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April, 2004

INTRODUCTION PASS BOOK

This PASS BOOK is the first in a series of books designed to assist the technician in diagnosing computer controlled transmissions. The word PASS stands for **Pressures, Applications, Solenoids and Sensors**. The purpose of this book is to be a quick reference guide to Pressure specifications, Application charts, Solenoid and Sensor readings for both Domestic and Import computer controlled transmissions. This book contains the most frequently used data for quick diagnosis and deals specifically with the electronics found on the transmission itself. For diagnosing specific electrical systems throughout the vehicle relating to the transmission operation, the Import and Domestic PASS BOOKS complete the series of manuals designed to aid the technician in diagnosing computer controlled transmissions.

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P A S S B O O K

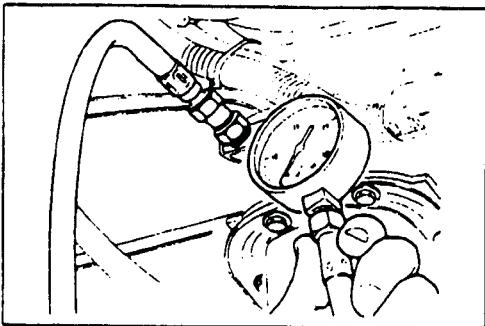
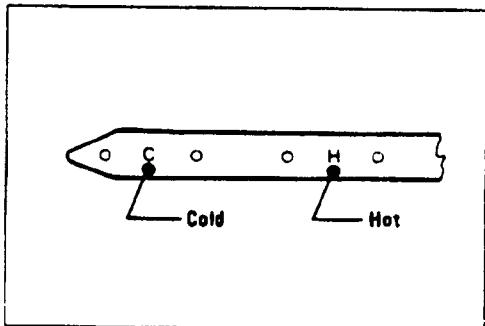
4L30-E APPLICATION CHART

RANGE	GEAR	OVERRUN CLUTCH	4TH CLUTCH	OVERRUN ROLLER CLUTCH	2ND CLUTCH	REVERSE CLUTCH	3RD CLUTCH	LOW SPRAG	1-2 BAND
D	1ST	ON			ON			ON	ON
	2ND	ON			ON	ON			ON
	3RD	ON			ON	ON		ON	
	4TH		ON		ON		ON		
3	1ST	ON			ON			ON	ON
	2ND	ON			ON	ON			ON
	3RD	ON			ON	ON		ON	
2	1ST	ON			ON			ON	ON
	2ND	ON			ON	ON			ON
1	1ST	ON			ON			ON	ON
R	REV	ON			ON		ON		ON



PASS BOOK

4L30-E LINE PRESSURE TEST



Since a large number of mechanical/hydraulic faults are operational faults due to incorrect transmission fluid level, it is important to verify the correct fluid level before proceeding with a line pressure test.

It is especially important for troubleshooting that the line pressure recommended for the function of the transmission be present, so a line pressure check must be carried out after checking transmission fluid level.

Install oil pressure gauge using adapter J-29770-A on the converter housing tap as shown at left. Use the chart below to verify proper line pressure readings.

Fully engage the parking brake, and the service brake for all stall speed tests. At engine speeds above 1500 RPM the pressure check should not last longer than 5 seconds to avoid overheating the transmission.

The stall speed on the ISUZU Trooper/Rodeo 2.8L engine will be 2100 RPM, plus or minus 150 RPM. For all other engines check the manufacturers specifications for stall speeds.

MODE	LEVER POSITION	ENGINE SPEED	LINE PRESSURE		FORCE MOTOR CURRENT
			P.S.I.	kg/cm ²	
NORNAL/POWER	D,3,2	IDLE	45.9-MIN	3.2-MIN	0.97A
WINTER	D	IDLE	45.9-52.3	3.2-3.6	0.97A
NORMAL/POWER WINTER	REVERSE	IDLE	57.9-65.8	4.0-4.5	0.97A
NOMAL/POWER	D,3,2,1	STALL SPEED	149.4-161.1	10.3-11.1	0.15A
WINTER	D	STALL SPEED	149.4-161.1	10.3-11.1	0.15A
NORMAL/POWER WINTER	REVERSE	STALL SPEED	186.9-201.5	12.9-13.9	0.15A

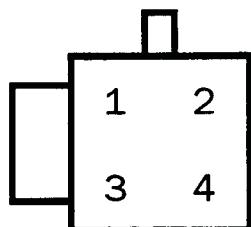


PASS BOOK

4L30-E SOLENOID & SENSOR RESISTANCE TEST

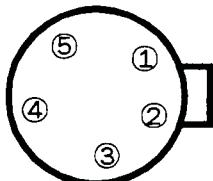
1-2/3-4 SHIFT SOLENOID.....	17.5 - 18.5 OHMS
2-3 SHIFT SOLENOID.....	17.5 - 18.5 OHMS
CONVERTER CLUTCH SOLENOID.....	17.5 - 18.5 OHMS
BAND APPLY SOLENOID.....	9.5 - 10.5 OHMS
FORCE MOTOR (PSC)	3.7 - 4.7 OHMS
OUTPUT SPEED SENSOR (+ OR - 20 OHMS).....	3000 OHMS

MAIN CASE CONNECTOR

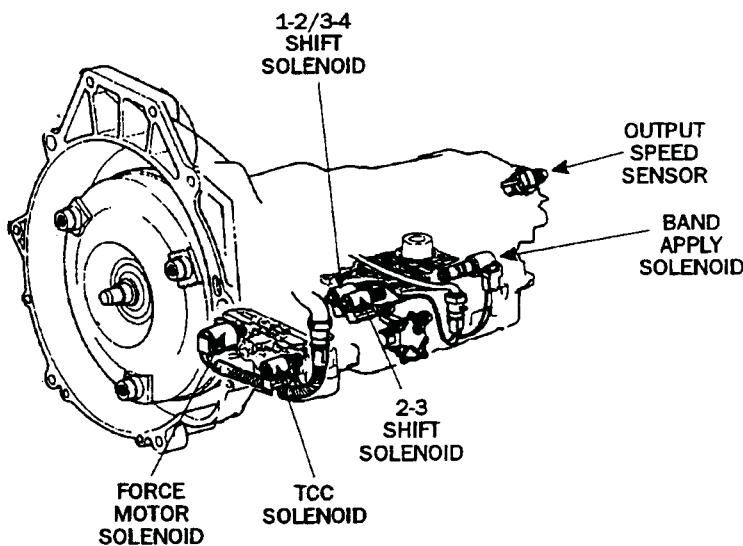


1 - 2/3 SHIFT SOLENOID GROUND
2 - NOT USED
3 - 1-2 / 3-4 SOLENOID GROUND
4 - SOLENOID POWER

OVERDRIVE CASE CONNECTOR



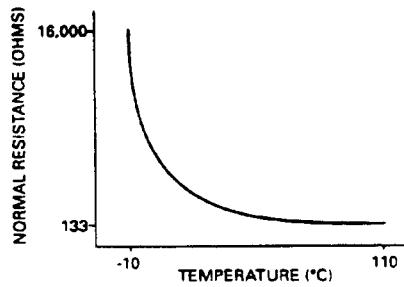
2 = L.U. SOLENOID
3 = PSC POSITIVE
4 = PSC NEGATIVE
1 & 5 = TOT SENSOR



TRANSMISSION OIL TEMPERATURE (TOT) SENSOR



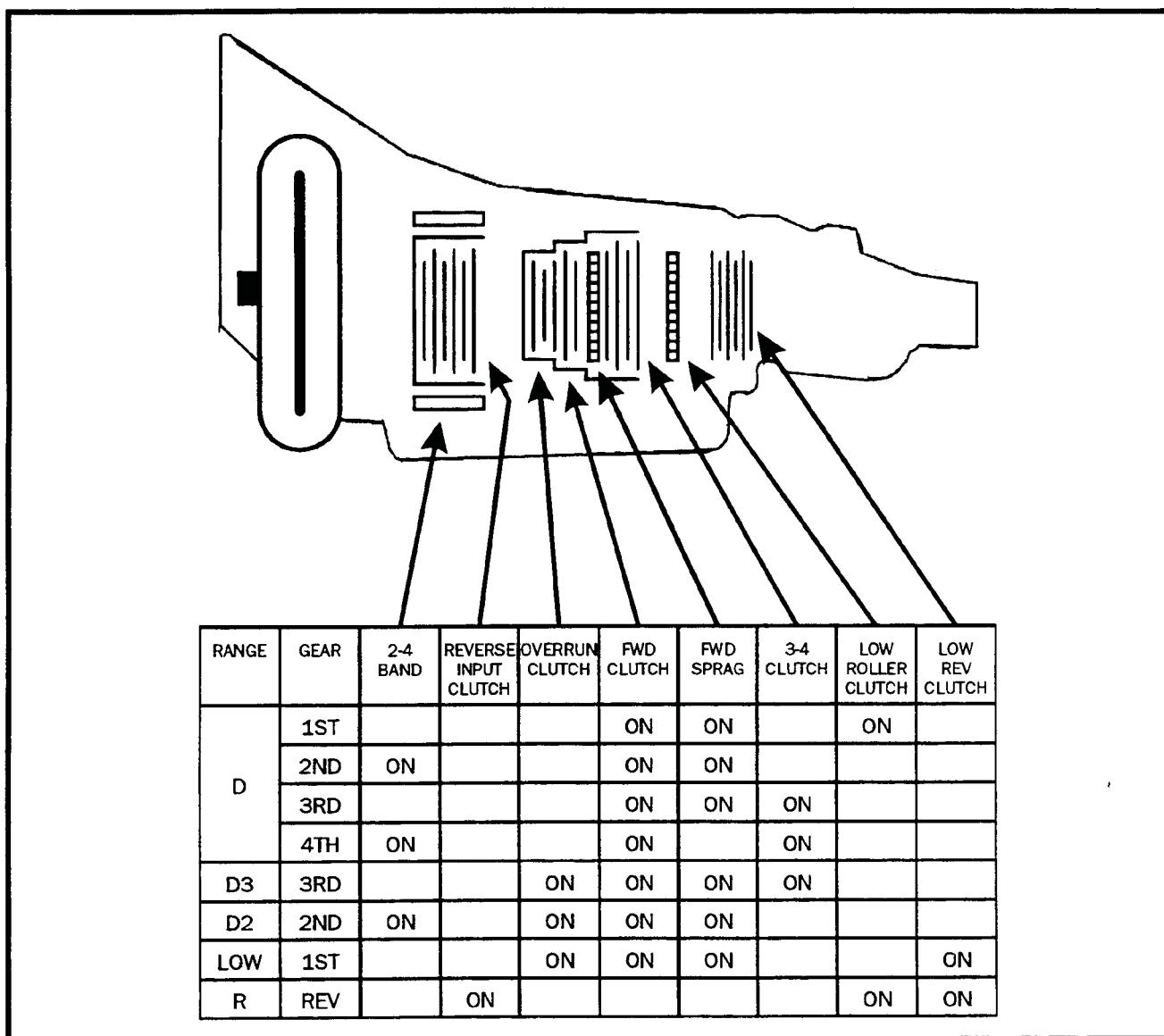
TEMPERATURE SENSOR





PASS BOOK

4L60-E APPLICATION CHART





PASS BOOK

4L60-E PRESSURE CHART

Line pressures are calibrated for two sets of gear ranges – Drive-Park-Neutral and Reverse. This allows the transmission line pressure to be appropriate for different pressure needs in different gear ranges:

Gear Range	Line Pressure Range
Drive, Park or Neutral	55 - 189 PSI
Reverse	64 - 324 PSI

Before performing a line pressure check, verify that the pressure control solenoid is receiving the correct electrical signal from the PCM:

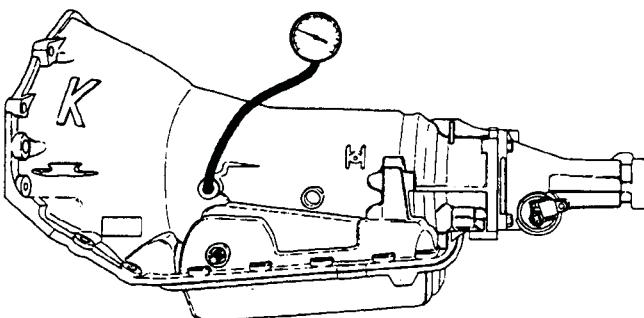
1. Install a scan tool.
2. Start the engine and set parking brake.
3. Check for a stored pressure control solenoid diagnostic trouble code, and other diagnostic trouble codes.
4. Repair vehicle if necessary.

Inspect

- Fluid level
- Manual linkage

Install or Connect

- TECH 1 Scan tool
- Oil pressure gage at line pressure tap



5. Put gear selector in Park and set the parking brake.
6. Start engine and allow it to warm up at idle.
7. Access the "PCS Control" test on the TECH 1 scan tool.
8. Increase DESIRED PCS in 0.1 Amp increments and read the corresponding line pressure on the pressure gage.
(Allow pressure to stabilize for 5 seconds after each current change.)
9. Compare data to the Drive-Park-Neutral line pressure chart below.

***NOTICE**

Total test running time should not exceed 2 minutes, or transmission damage could occur.

CAUTION

Brakes must be applied at all times to prevent unexpected vehicle motion.

If pressure readings differ greatly from the line pressure chart, refer to the Diagnosis Charts contained in this section.

The TECH 1 scan tool is only able to control the pressure control solenoid in Park and Neutral with the vehicle stopped. This protects the clutches from extremely high or low pressures in Drive or Reverse ranges.

Pressure Control Solenoid Current (Amp)	Line Pressure (PSI)
0.02	170 - 190
0.10	165 - 185
0.20	160 - 180
0.30	155 - 175
0.40	148 - 168
0.50	140 - 160
0.60	130 - 145
0.70	110 - 130
0.80	90 - 115
0.90	65 - 90
0.98	55 - 65

Pressures at 15 RPM and 66°C (150°F)



PASS BOOK

4L60-E SOLENOID & SENSOR TEST

FORCE MOTOR

1. Volt/Ohmmeter set to Ohms, leads terminal to terminal on Force Motor, Ohmmeter should read 3-5 ohms resistance, at 70°F.
2. If checking from outside the transmission, Ohmmeter leads from terminal "C" to terminal "D", Ohmmeter should read 3-5 ohms (See Figure 14).

SHIFT SOLENOID "A"

1. Volt/Ohmmeter set to Ohms, leads terminal to terminal on Shift Solenoid "A", Ohmmeter should read 20-40 ohms resistance, at 70°F.
2. If checking from outside the transmission, Ohmmeter leads from terminal "E" to terminal "A", Ohmmeter should read 20-40 ohms (See Figure 14).
3. Should hear "Click" when 12V and ground are applied.

SHIFT SOLENOID "B"

1. Volt/Ohmmeter set to Ohms, leads terminal to terminal on Shift Solenoid "B", Ohmmeter should read 20-40 ohms resistance, at 70°F.
2. If checking from outside the transmission, Ohmmeter leads from terminal "E" to terminal "B", Ohmmeter should read 20-40 ohms (See Figure 14).
3. Should hear "Click" when 12V and ground are applied.

3-2 DOWNSHIFT SOLENOID

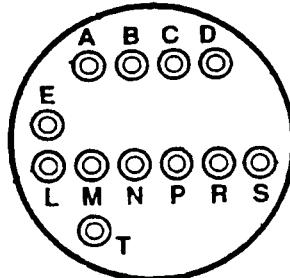
1. Volt/Ohmmeter set to Ohms, leads terminal to terminal on 3-2 Solenoid, Ohmmeter should read 10-15 ohms resistance, at 70°F.
2. If checking from outside the transmission, Ohmmeter leads from terminal "E" to terminal "S", Ohmmeter should read 10-15 ohms (See Figure 14).

OUTPUT SPEED SENSOR

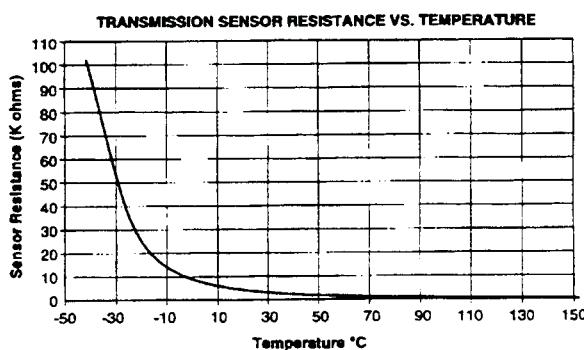
1. Volt/Ohmmeter set to Ohms, leads terminal to terminal on Output Speed Sensor, Ohmmeter should read 1000-1500 ohms resistance.
2. The Output Speed Sensor generates AC voltage, the faster it turns the more AC voltage it generates. The PCM uses this voltage signal to determine how fast the vehicle is going.

SHIFT SOLENOID STATES

GEAR	SHIFT "A"	SHIFT "B"
1ST	ON	ON
2ND	OFF	ON
3RD	OFF	OFF
4TH	ON	OFF



CONNECTOR VIEW



CONNECT BETWEEN TERMINALS
L & M FOR TOT SENSOR



PASS BOOK

4L80-E APPLICATION CHART

The diagram shows a cross-section of the 4L80-E transmission. It features several clutch plates and bands. On the left, there's a large input shaft with a clutch plate. To its right are two smaller clutch plates, followed by a band. Further to the right are more clutch plates and a final band near the output end. Arrows point from the clutch names in the chart to their corresponding components in the diagram.

RANGE	GEAR	4TH CLUTCH	OVERRUN CLUTCH	O.D. ROLLER CLUTCH	FWD CLUTCH	FRONT BAND	DIRECT CLUTCH	INT. SPRAG CLUTCH	INT. CLUTCH	LOW ROLLER CLUTCH	REAR BAND
D4	1ST			ON	ON			*			
	2ND			ON	ON			ON	ON		
	3RD			ON	ON		ON		ON		
	4TH	ON			ON		ON		ON		
D3	1ST		ON	ON	ON			*			
	2ND		ON	ON	ON			ON	ON		
	3RD		ON	ON	ON		ON		ON		
D2	1ST		ON	ON	ON			*			
	2ND		ON	ON	ON	ON		ON	ON		
D1	1ST		ON	ON	ON			*		ON	ON
	2ND		ON	ON	ON	ON		ON	ON		
R	REV			ON			ON			ON	ON

* - HOLDING BUT NOT EFFECTIVE



PASS BOOK

4L80-E LINE PRESSURE CHECK PROCEDURE

Line pressures are calibrated for two sets of gear ranges — Drive-Park-Neutral, and Reverse. This allows the transmission line pressure to be appropriate for different pressure needs in different gear ranges:

Gear Range	Line Pressure Range
Drive, Park or Neutral	35 - 171 PSI
Reverse	67 - 324 PSI

Before performing a line pressure check, verify that the force motor is receiving the correct electrical signal from the vehicle computer:

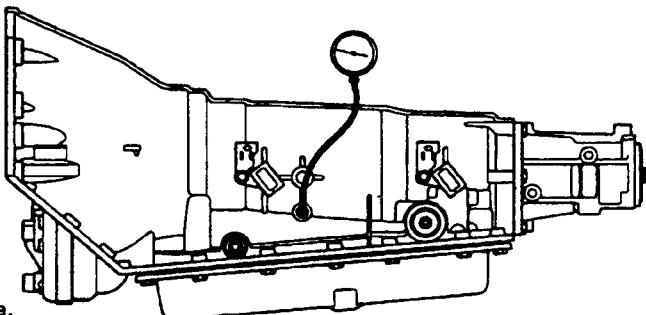
1. Install a scan tool.
2. Start the engine and set parking brake.
3. Check for a stored force motor malfunction code, and other malfunction codes.
4. Repair vehicle if necessary.

Inspect

- Fluid level
- Manual linkage

Install or Connect

- TECH 1 Scan tool
- Oil pressure gage at line pressure tap



5. Put gear selector in Park and set the parking brake.
6. Start engine and allow it to warm up at idle.
7. Access the "override force motor" test on the TECH 1 scan tool.
8. Increase FORCE MOTOR CURRENT in 0.1 Amp increments and read the corresponding line pressure on the pressure gage. (Allow pressure to stabilize for 5 seconds after each current change.)
9. Compare data to the Drive-Park-Neutral line pressure chart below.

Line pressure will pulse either high or low every ten seconds to keep the force motor plunger free. This is normal and will not harm the transmission.

***NOTICE** Total test running time should not exceed 2 minutes, or transmission damage could occur.

CAUTION Brakes must be applied at all times to prevent unexpected vehicle motion.

If pressure readings differ greatly from the line pressure chart, refer to the Diagnosis Charts contained in this section.

The TECH 1 scan tool is only able to control the force motor in Park and Neutral with the vehicle stopped at idle. This protects the clutches from extremely high or low pressures in Drive or Reverse ranges.

Force Motor Current (Amp)	Line Pressure (PSI)
0.02	157 - 177
0.10	151 - 178
0.20	140 - 172
0.30	137 - 162
0.40	121 - 147
0.50	102 - 131
0.60	88 - 113
0.70	63 - 93
0.80	43 - 73
0.90	37 - 61
0.98	35 - 55



P A S S B O O K

4L80-E SOLENOID & SENSOR TEST

SOLENOID	TERMINAL "EARLY"	TERMINAL '93 - UP	RESISTANCE VALVE
FORCE MOTOR	L & M	C & D	3 - 5 OHMS
TCC/PWM SOLENOID	K & J	S & E	10 - 15 OHMS
SHIFT SOLENOID A	A & C	A & E	20 - 50 OHMS
SHIFT SOLENOID B	B & C	B & E	20 - 50 OHMS

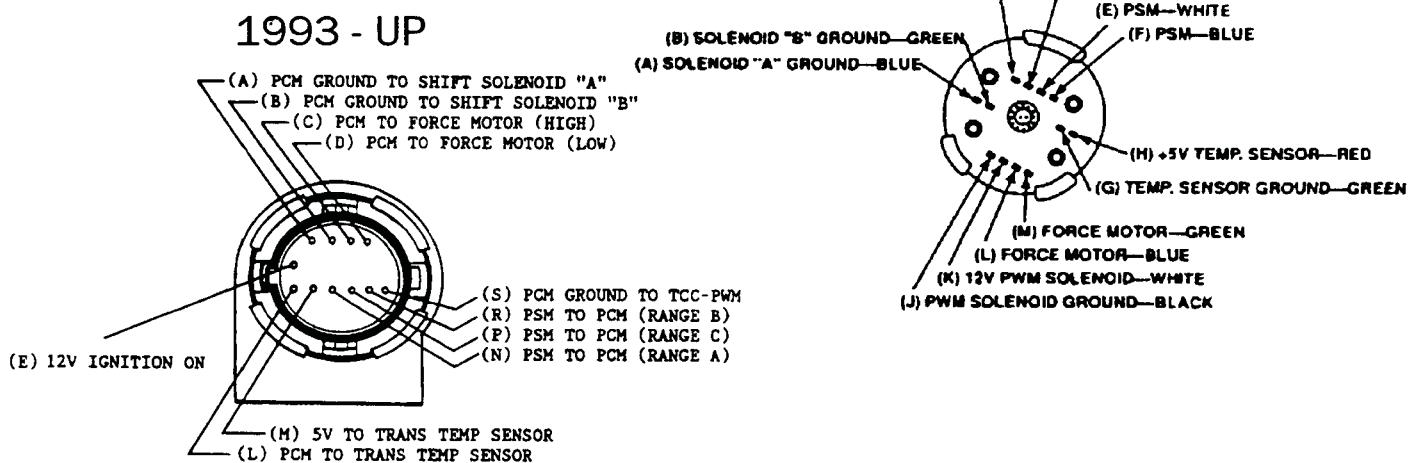
TRANSMISSION TEMPERATURE SENSOR

TERMINAL	°C	°F	RESISTANCE VALUES
EARLY 1993 - UP G & H H & GROUND	20° 30° 40° 50° 60° 70° 80° 90° 100°	68° 86° 104° 122° 140° 158° 176° 194° 212°	2981 - 4018 ohms 1915 - 2550 ohms 1260 - 1660 ohms 848.8 - 1105 ohms 584.1 - 753.4 ohms 410.3 - 524.2 ohms 293.7 - 371.7 ohms 213.9 - 268.2 ohms 158.1 - 196.8 ohms

The TISS and the TOSS

Both sensors should have 1260 - 1540 ohms when measured at approximately 68°F. These sensors are A.C. voltage generators and can also be checked using Hz frequency.

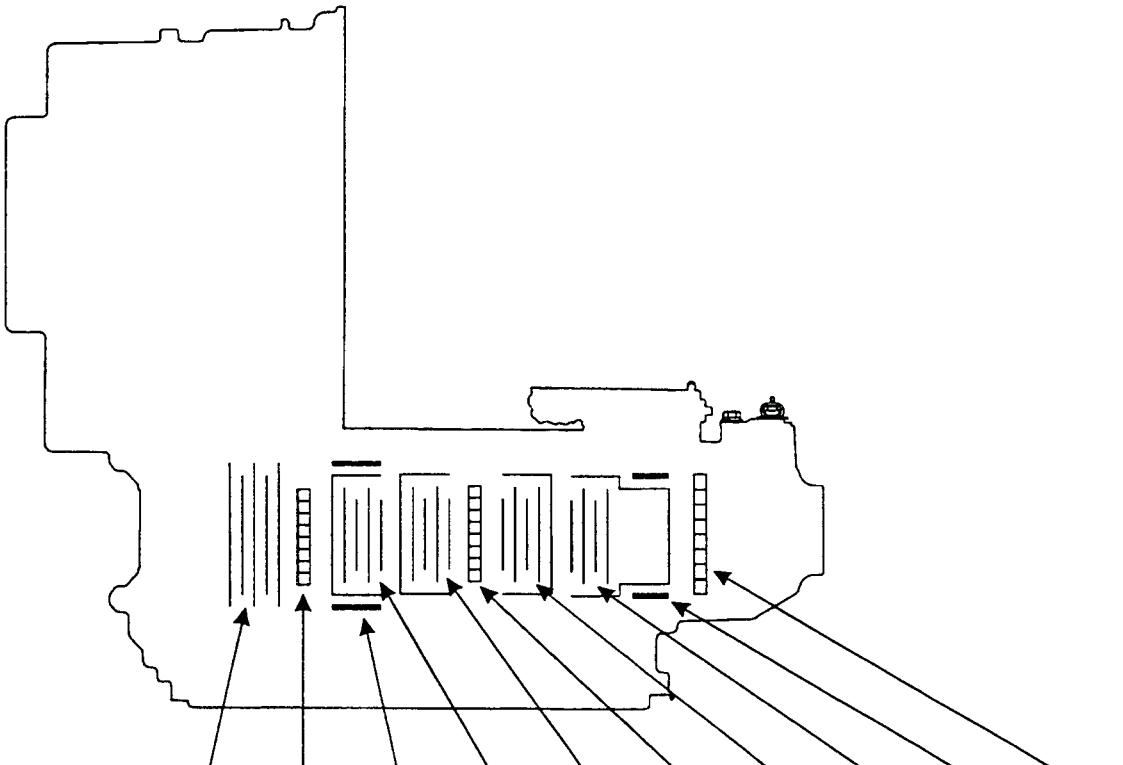
EARLY





PASS BOOK

4T40-E APPLICATION CHART



RANGE	GEAR	2ND CLUTCH	2ND ROLLER CLUTCH	2-4 BAND	REV CLUTCH	COAST CLUTCH	INPUT SPRAG	DIRECT CLUTCH	FWD CLUTCH	LO/REV BAND	LO ROLLER CLUTCH
REV	R				ON					ON	
D	1ST						ON		ON		' ON
	2ND	ON	ON				ON		ON		
	3RD	ON*					ON	ON	ON		
	4TH	ON*		ON				ON	ON*		
3	1ST					ON	ON		ON		ON
	2ND	ON	ON	ON		ON	ON		ON		
	3RD	ON*				ON	ON	ON	ON		
2	1ST					ON	ON		ON		ON
	2ND	ON	ON	ON		ON	ON		ON		
	3RD**	ON*				ON	ON	ON	ON		
1	1ST					ON	ON		ON	ON	ON
	2ND***	ON	ON	ON		ON	ON		ON		

* APPLIED WITH NO LOAD

** THIRD GEAR IS ONLY AVAILABLE ABOVE APPROX. 62mph

*** SECOND GEAR IS ONLY AVAILABLE ABOVE APPROX. 37mph



P A S S B O O K

4T40-E CHECKS

PRESSURE SWITCH CHECK

One of the six switches in the pressure switch assembly is normally closed (N/C), and the other five are normally open (N/O).

