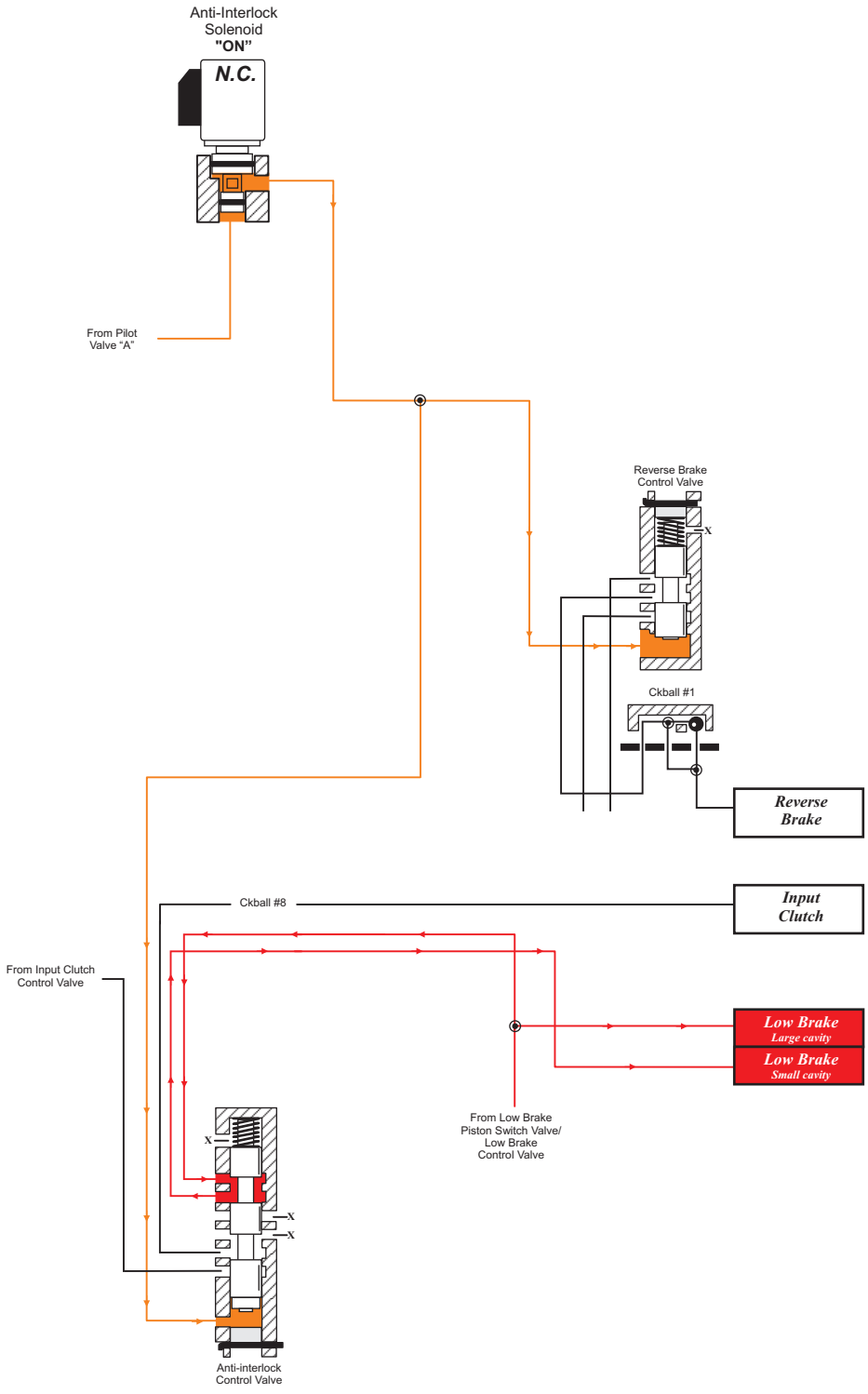
The Torque Converter Clutch solenoid is a Normally Vented solenoid. The Solenoid is fed solenoid pressure from Pilot Valve "A." When the solenoid is energized it allows solenoid feed to pass thru it to the first land of the Torque Converter Lubrication Switch Valve and the Torque Converter Clutch Control Valve, stroking them , which optimizes atf cooling and connects line pressure to the TCC Apply Piston, Applying the Clutch, thru a passage in the Torque Converter Clutch Control Valve. The TCC can be partially and fully applied based on amperage.

Figure 50

ANTI-INTERLOCK SOLENOID THEORY OF OPERATION

Scanner PID

Anti-Interlock Solenoid ON- 1st, 2nd and 3rd gears OFF 4th, 5th, 6th and 7th. May be used as a Reverse Inhibit feature.



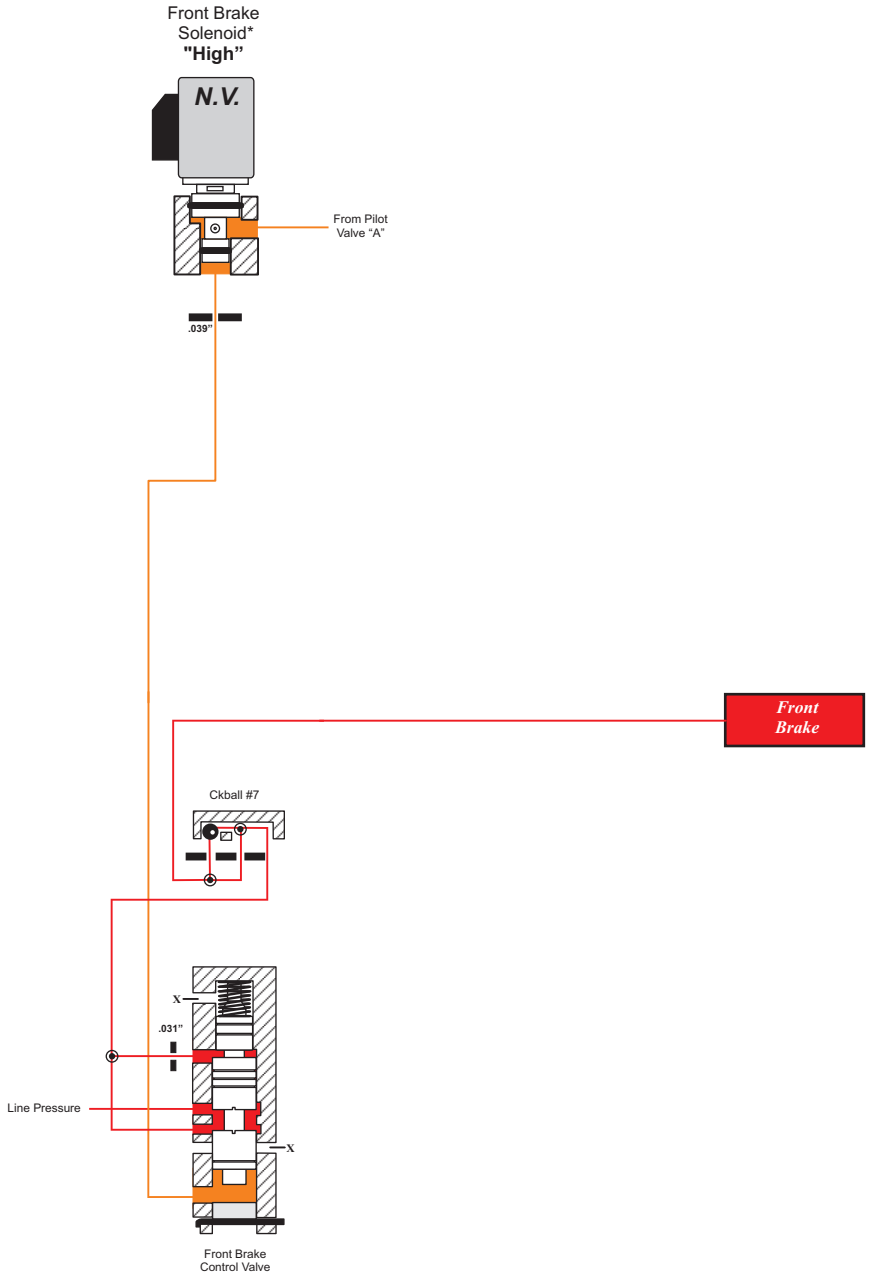
The Anti-Interlock Solenoid is a Normally Closed Solenoid, and is fed by Pilot Valve "A". Solenoid output is connected to the first land of the Anti-Interlock Control Valve and the first land of the Reverse Brake Control Valve. When the solenoid is ON in the Drive ranges 1st, 2nd and 3rd gear, solenoid output pressure strokes the Anti-Interlock Control Valve allowing a connection for the Low Brake. Solenoid Output pressure also strokes the Reverse Brake Control Valve which prevents application of Reverse when driving forward. When the solenoid is OFF the Anti-Interlock Control valve is not stroked which allows connection to the Input Clutch, in 5th, 6th and 7th gear. The Solenoid is basically used to prevent a bind-up between the Low Brake and Input Clutch, and it is used for Reverse Inhibit.

