PRECISION INTERNATIONAL

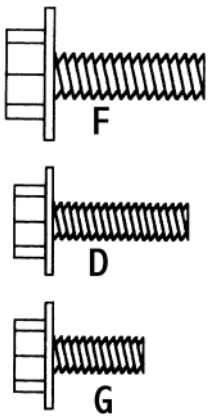
PRECISION POINTERS

4L60-E

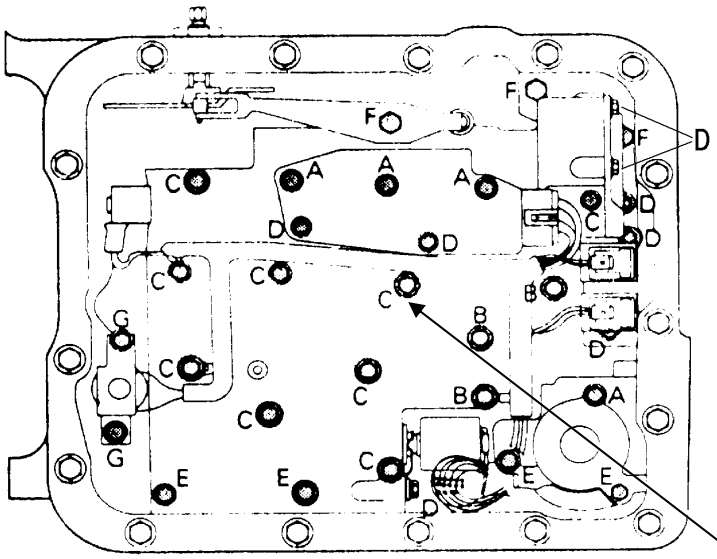
Torque Specs

Location	Qnty	Size	Torque	Location	Qnty	Size	Torque
Acc. Cover to Case	2	M6 1.0x35.0	11 N-m 8 lb.-ft.	Park Brake Bracket to Case	2	M8 1.25x20.0	31 N-m 23 lb.-ft.
Acc. Cover to Case	1	M6 1.0x65.0	11 N-m 8 lb.-ft.	Pump Cover to Pump Body	5	M8 1.25x40.0	24 N-m 18 lb.-ft.
Detent Spring to V/B	1	M8 1.25x20.0	24 N-m 18 lb.-ft.	Pump Ass. To Case	7	M8 1.25x60.0	24 N-m 18 lb.-ft.
FWD Acc. Cover to V/B	3	M6 1.0x17.7	11 N-m 8 lb.-ft.	Ext. Hsg to Case	4	M10 1.50x30.0	35 N-m 26 lb.-ft.
Sol Assembly to Case	2	M6 1.0x12.0	11 N-m 8 lb.-ft.	Manual Shaft to Detent lever	1	M10 1.50 Nut	31 N-m 23 lb.-ft.
Oil Pan	16	M8 1.25x19.3	12 N-m 9 lb.-ft.	Line Pressure Plug	1	1/8 - 27	11 N-m 8 lb.-ft.
V/B to Case	2	M6 1.0x35.0	11 N-m 8 lb.-ft.	Cooler line connector	2	1/4 - 18	38 N-m 28 lb.-ft.
V/B to Case	9	M6 1.0x47.5	11 N-m 8 lb.-ft.	Press. Switch Asm. To V/B	2	M6 1.0x17.7	11 N-m 8 lb.-ft.
V/B to Case	3	M6 1.0x54.4	11 N-m 8 lb.-ft.	Speed Sensor Retainer	1	M6 1.0x21.7	11 N-m 8 lb.-ft.
V/B to Case	3	M6 1.0x65.0	11 N-m 8 lb.-ft.	Spacer Plate Support to Case	3	M6 1.0x17.7	11 N-m 8 lb.-ft.
Press. Control Sol to V/B	1	M6 1.0x17.7	11 N-m 8 lb.-ft.				