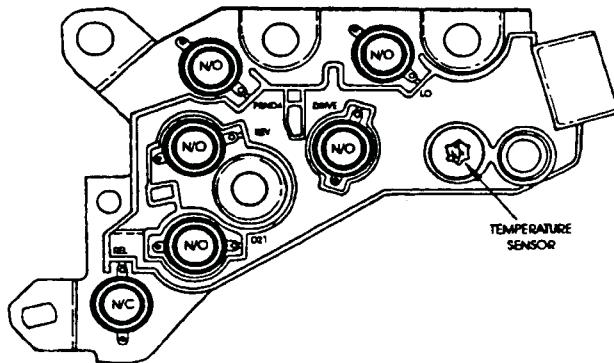
Set your ohmmeter so that it emits a "Tone" when the leads are connected.

Place the meter leads on the pins on each side of the LO switch switch is normally open. No tone should be heard.

With the leads still in place, using a small flat punch, close the switch by carefully pushing down on the center of the switch. If a tone is heard the switch is good.

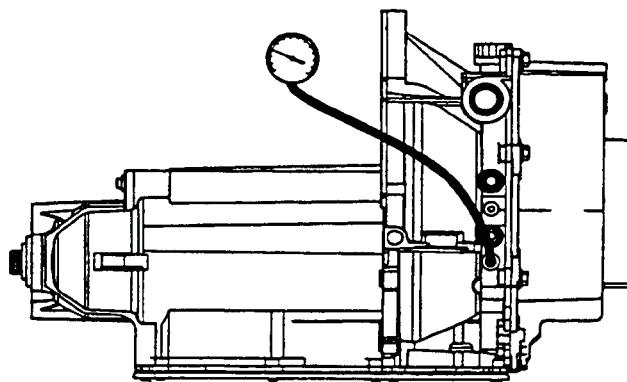
Check the rest of the normally open switches the same way.

The REL switch should check just the opposite, a tone should be heard until you push down on the center of the switch.



LINE PRESSURE CHECK

PRESSURE CONTROL SOLENOID (CURRENT) AMPS	APPROXIMATE LINE PRESSURE (PSI)
0.00	152 - 160
0.10	149 - 151
0.30	141 - 143
0.50	124 - 127
0.60	111 - 115
0.70	97 - 101
0.80	81 - 84
0.90	64 - 67
0.95	56 - 58
1.00	50 - 51
1.05	50
1.10	50

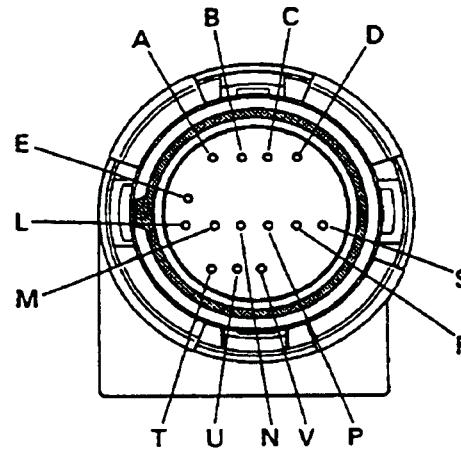




PASS BOOK

4T40-E CHECKS

PIN IDENTIFICATION	
CAVITY	FUNCTION
A	1-2 SHIFT SOLENOID
B	2-3 SHIFT SOLENOID
C	PRESSURE CONTROL SOLENOID (HIGH)
D	PRESSURE CONTROL SOLENOID (LOW)
E	BOTH SHIFT & TCC PWM SOLENOIDS
L	TRANS FLUID TEMP SENSOR (HIGH)
M	TRANS FLUID TEMP SENSOR (LOW)
N	RANGE SIGNAL "A"
P	RANGE SIGNAL "C"
R	RANGE SIGNAL "B"
S	INPUT SPEED SENSOR (HIGH)
T	TCC PWM SOLENOID
U	TCC RELEASE SWITCH
V	INPUT SPEED SENSOR (LOW)



GEAR	SOLENOID 1-2	SOLENOID 2-3
P, R, N*	ON	
1ST	ON	
2ND		
3RD		ON
4TH	ON	ON

* - MAY CHANGE BASED ON SPEED & THROTTLE POSITION

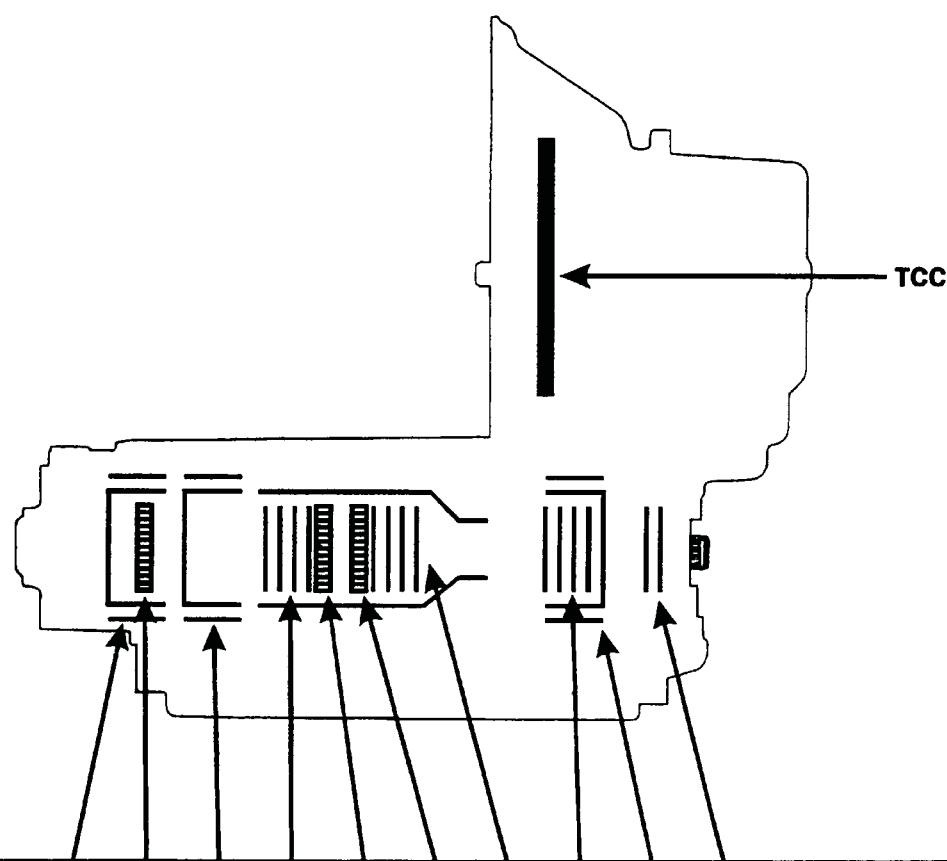
RESISTANCE CHART			
COMPONENT	PINS	RESISTANCE 20° C (70° F) OHMS	RESISTANCE TO GROUND OHMS
1-2 SHIFT SOLENOID	A - E	19 - 24	GREATER THAN 250K OHMS
2-3 SHIFT SOLENOID	B - E	19 - 24	GREATER THAN 250K OHMS
TCC PWM SOLENOID	T - E	10 - 11	GREATER THAN 250K OHMS
PRESSURE CONTROL SOLENOID	C - D	3 - 5	GREATER THAN 250K OHMS
TRANS FLUID TEMP SENSOR	L - M	SEE CHART	GREATER THAN 20m OHMS
INPUT SPEED SENSOR	S - V	615 - 700	GREATER THAN 20m OHMS
VEHICLE SPEED SENSOR	A - B VSS CON	1530-1650	GREATER THAN 20m OHMS

FLUID TEMP SENSOR		
°C	°F	OHMS
20	68	3106-3923
30	86	1991-2483
40	104	1307-1611
50	122	878-1067
60	140	605-728
70	158	425-507
80	176	304-359
90	194	221-259
100	212	163-190



PASS BOOK

4T60-E APPLICATION CHART



SELECTOR POSITION	GEAR ENGAGED	FORWARD BAND	1-2 SUPPORT ROLLER CLUTCH	MANUAL 2-1 BAND	INPUT CLUTCH	INPUT SPRAG	3rd ROLLER CLUTCH	3rd CLUTCH	2nd CLUTCH	REVERSE BAND	4th CLUTCH	SOLONID A	SOLONID B	T.C.C.
P PARK					ON	ON						ON	ON	
R REVERSE					ON	ON				ON		ON	ON	
N NEUTRAL					ON	ON						ON	ON	
D	1st	ON	ON		ON	ON						ON	ON	
	2nd	ON	ON		ON*				ON			ON	ON**	
	3rd	ON					ON	ON	ON				ON**	
	4th	ON						ON*	ON		ON	ON	ON**	
D	1st	ON	ON		ON	ON						ON♦	ON♦	
	2nd	ON	ON		ON*				ON			ON♦	ON**	
	3rd	ON			ON	ON	ON	ON					ON**	
2	1st	ON	ON	ON	ON	ON						ON♦	ON♦	
	2nd	ON	ON	ON	ON*				ON			ON♦		
1	1st	ON	ON	ON	ON	ON	ON	ON	ON			ON♦	ON♦	

♦ The solenoid's state follows a shift pattern which depends upon vehicle speed and throttle position.
It does not depend upon the selected gear.

* Applied but not effective.

** TCC may be on depending on vehicle conditions.



P A S S B O O K

4T60-E SOLENOID & SENSOR RESISTANCE TESTS

CHART 1	
PIN	FUNCTION
A	TCC +
B	4TH CL DISCRETE SWITCH
C	LOW CL DISCRETE SWITCH
D	TCC -
E	SSA & SSB +
F	SSA -
G	SSB -

CHART 2	
PIN	FUNCTION
A	SSA -
B	SSB -
C	TCC +
D	TCC -
E	SSA & SSB +
F	LOW CL DISCRETE SWITCH
G	4TH CL DISCRETE SWITCH

CHART 3	
PIN	FUNCTION
A	TCC +
B	PWM TCC -
C	NOT USED
D	TCC -
E	SSA, SSB, PWM TCC +
F	SSA -
G	SSB -

CHART 4	
PIN	FUNCTION
A	TCC +
B	PWM TCC -
C	TEMP. SWITCH *
D	TCC -
E	SSA, SSB, PWM TCC +
F	SSA -
G	SSB -

CHART 5	
PIN	FUNCTION
A	SSA -
B	SSB -
C	PWM TCC -
D	TCC -
E	SSA, SSB, PWM TCC, TCC +
F	TEMP. SENSOR +
G	TEMP. SENSOR -

CHART 6	
PIN	FUNCTION
A	TCC +
B	PWM TCC -
C	NOT USED
D	TCC -
E	SSA, SSB, PWM TCC +
F	SSA -
G	SSB -

* - TRACTION CONTROL ONLY

CHART 7	
PIN	FUNCTION
A	SSA -
B	SSB -
C	PWM TCC -
D	TCC -
E	SSA, SSB, PWM TCC, TCC +
F	NOT USED
G	NOT USED

SOLENOID APP CHART

GEAR	SSA	SSB
1ST	ON	ON
2ND		ON
3RD		
4TH	ON	

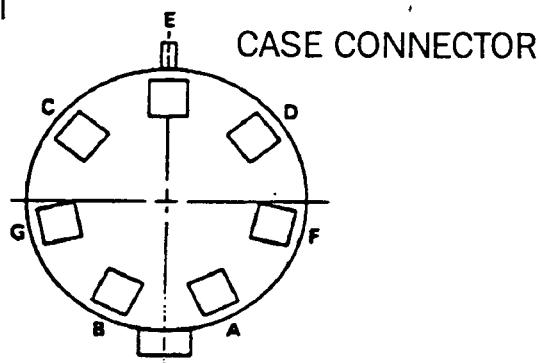


CHART 1 1991-1993 PRESSURE SWITCH MODELS
 CHART 2 1994 PRESSURE SWITCH MODELS
 CHART 3 1991-1992 NO PRESSURE SWITCH WITH TCC
 CHART 4 1993 WITH TEMP SENSOR
 CHART 5 1994 WITH TEMP SENSOR
 CHART 6 1993 NO TEMP SENSOR
 CHART 7 1994 NO TEMP SENSOR



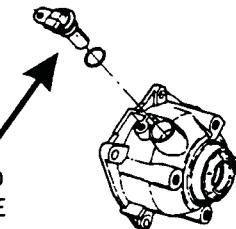
PASS BOOK

4T60-E PRESSURE TEST & SENSOR RESISTANCE TESTS

SOLENOID RESISTANCE	
CIRCUIT	OHMS
PWM-TCC	10 - 15
TCC	20 - 40
SSA	20 - 40
SSB	20 - 40
4T CLUTCH DISCRETE - CONTINUITY IN 4TH ONLY	
LOW CLUTCH DISCRETE - CONTINUITY IN LOW ONLY	

TEMP SENSOR	
TEMPERATURE	OHMS
20° C / 70° F	14006
90° C / 190° F	965
127° C / 260° F	309

4T60-E VSS RESISTANCE TEST

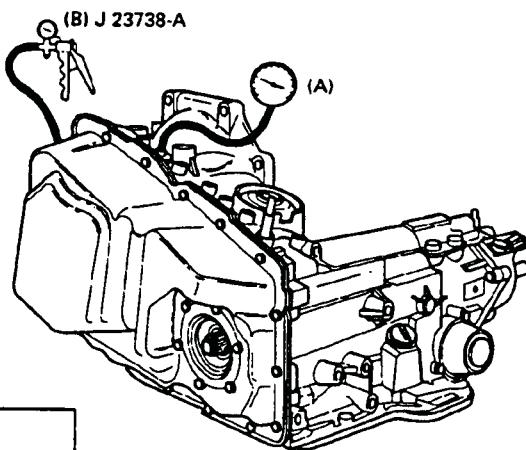


SPEED SENSOR RESISTANCE SHOULD BE 1200 - 1500 OHMS BETWEEN THE TWO TERMINALS ON THE SENSOR

PRESSURE TEST

IMPORTANT: ALTITUDE WILL AFFECT ENGINE VACUUM READINGS AS SHOWN IN THE FOLLOWING CHART:

ALTITUDE	ENGINE VACUUM
SEA LEVEL	48-76 kPa (14-22 IN. Hg.)
305 Meters (1000 Feet)	45-72 kPa (13-21 IN. Hg.)
610 Meters (2000 Feet)	42-69 kPa (12-20 IN. Hg.)
914 Meters (3000 Feet)	38-66 kPa (11-19 IN. Hg.)
1219 Meters (4000 Feet)	34-62 kPa (10-18 IN. Hg.)
1524 Meters (5000 Feet)	31-58 kPa (9-17 IN. Hg.)



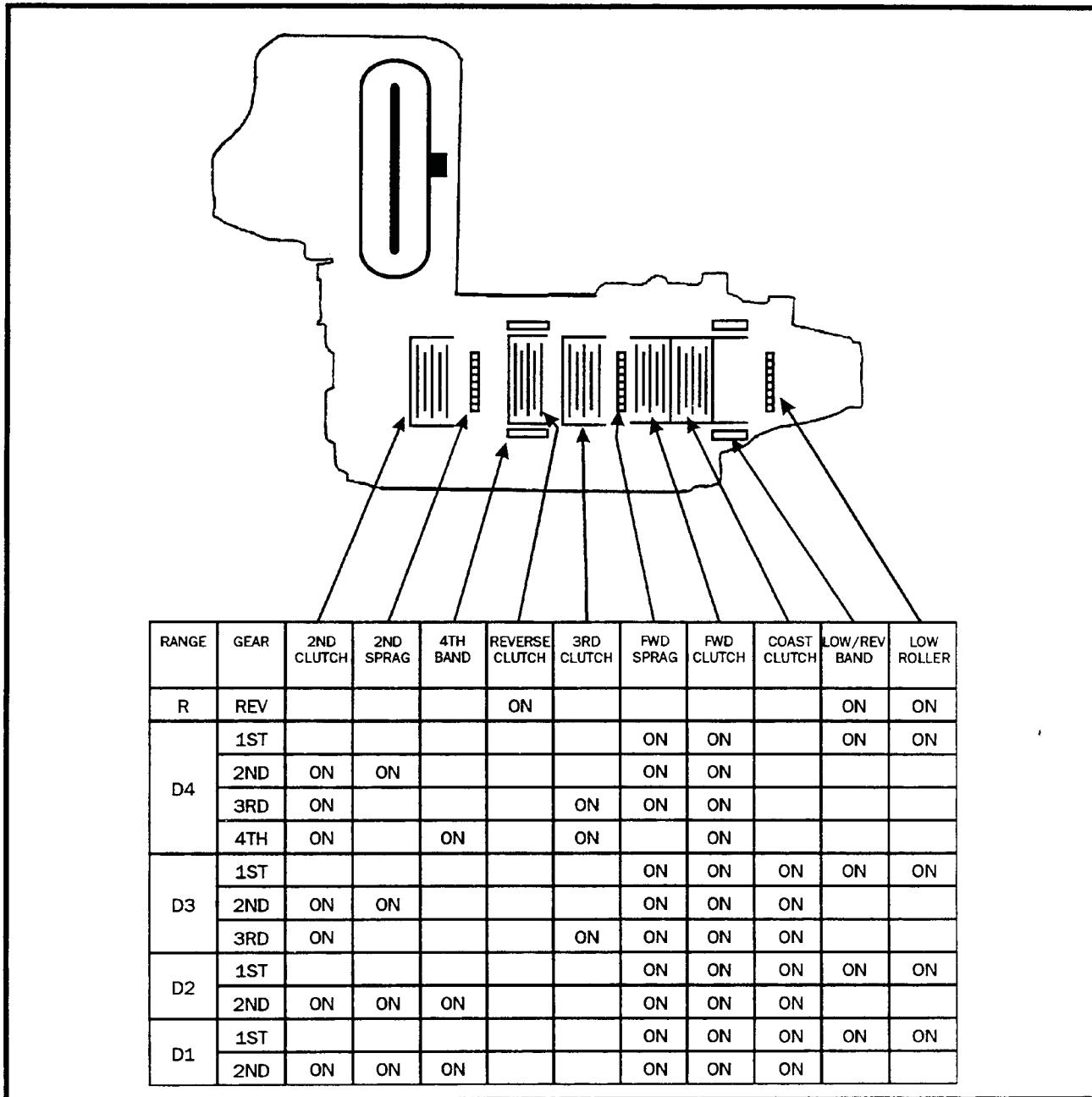
1993 HYDRA-MATIC 4T60-E TRANSAXLE MODEL

	RANGE	kPa	PSI
MINIMUM LINE @1250 R.P.M. 61 kPa (18 IN. Hg.) Vacuum at modulator	D4, D3, D2	510-586	74-85
	D1	1088-1171	158-170
	P, R, N	544-654	79-95
FULL LINE @1250 R.P.M. 0 kPa (0 IN. Hg.) Vacuum at modulator	D4, D3, D2	1137-1412	165-205
	D1	1088-1171	158-170
	P, R, N	1757-2170	255-315



PASS BOOK

4T80-E APPLICATION CHART



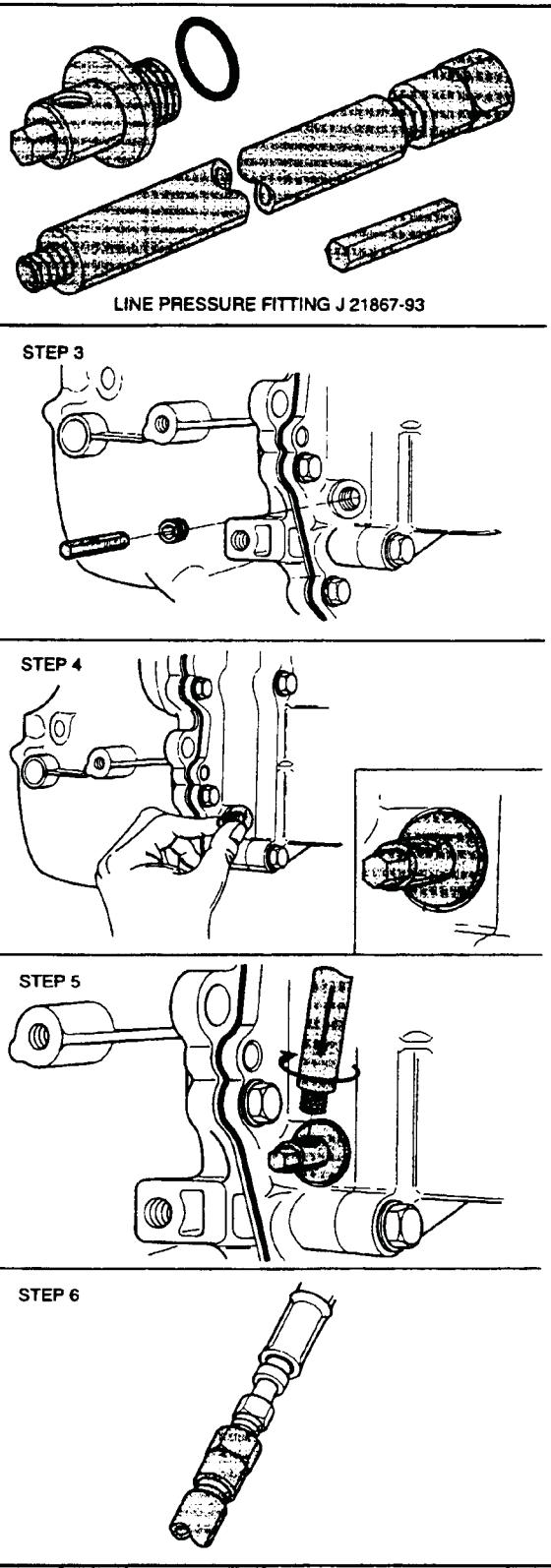


PASS BOOK

4T80-E LINE PRESSURE TEST

1. Requires special line pressure fitting J-21867-93, as shown on right.
2. Remove the air cleaner assembly.
3. Raise vehicle and suitably support.
4. Install bar stock into pressure plug, as shown in step 3.
5. Install line pressure fitting using a ratchet box wrench. Tighten adapter so the insert hole for the dowel rod is in a 1 O'clock position. Refer to step 4.
6. Lower vehicle and install dowel rod in fitting as shown in, step 5.
7. Attach line pressure gage and hose to dowel rod fitting as shown in step 6.
8. Secure hose in a safe position to avoid damage during line pressure test.
9. To remove the line pressure gage, reverse the steps above.

NO CHART AVAILABLE AT TIME
OF PRINTING





P A S S B O O K

4T80-E SOLENOID & SENSOR RESISTANCE TESTS

TCC SOLENOID:

TCC solenoid resistance should be 10-15 ohms when measured at 20° C (68° F), at 88° C (190° F) 11-25 ohms.

PRESSURE CONTROL SOLENOID (FORCE MOTOR):

Transaxle Pressure Control Solenoid resistance should measure 3.5-4.6 ohms when measured at 20° C (68° F).

SHIFT SOLENOIDS "A" & "B":

Shift solenoid resistance should measure 20-30 ohms when measured at 20° C (68° F) at 88° C (190° F) 23-50 ohms.

VEHICLE SPEED SENSOR:

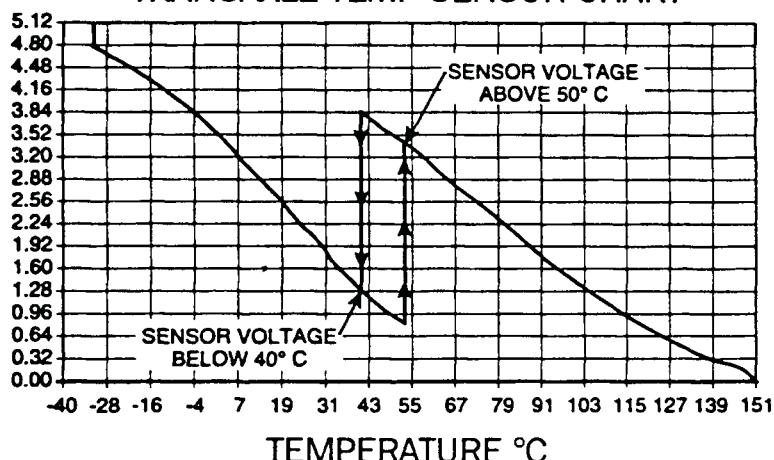
VSS sensor resistance should be 1260-1540 ohms when at 20° C (68° F). Output voltage may vary with speed from 0.5 volts at 100 RPM to more than 100 volts AC at 8000 RPM.

TRANSAXLE INPUT SPEED SENSOR:

sensor resistance should be 1260-1540 ohms when at 20° C (68° F). Output voltage may vary with speed from 0.5 volts at 100 RPM to more than 100 volts AC at 8000 RPM.

TRANSAXLE RANGE SWITCH

TRANSAXLE TEMP SENSOR CHART

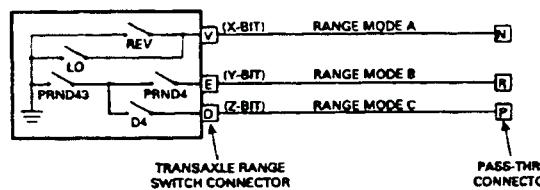


Seven valid combinations and two invalid combinations are available from the TR. Valid combinations for Circuits A, B and C are shown in Figure. Invalid combinations are A=0V, B=0V and C=0V; or A=0V, B=12V and C=0V.