Figure 51

FRONT BRAKE SOLENOID THEORY OF OPERATION

Scanner PID

Front Brake Solenoid Amperage
0-0.A = Front Brake OFF
0.6-0.8A= Front Brake ON



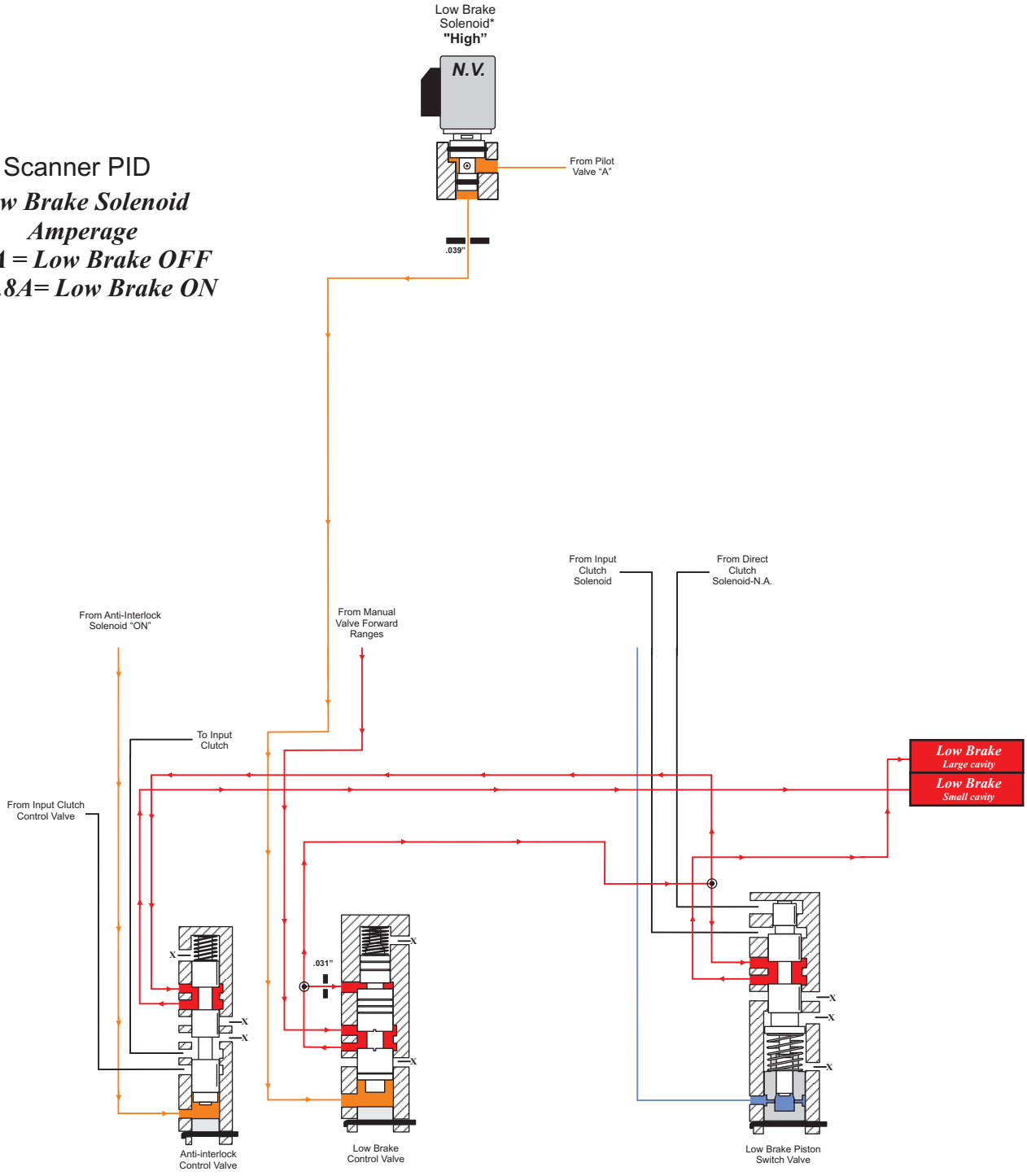
The Front Brake Solenoid is a Normally Vented Solenoid. The solenoid is fed by Pilot Valve "A."
When the solenoid amperage is low the Front Brake is not applied.
When the solenoid amperage is high, solenoid output strokes the Front Brake Control Valve, which connects line pressure to the Front Brake.

Figure 52

LOW BRAKE SOLENOID THEORY OF OPERATION

Scanner PID

Low Brake Solenoid Amperage
0-0.A = Low Brake OFF
0.6-0.8A= Low Brake ON



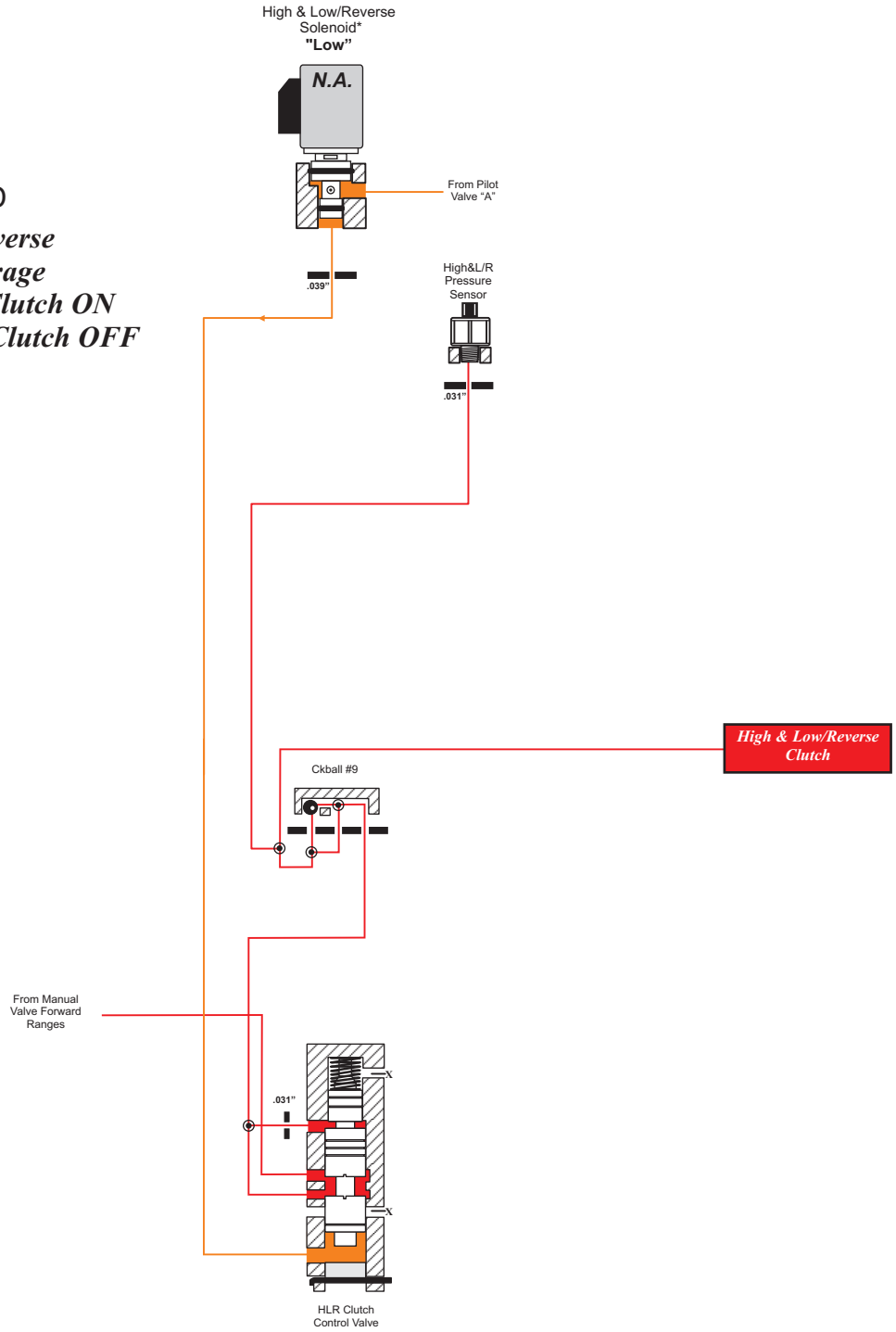
The Low Brake Solenoid is a Normally Vented Solenoid. The solenoid is fed by Pilot Valve "A."
When the solenoid amperage is low the Low Brake is not applied.
When the solenoid amperage is high, solenoid output strokes the Low Brake Control Valve, which connects line pressure to the Low Brake.
NOTE: The Anti-Interlock Solenoid is ON when the Low Brake is applied in 1st, 2nd and 3rd gears. The Low Brake piston Switch Valve controls the Low Brake Large Cavity. The Direct Clutch Solenoid controls the Low Brake Piston Switch valve and the Large Cavity is released, when the solenoid turns OFF in 3rd Gear.

Figure 53

HIGH & LOW/REVERSE SOLENOID THEORY OF OPERATION

Scanner PID

High & Low/Reverse Solenoid Amperage
0-0.A = High& L/R Clutch ON
0.6-0.8A= High& L/R Clutch OFF