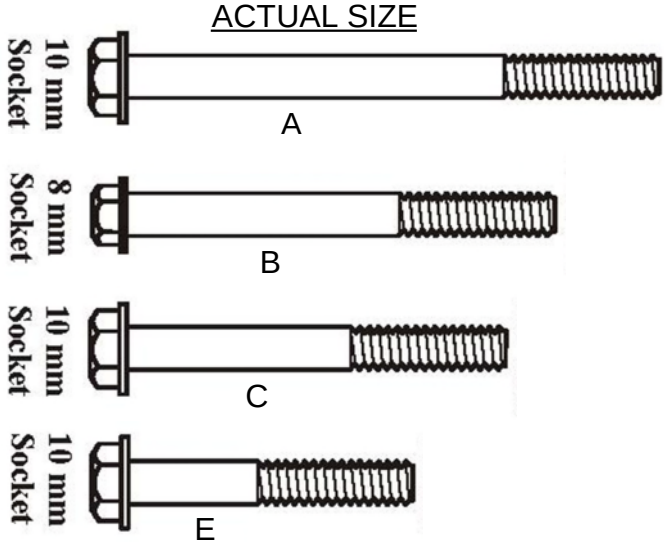
ACTUAL SIZE



Valve Body Bolt Location



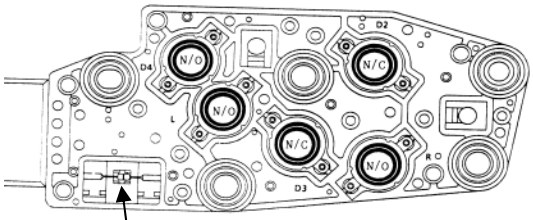
ACTUAL SIZE



A	M6 X 1.0 X 65.0
B	M6 X 1.0 X 54.4
C	M6 X 1.0 X 47.5
D	M6 X 1.0 X 18.0
E	M6 X 1.0 X 35.0
F	M8 X 1.25 X 20.0
G	M6 X 1.0 X 12.0

WARNING !!! Using an incorrect bolt in this location may lock the gear train and can also damage the case.

Temperature Sensor



Temp. to Resistance to Voltage

°C	°F	RESISTANCE	VOLTS
-40	-40	100544	5
-28	-21	52426	4.78
-16	10	18580	4.18
-4	23	12300	3.84
0	32	9379	3.45
7	40	7270	3.20
19	68	3520	2.56
31	86	2232	1.80
43	110	1200	1.10
55	131	858	3.25
67	145	675	2.88
79	176	333	2.24
91	194	241	1.70
103	213	154	1.28
115	239	115	.96
127	260	79	.64
139	284	60	.32
151	302	47	.00

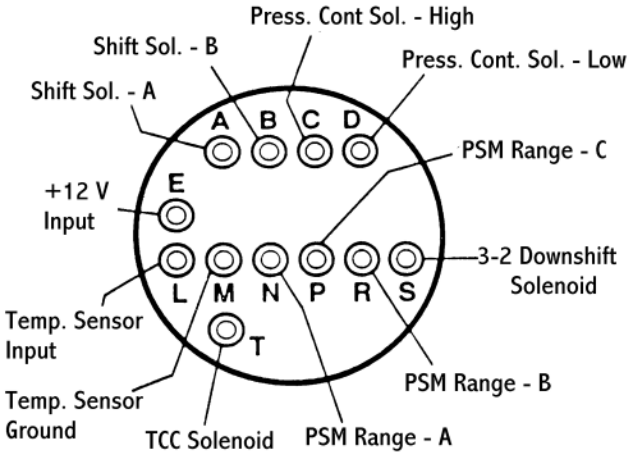
Fluid Fill Capacity

w/o Converter = 5.0 QT or 4.73 L*

w/ Converter =10 QT or 9.46 L*

* Slightly more for deep pan units

Case Connector



Component	Term	Wire Color	Pass Pin	Resistance
1-2 Shift Sol.	A	Red	E*	20-40 Ohms
	B	Green LT	A	
2-3 Shift Sol.	A	Red	E*	20-40 Ohms
	B	Yellow	B	
3-2 Control Sol	A	Red	E*	9-14 Ohms
	B	White	S	
Press Control Sol	A	Purple	C	3.5-8 Ohms
	B	Lt Blue	D	
Trans. Temp. Sensor	A	Brown	L	2.9-4 kOhms
	B	Gray	M	
&	C	Pink	N	See Chart
Pressure Switch	D	Orange	P	
Assembly	E	Dk Blue	R	
TCC Sol	A	Red	E*	20-40 ohms
	B	Black	T	