RANGE INDICATOR	OIL PRESSURE					VALID TR COMBINATION CHART
	REV	D4	PRND4	PRND43	LO	
PARK						
REVERSE						
NEUTRAL						
D4						
D3						
D2						
LO						

	Z	Y	X
PARK	12	0	12
REVERSE	12	0	0
NEUTRAL	12	0	12
4TH	0	0	12
3RD	0	12	12
2ND	12	12	12
1ST	12	12	0
ILLEGAL	0	12	0
ILLEGAL	0	0	0

EXPECTED VOLTAGE READINGS



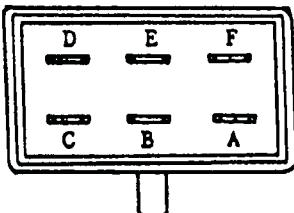


P A S S B O O K

4T80-E CASE CONNECTORS

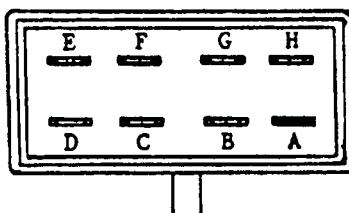
EARLY MODEL CASE CONNECTOR

6 PIN CONNECTOR



- A = TRANAXLE INPUT SENSOR (HI)
B = TRANAXLE INPUT SENSOR (LO)
C = FORCE MOTOR
D = FORCE MOTOR ENABLE
E = TCC SOLENOID - 12V
F = TCC SOLENOID - GROUND

8 PIN CONNECTOR

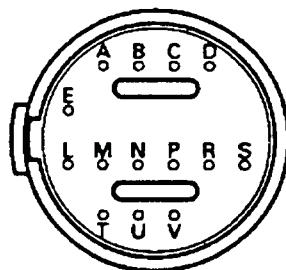


- A = PSM SWITCH "X" CIRCUIT INPUT TO PCM
B = PSM SWITCH "Y" CIRCUIT INPUT TO PCM
C = TEMP SENSOR - 5V RETURN
D = TEMP SENSOR - INPUT
E = SHIFT SOLENOID "A" GROUND
F = SHIFT SOLENOIDS - 12V
G = SHIFT SOLENOID "B" GROUND
H = PSM SWITCH "Z" CIRCUIT INPUT TO PCM

GEAR	SOLENOID A	SOLENOID B
1	ON	OFF
2	OFF	OFF
3	OFF	ON
4	ON	ON

LATE MODEL CASE CONNECTOR

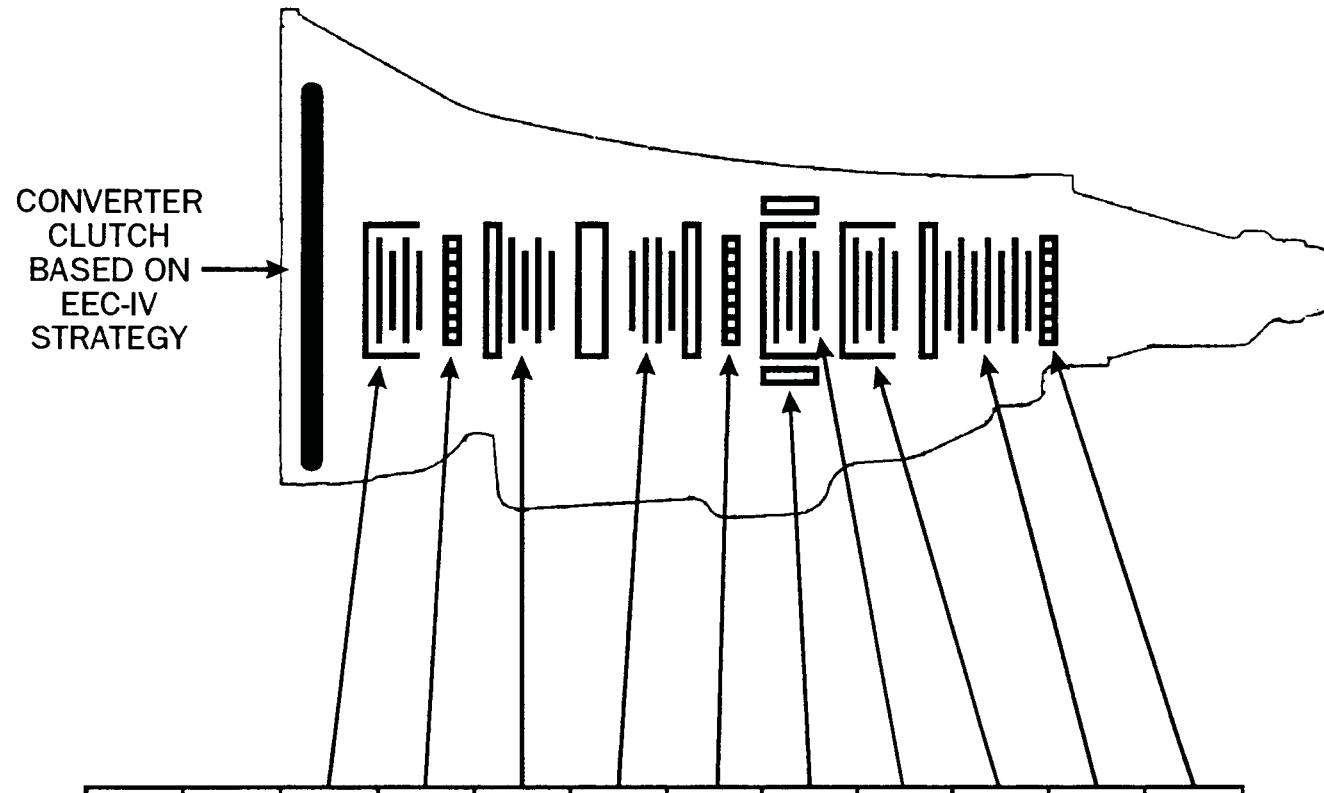
PIN	CIRCUIT
N	PSM (X) "C"
R	PSM (Y) "E"
L	TEMP SENSOR
M	TEMP SENSOR
A	SOLENOID "A"
E	POWER
B	SOLENOID "B"
P	PSM (Z) "D"
S	SPEED SENSOR
V	SPEED SENSOR
D	FORCE MOTOR
C	FORCE MOTOR
U	TCC
T	TCC





PASS BOOK

E4OD CLUTCH APPLICATION CHART



RANGE	GEAR	COAST CLUTCH	O.D. SPRAG	O.D. CLUTCH	INT CLUTCH	INT SPRAG	INT BAND	DIRECT CLUTCH	FWD CLUTCH	LOW REVERSE CLUTCH	LOW ONEWAY CLUTCH
R	REV							ON		ON	
D	1	ON ¹	ON ²						ON		ON
	2	ON ¹	ON ²		ON	ON			ON		
	3	ON ¹	ON ²		ON			ON	ON		
	4			ON	ON			ON	ON		
D1	1	ON							ON	ON	
D2	2	ON			ON		ON		ON		

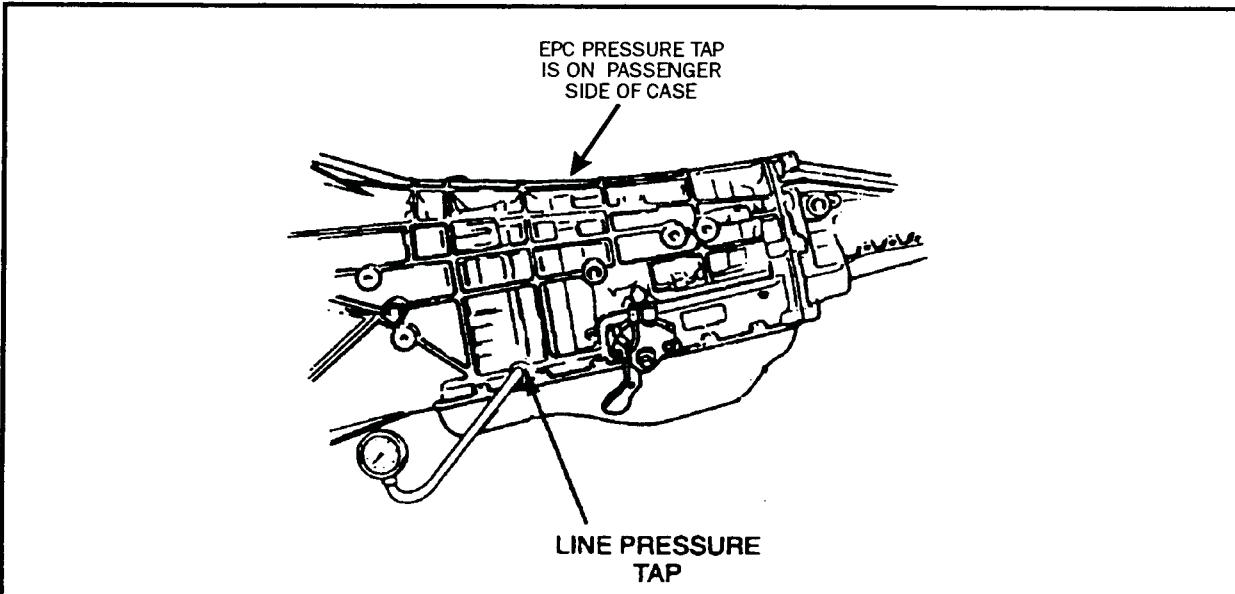
1 = COAST CLUTCH COMES ON WHEN O.D. CANCEL SWITCH IS PRESSED

2 = O.D. SPRAG IS EFFECTIVE WHEN THE COAST CLUTCH IS RELEASED



P A S S B O O K

E40D PRESSURE CHECK



EPC VOLTS	8	4.8	3.8	3.2	2.8	2.4	1.9	1.2	0
EPC PSI	0 PSI	10 PSI	20 PSI	30 PSI	40 PSI	50 PSI	60 PSI	70 PSI	80 PSI
P	65	70	80	90	110	120	135	150	165
R	80	100	115	150	165	180	200	225	240
N	65	70	75	90	110	120	135	150	170
D	65	70	75	90	110	120	135	150	170
2	65	70	75	90	110	120	135	150	170
1	80	100	120	150	160	190	205	225	250



PASS BOOK

E4OD SOLENOID & RESISTANCE TEST

SHIFT SOLENOID 1 - Connect the ohmmeter to pins 1 and 3. The resistance should be 20 - 30 ohms.

SHIFT SOLENOID 2 - Connect the ohmmeter to pins 1 and 2. The resistance should be 20 - 30 ohms.

COAST CLUTCH SOLENOID - Connect the ohmmeter to pins 1 and 5. The resistance should be 20 - 30 ohms.

TCC SOLENOID - Connect the ohmmeter to pins 1 and 4. The resistance should be 20 - 30 ohms.

VARIABLE FORCE SOLENOID - Connect the ohmmeter to pins 11 and 12. The resistance should be 4.25 - 6.50 ohms.

TOT SENSOR CONNECT TO PINS 7 & 8

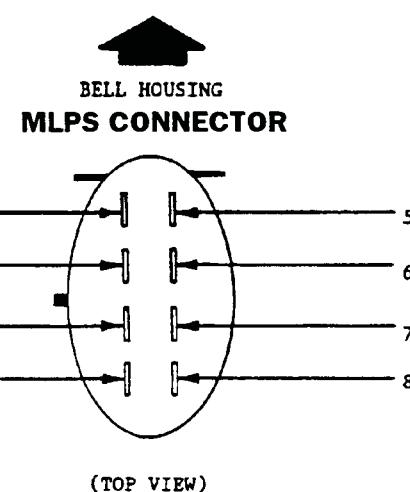
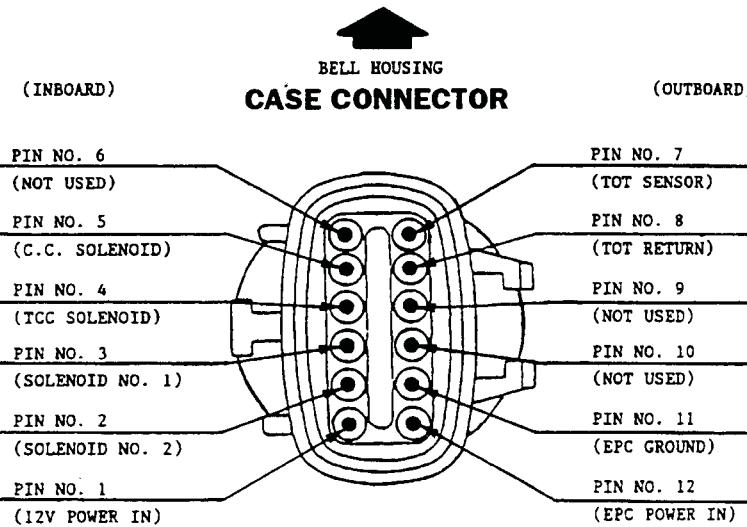
32° F - 58° F	---	37K - 100K Ohms
59° F - 104° F	---	16K - 37K Ohms
105° F - 158° F	---	5K - 16K Ohms
159° F - 194° F	---	2.7K - 5K Ohms
195° F - 230° F	---	1.5K - 2.7K Ohms
231° F - 266° F	---	.8K - 1.5K Ohms

LEVER POSITION / RESISTANCE CONNECT METER TO PINS 2 & 3

P -----	3769	- 4608 OHMS
R -----	1303	- 1594 OHMS
N -----	660	- 807 OHMS
D -----	361	- 442 OHMS
2 -----	190	- 232 OHMS
1 -----	80	- 95 OHMS

SOLENOID APPLY PATTERN

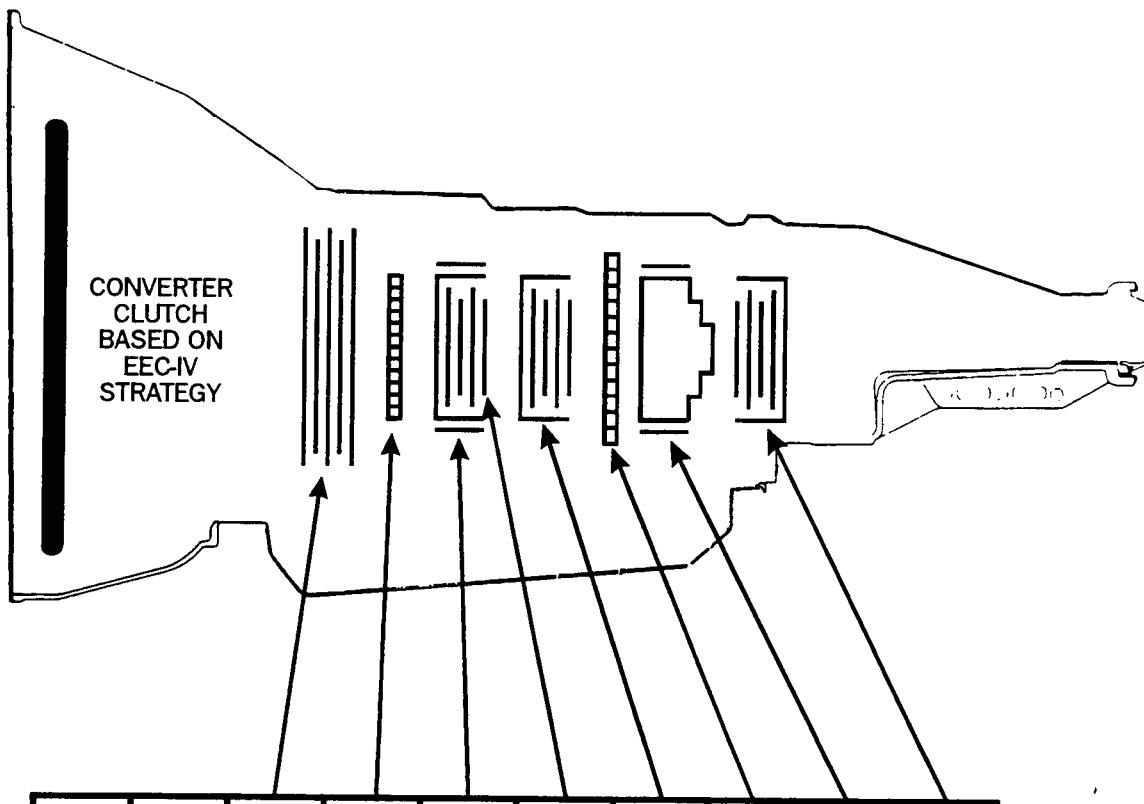
1. Supply 12V through a fused (20 Amp) jumper wire to pin No. 1.
2. Ground only pin No. 3, = 1st Gear.
3. Ground pins 2 and 3, = 2nd Gear.
4. Ground only pin No. 2, = 3rd Gear.
5. Remove all grounds, = 4th Gear.
6. Anytime you are in a forward gear Ground pin No. 4, = Converter Clutch Apply





PASS BOOK

AOD-E APPLICATION CHART



RANGE	GEAR	INT CLUTCH	INT ONE-WAY CLUTCH	O.D. BAND	REVERSE CLUTCH	FWD CLUTCH	PLANET ONE-WAY CLUTCH	LOW REVERSE BAND	DIRECT CLUTCH
D1	1ST					ON	ON		
D1	2ND	ON	ON	ON		ON			
OD or D3	1ST					ON	ON		
	2ND	ON	ON			ON			
	3RD					ON			ON
OD	4TH	ON		ON					
R	REVERSE				ON			ON	



PASS BOOK

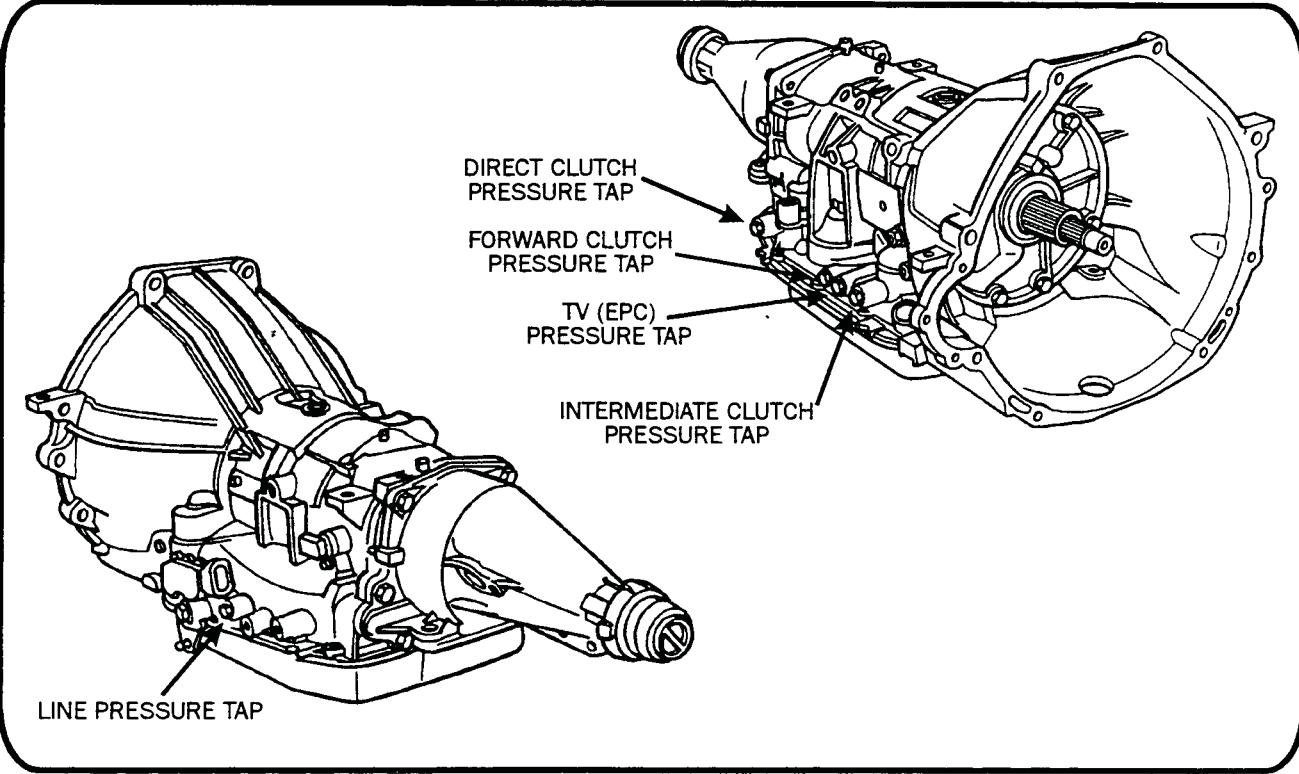
AOD-E PRESSURE CHECK

Diagnostic Pressure Chart

Pressure At Idle (Closed Throttle)					
GEAR	EPC (TV) 88	LINE	FORWARD CLUTCH	INTERMEDIATE CLUTCH	DIRECT CLUTCH
1M	0-62 kPa (0-9 psi)	345-517 kPa (50-75 psi)	310-517 kPa (45-75 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)
1D	0-62 kPa (0-9 psi)	345-517 kPa (50-75 psi)	310-517 kPa (45-75 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)
2M	0-62 kPa (0-9 psi)	345-517 kPa (50-75 psi)	310-517 kPa (45-75 psi)	310-517 kPa (45-75 psi)	0-34 kPa (0-5 psi)
2D	0-62 kPa (0-9 psi)	345-517 kPa (50-75 psi)	310-517 kPa (45-75 psi)	310-517 kPa (45-75 psi)	0-34 kPa (0-5 psi)
3	0-62 kPa (0-9 psi)	345-517 kPa (50-75 psi)	310-517 kPa (45-75 psi)	310-517 kPa (45-75 psi)	310-517 kPa (45-75 psi)
4	0-62 kPa (0-9 psi)	345-517 kPa (50-75 psi)	0-34 kPa (0-5 psi)	310-517 kPa (45-75 psi)	310-517 kPa (45-75 psi)
R	0-62 kPa (0-9 psi)	552-827 kPa (80-120 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)
P	0-62 kPa (0-9 psi)	345-517 kPa (50-75 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)
N	0-62 kPa (0-9 psi)	345-517 kPa (50-75 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)

Pressures at Wide Open Throttle (WOT) Stall

GEAR	EPC (TV)	LINE	FORWARD CLUTCH	INTERMEDIATE CLUTCH	DIRECT CLUTCH
1M	573-642 kPa (83-93 psi)	1104-1447 kPa (160-210 psi)	1035-1447 kPa (150-210 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)
1D	573-642 kPa (83-93 psi)	1517-1930 kPa (220-280 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)
R	573-642 kPa (83-93 psi)	1517-1930 kPa (220-280 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)	0-34 kPa (0-5 psi)





P A S S B O O K

AOD-E TESTS CONTINUED

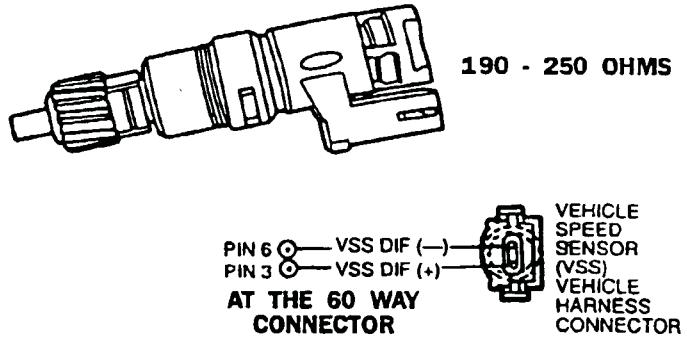
PIN #	°C	°F	RESISTANCE K OHMS
1 & 3	0-20	32-58	100K - 37K
	21-40	59-104	37K - 16K
	41-70	105-158	16K - 5K
	71-90	159-194	5K - 2.7K
	91-110	195-230	2.7K - 1.5K
	111-130	231-266	1.5K - 0.8K

TOT SENSOR CHART

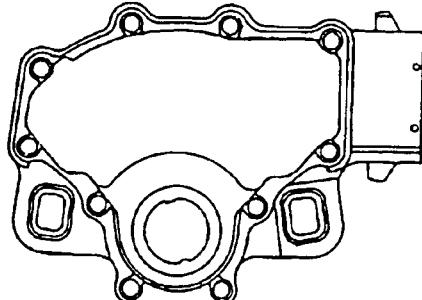
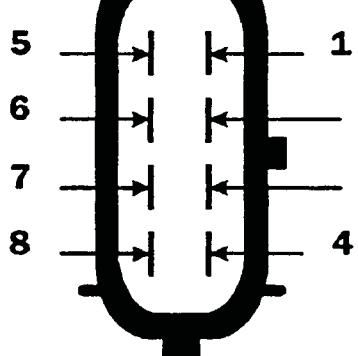
OUTPUT SHAFT SPEED SENSOR (OSS)



VEHICLE SPEED SENSOR (VSS)



MLPS SENSOR

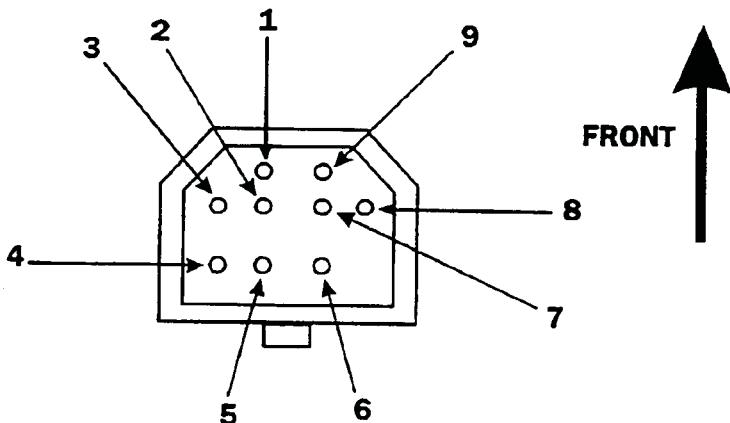


P	3770 - 4607
R	1304 - 1593
N	660 - 807
OD	361 - 442
2/D	190 - 232
I	78 - 95



PASS BOOK

AOD-E SOLENOID & SENSOR RESISTANCE TEST



SOLENOID	PIN #	RESISTANCE
SS-1	4 & 5	20 - 30 OHMS
SS-2	2 & 5	20 - 30 OHMS
MCCC	6 & 8	1.0 - 3.0 OHMS
EPC	7 & 9	2.48 - 5.66 OHMS

SOLENOID RESISTANCE CHART

PIN #	IDENTIFICATION	INTERNAL WIRE COLOR	EXTERNAL WIRE COLOR	EEC-IV PIN #
1	TOT -	RED	GREY W/RED STRIPE	46
2	SS-2 GROUND SIGNAL	BLACK	PURPLE W/ORANGE STRIPE	52
3	TOT +	WHITE W/RED STRIPE	ORANGE W/BLACK STRIPE	49
4	SS-1 GROUND SIGNAL	WHITE	ORANGE W/YELLOW STRIPE	51
5	SS-1 AND SS-2 POWER SUPPLY	WHITE W/BLACK STRIPE	RED	37&57
6	MCCC GROUND SIGNAL	GREEN	TAN W/WHITE STRIPE	53
7	EPC POWER SUPPLY	WHITE W/BLUE STRIPE	RED	37&57
8	MCCC POWER SUPPLY	WHITE W/GREEN STRIPE	RED	37&57
9	EPC GROUND SIGNAL	BLUE	WHITE W/YELLOW STRIPE	38

TERMINAL IDENTIFICATION CHART

Gear Selection	Gear	SS-1	SS-2	MCCC
D	1	ON	OFF	HD
	2	OFF	OFF	EC
	3	OFF	ON	EC
	4	ON	ON	EC
D	1	ON	OFF	HD
	2	OFF	OFF	EC
	3	OFF	ON	EC
1	1	ON	OFF	HD
N	N	ON	OFF	HD
R	R	ON	OFF	HD
P	P	ON	OFF	HD

EC = Electronically Controlled
HD = Hydraulically Disabled

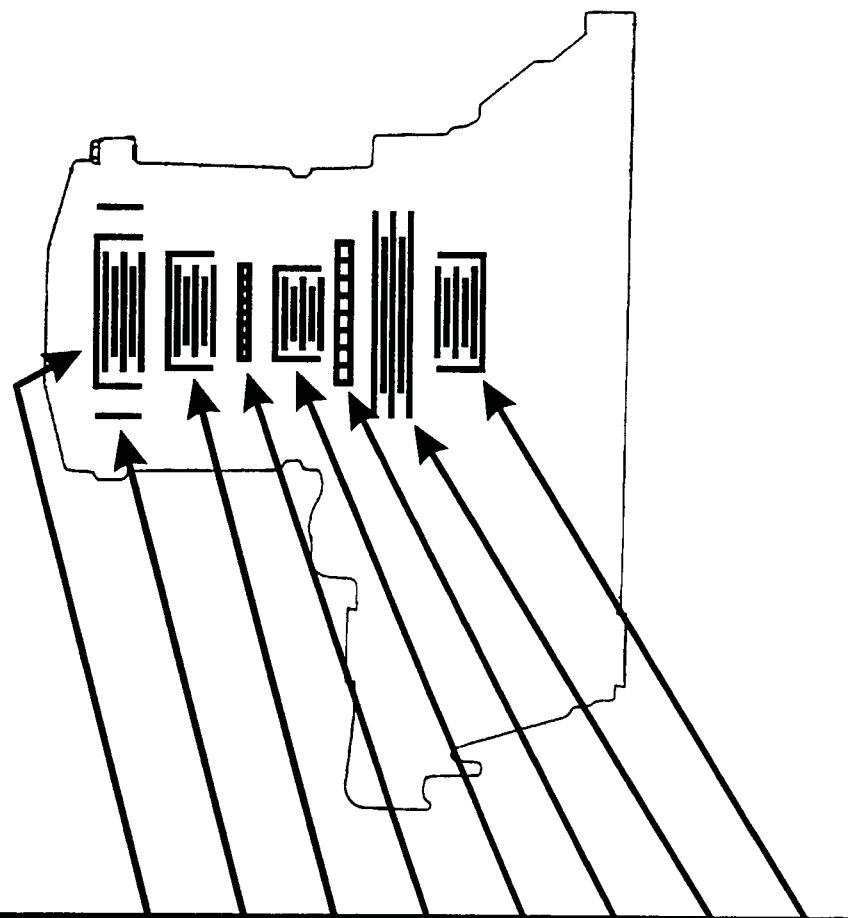
1. 12V to pin 5
2. Ground pin 4 = 1st gear
3. Remove all grounds = 2nd gear
4. Ground pin 2 = 3rd gear
5. Ground pins 2 & 4 = 4th gear

SOLENOID PATTERN



PASS BOOK

4EAT APPLICATION CHART



RANGE	GEAR	REVERSE CLUTCH	2-4 BAND	FWD CLUTCH	FWD ONEWAY CLUTCH	COAST CLUTCH	LOW ONEWAY CLUTCH	LOW REVERSE CLUTCH	3/4 CLUTCH
R	REV	ON							ON
OD	1ST			ON	ON		ON		
	2ND		ON	ON	ON				
	3RD		ON ¹	ON	ON	ON			ON
	4TH		ON	ON	ON ²				ON
D	1ST			ON	ON		ON		
	2ND		ON	ON					
	3RD		ON ¹	ON	ON	ON			ON
	4TH		ON	ON	ON ²				ON
L	1ST			ON	ON			ON	
	2ND		ON	ON	ON	ON			

1 = FLUID TO SERVO BUT BAND IS NOT APPLIED DUE TO PRESSURE DIFFERENCE WITH OIL ON THE RELEASE SIDE OF THE SERVO

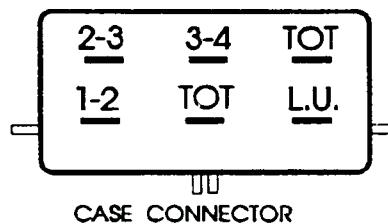
2 = DOES NOT TRANSMIT POWER



PASS BOOK

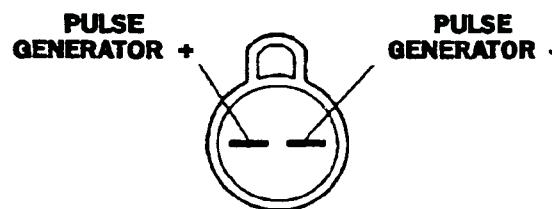
4EAT SOLENOIDS / SENSOR / PRESSURE TESTS ESCORT/TRACER VEHICLES

ALL FOUR SOLENOIDS SHOULD READ 13 - 27 OHMS



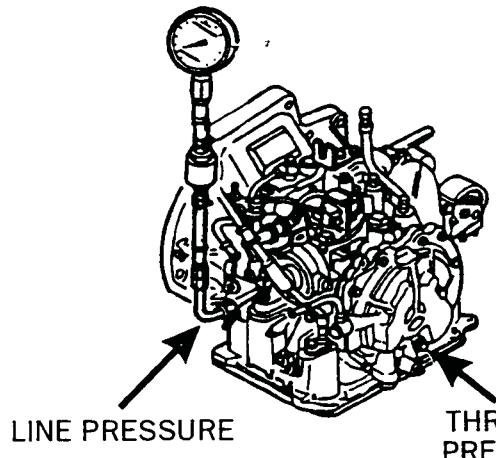
GEAR	1-2 SOL.	2-3 SOL.	3-4 SOL.	L.U. SOL.
1ST GEAR	OFF	ON	ON	OFF
2ND GEAR	ON	ON	ON	OFF
3RD GEAR	OFF	OFF	OFF	OFF
4TH GEAR	ON	OFF	ON	OFF
LOCK-UP	ON	OFF	ON	ON

PULSE GENERATOR SHOULD READ 200 - 600 OHMS



TOT SENSOR READINGS

C	F	KOHMS
-40	-40	325.50
0	32	52.00
20	68	23.00
40	104	11.00
60	140	5.60
100	212	1.71
130	266	0.86



TAP	RPM	OD/D/L	R
LINE	IDLE	53 - 65	85 - 105
	STALL	135 - 155	220 - 255
TV	IDLE	APPROX. 5 PSI	
	STALL	APPROX. 80 PSI	

NOTE: PRESSURES LISTED ABOVE ARE FOR 1.8L ENGINES, PRESSURES WILL BE APPROX. 10 PSI HIGHER FOR 1.9L ENGINES.