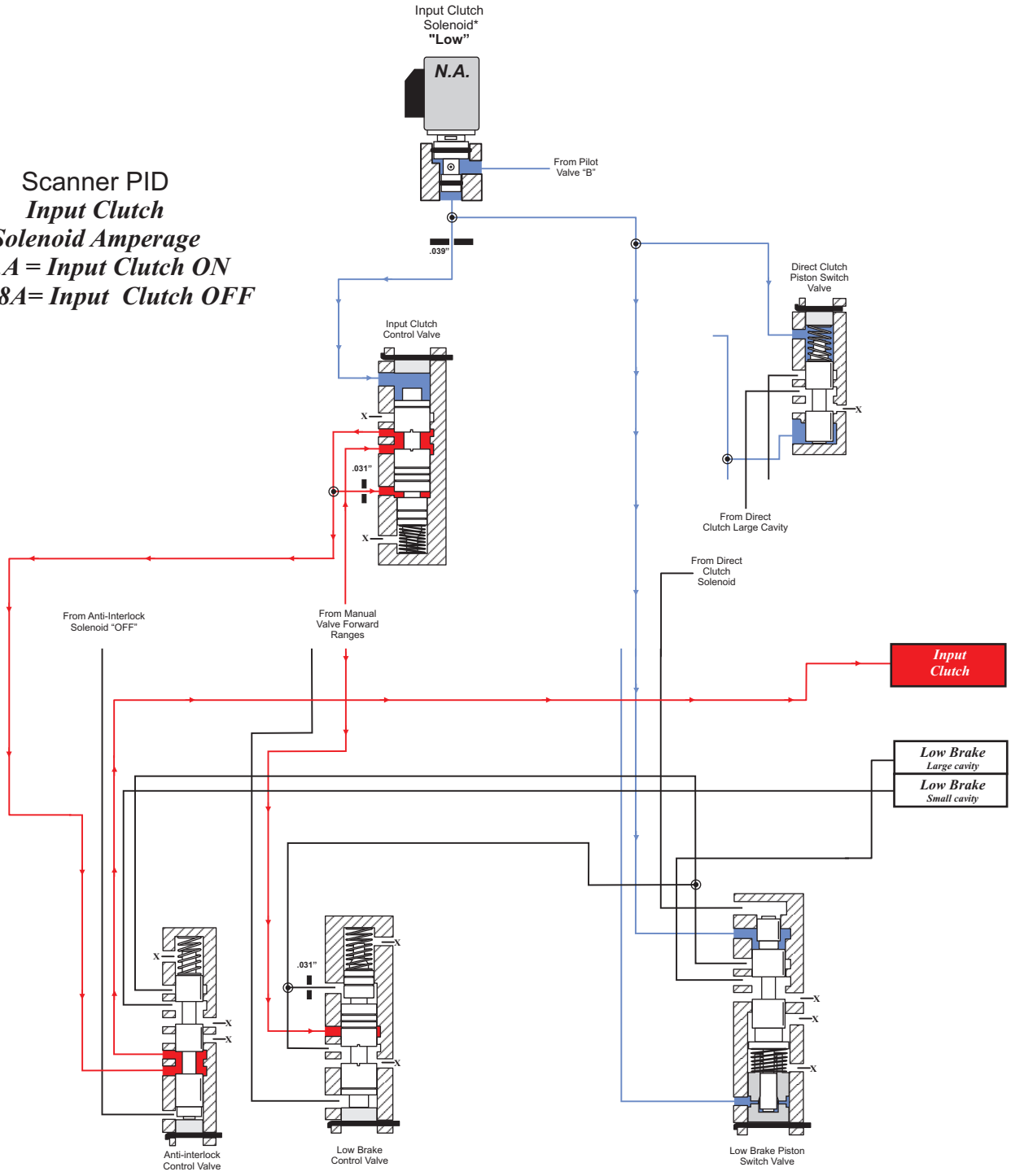


The High & Low/Reverse Solenoid is a Normally Applied Solenoid. The solenoid is fed by Pilot Valve "A." When the solenoid amperage is High the High & Low/Reverse Clutch is not applied. When the solenoid amperage is Low, solenoid output strokes the High & Low/Reverse Control Valve, which connects line pressure from the Manual Valve "D" ranges, to the High & Low/Reverse Clutch. NOTE: The High & Low/Reverse Clutch is connected to a pressure sensor as shown above. The actual pressure reading will be available for all gears other than 2nd and 3rd gear as the H-LR Clutch is OFF.

Figure 54

INPUT CLUTCH SOLENOID THEORY OF OPERATION

Scanner PID
Input Clutch
Solenoid Amperage
0-0.A = Input Clutch ON
0.6-0.8A= Input Clutch OFF



The Input Clutch Solenoid is a Normally Applied Solenoid. The solenoid is fed by Pilot Valve "B." When the solenoid amperage is High the Input Clutch is not applied. When the solenoid amperage is Low, solenoid output strokes the Input Control Valve, which connects line pressure from the Manual Valve "D" ranges, to the Input Clutch, passage fed to the Anti-Interlock Control Valve. This valve is Controlled by the Anti-Interlock Solenoid which is OFF when the Input Clutch is applied. NOTE: The Input Clutch Solenoid output is connected to the Direct Clutch Piston Switch Valve which controls the exhaust for the Direct Clutch Large Cavity, and the Low Brake Piston Switch Valve which controls the Low Brake Large Cavity exhaust.

Figure 55

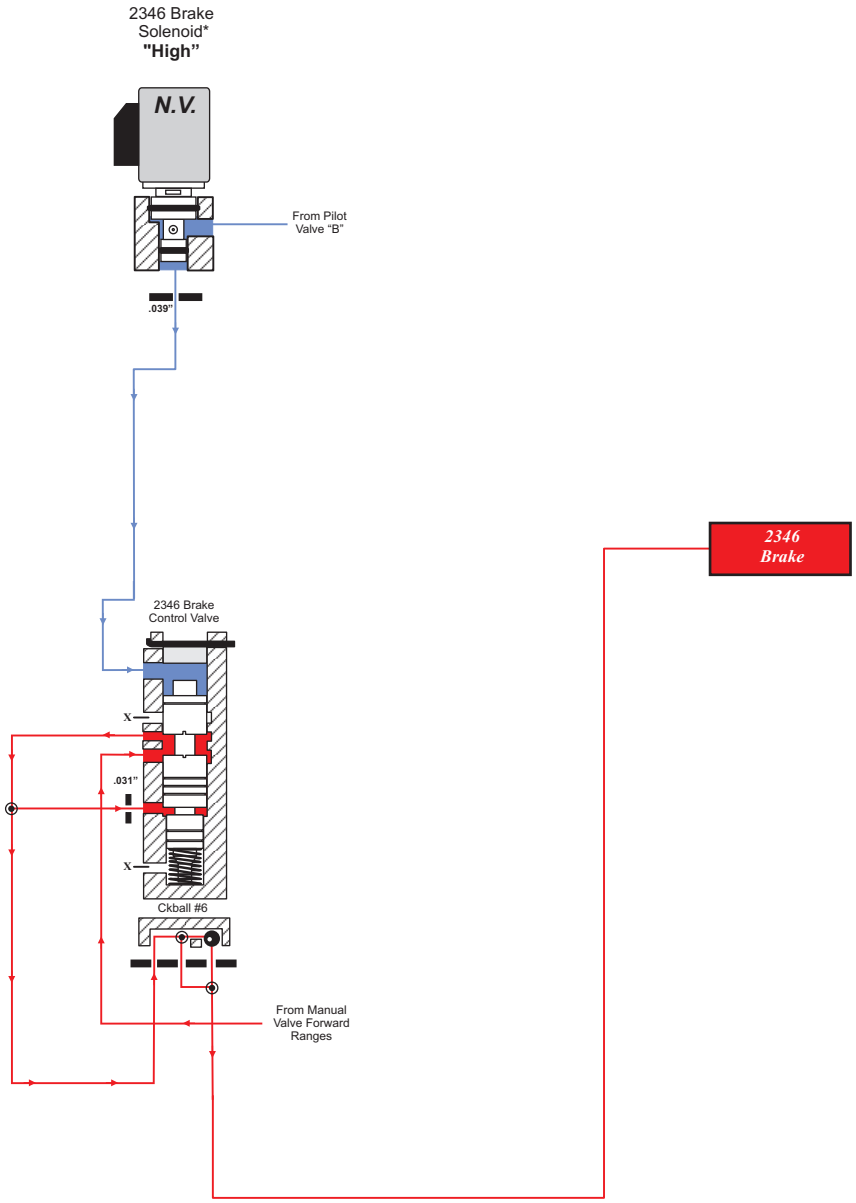
2346 BRAKE SOLENOID THEORY OF OPERATION

Scanner PID

2346 Brake Solenoid Amperage

0-0.A = 2346 Brake OFF

0.6-0.8A= 2346 Brake ON

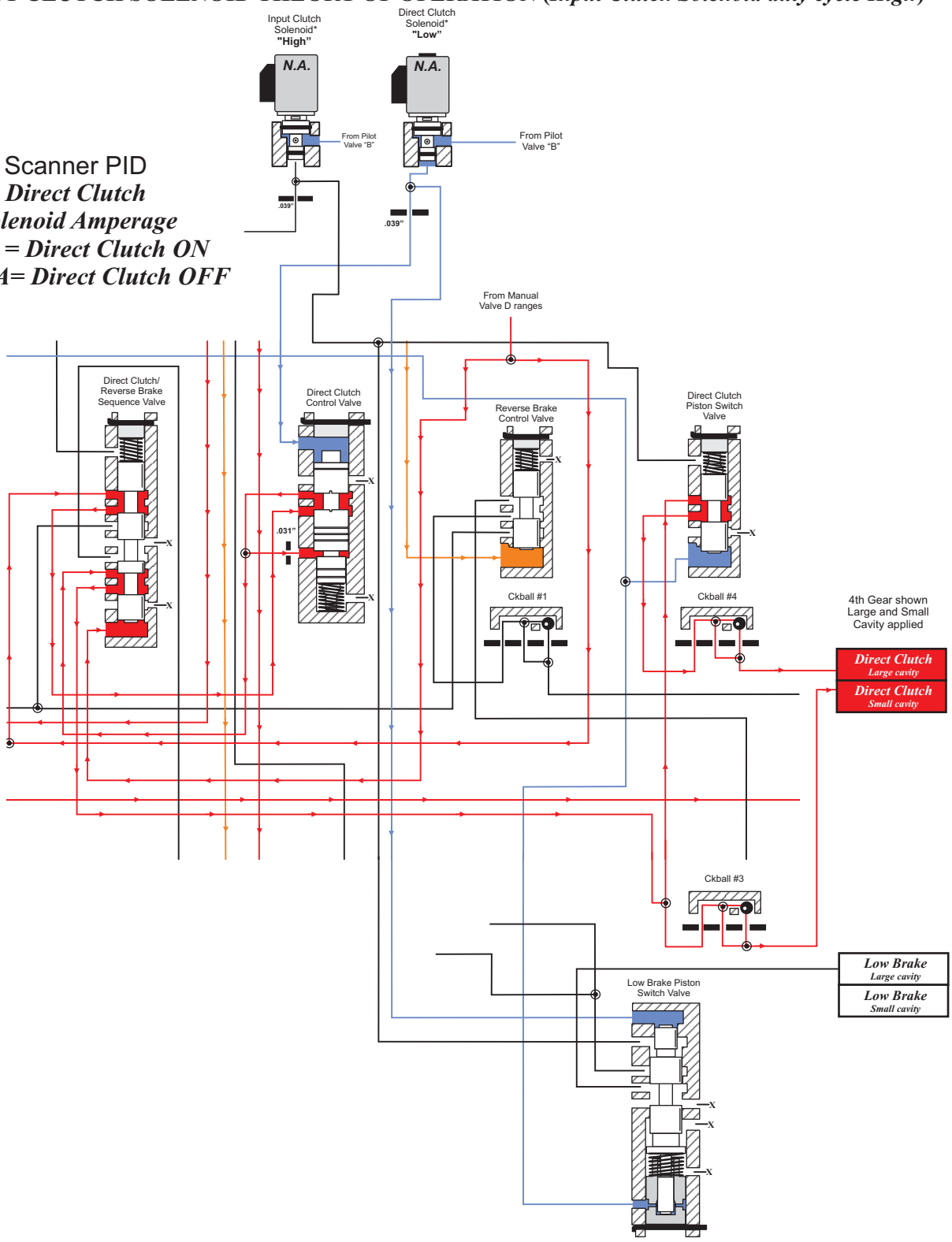


The 2346 Brake Solenoid is a Normally Vented Solenoid. The solenoid is fed by Pilot Valve "B." When the solenoid amperage is low the 2346 Brake is not applied. When the solenoid amperage is high, solenoid output strokes the2346 Brake Control Valve, which connects line pressure from the Manual Valve "D" ranges, to the 2346 Brake.