* Spliced internally to pin E

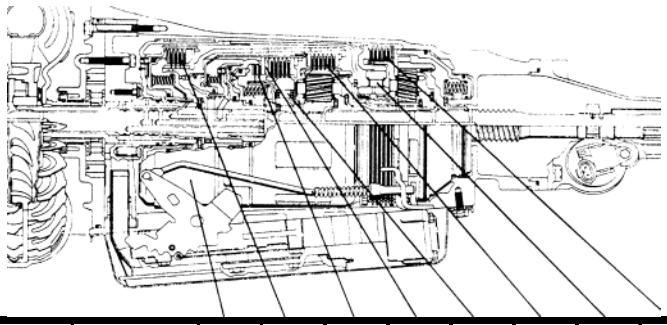
Important Note:

Due to the common problems of:

>Overheating or discoloring of Torque Converter
>P.W.M. boost & actuator feed oil loss.
>T.C.C. slip code on '93-97 units.
>Code P1870 on '98 units.

There is a kit and a reamer available from Sonnax® that includes an isolator valve , sleeve and a regulator valve to correct these problems. For more information on this kit and reamer contact your local Sonnax® dealer. We recommend *this* solution as opposed to only changing the TCC regulator valve spring.

Application Chart



RANGE	GEAR	SHIFT SOL A	SHIFT SOL B	2-4 BAND	REV INPUT	OVER RUN	FWD	FWD SPRAG	3-4	ROL L	LOW /REV
PARK		ON*	ON*								■
REVERSE		ON*	ON*		■						■
NEUTRAL		ON*	ON*								
(D)	1st	ON	ON				■	⊠		⊠	
	2nd	OFF	ON	■			■	⊠			
	3rd	OFF	OFF				■	⊠	■		
	4th	ON	OFF	■			■		■		
D	1st	ON	ON			■	■	⊠		⊠	
	2nd	OFF	ON	■		■	■	⊠			
	3rd	OFF	OFF			■	■	⊠	■		
2	1st**	ON	ON			■	■	⊠		⊠	
	2nd	OFF	ON	■		■	■	⊠			
1	1st	ON	ON			■	■	⊠		⊠	■
	2nd***	OFF	ON	■		■	■	⊠			

■ APPLIED

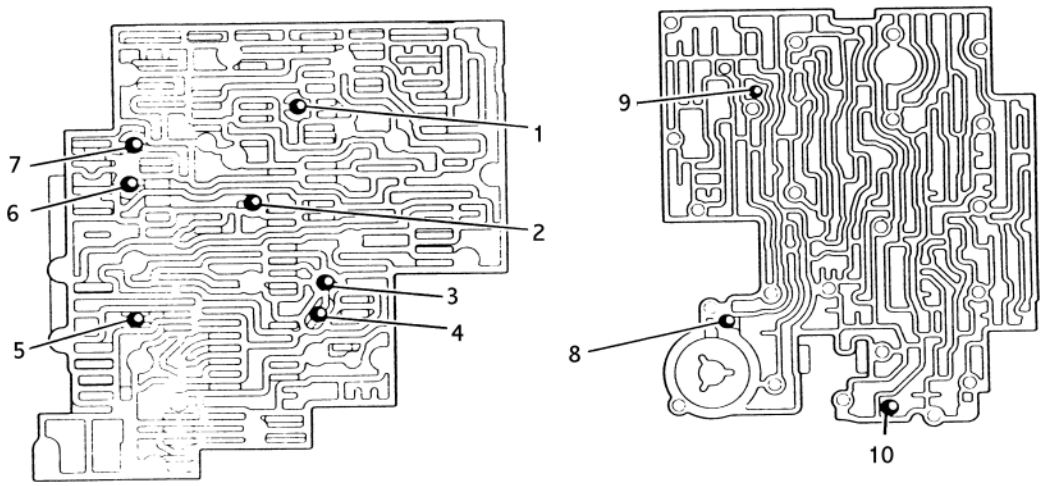
⊠ HOLDING

* SHIFT SOL. MAY CHANGE IF VEH. SPEED INCREASES, BUT DOES NOT AFFECT TRANSMISSION.