PASS BOOK

4EAT SOLENOIDS / SENSOR / PRESSURE TEST **CAPRI**

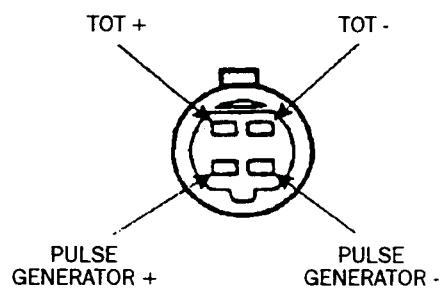
ALL FOUR SOLENOIDS SHOULD
READ 13 - 27 OHMS

<u>LU</u>	<u>2-3</u>	<u>1-2</u>
	<u>3-4</u>	

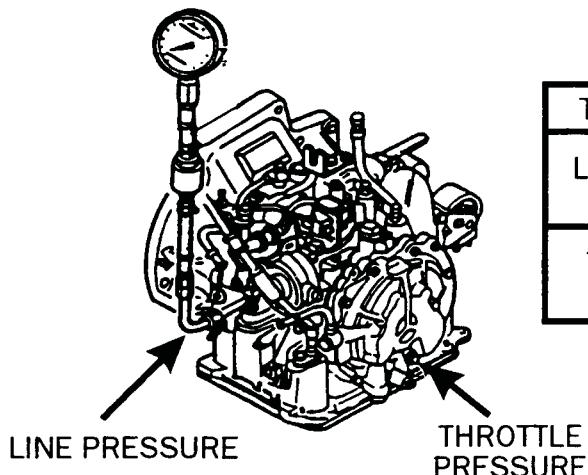
TRANS CASE CONNECTOR
(ON TRANSMISSION)

GEAR	1-2	2-3	3-4	LU
1		ON	ON	
2	ON	ON	ON	
3				
4	ON		ON	ON

PULSE GENERATOR SHOULD
READ 200 - 600 OHMS



C	F	kOHMS
-40	-40	325.50
0	32	52.00
20	68	23.00
40	104	11.00
60	140	5.60
100	212	1.71
130	266	0.86

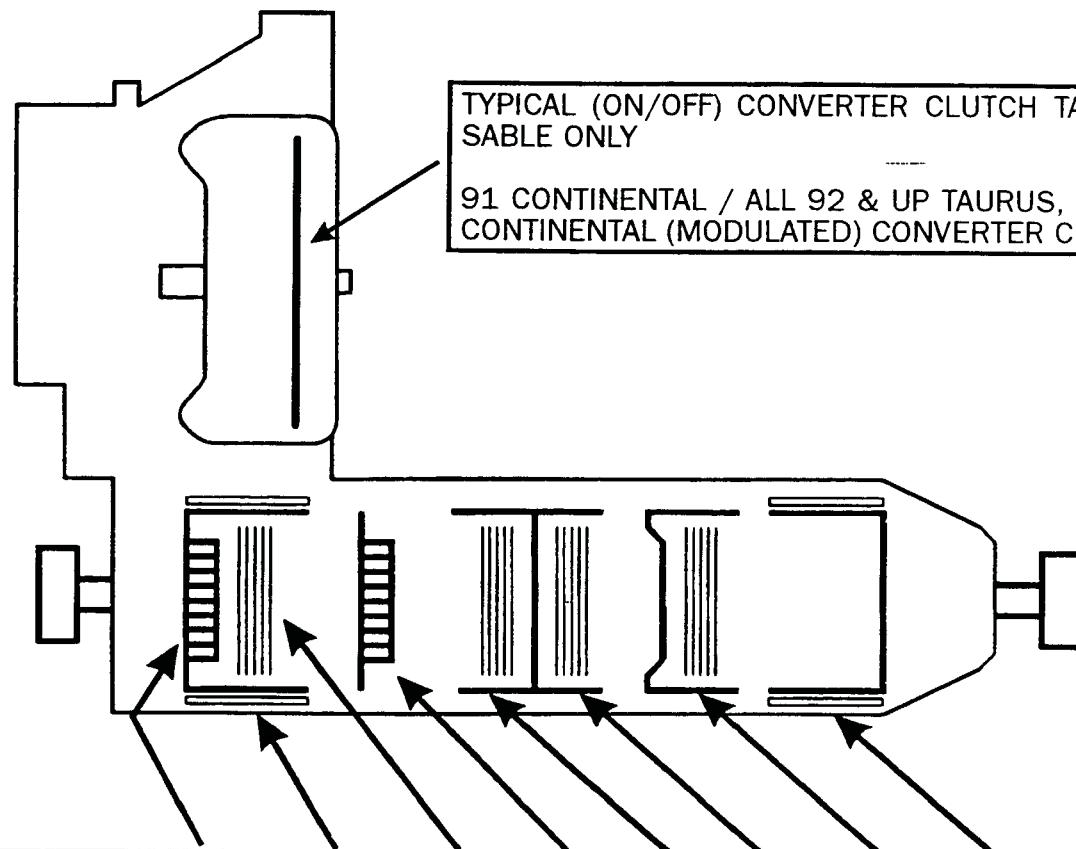


TAP	RPM	OD/D/L	R
LINE	IDLE	53 - 65	85 - 105
	STALL	135 - 155	220 - 255
TV	IDLE	APPROX. 5 PSI	
	STALL	APPROX. 80 PSI	



PASS BOOK

AXOD-E CLUTCH & SOLENOID APPLICATION CHART



SELECTOR POSITION	GEAR	LOW SPRAG	OVERDRIVE BAND	FORWARD CLUTCH	DIRECT ONE-WAY CLUTCH	DIRECT CLUTCH	INTER-MEDIATE CLUTCH	REVERSE CLUTCH	LOW/INT. BAND
R	REVERSE	ON		ON				ON	
OD	1st	ON		ON					ON
	1st decel			ON*					ON
	2nd			ON*			ON		ON
	3rd			ON*	ON	ON	ON		
	3rd decel	ON		ON		ON	ON		
	4th		ON			ON*	ON		
D	1st	ON		ON					ON
	1st decel			ON*					ON
	2nd			ON*			ON		ON
	3rd			ON*	ON	ON	ON		
	3rd decel	ON		ON		ON	ON		
1	1st	ON		ON		ON*			ON
	1st decel			ON*	ON	ON			ON

ON* = APPLIED BUT NOT EFFECTIVE



P A S S B O O K

AXOD-E LINE PRESSURE CHECK

Pressures at Idle (psi)***

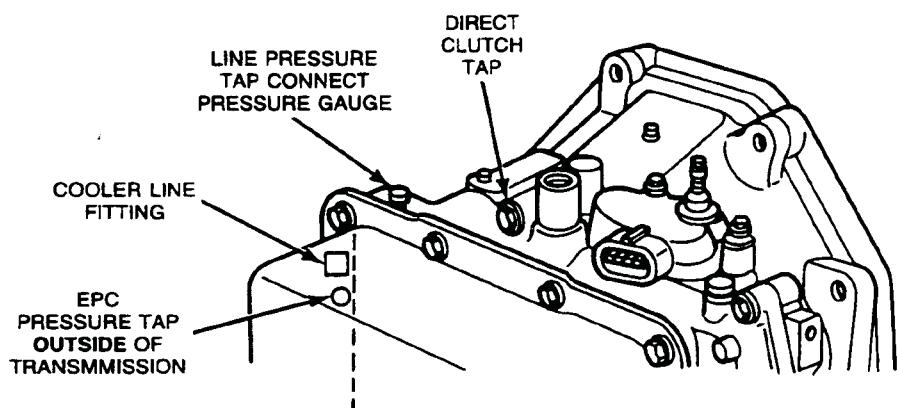
Gear	EPC	Line	Direct Clutch
P ##	40-60 ##	130-150 ##	-----
P	10-20	48-77	-----
R	10-20	61-99	-----
N	10-20	48-77	-----
OD	10-20	48-77	-----
D	10-20	48-77	-----
1	10-20	48-77	40-60

Pressure at Wide Open Throttle (WOT) Stali (psi)***

Gear	EPC	Line	Direct Clutch
P	-----	-----	-----
R	70-90	252-316	-----
N	-----	-----	-----
OD	70-90	168-217	-----
D	70-90	168-217	-----
1	70-90	198-247	40-60

Special Note: This condition will occur when the TRANSMISSION OIL TEMPERATURE is below 150°F AND this is the INITIAL engagement.

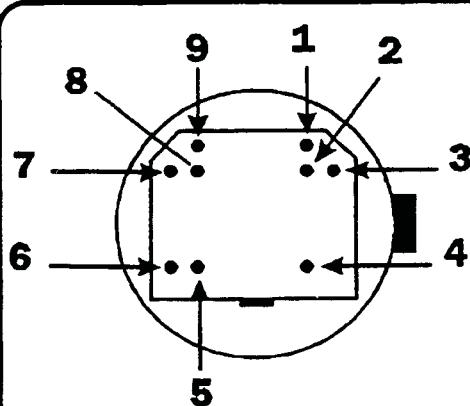
*** Approximate Pressures.





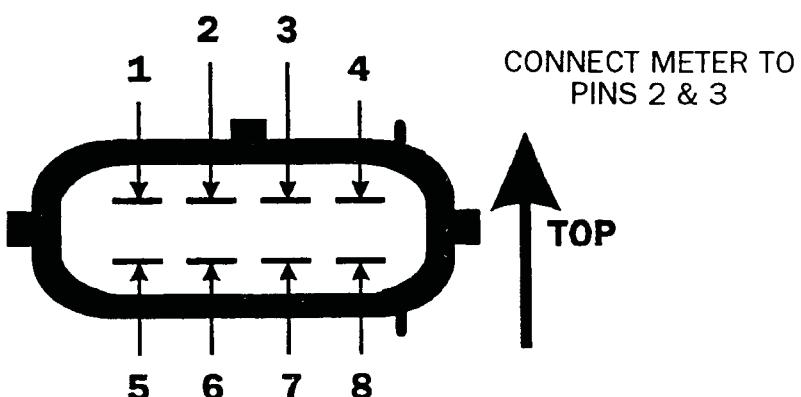
PASS BOOK

AXOD-E TESTS CONTINUED



- 1 EPC GROUND (BLUE)
- 2 EPC/MCCC POWER (GREEN)
- 3 SS3 GROUND (YELLOW)
- 4 MCCC GROUND (BROWN)
- 5 SS1,2,3 POWER (RED)
- 6 SS1 GROUND (ORANGE)
- 7 TOT - (BLACK)
- 8 SS2 GROUND (PINK)
- 9 TOT + (WHITE)

1993 AXODE CASE CONNECTOR VIEW



SELECTOR POSITION	RESISTANCE
P	3770 - 4607
R	1304 - 1593
N	660 - 807
OD	361 - 442
D	190 - 232
1	78 - 95

MLPS RESISTANCE TEST



P A S S B O O K

AXOD-E SOLENOID & SENSOR RESISTANCE CHECK

SOLENOID RESISTANCE CHECK

<u>SOLENOID</u>	<u>CONNECTOR</u>	<u>PIN # (91-92)</u>	<u>PIN #(1993)</u>	<u>RESISTANCE</u>
EPC	Black	1 & 6	1 & 2	2.5 - 6.5 ohms
MCCC	Black	4 & 5	2 & 4	.75 - 2.0 ohms
CCC	Black	4 & 5	2 & 4	16 - 40 ohms
S1	White	5 & 6	5 & 6	12 - 30 ohms
SS2	White	1 & 2	5 & 8	12 - 30 ohms
SS3	White	3 & 4	5 & 3	12 - 30 ohms

TOT SENSOR RESISTANCE CHECK

<u>CONNECTOR</u>	<u>PIN #</u>	<u>DEGREES C</u>	<u>DEGREES F</u>	<u>RESISTANCE</u>
BLACK	2 & 3	0-20	32-58	33.5k-107k
PIN # FOR 1993	7 & 9	21-40	59-104	14.5k-33.5k
		41-70	105-158	5.0k-14.5k
		71-90	159-194	2.5k-5.0k
		91-110	195-230	1.5k-2.5k
		111-130	231-266	0.8k-1.5k

Supply 12 volts to pins 1,4, and 5 at the white case connector. refer to the chart below for proper ground sequence.

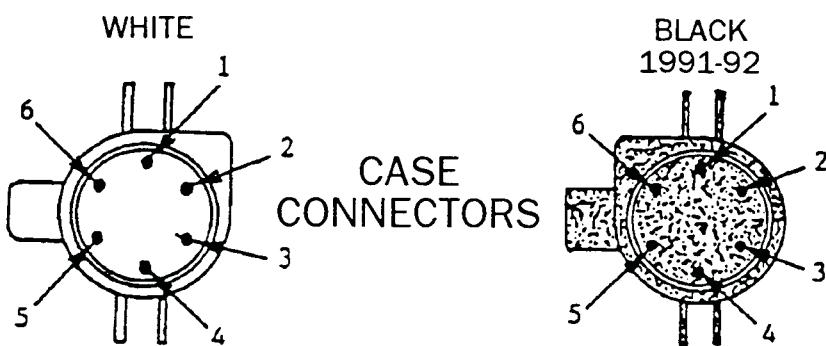
- GROUND PIN #2 = FIRST GEAR
- GROUND PINS # 2&6 = SECOND GEAR
- GROUND PIN #3 = THIRD GEAR
- GROUND PINS #3&6 = FOURTH GEAR

SOLENOID APPLICATION CHART - AXODE (Including SHO)

Gear Selector Position	PCM Commanded Gear	AXODE Solenoids			
		ENG BRAKE	SS 1	SS 2	SS 3
P/R/N	1	NO	OFF@	ON@	OFF
OD	1	NO	OFF	ON	OFF
OD	2	YES	ON	ON	OFF
OD	3	NO	OFF	OFF	ON
OD	4	YES	ON	OFF	ON
D or O/D w/OD OFF (SHO)	1	1	NO	OFF	OFF
	2	2	YES	ON	OFF
	3	3	YES	OFF	OFF
SHO ONLY MANUAL	2	2	YES	ON	OFF
	2	3=	YES	OFF	OFF
MANUAL	1	1	YES	OFF	ON
	1	2=	YES	OFF	OFF

- When a manual pull-in occurs above a calibrated speed the transmission will downshift to second gear until the vehicle speed drops below this calibrated speed.

@ Not contributing to powerflow

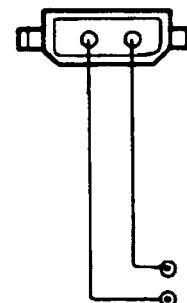
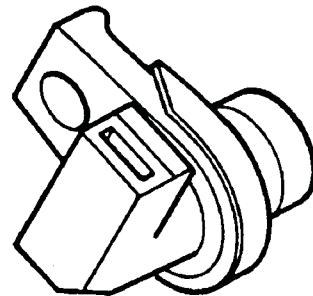




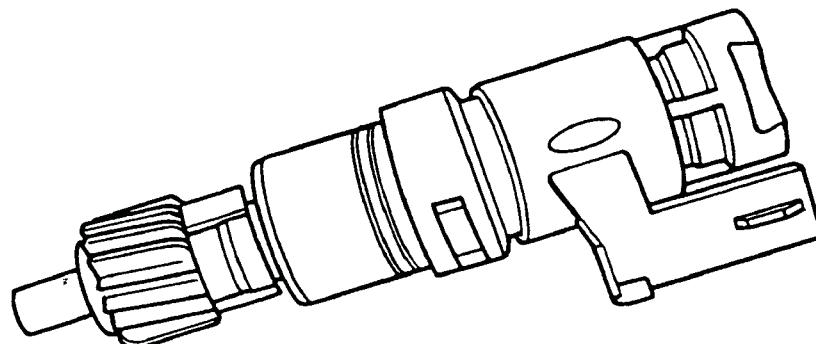
P A S S B O O K

AXOD-E TESTS CONTINUED

TURBINE SPEED SENSOR
80 - 200 OHMS



VEHICLE SPEED SENSOR
190 - 250 OHMS



TEST PIN 6 VSS DIF (-)
TEST PIN 3 VSS DIF (+)

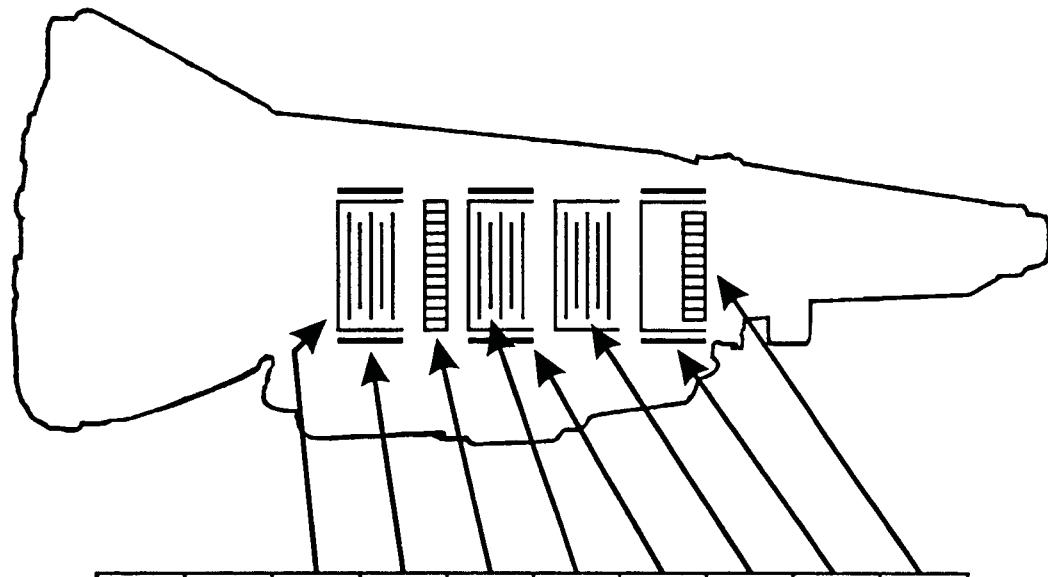


VEHICLE SPEED
SENSOR (VSS)
VEHICLE
HARNESS
CONNECTOR



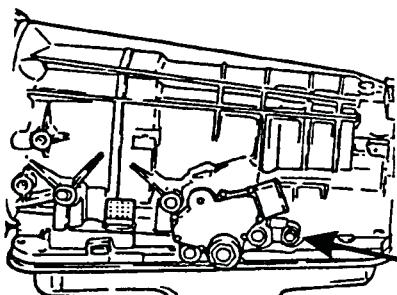
PASS BOOK

4R44E / 4R55E APPLICATION CHART



RANGE	GEAR	OVERRUN CLUTCH	OD BAND	OD SPRAG	DIRECT CLUTCH	INTERM BAND	FORWARD CLUTCH	LOW/REV BAND	LOW ONEWAY CLUTCH
R	REV	ON		ON	ON			ON	
OD	1ST			ON			ON		ON
	2ND			ON		ON	ON		
	3RD			ON	ON		ON		
	4TH		ON				ON		
D	1ST	ON		ON			ON		ON
	2ND	ON		ON		ON	ON		
	3RD	ON		ON	ON		ON		
2	2ND	ON		ON		ON	ON		
L	1ST	ON		ON			ON	ON	ON

LINE PRESSURE CHECKS



LINE PRESSURE TAP

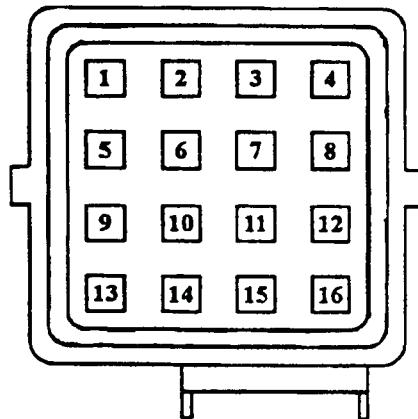
TRANS	ENGINE	GEAR	IDLE	WOT STALL
4R44E	2.3L	D,2,1	68-79	193-227
		REV	79-136	291-331
	3.0L	D,2,1	98-111	164-190
		REV	107-162	237-283
4R55E	4.0L	D,2,1	87-98	207-241
		REV	95-162	299-346

AUTOMATIC TRANSMISSION SERVICE GROUP



PASS BOOK

4R44E / 4R55E SOLENOID / SENSOR CHECKS



GEAR	SS1	SS2	SS3
1ST	ON	OFF	OFF
2ND	ON	ON	OFF
3RD	OFF	OFF	OFF
4TH	OFF	OFF	ON

PIN NUMBER	CIRCUIT	CIRCUIT FUNCTION
1	BLACK	TCC POWER
2	RED	TSS SIGNAL
3	WHITE	TSS SIGNAL RETURN
4	RED	TFT SENSOR
5	PURPLE	TCC SOLENOID
6	—	NOT USED
7	YELLOW	SHIFT SOLENOID #3
8	RED	TFT SIGNAL RETURN

PIN NUMBER	CIRCUIT	CIRCUIT FUNCTION
9	ORANGE	COAST CLUTCH SOLENOID
10	WHITE	SHIFT SOLENOID POWER
11	GREEN	EPC POWER
12	BLUE	EPC SOLENOID
13	—	NOT USED
14	BROWN	SHIFT SOLENOID #2
15	—	NOT USED
16	GRAY	SHIFT SOLENOID #1

SOLENOID CHECKS

SOLENOID	OHMS RESISTANCE
SS1	22 - 48
SS2	22 - 48
SS3	22 - 48
CCS	22 - 48
TCC	8.9 - 16
EPC	3.1 - 5.7
TSS	64 - 120
VSS	190 - 250

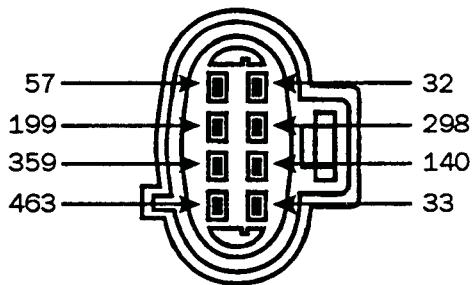
TRANSMISSION FLUID TEMP CHECK

TEMPERATURE	OHMS RESISTANCE
32 - 68 °F	100k - 37k
69 - 104 °F	37k - 16k
105 - 158 °F	16k - 5k
159 - 194 °F	5k - 2.7k
195 - 230 °F	2.7k - 1.5k
231 - 266 °F	1.5k - .8k
267 - 302 °F	.8k - .5k



P A S S B O O K

TRANSMISSION RANGE SENSOR TESTS

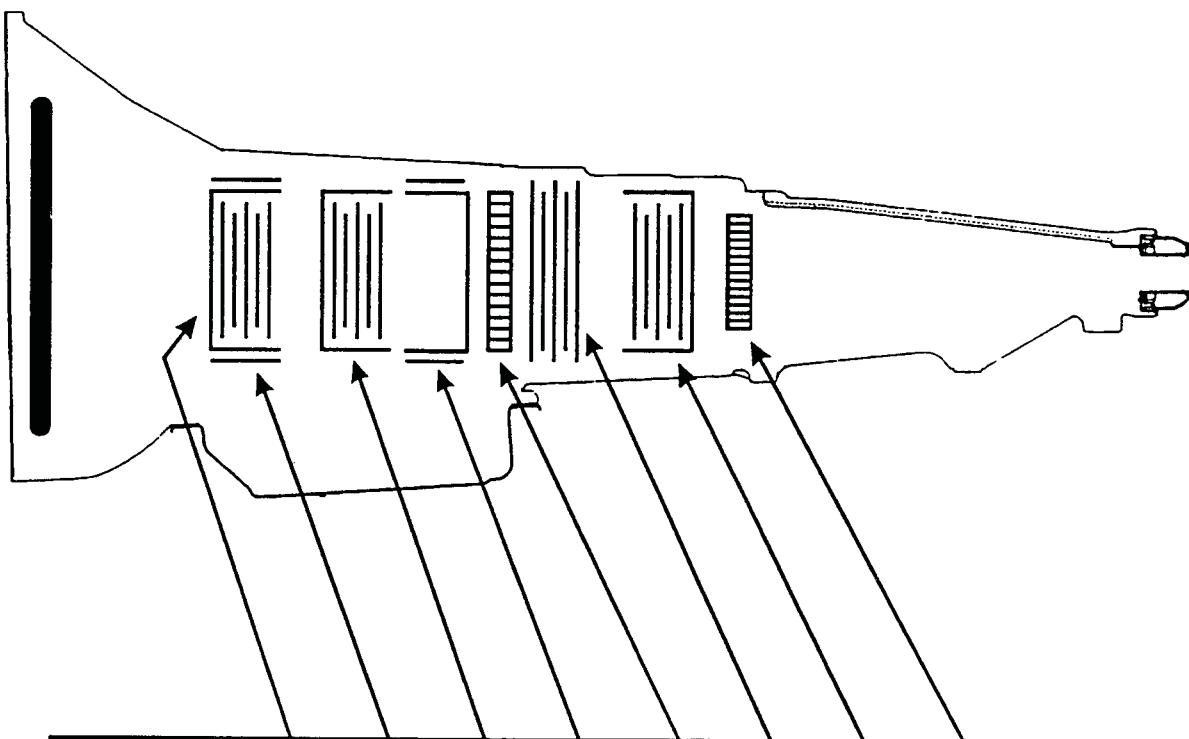


TEST CIRCUIT	CHECK TERMINALS	SELECTED RANGE	OHMS	VOLTS
TRANSMISSION RANGE SENSOR CIRCUIT	359 (GY/R) & 199 (LB/Y)	PARK	3770 - 4607	3.97 - 4.85
		REVERSE	1304 - 1593	3.24 - 3.96
		NEUTRAL	660 - 807	2.55 - 3.11
		OVERDRIVE	361 - 442	1.88 - 2.30
		SECOND (2)	190 - 232	1.23 - 1.51
		FIRST (1)	78 - 95	0.61 - 0.79
BACKUP LAMP CIRCUIT	298 (BK) & 140 (BK/PK)	PARK	MORE THAN 100K	-----
		REVERSE	LESS THAN 5K	-----
		NEUTRAL	MORE THAN 100K	-----
		OVERDRIVE	MORE THAN 100K	-----
		SECOND (2)	MORE THAN 100K	-----
		FIRST (1)	MORE THAN 100K	-----
STARTER RELAY CIRCUIT	33 (W/PK) & 32 (R/LB)	PARK	LESS THAN 5K	-----
		REVERSE	MORE THAN 100K	-----
		NEUTRAL	LESS THAN 5K	-----
		OVERDRIVE	MORE THAN 100K	-----
		SECOND (2)	MORE THAN 100K	-----
		FIRST (1)	MORE THAN 100K	-----
4 X 4 LOW - NEUTRAL SENSE CIRCUIT	463 (R/W) & 57 (BK)	PARK	MORE THAN 100K	-----
		REVERSE	MORE THAN 100K	-----
		NEUTRAL	LESS THAN 5K	-----
		OVERDRIVE	MORE THAN 100K	-----
		SECOND (2)	MORE THAN 100K	-----
		FIRST (1)	MORE THAN 100K	-----