Figure 56

DIRECT CLUTCH SOLENOID THEORY OF OPERATION (*Input Clutch Solenoid duty cycle High*)

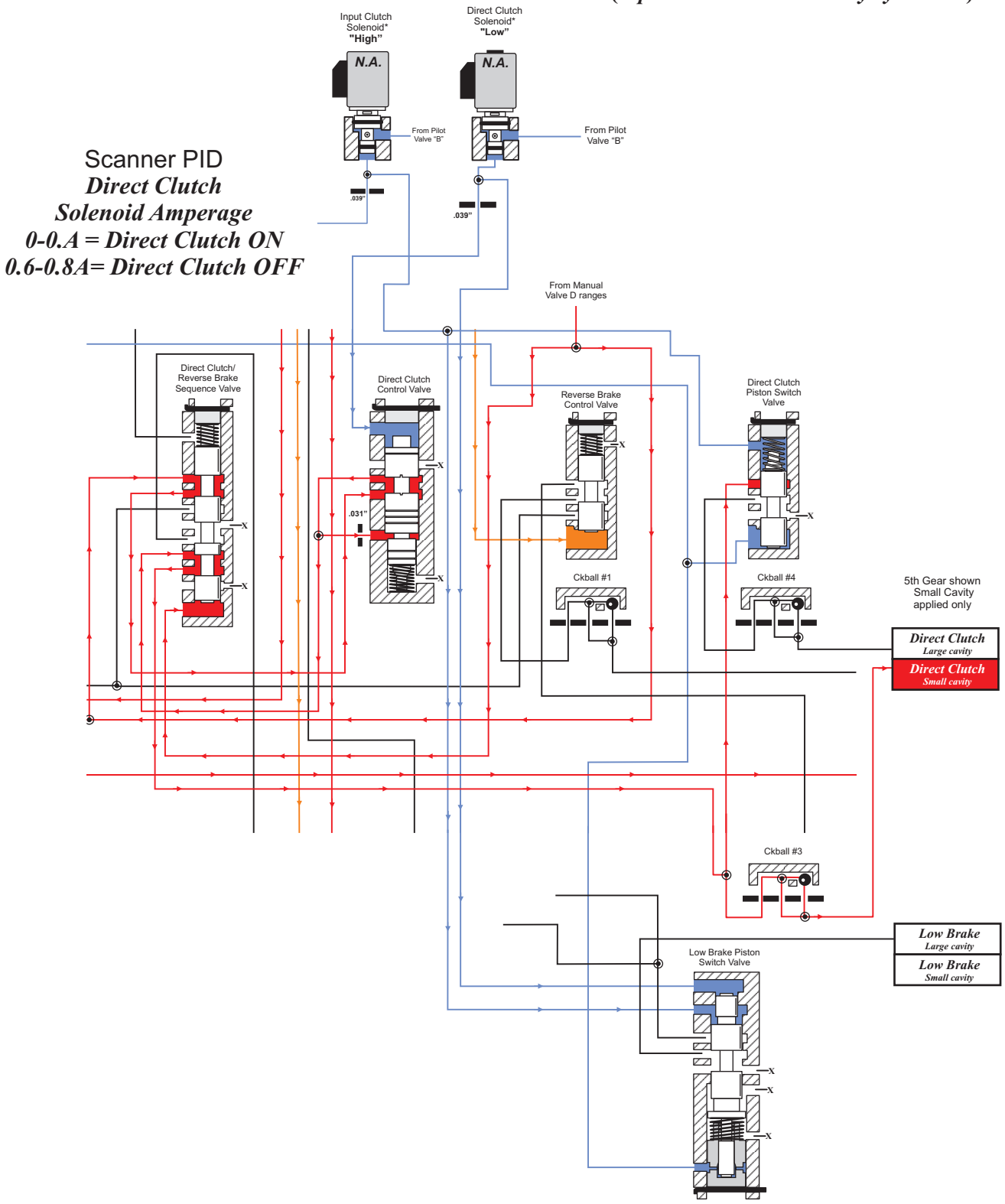
Scanner PID
Direct Clutch Solenoid Amperage
0-0.A = Direct Clutch ON
0.6-0.8A= Direct Clutch OFF



The Direct Clutch Solenoid is a Normally Applied Solenoid. The solenoid is fed by Pilot Valve "A." When the solenoid amperage is High the Direct Clutch is not applied. When the solenoid amperage is Low, solenoid output strokes the Direct Clutch Control Valve, which connects line pressure from the Manual Valve "D" ranges, to the Direct Clutch. Solenoid output is also connected to the first land of the Low Brake Piston Switch Valve, which releases the Low Brake Large cavity. NOTE: The Direct Clutch oil circuit is connected to the Direct Clutch/Reverse Brake Sequence Valve, which is stroked by Line pressure from the Manual Valve in the D ranges. The Direct Clutch Large Cavity is controlled by the Input Clutch Solenoid.

Figure 57

DIRECT CLUTCH SOLENOID THEORY OF OPERATION (*Input Clutch Solenoid duty cycle Low*)

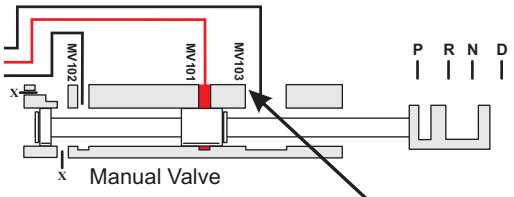


The Direct Clutch Solenoid is a Normally Applied Solenoid. The solenoid is fed by Pilot Valve "A." When the solenoid amperage is High the Direct Clutch is not applied. When the solenoid amperage is Low, solenoid output strokes the Direct Clutch Control Valve, which connects line pressure from the Manual Valve "D" ranges, to the Direct Clutch. Solenoid output is also connected to the first land of the Low Brake Piston Switch Valve, which releases the Low Brake Large cavity. NOTE: The Direct Clutch oil circuit is connected to the Direct Clutch/Reverse Brake Sequence Valve, which is stroked by Line pressure from the Manual Valve in the D ranges. The Direct Clutch Large Cavity is controlled by the Input Clutch Solenoid.