** 1st GEAR NORMALLY PREVENTED ELECTRONICALLY

*** 2nd IS ONLY AVALIBLE OVER 30 TO 35 M.P.H.

Check Ball Location

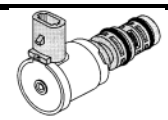


1 = 1-2 UPSHIFT
2 = 3-4 CLUTCH EXHAUST
3 = OVERRUN CLUTCH CONTROL
4 = OVERRUN CLUTCH FEED
5 = FORWARD CLUTCH ACCUM.
6 = 3rd ACCUMULATOR
7 = REVERSE INPUT
8 = 3-4 ACCUMULATOR
9 = 3rd ACCUM. BALL AND RETAINER ASSEMBLY
10 = REVERSE BALL CAPSULE

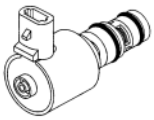
Vehicle Speed Sensor

Sensor resistance should be 1260 - 1540 ohms (Ω) when measured at 20°C (68°F). Output voltage will vary with speed from a minimum of 0.5 Volts AC at 100 RPM to more than 100 Volts AC at 8000 RPM.

3 - 2 Control Solenoid



Early Solenoid

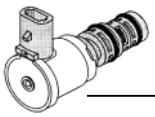


Late Solenoid

The early 3-2 Control solenoid resistance should be 10-15 Ω at 20°C. (68°F). This solenoid with the gray connector and gray stem was used from 1993-1995. (O.E. # 24212690). The late solenoid has a resistance of 20-31 Ω at 20°C (68°F). This solenoid was used from 1996-2000. This solenoid has a white plastic stem and connector to differentiate itself from the late TCC solenoid. (O.E. # 24212327)

Torque Converter Clutch / Pulse Width Modulation Solenoid

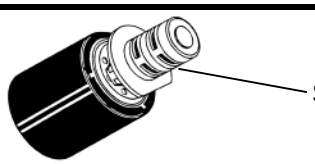
Early Design



Late Design

The early design solenoid has a resistance rating of 20-40 Ω at 20°C (68°F). This solenoid was used for years 1993-1994.
The late design has a gray plastic stem and connector as not to confuse it with the late 3-2 Control solenoid. This solenoid should have a resistance of 10-15 Ω at 20°C (68°F). This is used for 1995-2000. (O.E. # 24212690)

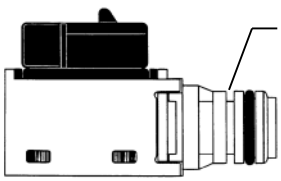
Transmission Pressure Control Solenoid



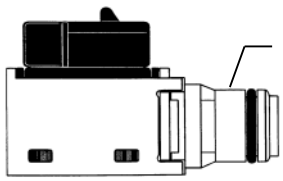
Screen

Transmission control solenoid resistance should measure 3.5 - 4.6 Ω when measured at 20°C (68°F). There is a new design of this solenoid that has a larger micron screen for improved cold weather operation. This new design will retro fit back to 1993. (O.E # 24209276)

1-2 and 2-3 Shift Solenoid



Early (w/groove)



Late (w/o groove)

Shift solenoid resistance should measure 20 - 40 Ω minimum when measured at 20°C (68°F). Shift solenoid current flow should not exceed 0.75 amps. The shift solenoid should energize at a voltage of 7.5 volts or more (measured across the terminals). The shift solenoid should de-energize when voltage is one volt or less.
If both solenoids lose power, only third gear will result
There is a redesigned solenoid that will retro-fit early models. This change only consists of the removal of the groove on the stem. This was to prevent mis-assembly, as retaining clip can be mistakenly installed into this groove. (O.E. # 10478131)

We are proud to be able to furnish you with this information.
Look for more of these technical sheets in transmission kits by:

PRECISION INTERNATIONAL

REVISED: 5/15