PASS BOOK

A500/518 & 42RE APPLICATION CHART



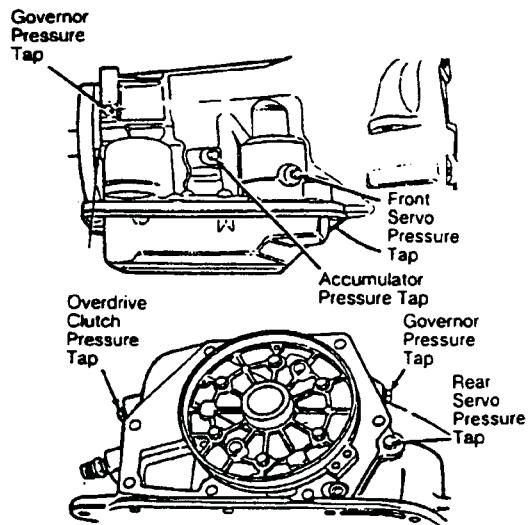
RANGE	GEAR	FWD CLUTCH	KICK DOWN BAND	HIGH REVERSE CLUTCH	LOW REVERSE BAND	ONE WAY CLUTCH	OVER DRIVE CLUTCH	DIRECT CLUTCH	ONE WAY CLUTCH
REVERSE	R			ON	ON			ON	
OVER DRIVE	1ST	ON				ON		ON	ON
	2ND	ON	ON					ON	ON
	3RD	ON		ON				ON	ON
	4TH	ON		ON			ON		
D2	1ST	ON				ON		ON	ON
	2ND	ON	ON					ON	ON
D1	1ST	ON			ON	ON		ON	ON



P A S S B O O K

A500/518 & 42RE PRESSURE & NEUTRAL SAFETY SWITCH TEST

A500/518 & 42RE PRESSURE CHECK

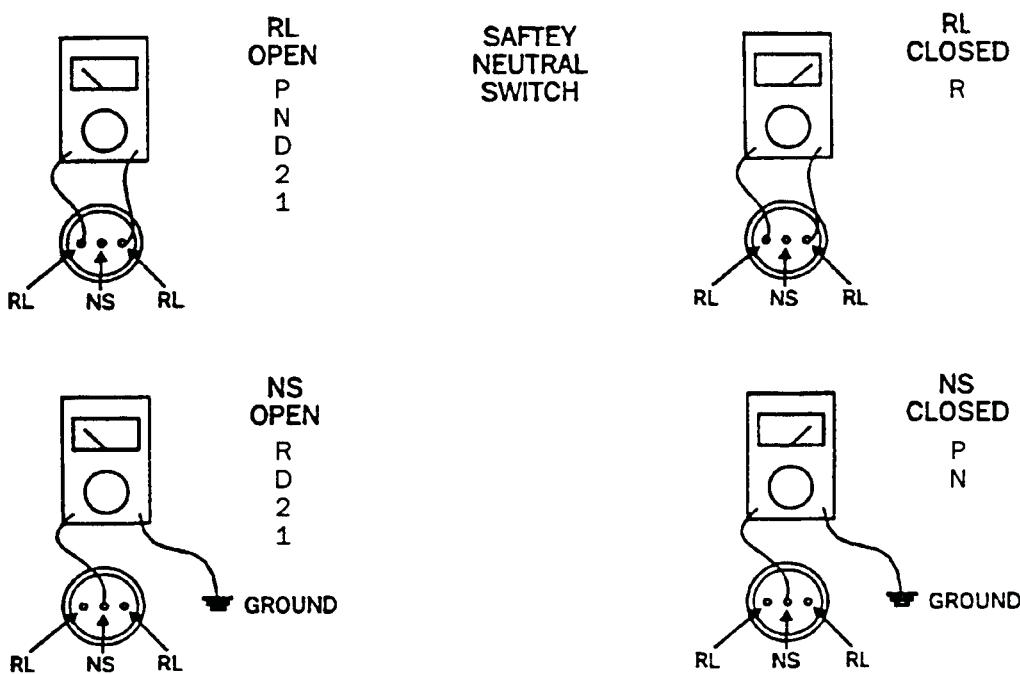


GEAR	RPM STALL	O.D. CLUTCH TAP	FRONT SERVO TAP	ACCUM. TAP	REAR SERVO TAP
1ST	1000			54 - 60	54 - 60
	STALL			90 - 96	90 - 96
2ND	1000			54 - 60	
	STALL			90 - 96	
3RD	1000		54 - 60	54 - 60	
	STALL		90 - 96	90 - 96	
4TH	*	85 - 93			

	1600				145 - 175
	-----				230 - 280

* - THE VEHICLE MUST BE RUNNING AND IN 4TH GEAR TO PERFORM THIS TEST.

A500/518 & 42RE NEUTRAL SAFETY SWITCH CHECK

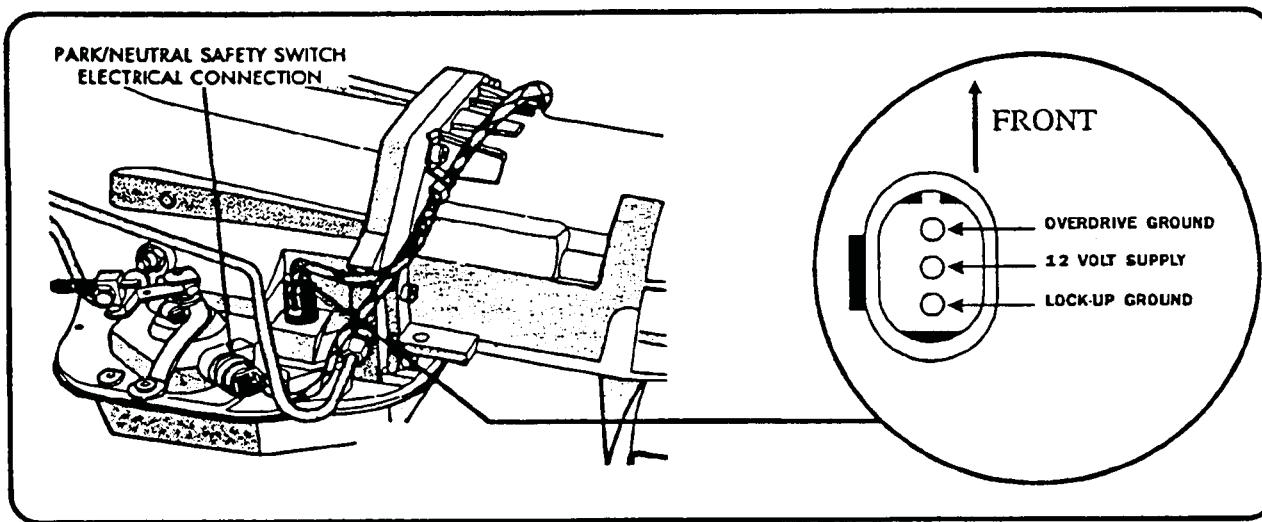




P A S S B O O K

A500/518 SOLENOID CHECK

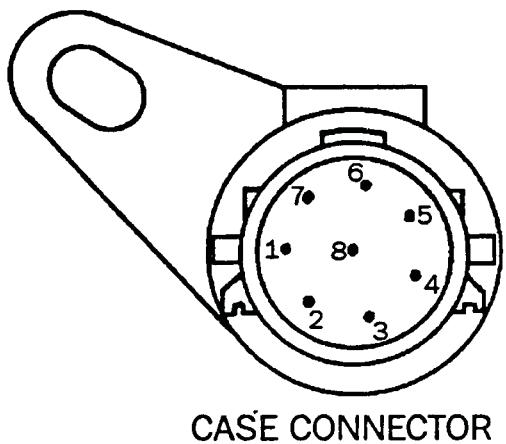
A quick check that can be made when the vehicle has lost lock up and overdrive is to supply your own 12 volts through a 20 amp fuse to the middle pin. When the vehicle is in third gear, ground the front pin. A shift to overdrive should be felt. When the rear pin is grounded, lock up should come on. If one or both operations has failed with this test, the problem is an internal one and will require a solenoid check. Both solenoids are normally open to exhaust and closes when energized and should have 25 to 35 ohms resistance at room temperature. When this check has been completed and the solenoids are in good working order, there is a non-electrical fault in the transmission causing the no overdrive or no lock up condition.



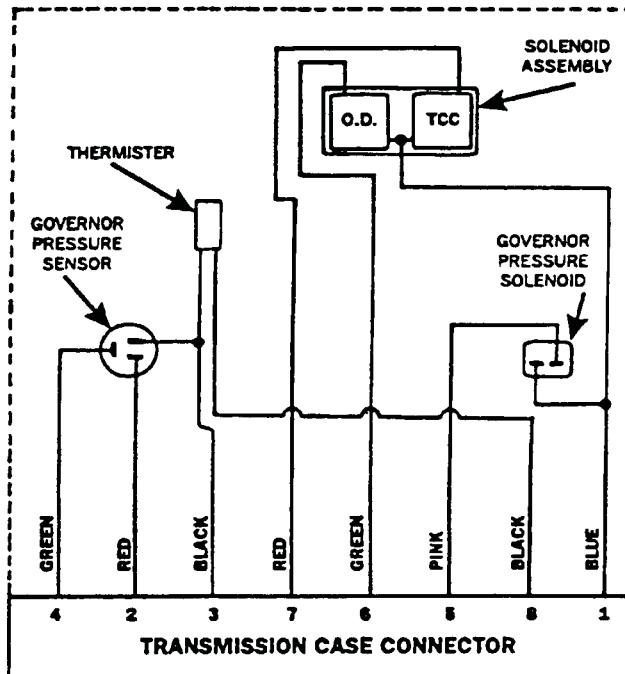


P A S S B O O K

42RE SOLENOID / SENSOR CHECKS



CASE CONNECTOR



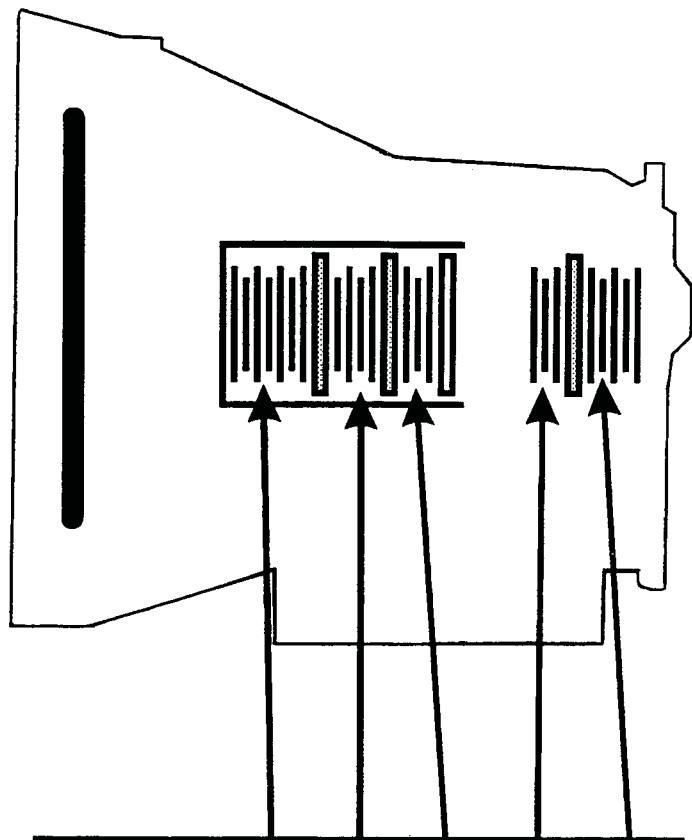
CASE CONECTOR TERMINAL #	FUNCTION
1	12 V POWER FOR TCC, O.D., & GOVERNOR PRESSURE SOLENOID
2	5V FEED TO GOVERNOR PRESSURE SENSOR
3	GROUND FOR GOVERNOR PRESSURE SENSOR AND THERMISTOR
4	GOVERNOR PRESSURE SENSOR SIGNAL TO THE TCM
5	GROUND (VARIABLE FORCE) TO GOVERNOR PRESSURE SOLENOID
6	GROUND FROM TCM TO OVERDRIVE SOLENOID
7	GROUND FROM TCM TO CONVERTER CLUTCH SOLENOID
8	TEMP SENSOR (THERMISTER) SIGNAL TO THE ECM

SOLENOIDS / SENSOR	OHMS
THERMISTER	APPROX. 1000 at 70° F
OVERDRIVE SOLENOID	25 - 40 at 70° F
CONVERTER CLUTCH SOLENOID	25 - 40 at 70° F
GOVERNOR PRESSURE SOLENOID	3.0 - 5.0 at 70° F



PASS BOOK

A604 APPLICATION CHART



RANGE	GEAR	UNDER DRIVE CLUTCH	OVER DRIVE CLUTCH	REVERSE CLUTCH	2/4 CLUTCH	LOW REVERSE CLUTCH
PARK	P					ON
REVERSE	R			ON		ON
NEUTRAL	N					ON
OVER DRIVE	1ST	ON				ON
	2ND	ON			ON	
	3RD	ON	ON			
	4TH		ON		ON	
DRIVE	1ST	ON				ON
	2ND	ON			ON	
	3RD	ON	ON			
LOW	1ST	ON				ON
	2ND	ON			ON	
	3RD	ON	ON			

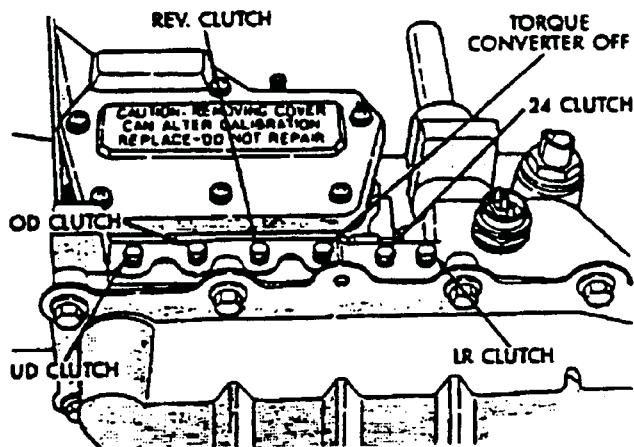
2-3 SHIFT
OCCURS
BETWEEN
40-45



PASS BOOK

A604 PRESSURE TESTS

PRESSURE TAPS



Gear Selector Position	Actual Gear	PRESSURE TAPS						Low/Reverse Clutch
		Under-Drive Clutch	Over-Drive Clutch	Reverse Clutch	Lockup Off	2/4 Clutch		
PARK * 0 mph	PARK	0-2	0-5	0-2	60-110	0-2	115-145	
REVERSE * 0 mph	REVERSE	0-2	0-7	165-235	50-100	0-2	165-235	
NEUTRAL * 0 mph	NEUTRAL	0-2	0-5	0-2	60-110	0-2	115-145	
L 20 mph	# FIRST	110-145	0-5	0-2	60-110	0-2	115-145	
D 30 mph	# SECOND	110-145	0-5	0-2	60-110	115-145	0-2	
D 45 mph	# DIRECT	75-95	75-95	0-2	60-90	0-2	0-2	
OD 30 mph	# OVERDRIVE	0-2	75-95	0-2	60-90	75-95	0-2	
OD 50 mph	# OVERDRIVE LOCKUP	0-2	75-95	0-2	0-5	75-95	0-2	

*Engine speed at 1500 rpm

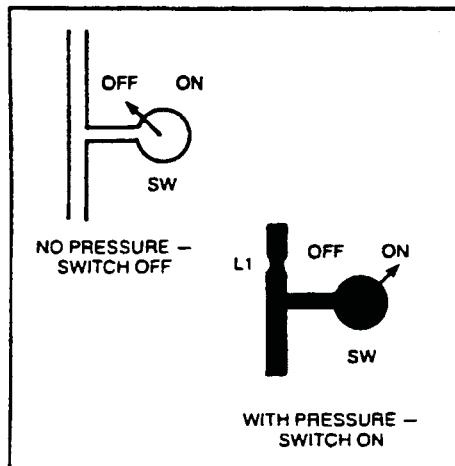
#CAUTION: Both front wheels must be turning at same speed.



PASS BOOK

A604 PRESSURE SWITCH TEST

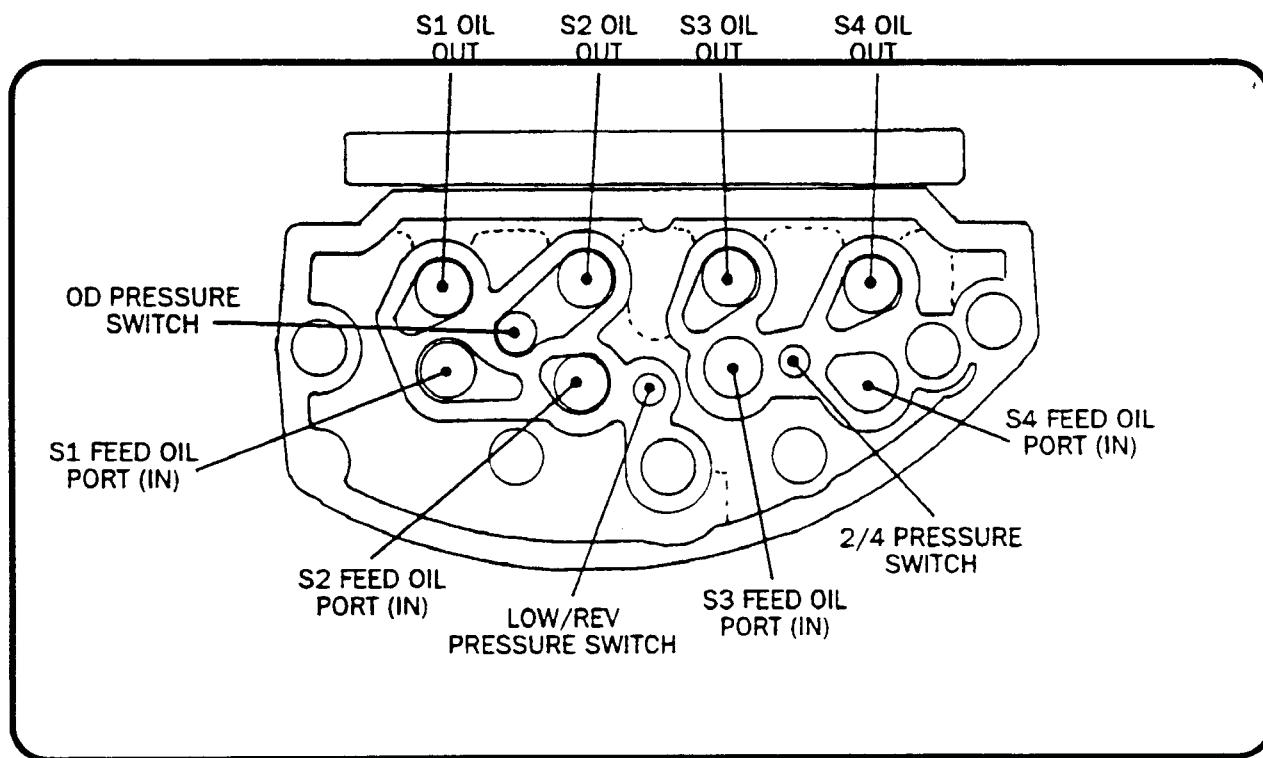
PRESSURE SWITCHES MUST BE CHECKED WITH A SCANNER



GEAR	L/R	2/4	OD
P	CL	OP	OP
R	OP	OP	OP
N	CL	OP	OP
1	CL	OP	OP
2	OP	CL	OP
3	OP	OP	CL
4	OP	CL	CL
LIMP IN	CL	CL	CL

Some scanners may use HI & LOW signals instead of CLOSED & OPEN.
CLOSED = LOW
OPEN = HIGH

PRESSURE SWITCHES - The hydraulic diagram shows three switches, one above the solenoid switch valve, another to the right of the switch valve, and the last one above the overdrive solenoid. These are the pressure switches that are located in the solenoid assembly that feed information to the transaxle controller. They have no direct effect on operation of the valve body. Essentially, they confirm (feed back) to the controller that the intended solenoid action has indeed occurred.





PASS BOOK

A604 SOLENOID & RESISTOR CHECKS

SOLENOID CHECK - All four solenoids should have 1.5 ohms resistance.

SOLENOID NO. 1 - Connect ohmmeter leads to pins 4 and 5.

SOLENOID NO. 2 - Connect ohmmeter leads to pins 4 and 6.

SOLENOID NO. 3 - Connect ohmmeter leads to pins 4 and 7.

SOLENOID NO. 4 - Connect ohmmeter leads to pins 4 and 8.

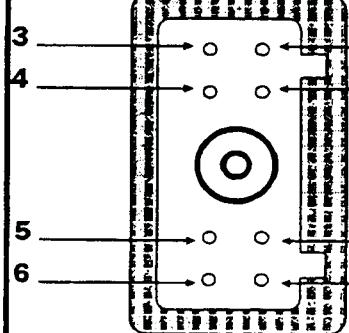
RESISTOR CHECK - All three resistors should have 270 - 330 ohms of resistance.

O.D. RESISTOR - Connect ohmmeter leads to pins 4 and 3.

L/R RESISTOR - Connect ohmmeter leads to pins 4 and 2.

2-4 RESISTOR - Connect ohmmeter leads to pins 4 and 1.

CASE CONNECTOR



- 2 Pin No. 1- 2-4 Pressure switch signal to controller
- 1 Pin No. 2- Low/Rev pressure switch signal to controller
- Pin No. 3- Overdrive pressure switch signal to controller
- Pin No. 4- 12 Volt input from the controller
- Pin No. 5- Ground from controller to under drive solenoid
- 8 Pin No. 6- Ground from controller to overdrive solenoid*
- 7 Pin No. 7- Ground from controller Low/Rev lockup solenoid*
- 6 Pin No. 8- Ground from controller to 2-4/reverse solenoid

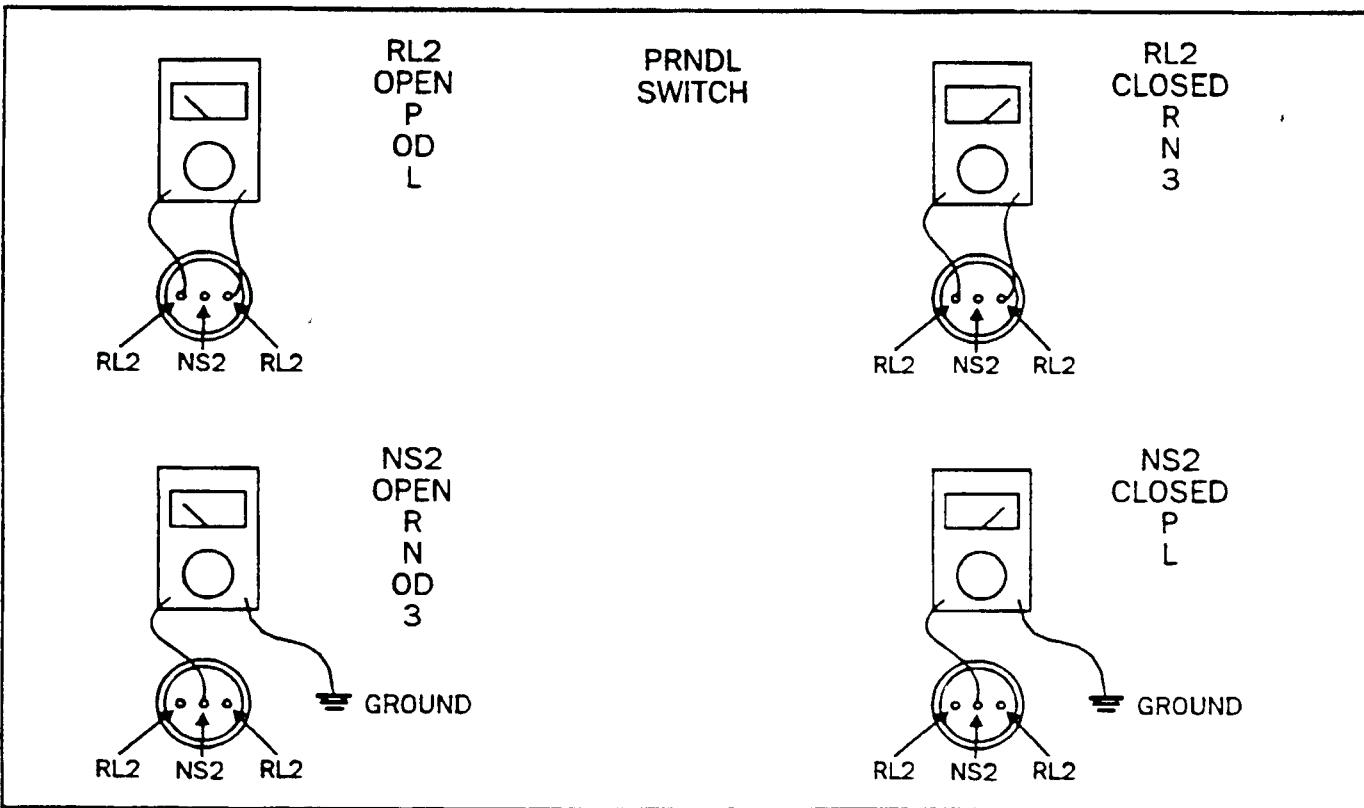
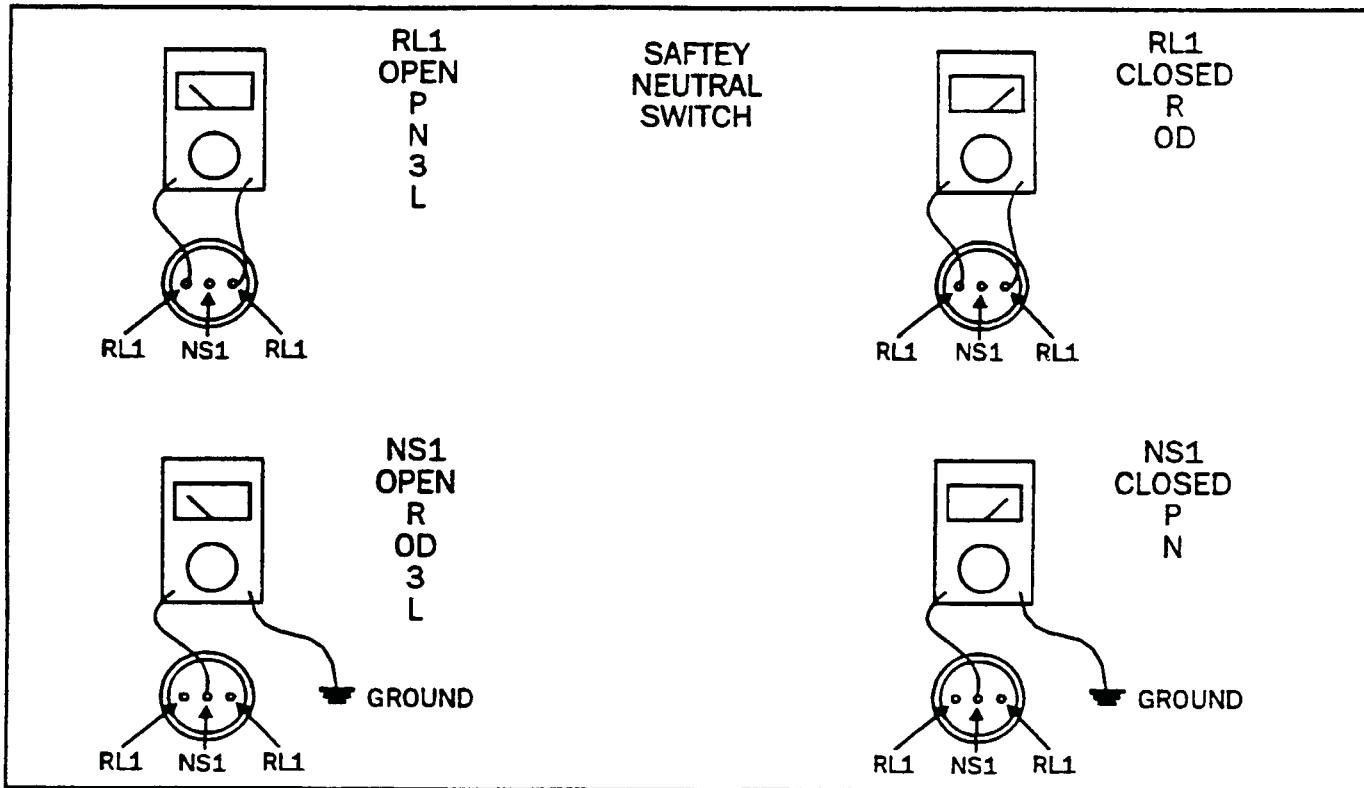
*= PERFORMS DOUBLE FUNCTIONS