Figure 58

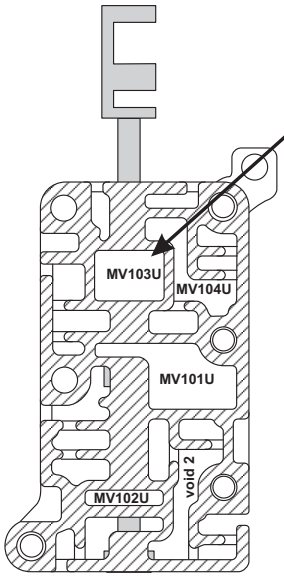
VALVE BODY MAPPING JR710E

PARTIAL HYDRAULIC SCHEMATIC FOR THE MANUAL VALVE



MV103U

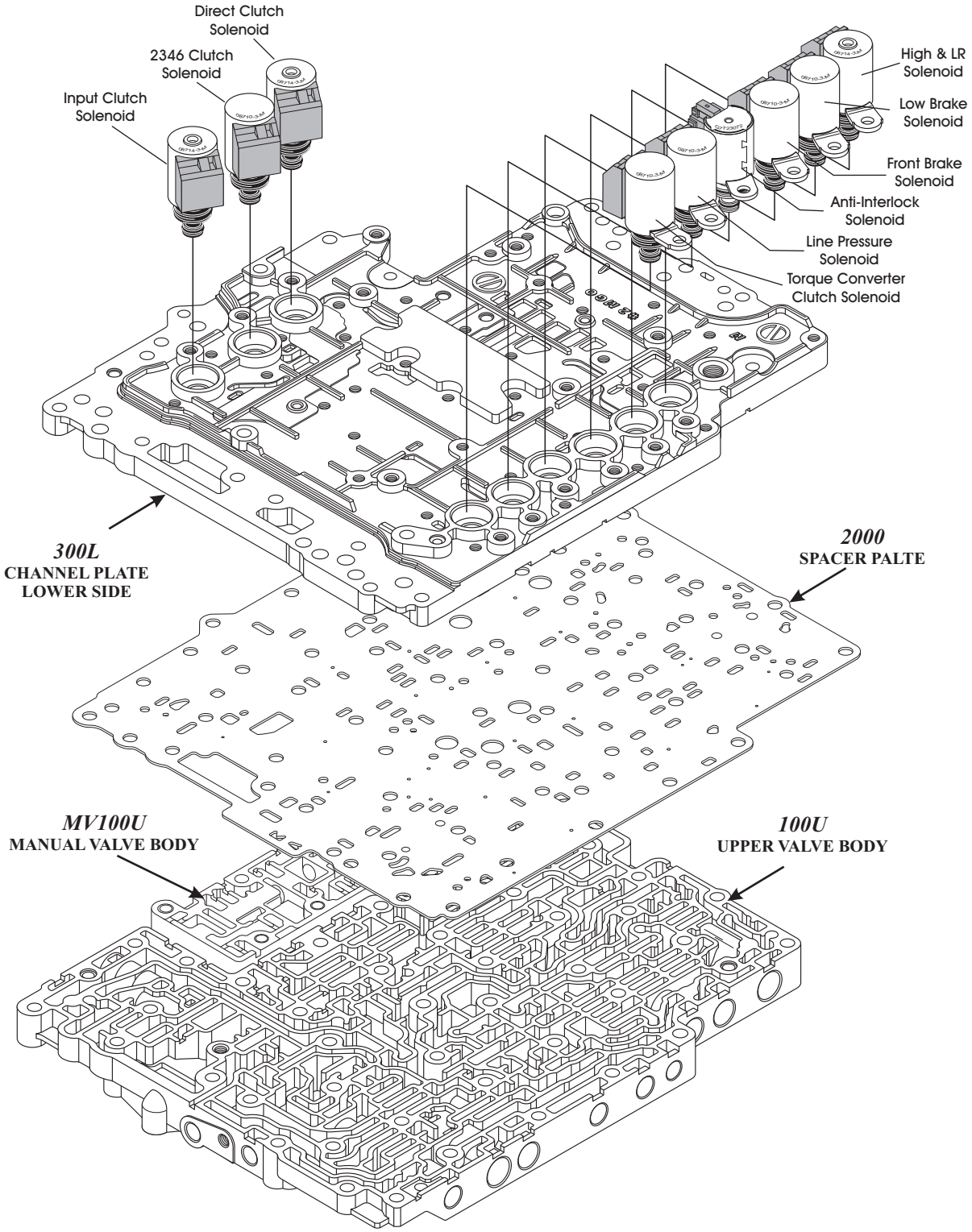
MV100U
MANUAL VALVE BODY UPPER



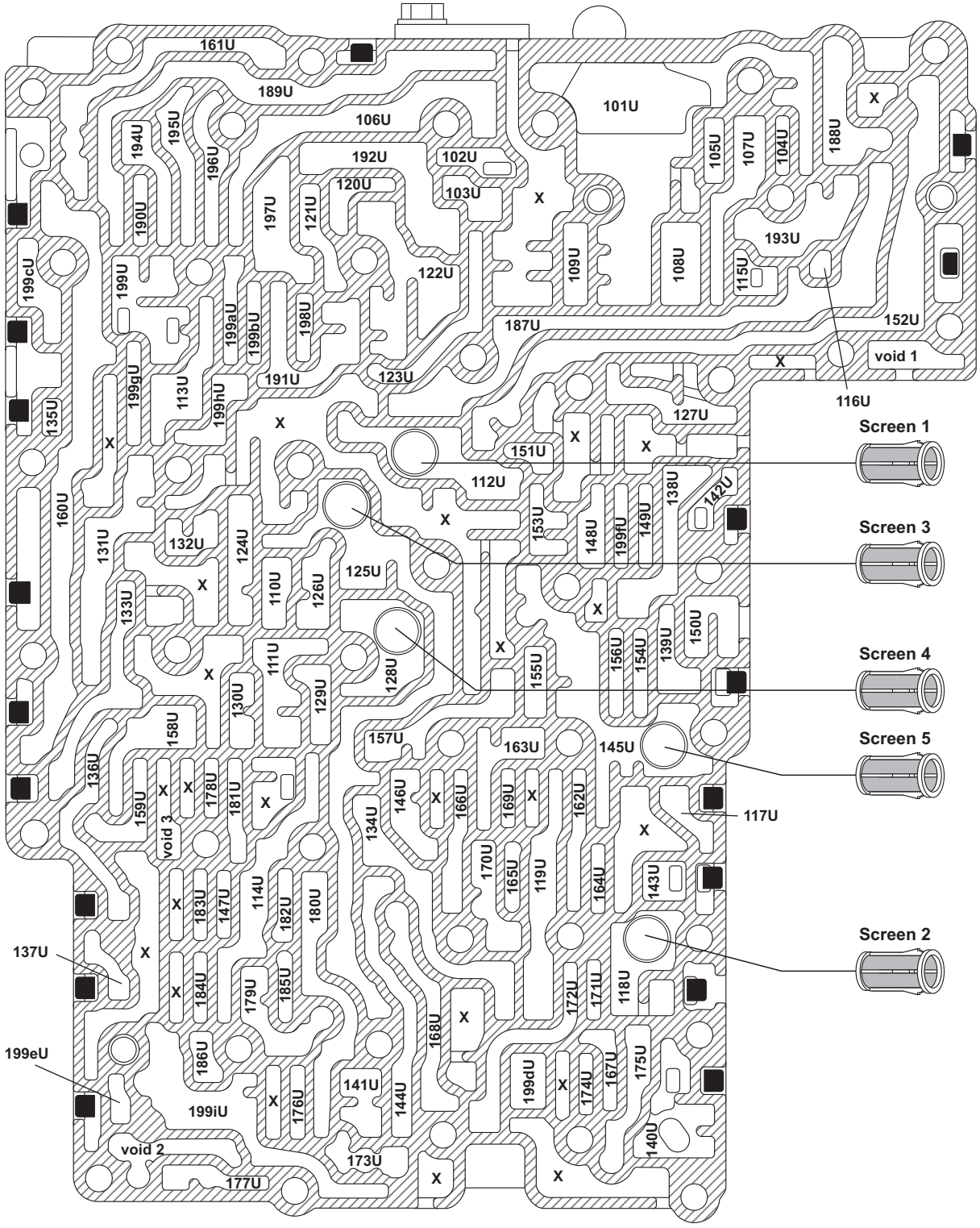
HOW TO USE THIS MANUAL:

All castings and spacer plates have been numbered so they can be identified in an oil circuit diagram. ***Example:*** MV103U passage is located in the Manual Valve body Upper (MV100U series). This passage can now be located in the partial oil circuit diagram shown above. Spacer plate orifice sizes and locations are also identified in the oil circuit diagram labeled Valve body Mapping.

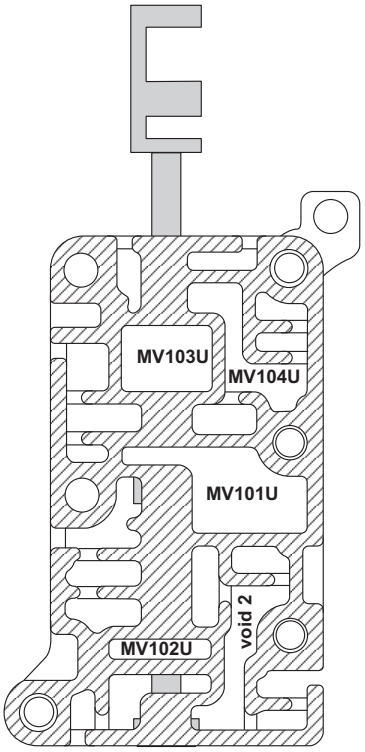
JR710E VALVE BODY
CASTING AND SOLENOID I.D.



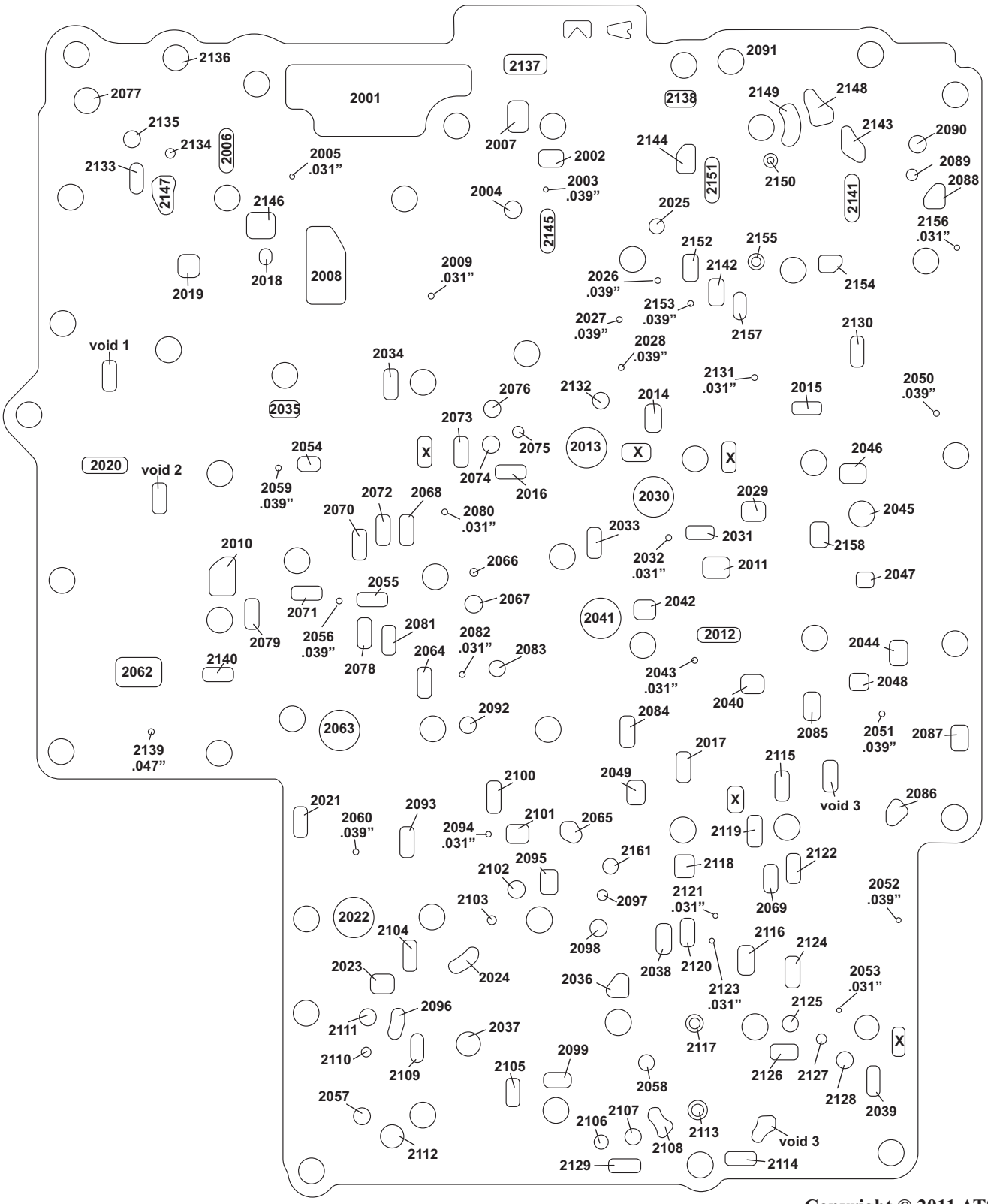
100U
UPPER VALVE BODY



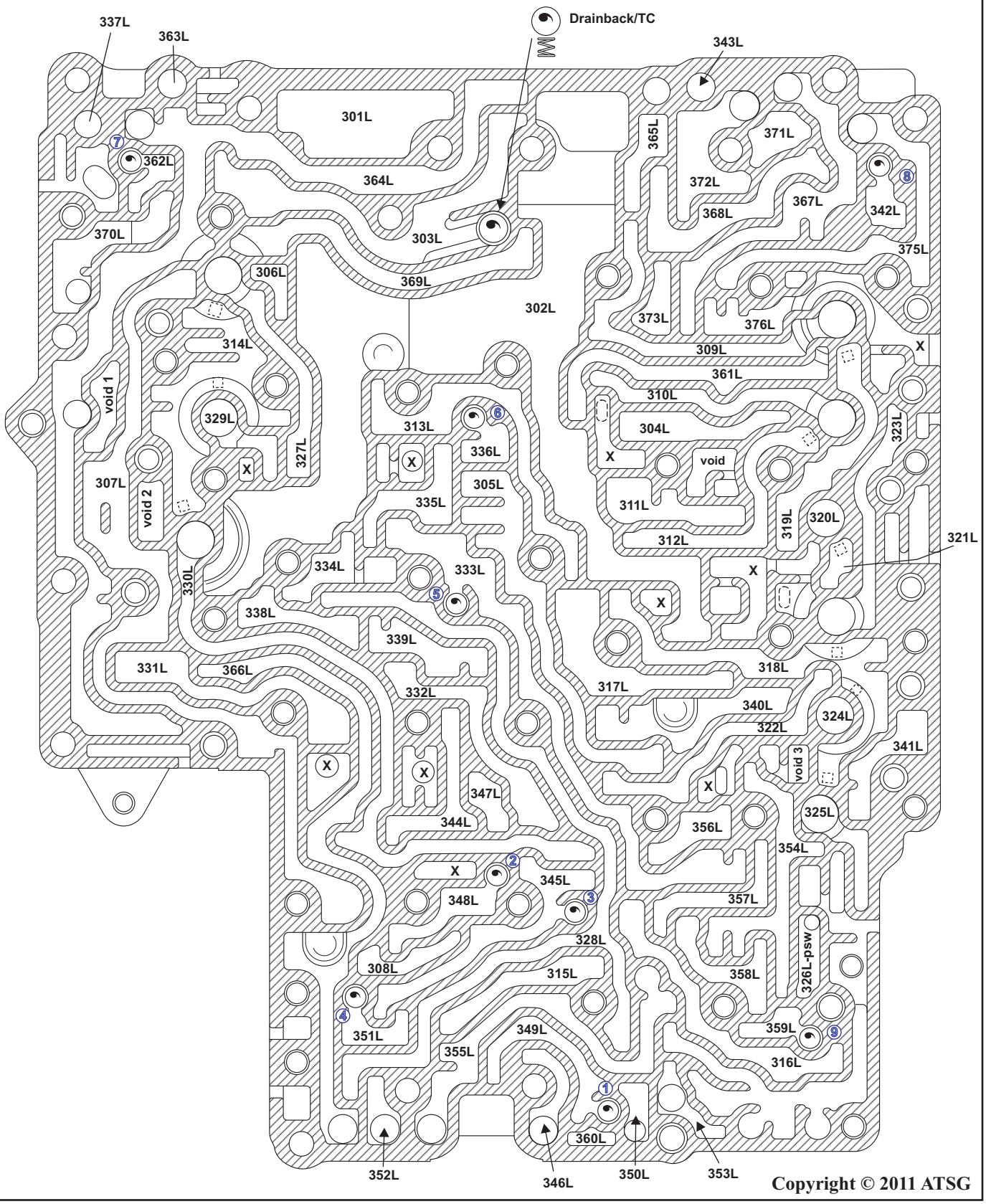
MV100U
MANUAL VALVE BODY UPPER



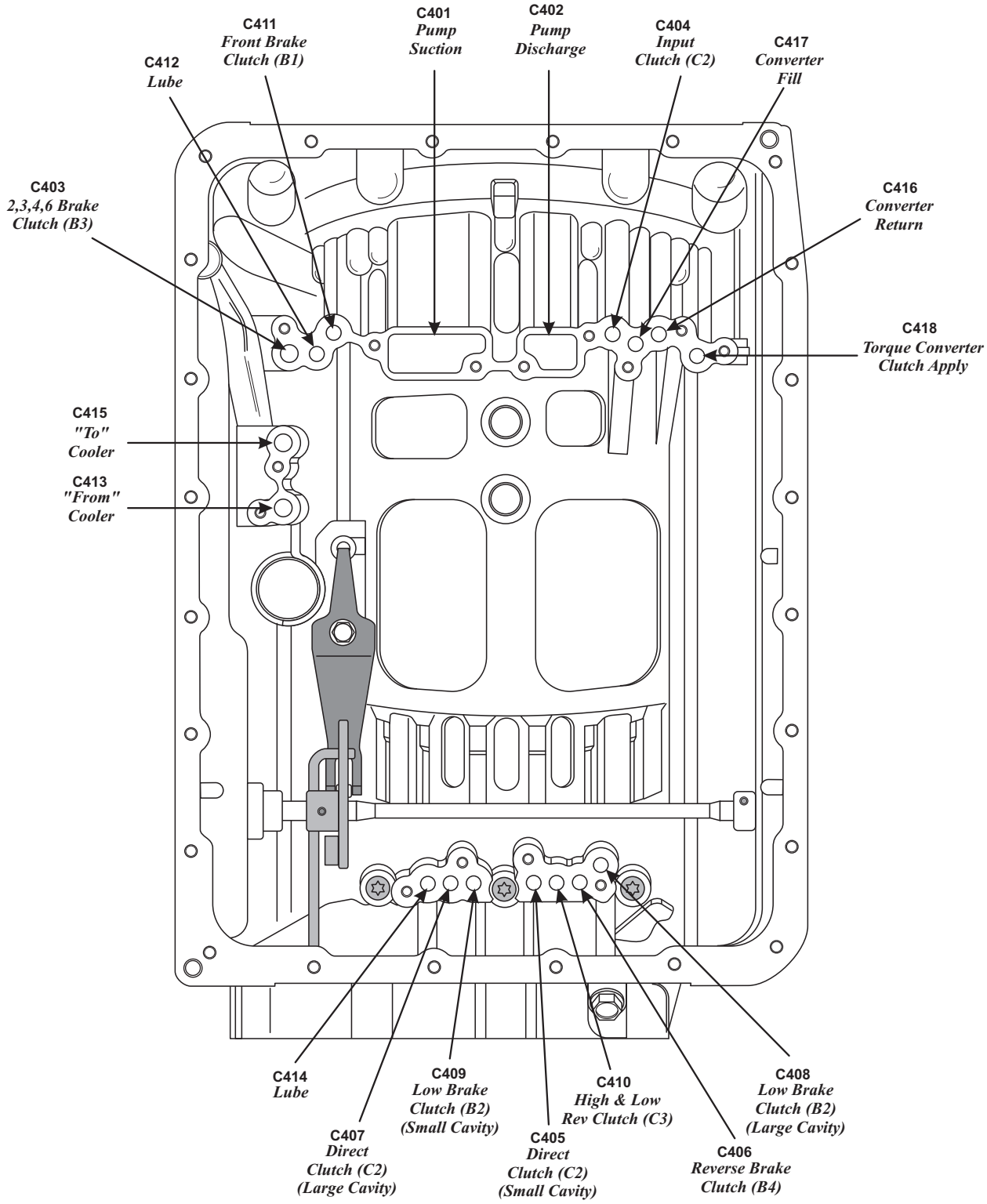
2000
SPACER PLATE



300L
CHANNEL PLATE LOWER SIDE



C400
CASE PASSAGES



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INDEX

TC In
TCC Apply
TC Out
C417
C418
C416

Front of VB

* All Modalated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.
Line Pressure Solenoid* Modulating N.V.
Anti-Interlock Solenoid "OFF" N.C.
Front Brake Solenoid* "High" N.V.
Low Brake Solenoid* "Low" N.V.
High&L/R Solenoid* "Low" N.A.
High&L/R Pressure Sensor
Input Clutch Solenoid* "High" N.A.
2346 Brake Solenoid* "Low" N.V.
Direct Clutch Solenoid* "High" N.A.