**TO ACCURATELY CHECK THE INPUT AND OUTPUT SPEED SENSORS
A HAND HELD SCANNER MUST BE USED.**



PASS BOOK

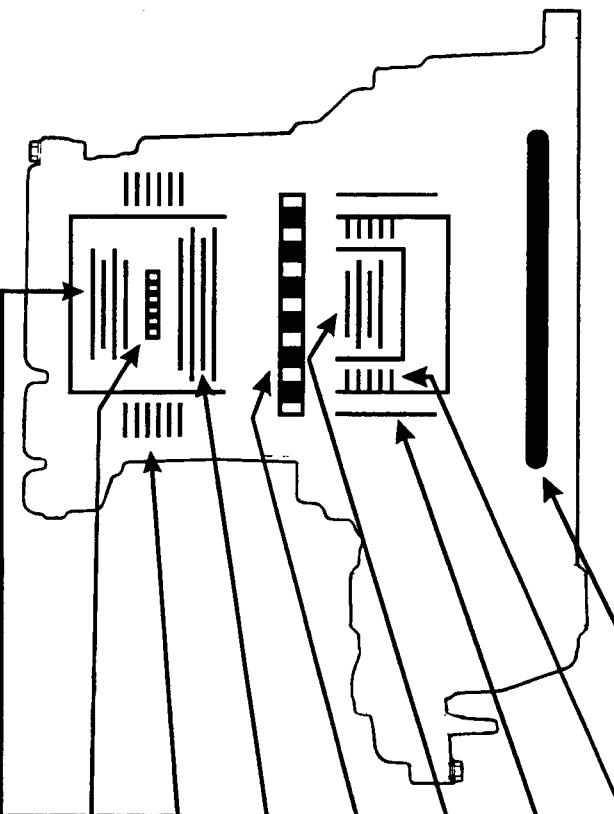
A604 PRNODL AND NEUTRAL SAFETY SWITCH TEST





PASS BOOK

JF403E APPLICATION CHART



RANGE	GEAR	OVER RUN CLUTCH	FWD SPRAG	LOW REVERSE CLUTCH	FWD CLUTCH	LOW ROLLER CLUTCH	HIGH CLUTCH	2-4 BAND	REVERSE CLUTCH	TCC
R	REVERSE			ON					ON	
D4	1ST	ON ¹	ON		ON	ON				
	2ND	ON ¹	ON		ON			ON		
	3RD	ON ¹	ON		ON		ON			
	4TH				ON		ON	ON		ON ²
D3	1ST	ON ¹	ON		ON	ON				
	2ND	ON ¹	ON		ON			ON		
	3RD	ON ¹	ON		ON		ON			
	4TH				ON		ON	ON		
2	1ST	ON ¹	ON		ON	ON				
	2ND	ON ¹	ON		ON			ON		
	3RD	ON ¹	ON		ON		ON			
1	1ST	ON	ON	ON	ON	ON				
2	2ND	ON	ON		ON			ON		

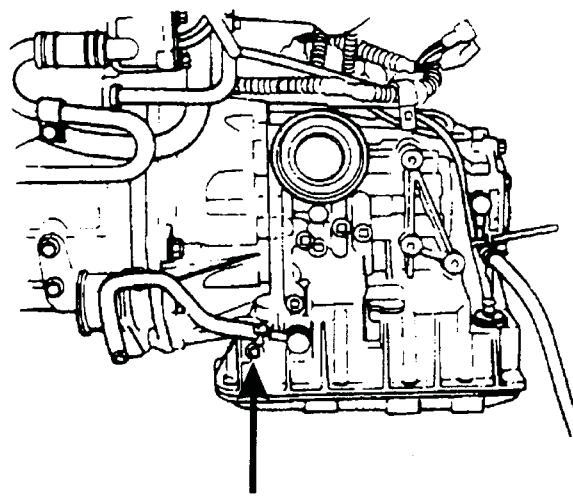
1 = MAY BE APPLIED UNDER CERTAIN CONDITIONS

2 = MAY BE RELEASED UNDER CERTAIN CONDITIONS



PASS BOOK

JF403-E PRESSURE CHECKS



LINE PRESSURE
TAP

1991 MODEL YEAR

RANGE	D4, D3, 2, 1	R
IDLE	70 - 84	85 - 99
STALL	186 - 200	224 - 239

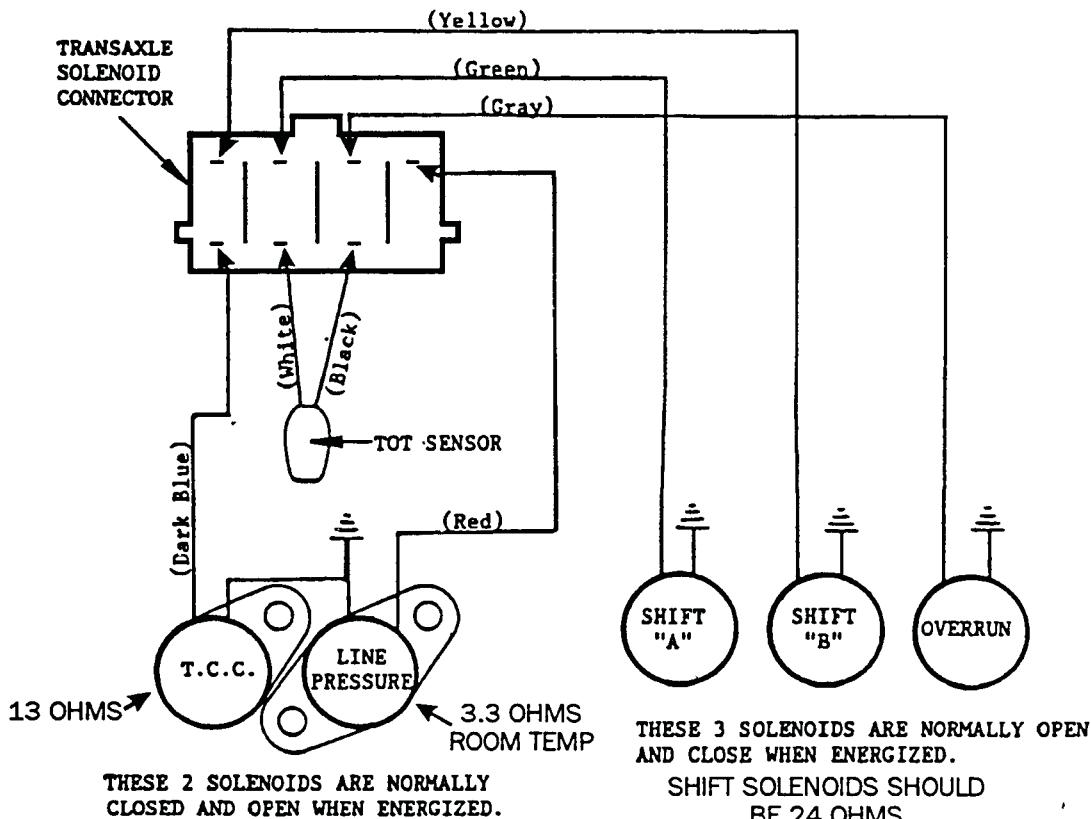
1992 MODEL YEAR

RANGE	D4, D3, 2, 1	R
IDLE	63 - 77	78 - 92
STALL	186 - 200	224 - 239



PASS BOOK

JF4035 RESISTANCE TESTS



ALL OHM READINGS ARE APPROXIMATE

SOLENOID APPLICATION

GEAR	SHIFT SOLENOID "A"	SHIFT SOLENOID "B"	TCC SOLENOID
1ST	ON	ON	
2ND		ON	
3RD			
4TH	ON		ON*

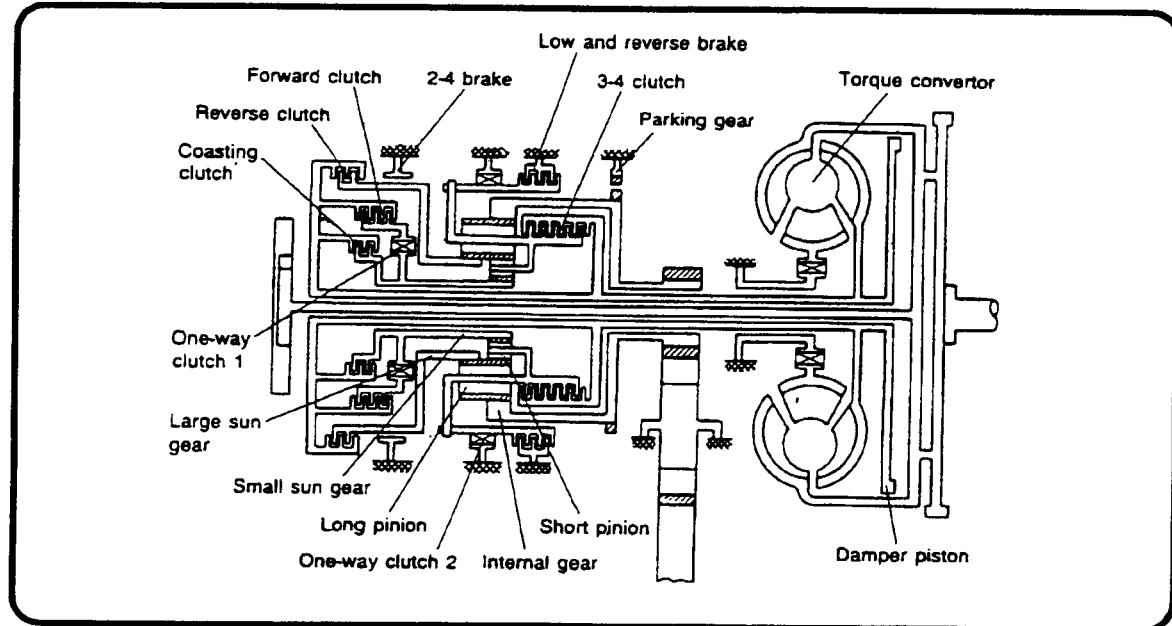
* = MAY BE ON, BASED UPON:

- 1 VEHICLE SPEED SENSOR AND THROTTLE POSITION SENSOR.
- 2 ATF TEMPERATURE (BELOW 104F) SENSOR INPUT TO ECU.



PASS BOOK

G4A-EL APPLICATION CHART



Range	Gear	Engine Braking Effect	Operation Elements								
			Forward Clutch	Coasting Clutch	3-4 Clutch	Reverse Clutch	2-4 Band		Low & Reverse Clutch	One-Way Sprag Clutch	One-Way Roller Clutch
							Applied	Released			
P	—	—									
R	Reverse	Yes				○			○		
N	—	—									
"Automatic" Position	1st	No	○							○	○
	2nd	No	○				○			○	
	3rd	Below approx. 40 km/h	○	○	○			○		○	
		Above approx. 40 km/h	○	○	○		○	○		○	
	4th	Yes	◎		○		○			○	
	1st	No	○							○	
	2nd	No	○				○			○	
"Manual" Position	D	Below approx. 40 km/h	○	○				○		○	
		Above approx. 40 km/h	○	○	○		○	○		○	
	1st	No	○		○				○	○	○
	2nd	Yes	○	○			○			○	
	2nd	No	○				○			○	
"Manual" Position	OD	Below approx. 40 km/h	○	○	○			○		○	
		Above approx. 40 km/h	○	○	○		○	○		○	
	2nd	Yes	○	○			○			○	
	D	Below approx. 40 km/h	○	○	○			○		○	
		Above approx. 40 km/h	○	○	○		○	○		○	
	1st	Yes	○	○					○	○	○
	2nd	Yes	○	○			○			○	

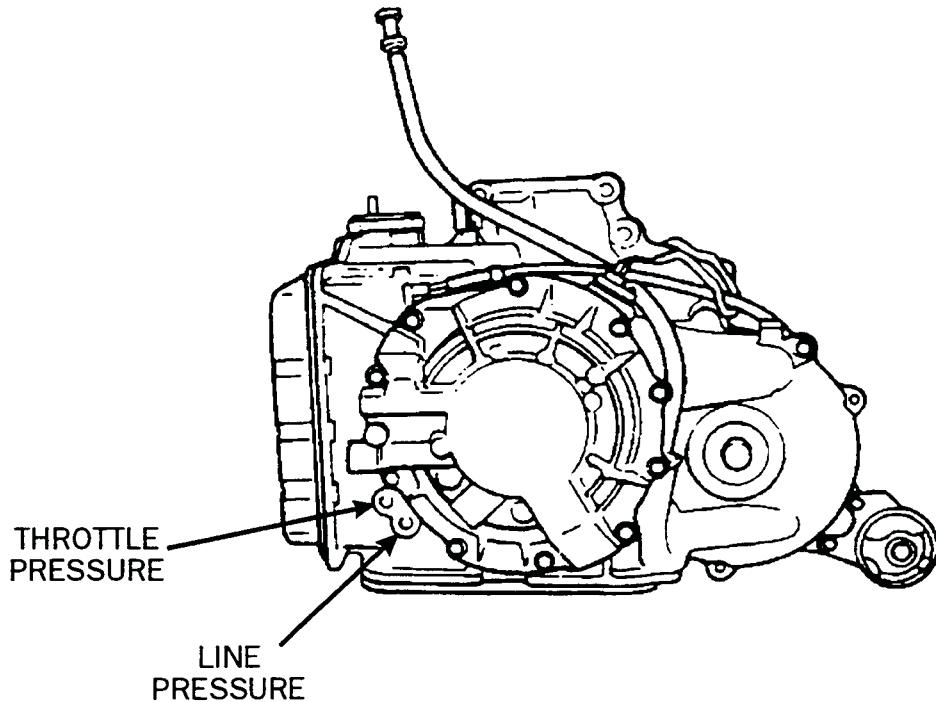
:Indicates fluid pressure to servo but band not applied due to pressure difference in servo.

◎:Indicates that it does not function to transmit power.



PASS BOOK

G4A-EL PRESSURE CHECKS



	THROTTLE PRESSURE (PSI)
AT IDLE	6 - 13
AT STALL	68 - 85

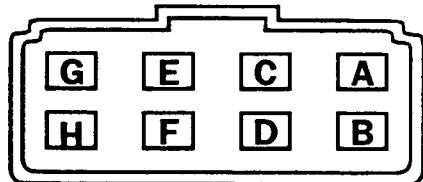
	LINE PRESSURE (PSI)	
RANGE	O.D. - D - L	R
AT IDLE	51 - 63	87 - 137
AT STALL	127 - 151	242 - 292



PASS BOOK

G4A-EL SOLENOID AND SENSOR TEST

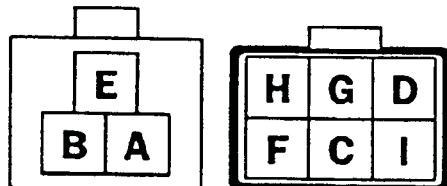
EARLY INHIBITOR SWITCH



POSITION	CONNECT TERMINAL							
	A	B	C	D	E	F	G	H
P	○	○						
R				○	○			
N	○	○						
D			○		○			
2			○			○		
1			○				○	

○—○ INDICATES CONTINUITY

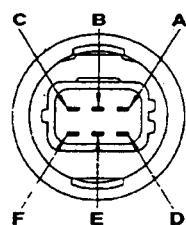
LATE INHIBITOR SWITCH



POSITION	CONNECTOR TERMINAL								
	A	B	C	D	E	F	G	H	I
P	○	○	○	○					
R			○		○				
N	○	○	○			○			
D			○				○		
S			○					○	
L		○							○

○—○ INDICATES CONTINUITY

SHIFT SOLENOIDS

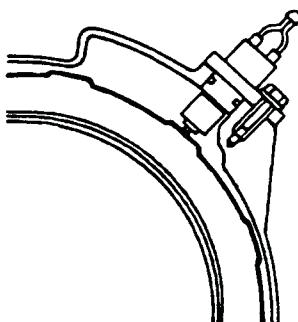


- F = 1-2 SOL (GREEN)
C,E = 2-3 SOL (BLUE)
B = 3-4 SOL (YELLOW)
D = LOCKUP SOL (RED)

GEAR	1-2 SOL	2-3 SOL	3-4 SOL
1ST		ON	ON
2ND	ON	ON	ON
3RD			
4TH	ON		ON
OHMS	13 - 27	13 - 27	13 - 27

PULSE GENERATOR

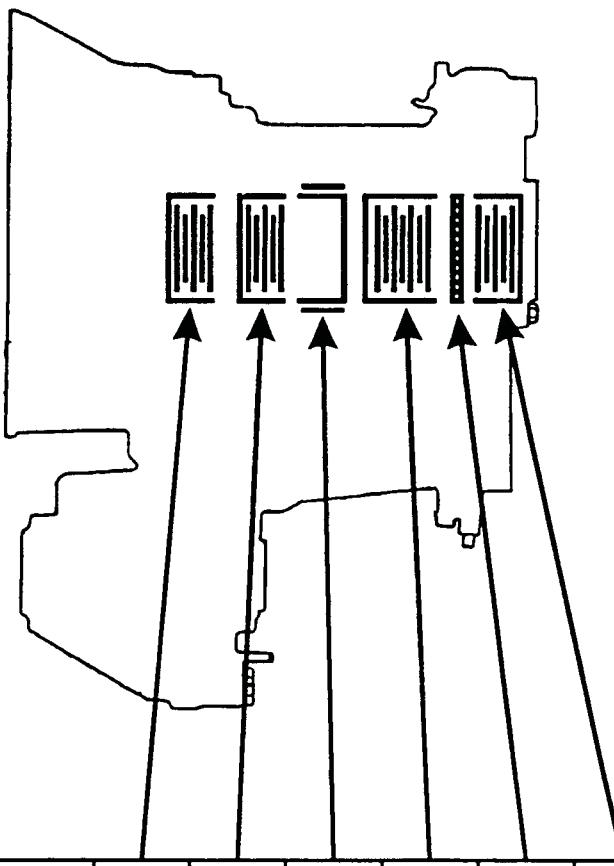
200 - 400 OHMS





P A S S B O O K

MITSUBISHI / HYUNDAI APPLICATION CHART

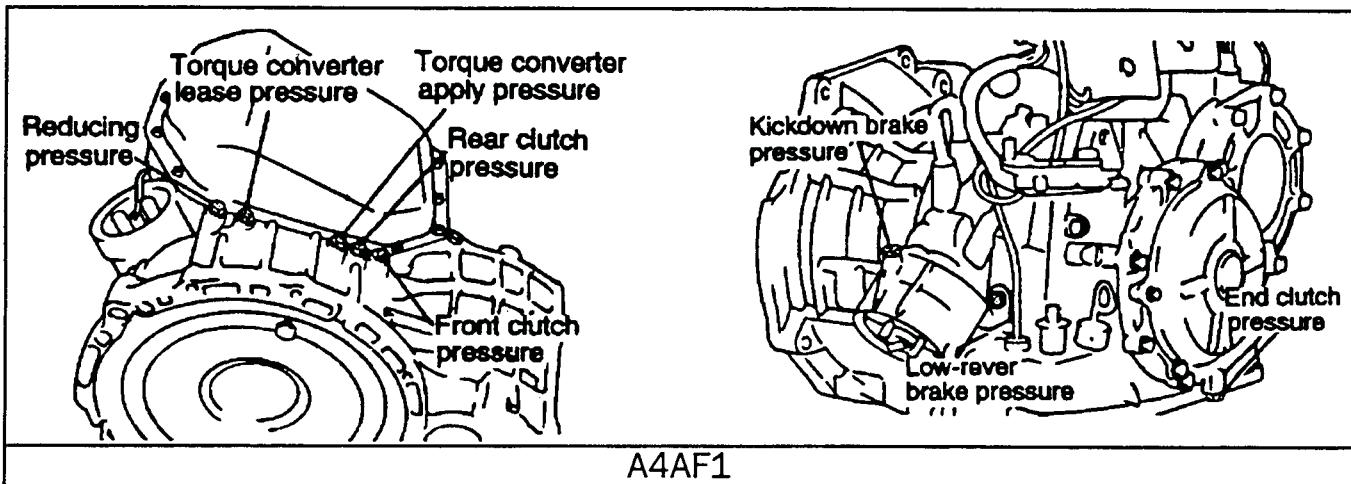
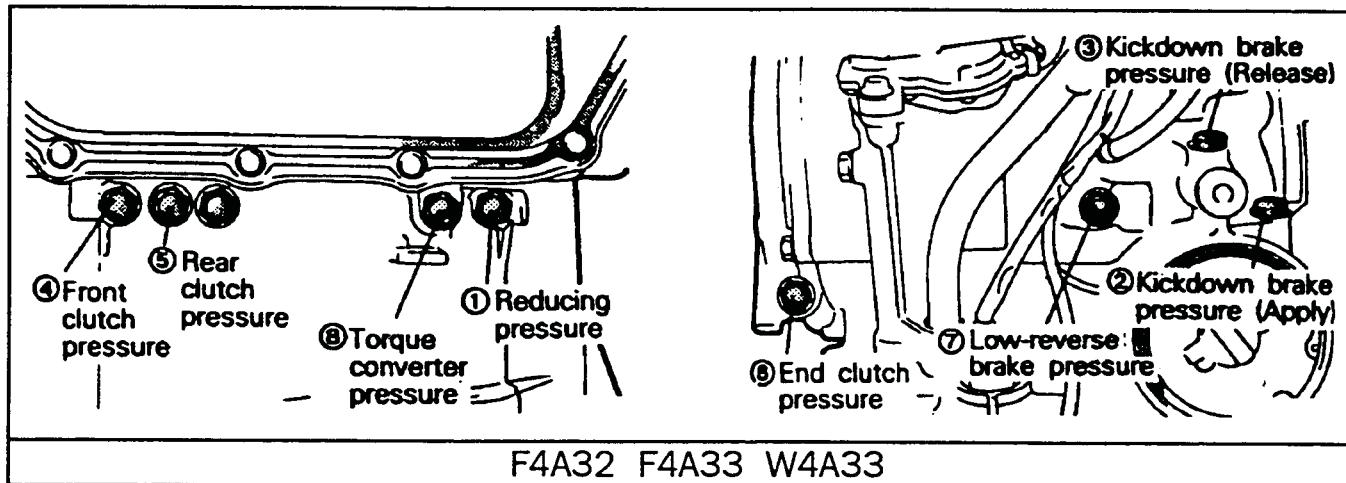
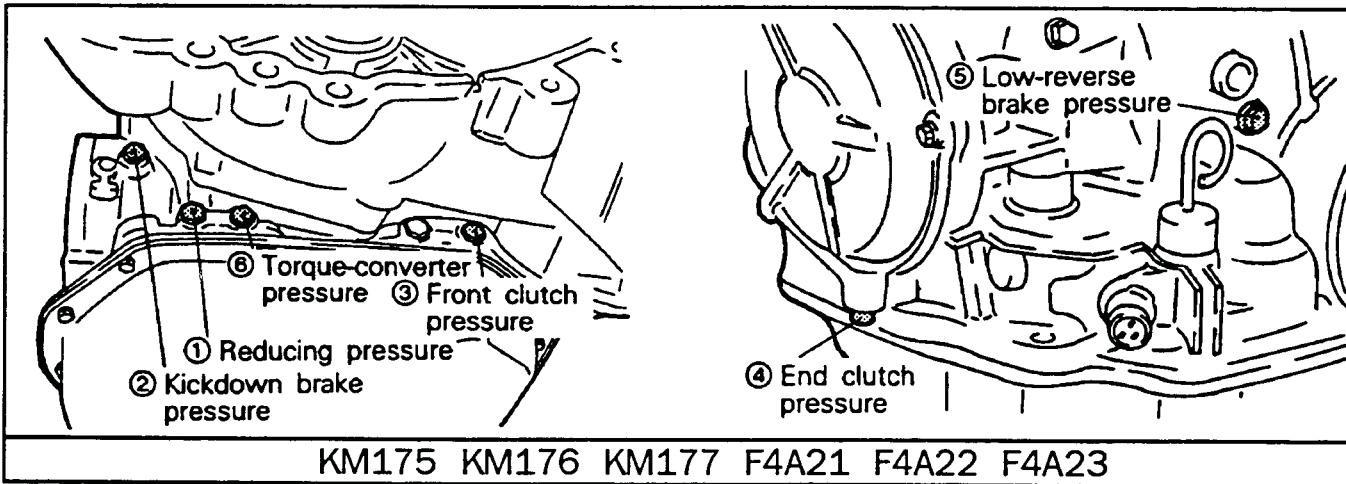


RANGE	GEAR	DIRECT CLUTCH	FWD CLUTCH	2-4 BAND	LOW REV CLUTCH	ONEWAY CLUTCH	3-4 CLUTCH
R	REV	ON			ON		
D	1ST		ON			ON	
	2ND		ON	ON			
	3RD	ON	ON				ON
	4TH			ON			ON
2	1ST		ON			ON	
	2ND		ON	ON			
1	1ST		ON			ON	



PASS BOOK

PRESSURE TAP LOCATIONS





PASS BOOK

1985 - 1986 GALANTS PRESSURE CHART

SELECTOR LEVER	GEAR	RPM	REDUCING PRESSURE	KICKDOWN BRAKE PRESSURE	FRONT CLUTCH PRESSURE	END CLUTCH PRESSURE	LOW/REV CLUTCH PRESSURE	TORQUE CONVERTER PRESSURE
PARK	-	IDLE	36 - 56	*	*	*	*	28 - 34
REVERSE	REV	2500	36 - 56	*	165 - 250	*	165 - 250	28 - 34
		1000	36 - 56	*	150 & UP	*	150 & UP	28 - 34
NEUTRAL	-	IDLE	36 - 56	*	*	*	*	28 - 34
DRIVE	2ND	IDLE	36 - 56	14 - 30	*	*	*	28 - 34
	1ST	1000	36 - 56	*	*	*	*	28 - 34
	2ND	2500	36 - 56	89 - 97•	*	*	*	28 - 34 ⁺
	3RD	2500	36 - 56	89 - 97•	89 - 97	89 - 97	*	28 - 34 ⁺
	4TH	2500	36 - 56	89 - 97	*	89 - 97	*	28 - 34 ⁺
SECOND	2ND	2500	36 - 56	89 - 97	*	*	*	28 - 34
LOW	1ST	1000	36 - 56	*	*	*	43 - 60	28 - 34

* Must be 1.4 psi or less.

• A pressure cut back can be seen
during a shift from 2-3 and 3-4.

+ When lock up occurs, pressure should be less than 1 psi.



PASS BOOK

GENERAL PRESSURE CHART FOR ALL KM 4 SPEED UNITS FOR SPECIFIC PRESSURE READINGS, REFER TO A FACTORY MANUAL

SELECTOR LEVER	GEAR	RPM	REDUCING PRESSURE	KICKDOWN BRAKE PRESSURE	FRONT CLUTCH PRESSURE	END CLUTCH PRESSURE	LOW/REV CLUTCH PRESSURE	TORQUE CONVERTER PRESSURE
PARK	-	IDLE	48 - 72	*	*	*	*	50 - 92
REVERSE	REV	2500	48 - 72	*	233 - 319	*	233 - 319	50 - 92
		1000	48 - 72	*	142 & UP	*	142 & UP	50 - 92
NEUTRAL	-	IDLE	48 - 72	*	*	*	*	50 - 92
DRIVE	2ND	IDLE	48 - 72	14 - 30	*	*	*	50 - 92
	1ST	1000	48 - 72	*	*	*	*	50 - 92
	2ND	2500	48 - 72	118 - 128•	*	*	*	50 - 92 ⁺
	3RD	2500	48 - 72	118 - 128•	118 - 128	118 - 128	*	50 - 92 ⁺
	4TH	2500	48 - 72	118 - 128	*	118 - 128	*	50 - 92 ⁺
SECOND	2ND	2500	48 - 72	118 - 128	*	*	*	50 - 92
LOW	1ST	1000	48 - 72	*	*	*	43 - 64	50 - 92

* Must be 1.4 psi or less.

• A pressure cut back can be seen during a shift from 2-3 and 3-4.

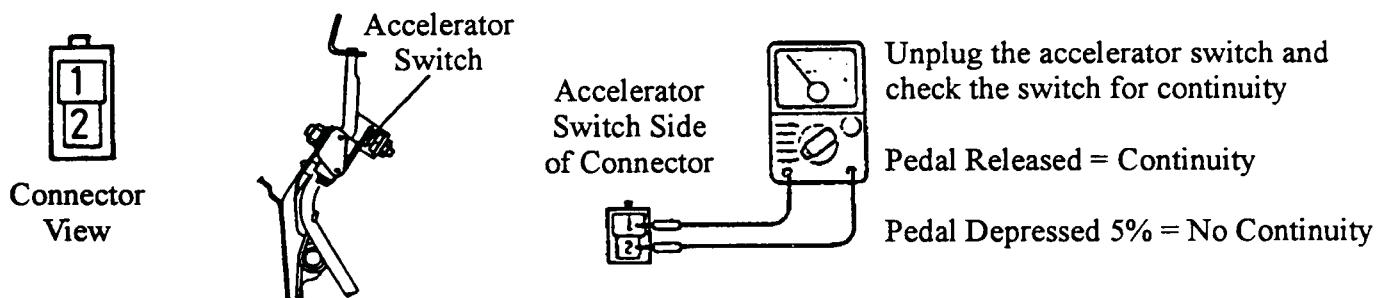
+When lock up occurs, pressure should be less than 1 psi.



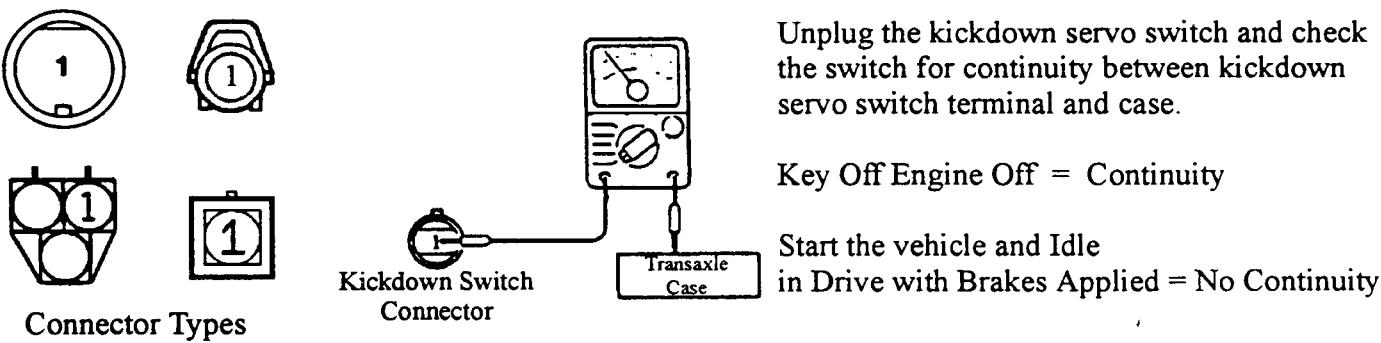
P A S S B O O K

SOLENOID AND SENSOR CHECKS

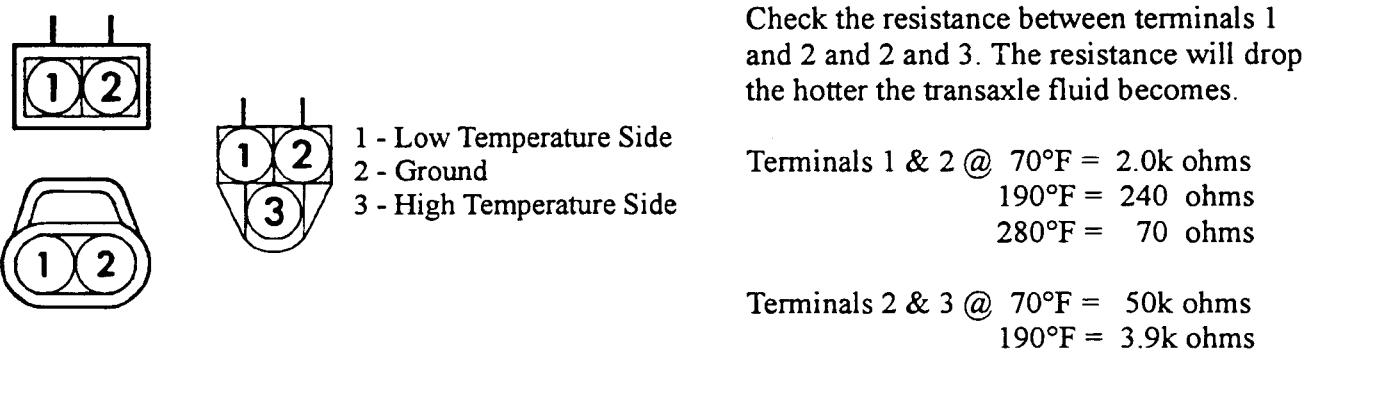
ACCELERATOR SWITCH CHECK



KICKDOWN SERVO SWITCH CHECK



AUTOMATIC TRANSAXLE FLUID TEMPERATURE SENSOR CHECK

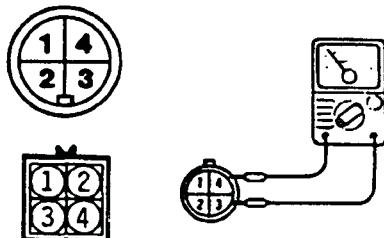




P A S S B O O K

SOLENOID AND SENSOR CHECKS

PULSE GENERATORS A & B CHECK

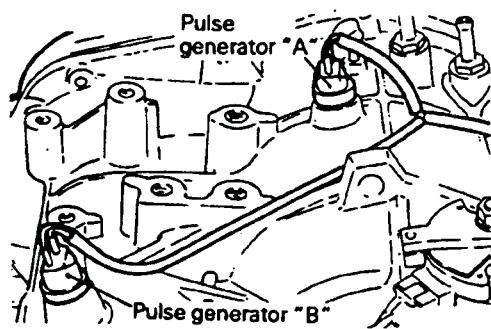


Place meter leads across terminals 1 and 2 to check Pulse Generator A

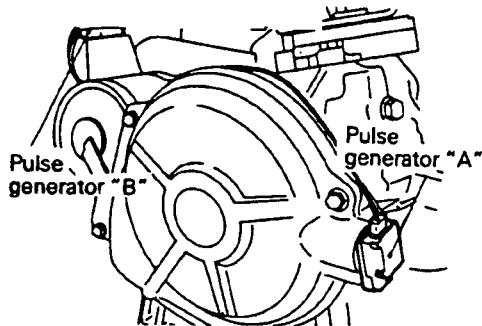
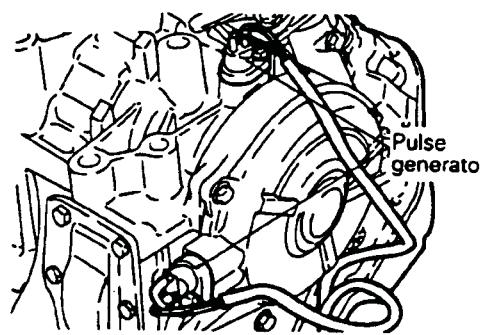
Place meter leads across terminals 3 and 4 to check Pulse Generator B

Pulse Generator A: 215 - 275

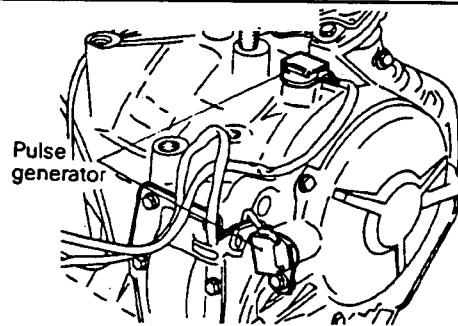
KM 175, 176, F4A21, F4A22, F4A23



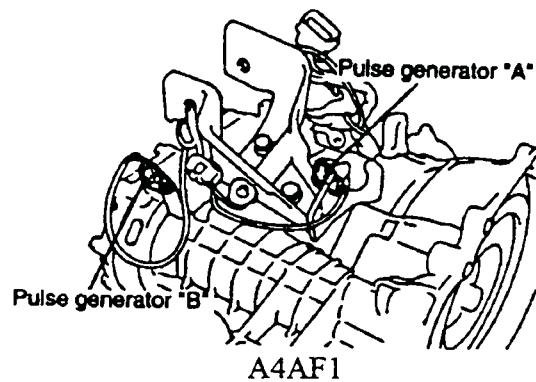
F4A32, F4A33, W4A33



F4A21, F4A22, F4A23 (LATE)



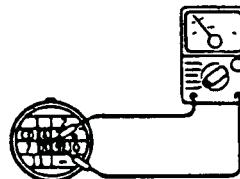
F4A32, F4A33, W4A33 Design Change



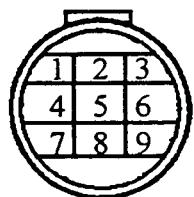


P A S S B O O K

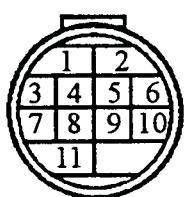
SOLENOID AND SENSOR CHECKS



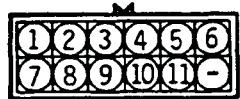
Check the Inhibitor Switch for continuity in the specific gear ranges across the pins shown in the charts below and on page 117. For example, in the top chart below, continuity should exist in Park on pins 3 & 4 and 8 & 9. No other combinations of pins should provide a continuity reading in the Park range.



	1	2	3	4	5	6	7	8	9
P			o-o					o-o	
R				o				o	
N		o		o				o	o
D			o		o				
2		o		o					
L			o	o					



	1	2	3	4	5	6	7	8	9	10	11
P			o-o					o-o			
R				o				o		o	
N		o		o				o	o		
D			o		o						
2		o		o							
L			o	o							

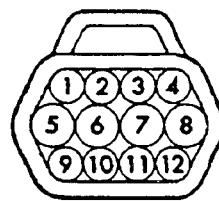


	1	2	3	4	5	6	7	8	9	10	11
P			o-o					o-o			
R				o				o		o	
N		o		o				o	o		
D			o		o						
2		o		o							
L			o	o							



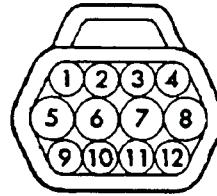
P A S S B O O K

SOLENOID AND SENSOR CHECKS



F4A21, F4A22

	1	2	3	4	5	6	7	8	9	10	11
P	o			o	o			o			
R					o			o	o		o
N		o		o	o			o			
D			o					o			
2			o	o							
L			o							o	



F4A23

	1	2	3	4	5	6	7	8	9	10	11
P	o			o	o			o			
R					o			o	o		o
N		o		o	o			o			
D			o					o			
2			o	o							
L		o								o	



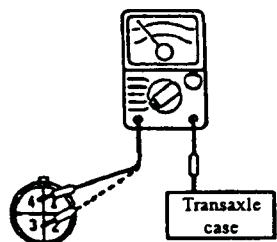
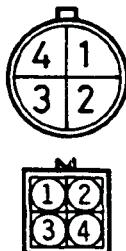
F4A32, F4A33, W4A33

	2	3	4	5	6	7	8	9	10	11	12
P	o	o			o	o					
R	o	o			o	o					
N		o				o	o				o
D			o					o			
2		o						o			
L	o							o			



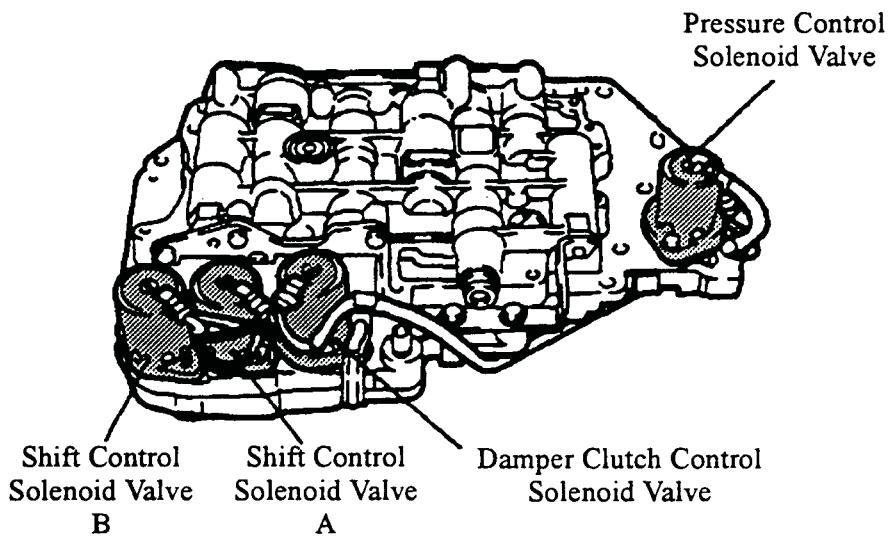
P A S S B O O K

SOLENOID AND SENSOR CHECKS



Check the resistance of each solenoid by placing the negative lead to ground. Use the positive lead to check each solenoid by placing it on each of the 4 terminals :

Terminal 1 - PCSV - 2.6 - 3.2 ohms
Terminal 2 - DCCV - 2.6 - 3.2 ohms
Terminal 3 - SCSV-A - 20.8 - 23.8 ohms
Terminal 4 - SCSV-B - 20.8 - 23.8 ohms



GEAR	SOLENOID	
	A	B
1st Gear	ON	ON
2nd Gear	OFF	ON
3rd Gear	OFF	OFF
4th Gear	ON	OFF



PASSBOOK

SOLENOID APPLICATION CHART

MITSUBISHI UNITS

COLOR	ORANGE	YELLOW	RED	BLUE
GEAR	SOLENOID A	SOLENOID B	TCC SOL	PRESSURE
1ST	ON	ON		PULSE MODULATED BY COMPUTER
2ND		ON	PULSED*	
3RD			PULSED*	
4TH	ON		PULSED*	
OHMS	20.8 - 23.8	20.8 - 23.8	2.6 - 3.2**	2.6 - 3.2

* - AS DETERMINED BY COMPUTER

** - LATE MODEL APPROX. 13 OHMS AT 70°F

HYUNDAI UNITS

COLOR	BLUE/BLACK TRACER	RED	BLUE	YELLOW
GEAR	SOLENOID A	SOLENOID B	TCC SOL	PRESSURE
1ST	ON	ON		PULSE MODULATED BY COMPUTER
2ND		ON	PULSED*	
3RD			PULSED*	
4TH	ON		PULSED*	
OHMS	20.8 - 23.8	20.8 - 23.8	2.6 - 3.2**	2.6 - 3.2

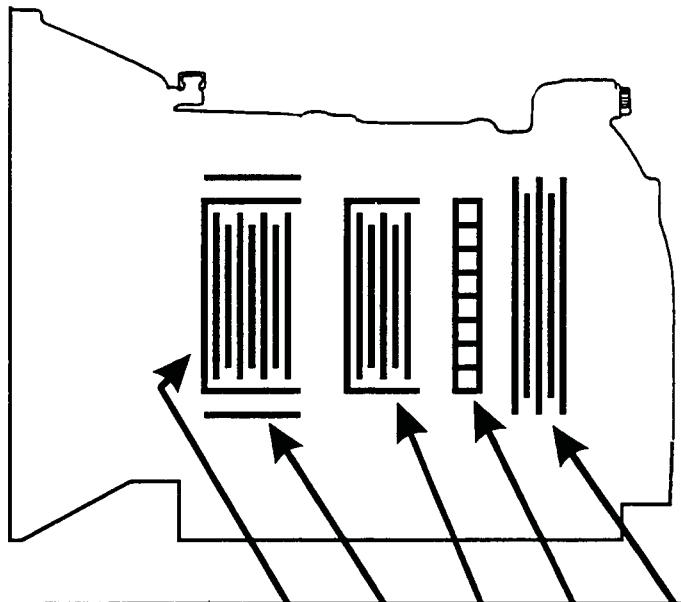
* - AS DETERMINED BY COMPUTER

** - LATE MODEL APPROX. 13 OHMS AT 70°F



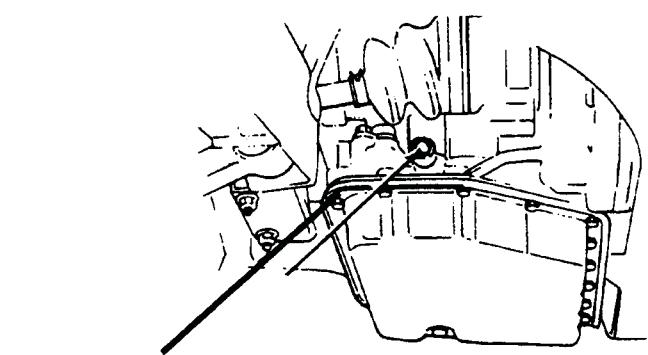
PASS BOOK

SPRINT / SUZUKI APPLICATION CHART & PRESSURE TEST



RANGE	GEAR	DIRECT CLUTCH	2ND BAND	FORWARD CLUTCH	ONEWAY CLUTCH	LOW REVERSE CLUTCH
R	REVERSE	ON				
D	1ST			ON	ON	ON
	2ND		ON	ON		
	3RD	ON		ON		
2	1ST			ON	ON	
	2ND		ON	ON		
1	1ST			ON	ON	ON
	2ND		ON	ON		

LINE PRESSURE TEST



LINE PRESSURE TAP

ENGINE CONDITION	LINE PRESSURE	
	DRIVE	REVERSE
IDLE	29 - 57	78 - 114
STALL	57 - 85	121 - 171

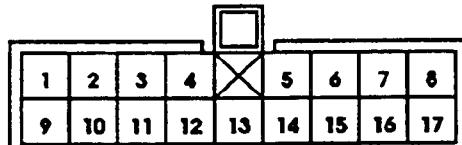
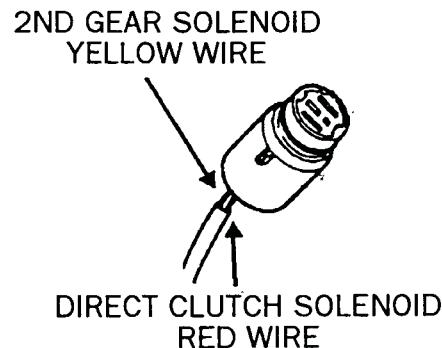


PASS BOOK

SPRINT / SUZUKI SOLENOID TESTS

1. Disconnect the connector at the transmission controller under the instrument panel.
2. With the key on, there must be 12 volts Between terminals 10 and 12 of the controller connector.
3. Terminals 4 and 12 must show CONTINUITY when the shift lever is in Drive.
4. Terminals 6 and 12 must show NO continuity with accelerator pedal released.
5. Terminals 6 and 12 must show CONTINUITY with the accelerator fully depressed
6. With the engine running at idle, terminals 7 and 12, 14 and 12, and 15 and 12 must show NO continuity.
7. With the engine off, terminals 7 and 12, 14 and 12, and 15 and 12 must show CONTINUITY.

COLOR	RED	YELLOW
GEAR	DIRECT CLUTCH SOLENOID	2nd GEAR SOLENOID
1st	ON	ON
2nd	ON	OFF
3rd	OFF	OFF
OHMS	11 - 15	11 - 15



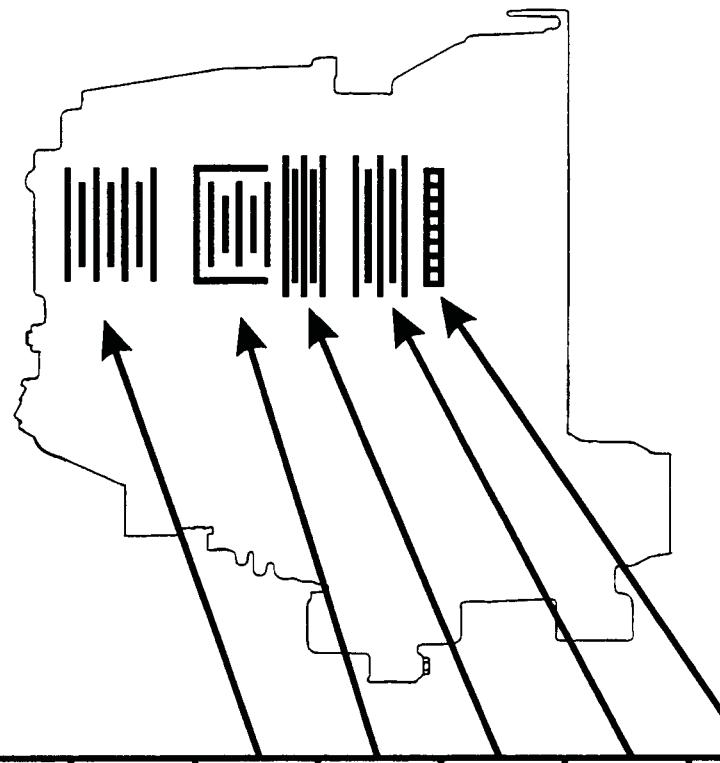
Viewed from wire harness side.

PIN NUMBER	PIN LOCATION	WIRE COLOR
1	2nd BRAKE SOLENOID	GRAY/YELLOW
2	IDLE UP SOLENOID	BROWN/WHITE
3	NOT USED	NO WIRE
4	SHIFT LEVER SWITCH (D)	GREEN/BLUE
5	REVERSE INPUT	RED
6	ACCELERATOR SWITCH	LIGHT GREEN
7	VACUUM SWITCH #1	LIGHT GREEN/WHITE
8	SHIFT LEVER SWITCH	GREEN
9	DIRECT CLUTCH SOLENOID	GRAY/WHITE
10	12 VOLTS IN	BLACK/WHITE
11	NOT USED	NO WIRE
12	GROUND	BLACK/GREEN
13	SPEED SIGNAL	YELLOW/GREEN
14	VACUUM SWITCH #2	LIGHT GREEN/RED
15	VACUUM SWITCH #3	LIGHT GREEN/BLACK
16	START VOLTAGE	BLACK/RED
17	SHIFT LEVER SWITCH (2)	GREEN/RED



P A S S B O O K

RENAULT MBI-MJ3 APPLICATION CHART

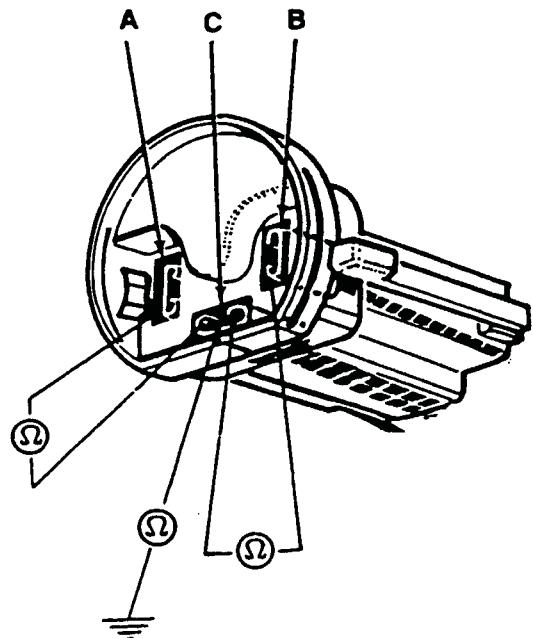


RANGE	GEAR	F2 INT. CLUTCH	E1 FWD CLUTCH	E2 HIGH/REV CLUTCH	F1 LOW/REV CLUTCH	LOW ONEWAY CLUTCH
R	REVERSE			ON	ON	
D	1ST		ON			ON
	2ND	ON	ON			
	3RD		ON	ON		
2	2ND	ON	ON			
1	1ST		ON		ON	



PASS BOOK

RENAULT MB1 - MJ3 SOLENOID AND PRESSURE TEST



TERMINALS	OHMS
A - C	20 - 40
B - C	20 - 40
C - GROUND	0

1ST GEAR	12 VOLTS "C"	GROUND "A"	
2ND GEAR	12 VOLTS "C"	GROUND "A"	GROUND "B"
3RD GEAR		GROUND "A"	GROUND "B"



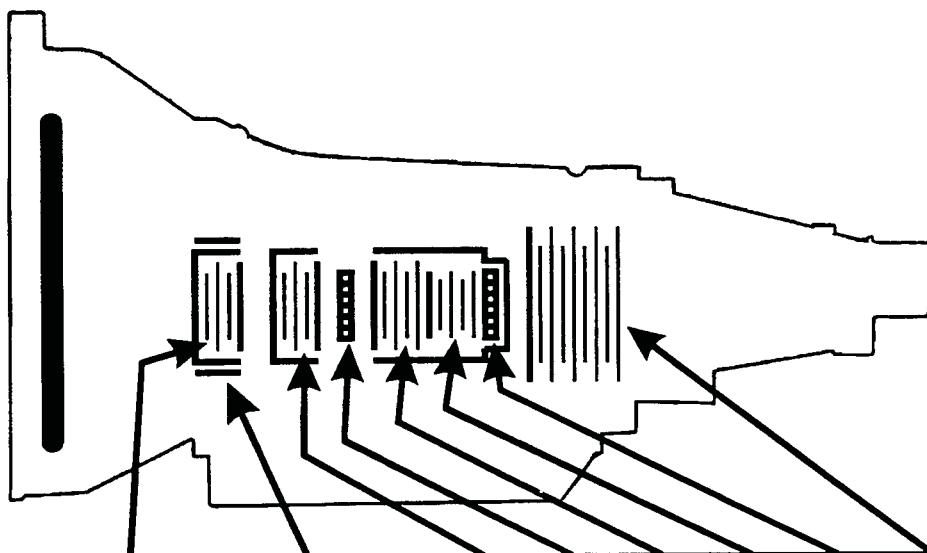
IDLE
55 - 60

STALL
180 - 200



PASS BOOK

RE4R01A APPLICATION CHART



RANGE	GEAR	REVERSE CLUTCH	BRAKE BAND			HIGH CLUTCH	FWD ONEWAY CLUTCH	FWD CLUTCH	OVER RUN CLUTCH	LOW ONEWAY CLUTCH	LOW REVERSE BRAKE
			2ND APPLIED	3RD RELEASE	OD APPLIED						
R	REV	○									○
D	1ST						●	○	◆	●	
	2ND	○					●	○	■		
	3RD	□1	□			○	●	○	■		
	4TH	□2	□	○	○			□			
S	1ST						●	○	✖	●	
	2ND	○					●	○	✖		
	3RD	□1	□			○	●	○	✖		
L	1ST						●	○	○		○
	2ND	○					●	○	○		

1 Hydraulic pressure is applied to both 2nd applied side and 3rd released side of the band servo piston. However, because the area of the 3rd released side is larger, the brake band does not operate.

2 Hydraulic pressure is applied to O.D. applied side, plus condition "1" above. brake band is applied.

○ Operates.

✖ Operates when throttle opening is less than 1/8. Engine braking effect available.

✖ Operates when throttle opening is less than 1/8. Engine braking effect not available.

■ Operates when EC-AT control unit receives O.D. inhibit signal from the cruise control unit and throttle opening is less than 1/8. Enging braking effect available.

◆ Operates when EC-AT control unit receives O.D. inhibit signal from the cruise control unit and throttle opening is less than 1/8. Enging braking effect not available.

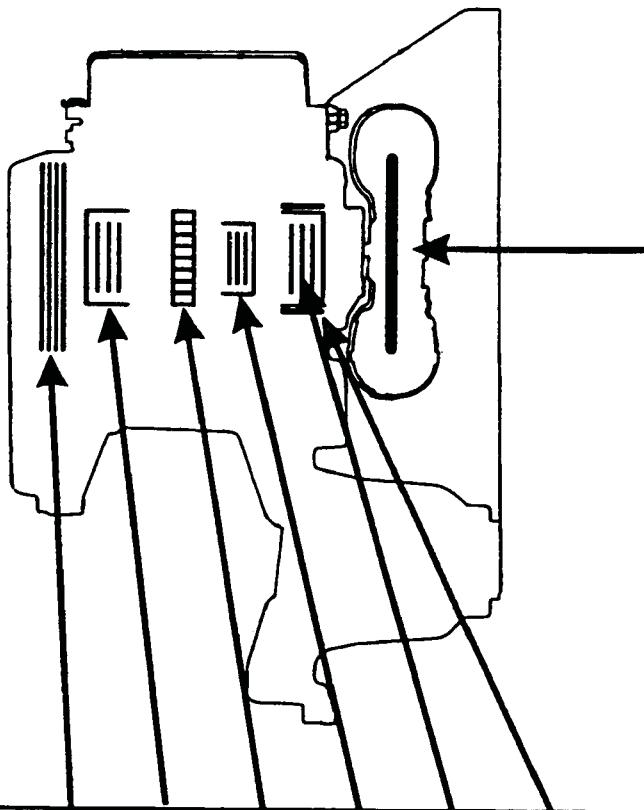
□ Operates but does not transmit power.