309L 319L 2158 132L 310L 312L 320L 321L 318L 324L 318L 325L 318L 326L 327L 314L 329L 314L 330L 314L

Drainback/TC

302U 302L 2002 2008 2009 .031" 2010 2011 2012 2013 2003 .039" 103U 303L 2004 2005 .031" 2006 2007 304L 2014 2015 305L 2016 2017 306L 2018 307L 2019 2020 2021 2022 2023 308L 2024 2025 2026 .039" 2027 .039" 2028 .039" 311L 2029 2030 312L 2031 2032 .031" 313L 2033 2034 317L 2035 2040 2041 2042 318L 2043 .031" 2044 2045 2046 2047 .031" 322L 2048 2049 2050 .039" 2051 .039" 2052 .039" 2053 .031" 2054 328L 2055 2056 .039" 2057 2058 2059 .039" 2060 .039" 2161 2062 331L 2063 2064 332L 2065 333L 2066 2067 2068 2069

112U Screen 1
118U Screen 2
125U Screen 3
128U Screen 4
131U
138U
145U Screen 5

Ck.ball

MV #1 MV #2 MV #3

P R N D

Manual Valve

TC Regulator Valve
101U 104U 107U 105U

Pressure Regulator Valve
116U 115U 107U 108U 101U 109U 123U

2346 Brake Control Valve
142U 149U 199U 148U 153U

Input Clutch Valve
139U 154U 156U 145U 155U

Direct Clutch/ Reverse Brake Sequence Valve
117U 145U 162U 119U 169U 163U 166U 146U

Direct Clutch Control Valve
143U 164U 162U 165U 344L 2094 .031" 2093 2092

Reverse Brake Control Valve
171U 172U 119U 134U

Direct Clutch Piston Switch Valve
140U 167U 174U 199dU 315L 2036 2037

Cooler
C415 In Out C413

Pump

Line Pressure Relief
102U
Sump

TCC Solenoid Damper
120U

C402 C401

301U 301L 2001 101U 101L

FILTER SUMP

Front Lube
Rear Lube C412
C414

Ck.ball

2129 2128 2127 2126 2125 2124 2123 2122 2121 2120 2119 2118 2117 2116 2115 2114 2113 2112 2111 2110 2109 2108 2107 2106 2105 2104 2103 2102 2101 2100 2099 2098 2097 2096 2095 2094 2093 2092 2091 2090 2089 2088 2087 2086 2085 2084 2083 2082 2081 2080 2079 2078 2077 2076 2075 2074 2073 2072 2071 2070 2069 2068 2067 2066 2065 2064 2063 2062 2061 2060 2059 2058 2057 2056 2055 2054 2053 2052 2051 2050 2049 2048 2047 2046 2045 2044 2043 2042 2041 2040 2039 2038 2037 2036 2035 2034 2033 2032 2031 2030 2029 2028 2027 2026 2025 2024 2023 2022 2021 2020 2019 2018 2017 2016 2015 2014 2013 2012 2011 2010 2009 2008 2007 2006 2005 2004 2003 2002 2001

MV#1 MV#2 MV#3

Torque Converter Lubrication Switch Valve
121U 197U 106U 196U 195U 194U 190U 189U 368L 2138

Torque Converter Clutch Control Valve
122U 191U 198U 199bU 199aU 113U 199U 199cU

Front Brake Control Valve
199hU 113U 199gU 135U

Pilot "B" Valve
126U 110U 124U

Pilot "A" Valve
129U 111U 130U

Anti-interlock Control Valve
181U 178U 159U 158U 133U

Low Brake Control Valve
182U 147U 183U 136U

HLR Clutch Control Valve
185U 114U 184U 137U

Low Brake Piston Switch Valve
144U 141U 180U 176U 316L 2038 2039 199eU

337L C403 2346 Brake
363L C411 Front Brake
343L C404 Balance/Cancel Piston, Input Clutch
360L C410 Balance/Cancel Piston, High&Low/Reverse Clutch
352L C407 Balance/Cancel Piston, Direct Clutch Large cavity
346L C405 Direct Clutch Small cavity
350L C406 Reverse Brake
353L C408 Low Brake Large cavity
355L C409 Low Brake Small cavity

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	OFF
Front Brake Solenoid (NV)	High
Low Brake Solenoid (NV)	Low
High & L/R Solenoid (NA)	Low
Input Clutch Solenoid (NA)	High
2346 Brake Solenoid (NV)	Low
Direct Clutch Solenoid (NA)	High

Legend
- Line Pressure
- Suction/P.R. Exhaust
- Regulated Converter pressure (In)
- Converter Discharge (Out) - Lube
- Regulated Pilot "A" pressure
- Regulated Pilot "B" pressure
- ◉ = Connected circuit
- * = .029" Orifice built in Solenoid

JR710E Range "Park" *Valve body Mapping*

INDEX

TCC OFF

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modulated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "OFF" N.C.

Front Brake Solenoid* "High" N.V.

Low Brake Solenoid* "Low" N.V.

High&L/R Solenoid* "Low" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "High" N.A.

2346 Brake Solenoid* "Low" N.V.

Direct Clutch Solenoid* "High" N.A.

Drainback/ TC Ckball

.039"

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

Pressure Regulator Valve

2346 Brake Control Valve

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Direct Clutch Piston Switch Valve

Manual Valve

P R N D

Cooler

In

Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

Ckball #6

Ckball #1

Ckball #4

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

Ckball #8

Ckball #9

Ckball #3

Ckball #2

Ckball #7

Filter

SUMP

Front Lube

Rear Lube

.047"

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Anti-interlock Control Valve

Low Brake Control Valve

HLR Clutch Control Valve

Low Brake Piston Switch Valve

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	OFF
Front Brake Solenoid (NV)	High
Low Brake Solenoid (NV)	Low
High & L/R Solenoid (NA)	Low
Input Clutch Solenoid (NA)	High
2346 Brake Solenoid (NV)	Low
Direct Clutch Solenoid (NA)	High

Legend
Line Pressure
Suction/P.R. Exhaust
Regulated Converter pressure (In)
Converter Discharge (Out) - Lube
Regulated Pilot "A" pressure
Regulated Pilot "B" pressure
◉ = Connected circuit
* = .029" Orifice built in Solenoid

JR710E Range "Park"

INDEX

TCC OFF

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modulated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "OFF" N.C.

Front Brake Solenoid* "High" N.V.

Low Brake Solenoid* "Low" N.V.

High&L/R Solenoid* "Low" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "High" N.A.

2346 Brake Solenoid* "Low" N.V.

Direct Clutch Solenoid* "High" N.A.

Drainback/ TC Ckball

.039"

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

Pressure Regulator Valve

Manual Valve

P R N D

Cooler In

Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

2346 Brake Control Valve

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Direct Clutch Piston Switch Valve

Ckball #6

Ckball #1

Ckball #4

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

Ckball #8

Ckball #9

Ckball #3

Ckball #2

Ckball #7

Filter

Sump

Front Lube

Rear Lube

.047"

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Anti-interlock Control Valve

Low Brake Control Valve

HLR Clutch Control Valve

Low Brake Piston Switch Valve

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	OFF
Front Brake Solenoid (NV)	High
Low Brake Solenoid (NV)	Low
High & L/R Solenoid (NA)	Low
Input Clutch Solenoid (NA)	High
2346 Brake Solenoid (NV)	Low
Direct Clutch Solenoid (NA)	High

Legend
Line Pressure
Suction/P.R. Exhaust
Regulated Converter pressure (In)
Converter Discharge (Out) - Lube
Regulated Pilot "A" pressure
Regulated Pilot "B" pressure
◉ = Connected circuit
* = .029" Orifice built in Solenoid

JR710E Range "Reverse"

INDEX

TCC OFF

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modulated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "ON" N.C.

Front Brake Solenoid* "High" N.V.

Low Brake Solenoid* "High" N.V.

High&L/R Solenoid* "Low" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "High" N.A.

2346 Brake Solenoid* "High" N.V.

Direct Clutch Solenoid* "High" N.A.

Drainback/ TC Ckball

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

Pressure Regulator Valve

2346 Brake Control Valve

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Direct Clutch Piston Switch Valve

Manual Valve

P R N D

Ckball #6

Ckball #1

Ckball #4

Cooler In

Cooler Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

FILTER SUMP

Front Lube

Rear Lube

.047"

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Ckball #7

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Ckball #8

Anti-interlock Control Valve

Ckball #9

Low Brake Control Valve

HLR Clutch Control Valve

Ckball #3

Ckball #2

Low Brake Piston Switch Valve

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	ON
Front Brake Solenoid (NV)	High
Low Brake Solenoid (NV)	High
High & L/R Solenoid (NA)	Low
Input Clutch Solenoid (NA)	High
2346 Brake Solenoid (NV)	Low
Direct Clutch Solenoid (NA)	High

Legend
Line Pressure
Suction/P.R. Exhaust
Regulated Converter pressure (In)
Converter Discharge (Out) - Lube
Regulated Pilot "A" pressure
Regulated Pilot "B" pressure
= Connected circuit
* = .029" Orifice built in Solenoid

JR710E Range "Drive" 1st Gear

JR710E Range "Drive" 2nd Gear

INDEX

TCC OFF

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modulated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "ON" N.C.

Front Brake Solenoid* "Low" N.V.

Low Brake Solenoid* "High" N.V.

High&L/R Solenoid* "High" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "High" N.A.

2346 Brake Solenoid* "High" N.V.

Direct Clutch Solenoid* "High" N.A.

Drainback/ TC Ckball

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

Pressure Regulator Valve

2346 Brake Control Valve

Ckball #6

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Ckball #1

Direct Clutch Piston Switch Valve

Ckball #4

Manual Valve

P R N D

Cooler In

Cooler Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

FILTER SUMP

Front Lube

Rear Lube

.047"

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Ckball #7

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Ckball #8

Anti-interlock Control Valve

Ckball #9

Low Brake Control Valve

HLR Clutch Control Valve

Ckball #3

Ckball #2

Low Brake Piston Switch Valve

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	ON
Front Brake Solenoid (NV)	Low
Low Brake Solenoid (NV)	High
High & L/R Solenoid (NA)	High
Input Clutch Solenoid (NA)	High
2346 Brake Solenoid (NV)	High
Direct Clutch Solenoid (NA)	High

Legend

- Line Pressure
- Suction/P.R. Exhaust
- Regulated Converter pressure (In)
- Converter Discharge (Out) - Lube
- Regulated Pilot "A" pressure
- Regulated Pilot "B" pressure
- ◉ = Connected circuit
- * = .029" Orifice built in Solenoid

INDEX

TCC OFF

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modulated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "ON" N.C.

Front Brake Solenoid* "Low" N.V.

Low Brake Solenoid* "High" N.V.

High&L/R Solenoid* "High" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "High" N.A.

2346 Brake Solenoid* "High" N.V.

Direct Clutch Solenoid* "Low" N.A.

Drainback/ TC Ckball

.039"

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

Pressure Regulator Valve

2346 Brake Control Valve

Ckball #6

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Ckball #1

Direct Clutch Piston Switch Valve

Ckball #4

Manual Valve

P R N D

Cooler In

Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

FILTER

SUMP

Front Lube

Rear Lube

.047"

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Ckball #7

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Ckball #8

Anti-interlock Control Valve

Ckball #9

Low Brake Control Valve

HLR Clutch Control Valve

Low Brake Piston Switch Valve

Ckball #3

Ckball #2

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	ON
Front Brake Solenoid (NV)	Low
Low Brake Solenoid (NV)	High
High & L/R Solenoid (NA)	High
Input Clutch Solenoid (NA)	High
2346 Brake Solenoid (NV)	High
Direct Clutch Solenoid (NA)	Low

Legend

- Line Pressure
- Suction/P.R. Exhaust
- Regulated Converter pressure (In)
- Converter Discharge (Out) - Lube
- Regulated Pilot "A" pressure
- Regulated Pilot "B" pressure
- = Connected circuit
- * = .029" Orifice built in Solenoid

JR710E Range "Drive" 3rd Gear

INDEX

TCC OFF

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modulated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "OFF" N.C.

Front Brake Solenoid* "Low" N.V.

Low Brake Solenoid* "Low" N.V.

High&L/R Solenoid* "Low" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "High" N.A.

2346 Brake Solenoid* "High" N.V.

Direct Clutch Solenoid* "Low" N.A.

Drainback/ TC Ckball

.039"

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

Pressure Regulator Valve

2346 Brake Control Valve

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Direct Clutch Piston Switch Valve

Manual Valve

P R N D

Ckball #6

Ckball #1

Ckball #4

Cooler

In

Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

Ckball #8

Ckball #9

Ckball #3

Ckball #2

Ckball #7

.031"

.047"

FILTER

SUMP

Front Lube

Rear Lube

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Anti-interlock Control Valve

Low Brake Control Valve

HLR Clutch Control Valve

Low Brake Piston Switch Valve

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	OFF
Front Brake Solenoid (NV)	Low
Low Brake Solenoid (NV)	Low
High & L/R Solenoid (NA)	Low
Input Clutch Solenoid (NA)	High
2346 Brake Solenoid (NV)	High
Direct Clutch Solenoid (NA)	Low

Legend
Line Pressure
Suction/P.R. Exhaust
Regulated Converter pressure (In)
Converter Discharge (Out) - Lube
Regulated Pilot "A" pressure
Regulated Pilot "B" pressure
= Connected circuit
* = .029" Orifice built in Solenoid

JR710E Range "Drive" 4th Gear

INDEX

TCC OFF

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modulated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "OFF" N.C.

Front Brake Solenoid* "Low" N.V.

Low Brake Solenoid* "Low" N.V.

High&L/R Solenoid* "Low" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "Low" N.A.

2346 Brake Solenoid* "Low" N.V.

Direct Clutch Solenoid* "Low" N.A.

Drainback/ TC Ckball

.039"

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

.031"

Pressure Regulator Valve

X

2346 Brake Control Valve

Ckball #6

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Ckball #1

Direct Clutch Piston Switch Valve

Ckball #4

Manual Valve

P R N D

Cooler

In

Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

FILTER

SUMP

Front Lube

Rear Lube

.047"

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Ckball #7

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Ckball #8

Anti-interlock Control Valve

Ckball #9

Low Brake Control Valve

HLR Clutch Control Valve

Ckball #3

Ckball #2

Low Brake Piston Switch Valve

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	OFF
Front Brake Solenoid (NV)	Low
Low Brake Solenoid (NV)	Low
High & L/R Solenoid (NA)	Low
Input Clutch Solenoid (NA)	Low
2346 Brake Solenoid (NV)	High
Direct Clutch Solenoid (NA)	Low

Legend

- Line Pressure
- Suction/P.R. Exhaust
- Regulated Converter pressure (In)
- Converter Discharge (Out) - Lube
- Regulated Pilot "A" pressure
- Regulated Pilot "B" pressure
- ◉ = Connected circuit
- * = .029" Orifice built in Solenoid

JR710E Range "Drive" 5th Gear

INDEX

TCC OFF

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modulated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "OFF" N.C.

Front Brake Solenoid* "Low" N.V.

Low Brake Solenoid* "Low" N.V.

High&L/R Solenoid* "Low" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "Low" N.A.

2346 Brake Solenoid* "High" N.V.

Direct Clutch Solenoid* "High" N.A.

Drainback/ TC Ckball

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

Pressure Regulator Valve

2346 Brake Control Valve

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Direct Clutch Piston Switch Valve

Manual Valve

P R N D

Ckball #6

Ckball #1

Ckball #4

Cooler In

Cooler Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

Ckball #8

Ckball #9

Ckball #3

Ckball #2

Ckball #7

FILTER

SUMP

Front Lube

Rear Lube

.047"

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Anti-interlock Control Valve

Low Brake Control Valve

HLR Clutch Control Valve

Low Brake Piston Switch Valve

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	OFF
Front Brake Solenoid (NV)	Low
Low Brake Solenoid (NV)	Low
High & L/R Solenoid (NA)	Low
Input Clutch Solenoid (NA)	Low
2346 Brake Solenoid (NV)	High
Direct Clutch Solenoid (NA)	High

Legend

- Line Pressure
- Suction/P.R. Exhaust
- Regulated Converter pressure (In)
- Converter Discharge (Out) - Lube
- Regulated Pilot "A" pressure
- Regulated Pilot "B" pressure
- = Connected circuit
- * = .029" Orifice built in Solenoid

JR710E Range "Drive" 6th Gear

INDEX

TCC OFF

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modulated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "Low" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "OFF" N.C.

Front Brake Solenoid* "High" N.V.

Low Brake Solenoid* "Low" N.V.

High&L/R Solenoid* "Low" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "Low" N.A.

2346 Brake Solenoid* "Low" N.V.

Direct Clutch Solenoid* "High" N.A.

Drainback/ TC Ckball

.039"

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

Pressure Regulator Valve

2346 Brake Control Valve

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Direct Clutch Piston Switch Valve

Manual Valve

P R N D

Ckball #6

Ckball #1

Ckball #4

Cooler

In

Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

Ckball #8

Ckball #9

Ckball #3

Ckball #2

Ckball #7

.031"

.047"

FILTER

SUMP

Front Lube

Rear Lube

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Anti-interlock Control Valve

Low Brake Control Valve

HLR Clutch Control Valve

Low Brake Piston Switch Valve

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	Low
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	OFF
Front Brake Solenoid (NV)	High
Low Brake Solenoid (NV)	Low
High & L/R Solenoid (NA)	Low
Input Clutch Solenoid (NA)	Low
2346 Brake Solenoid (NV)	Low
Direct Clutch Solenoid (NA)	High

Legend

- Line Pressure
- Suction/P.R. Exhaust
- Regulated Converter pressure (In)
- Converter Discharge (Out) - Lube
- Regulated Pilot "A" pressure
- Regulated Pilot "B" pressure
- ◉ = Connected circuit
- * = .029" Orifice built in Solenoid

JR710E Range "Drive" 7th Gear

INDEX

TCC ON

TC In

TCC Apply

TC Out

Torque Converter

Front of VB

* All Modalated solenoids have a .029" orifice built in the solenoid

TCC Solenoid* "High" N.V.

Line Pressure Solenoid* Modulating N.V.

Anti-Interlock Solenoid "OFF" N.C.

Front Brake Solenoid* "High" N.V.

Low Brake Solenoid* "Low" N.V.

High&L/R Solenoid* "Low" N.A.

High&L/R Pressure Sensor

Input Clutch Solenoid* "Low" N.A.

2346 Brake Solenoid* "Low" N.V.

Direct Clutch Solenoid* "High" N.A.

Drainback/ TC Ckball

Screen 1

Screen 2

Screen 3

Screen 4

Screen 5

Ckball #5

TC Regulator Valve

Pressure Regulator Valve

2346 Brake Control Valve

Ckball #6

Input Clutch Control Valve

Direct Clutch/ Reverse Brake Sequence Valve

Direct Clutch Control Valve

Reverse Brake Control Valve

Ckball #1

Direct Clutch Piston Switch Valve

Ckball #4

Manual Valve

P R N D

Cooler In

Cooler Out

Pump

Line Pressure Relief

Sump

TCC Solenoid Damper

Filter

SUMP

Front Lube

Rear Lube

.047"

Torque Converter Lubrication Switch Valve

Torque Converter Clutch Control Valve

Ckball #7

Front Brake Control Valve

Pilot "B" Valve

Pilot "A" Valve

Ckball #8

Anti-interlock Control Valve

Ckball #9

Low Brake Control Valve

HLR Clutch Control Valve

Ckball #3

Ckball #2

Low Brake Piston Switch Valve

2346 Brake

Front Brake

Balance/Cancel Piston

Input Clutch

Balance/Cancel Piston

High&Low/Reverse Clutch

Balance/Cancel Piston

Direct Clutch Large cavity

Direct Clutch Small cavity

Reverse Brake

Low Brake Large cavity

Low Brake Small cavity

Solenoid Application	Solenoid Duty
Tcc Solenoid (NV)	High
Line Pressure Solenoid (NV)	Mod
Anti-Interlock Solenoid (NC)	OFF
Front Brake Solenoid (NV)	High
Low Brake Solenoid (NV)	Low
High & L/R Solenoid (NA)	Low
Input Clutch Solenoid (NA)	Low
2346 Brake Solenoid (NV)	Low
Direct Clutch Solenoid (NA)	High

Legend
Line Pressure
Suction/P.R. Exhaust
Regulated Converter pressure (In)
Converter Discharge (Out) - Lube
Regulated Pilot "A" pressure
Regulated Pilot "B" pressure
= Connected circuit
* = .029" Orifice built in Solenoid

JR710E Range "Drive" 7th Gear TCC ON