● Operates.



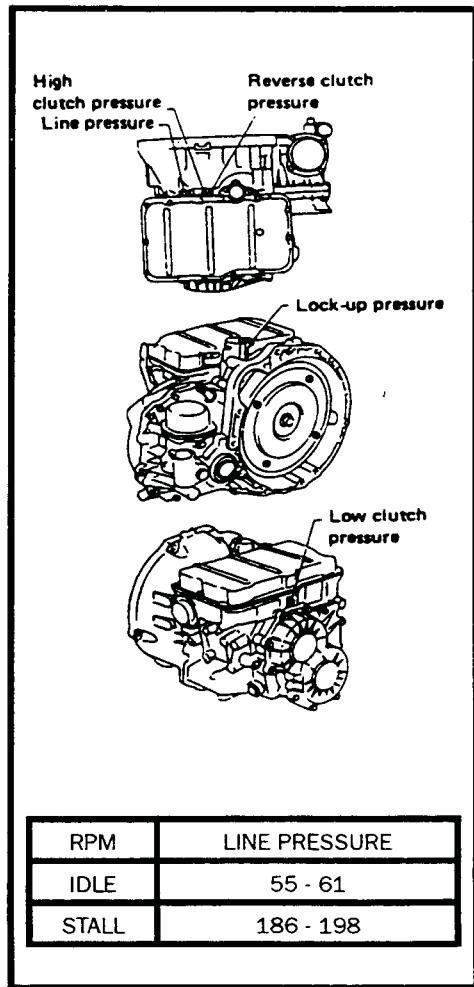
PASS BOOK

NISSAN RE4FO2A APPLICATION CHART AND PRESSURE TEST



1. LOCK-UP OPERATES IN 3rd WHEN O.D. CONTROL SWITCH IS OFF
2. LOCK-UP OPERATES IN 4th WHEN O.D. CONTROL SWITCH IS ON

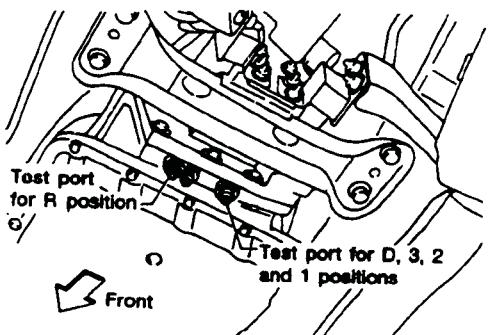
GEAR		LOW/REV CLUTCH	LOW CLUTCH	LOW ROLLER CLUTCH	HIGH CLUTCH	REVERSE CLUTCH	2 - 4 BAND	GEAR RATIO
REVERSE	R	ON				ON		2.272
D	1		ON	ON				2.785
	2		ON				ON	1.545
	3		ON		ON			1.000
	4				ON		ON	0.694
2	1		ON	ON				2.785
	2		ON				ON	1.545
1	1	ON	ON	ON				2.785
	2		ON				ON	1.545





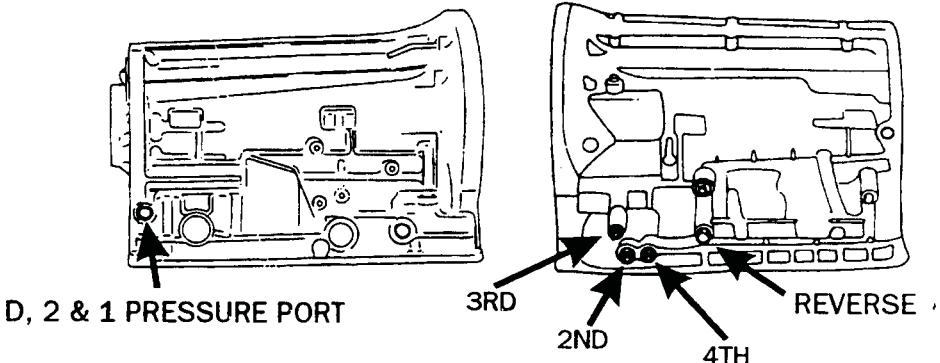
PASS BOOK

NISSAN RE4 / MAZDA / INFINITI PRESSURE TEST



ENGINE SPEED RPM	LINE PRESSURE (PSI)	
	D, 3, 2 & 1	R
IDLE	65 - 71	91 - 97
STALL	148 - 159	206 - 219

INFINITI Q45 ONLY



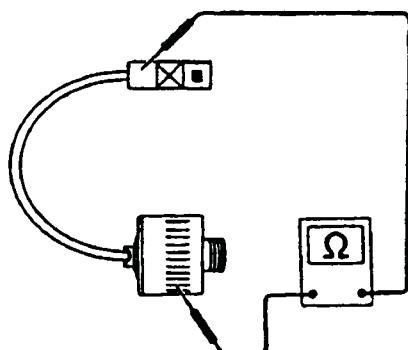
TRANS		D, 2 & 1	REVERSE
INFINITI M30 J30	IDLE	61 - 67	88 - 94
	STALL	148 - 159	206 - 218
MAZDA MPV 2WD	IDLE	68 - 74	175 - 186
	STALL	88 - 94	206 - 218
MAZDA MPV 4WD	IDLE	57 - 74	148 - 159
	STALL	102 - 108	206 - 218
NISSAN PATHFINDER	IDLE	63 - 68	175 - 186
	STALL	97 - 102	219 - 230
NISSAN 240SX	IDLE	68 - 74	148 - 159
	STALL	95 - 101	206 - 218
NISSAN 300ZX	IDLE	60 - 71	148 - 159
	STALL	88 - 94	206 - 218

LINE PRESSURE SPECIFICATIONS VARY
FROM MODEL TO MODEL. WE HAVE LISTED
SEVERAL MANUFACTURES SPECIFICATIONS.

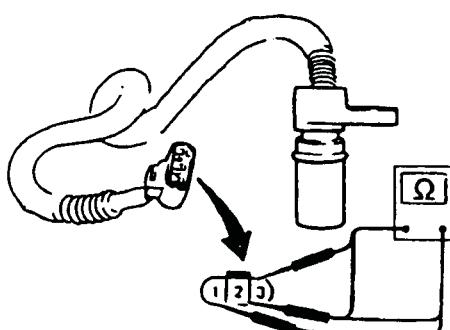


PASS BOOK

NISSAN RE4 / MAZDA / INFINITI TESTS CONTINUED

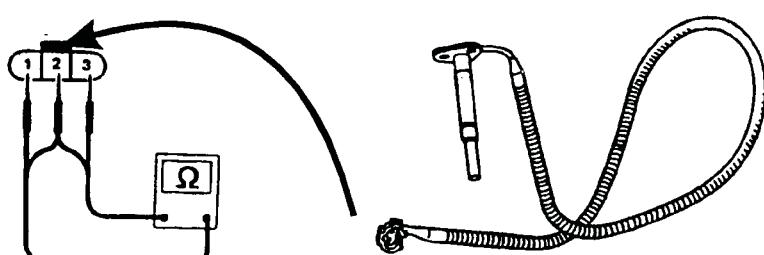


RE4F02A
TIMING SOLENOID RESISTANCE
20 - 40 OHMS



- | |
|-------------------------------------|
| TERMINALS 1 - 2 500 - 650 OHMS |
| TERMINALS 2 - 3 NO CONTINUITY |
| TERMINALS 1 - 3 NO CONTINUITY |

RE4R01A / MAZDA / INFINITI
REVOLUTION SENSOR



TERMINAL #	RESISTANCE
1	2
2	3
1	3

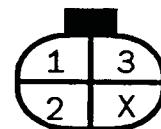
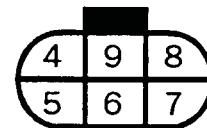
REVOLUTION SENSOR
INFINITI ONLY



P A S S B O O K

NISSAN RE4 / MAZDA / INFINITY INHIBITOR SWITCH TEST

TERMINAL #\LEVER POSITION	1	2	3	4	5	6	7	8	9
P	O		O	O		O			
R				O			O		
N	O		O	O					
D				O	O				
2				O			O		
1				O				O	

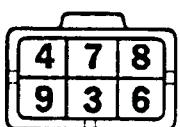


RE4FO2A INHIBITOR SWITCH

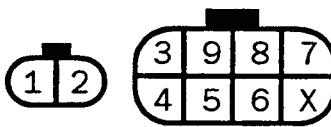
TERMINAL #\LEVER POSITION	1	2	3	4	5	6	7	8	9
P	O	O	O	O					
R			O		O				
N	O	O	O			O			
D			O				O		
2 (3*)			O					O	
1 (2,1*)			O						O

* = INFINITI Q45

MAZDA



NISSAN / INFINITI

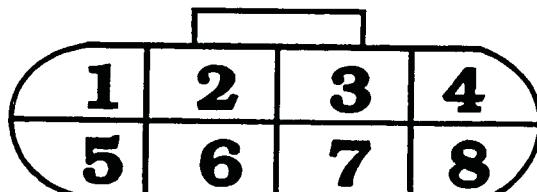


RE4RO1A INHIBITOR SWITCH



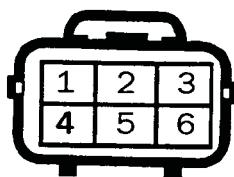
P A S S B O O K

NISSAN RE4 / MAZDA / INFINITI SOLENOID & SENSOR TEST



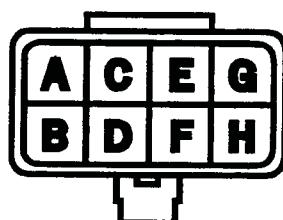
NISSAN RE4F02A \ RE4R01A

PIN 1.	SHIFT SOLENOID "B"	20-30 OHMS
PIN 2.	SHIFT SOLENOID "A"	20-30 OHMS
PIN 3.	OVERRUN SOLENOID	20-30 OHMS
PIN 4.	EPC SOLENOID	2 - 5 OHMS
PIN 5.	TCC SOLENOID	10-16 OHMS
PIN 6 & 7.	TOT SENSOR	300 OHMS (175° F)
PIN 8.	NOT USED	



EARLY NISSAN RE4R01A

PIN 1.	NOT USED	
PIN 2.	SHIFT SOLENOID "B"	20-30 OHMS
PIN 3.	SHIFT SOLENOID "A"	20-30 OHMS
PIN 4.	OVERRUN SOLENOID	20-30 OHMS
PIN 5.	EPC SOLENOID	2 - 5 OHMS
PIN 6.	TCC SOLENOID	10-16 OHMS
PIN 7 & 8.	TOT SENSOR	300 OHMS (175° F)



MAZDA CONNECTOR

PIN A	ATF THERMOSWITCH	
PIN B	SHIFT SOLENOID "A"	20-30 OHMS
PIN C	SHIFT SOLENOID "B"	20-30 OHMS
PIN D	OVERRUN SOLENOID	20-30 OHMS
PIN E	EPC SOLENOID	2 - 5 OHMS
PIN F	TCC SOLENOID	10-16 OHMS
PIN G & H	ATF THERMOSENSOR	300 OHMS (175° F)

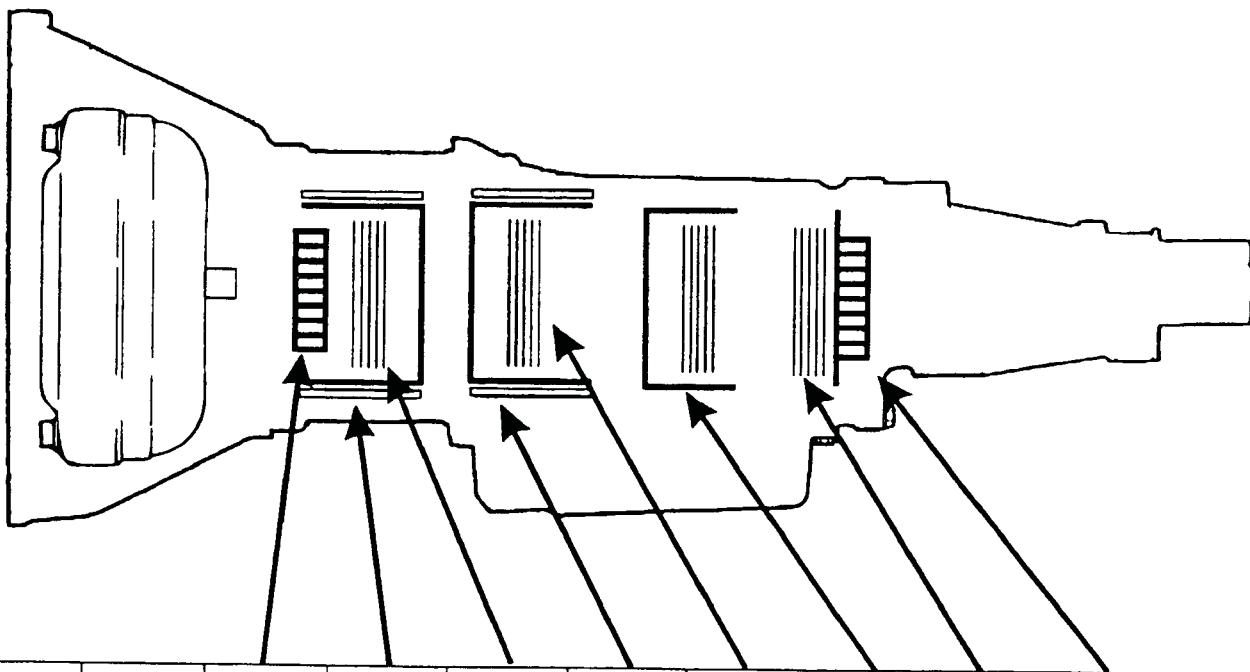
GEAR	SOLENOID A	SOLENOID B	LOCK-UP SOLENOID	TIMING SOLENOID	PRESSURE SOLENOID
1st	ON	ON	OFF	ACTIVATES UPON VARIOUS THROTTLE OPENINGS RE4F02A ONLY	PULSE MODULATION CONTROLLED BY COMPUTER
2nd	OFF	ON	OFF		
3rd	OFF	OFF	OFF		
4th	ON	OFF	ON	OFF	
OHMS	20 - 30	20 - 30	10 - 16	20 - 30	2.5 - 5

SHIFT PATTERN FOR INFINITI, NISSAN & MAZDA ARE THE SAME



PASS BOOK

N4AEL APPLICATION CHART



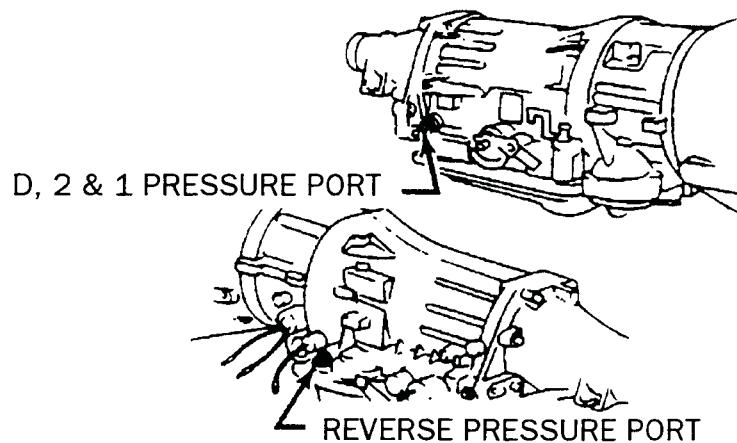
SELECTOR POSITION	GEAR	O.D. SPRAG	O.D. BAND	DIRECT CLUTCHES	INTER. BAND	HIGH CLUTCHES	FORWARD CLUTCHES	LOW/REV CLUTCHES	LOW SPRAG
R	REVERSE	ON		ON		ON		ON	
D	FIRST	ON		ON			ON		ON
	SECOND	ON		ON	ON		ON		
	THIRD	ON		ON		ON	ON		
	O.D.		ON			ON	ON		
S	FIRST	ON		ON			ON		ON
	SECOND	ON		ON	ON		ON		
	THIRD	ON		ON		ON	ON		
L	FIRST	ON		ON			ON	ON	
	SECOND	ON		ON	ON		ON		



PASS BOOK

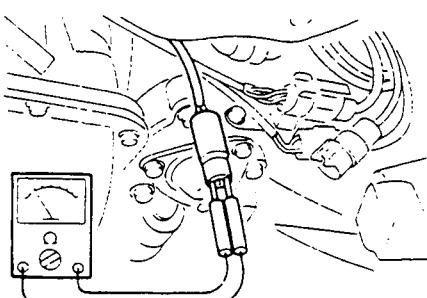
N4AEL PRESSURE TESTS

PRESSURE PORT LOCATIONS



RANGE		PRESSURE (PSI)	
		IDLE	STALL
D	ECONOMY MODE	43 - 57	128 - 156
S	ECONOMY MODE	43 - 57	128 - 156
	HOLD MODE	43 - 57	128 - 156
L		43 - 57	128 - 156
R		78 - 92	213 - 242

TURBINE SPEED SENSOR CHECK



DISCONNECT THE TURBINE SENSOR
CHECK RESISTANCE AT THE TERMINALS
RESISTANCE SHOULD BE APPROX. 245 OHMS



PASS BOOK

N4AEL SOLENOID & SENSOR CHECKS

SOLENOID VALVE APPLICATION CHART

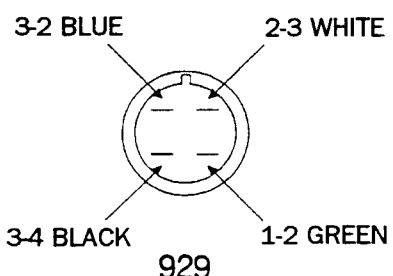
SELECTOR POSITION	GEAR	SOLENOID VALVES			
		1-2	2-3	3-4	LOCK-UP
R	REVERSE			ON	
D	FIRST	ON	ON	ON	
	SECOND		ON	ON	
	THIRD			ON	ON*
	O.D.				ON*

* LOCK-UP CONTROL VALVE COMES ON IN THIRD AND O.D. RANGES
WITH RESPECT TO THROTTLE POSITION, VEHICLE SPEED AND TEMPERATURE.

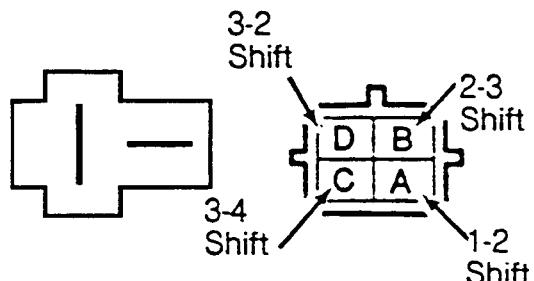
THE 3-2 CONTROL SOLENOID IS "ENERGIZED" MOMENTARILY
ON A 3-2 DOWNSHIFT

THESE SHIFT SOLENOIDS CAN BE OPERATED WITH A 12 VOLT JUMPER WIRE. ILLUSTRATED BELOW IS THE SOLENOID WIRE HARNESS CONNECTOR WITH EACH TERMINAL IDENTIFICATION FOR TEST PURPOSES.

SOLENOID HARNESS CONNECTOR



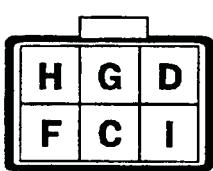
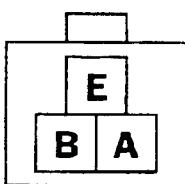
LOCKUP SOLENOID CONNECTOR



LOCKUP & SHIFT SOLENOIDS SHOULD BE 13 - 25 OHMS

RX7

INHIBITOR SWITCH CHECK



POSITION	CONNECTOR TERMINAL								
	A	B	C	D	E	F	G	H	I
P	○	○	○	○					
R				○	○				
N	○	○	○			○			
D				○			○		
S				○				○	
L			○						○

○—○ INDICATES CONTINUITY

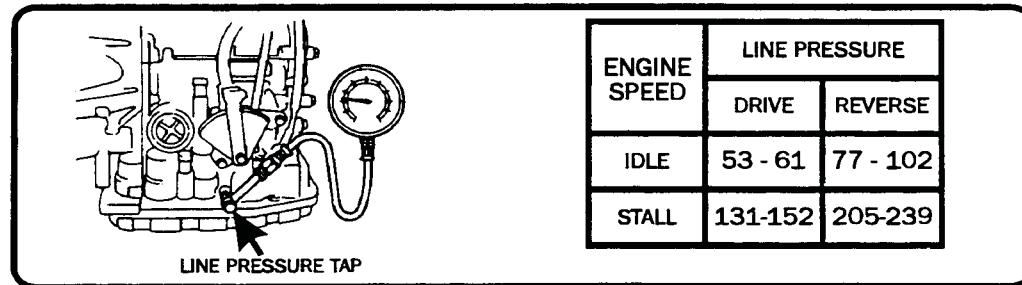


PASS BOOK

TOYOTA A140E/A540E APPLICATION CHART AND PRESSURE TEST

RANGE	GEAR	O.D. ONEWAY (FO)	COAST CLUTCH (CO)	O.D. CLUTCH (BO)	LOW/REV CLUTCH (B3)	LOW ONEWAY (F2)	INT. ONEWAY (F1)	INT. CLUTCH (B2)	FWD CLUTCH (C1)	2ND BAND (B1)	DIRECT CLUTCH (C2)
R	REVERSE		ON		ON						ON
D	1ST	ON	ON			ON			ON		
	2ND	ON	ON				ON	ON	ON		
	3RD	ON	ON					ON	ON	ON	
	O/D			ON				ON	ON		ON
2	1ST	ON	ON			ON			ON		
	2ND	ON	ON				ON	ON	ON	ON	
	3RD*	ON	ON					ON	ON		ON
L	1ST	ON	ON		ON	ON			ON		
	2ND*	ON	ON				ON	ON	ON	ON	

* = APPLIED TO PREVENT ENGINE OVERRUN

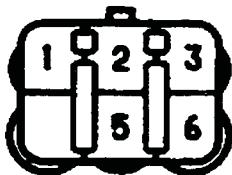




PASS BOOK

TOYOTA A140E/A540 SOLENOID AND SENSOR TEST

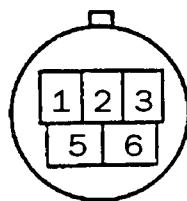
LATE CONNECTOR



PIN 1	LOCK-UP SOLENOID	11 - 15 OHMS
PIN 2	SHIFT SOLENOID #2	11 - 15 OHMS
PIN 3	SHIFT SOLENOID #1	11 - 15 OHMS
PIN 5	GROUND	
PIN 6	SPEED SENSOR	

TURN ONE OF THE WHEELS
METER SHOULD REPEATEDLY
DEFLECT BETWEEN 0 OHMS
AND INFINITI

EARLY CONNECTOR



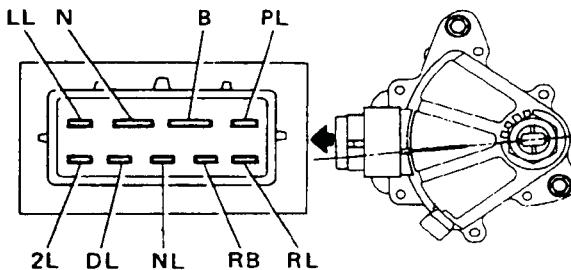
GEAR SOLENOID	1ST	2ND	3RD	4TH
SOL #1	ON	ON	OFF	OFF
SOL #2	OFF	ON	ON	OFF

Check the continuity between the following terminal pairs when the select switch is positioned to each range.

Switch Side

A140E

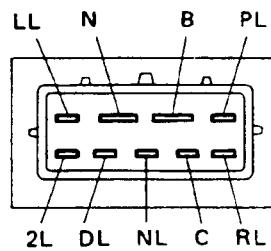
Range	Terminal								
	B	N	Rb	PL	RL	NL	DL	2L	LL
P	○	○	○	○					
R			○	○					
N	○	○	○		○				
D			○			○			
2		○				○			
L		○					○		



Check the continuity between the following terminal pairs when the select switch is positioned to each range.

A540E

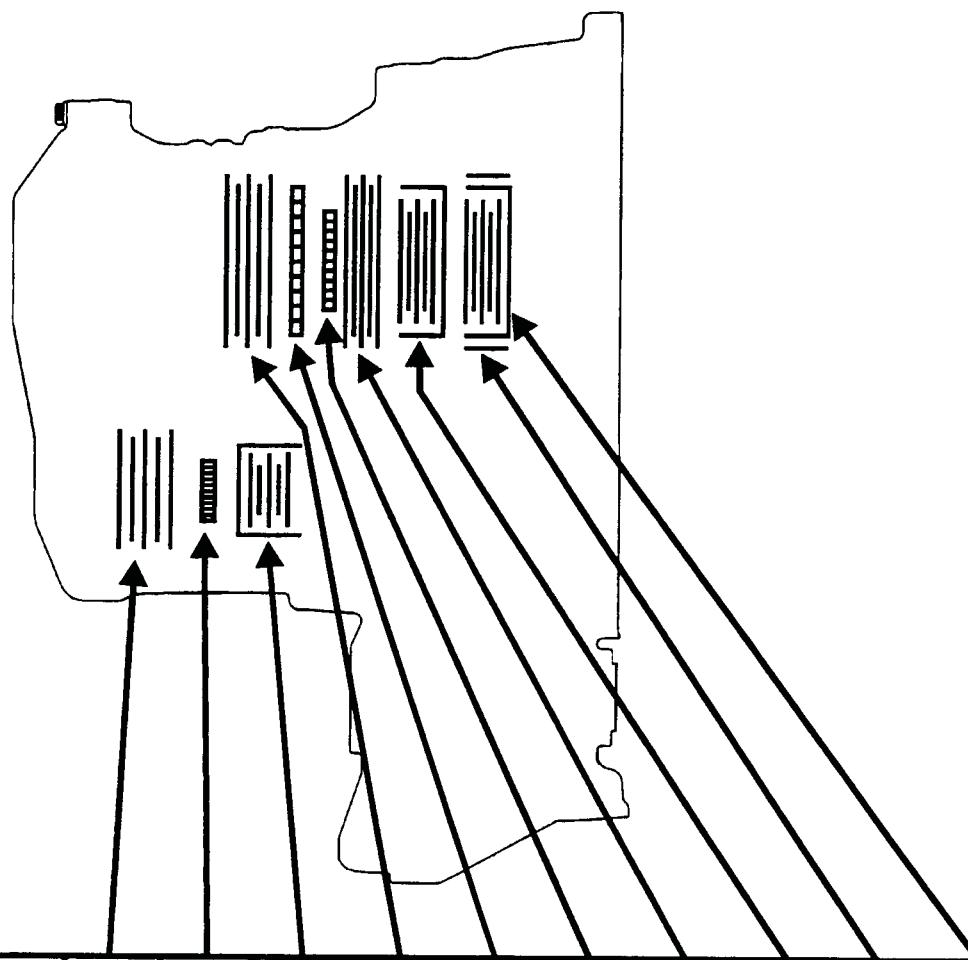
Shift position	Terminal				
	LL	2L	NL	RL	C
R range				○	○
N range			○	○	
2 range		○		○	
L range	○				○





PASS BOOK

TOYOTA A240E APPLICATION CHART



RANGE	GEAR	U.D. CLUTCH (B4)	U.D. ONEWAY (F3)	UD/DIR. CLUTCH (C3)	LOW/REV CLUTCH (B3)	LOW ONEWAY (F2)	INT. ONEWAY (F1)	INT. CLUTCH (B2)	FWD CLUTCH (C1)	2ND BAND (B1)	DIRECT CLUTCH (C2)
R	REVERSE	ON			ON						ON
D	1ST	ON	ON			ON			ON		
	2ND	ON	ON				ON	ON	ON		
	3RD	ON	ON					ON	ON		ON
	O/D			ON				ON	ON		ON
2	1ST	ON	ON			ON			ON		
	2ND	ON	ON				ON	ON	ON	ON	
	3RD*	ON	ON					ON	ON		ON
L	1ST	ON	ON		ON	ON			ON		
	2ND*	ON	ON				ON	ON	ON	ON	

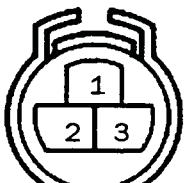
* = APPLIED TO PREVENT ENGINE OVERRUN



PASS BOOK

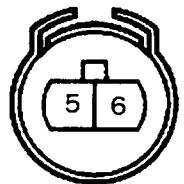
TOYOTA A240E SOLENOID, SENSOR AND PRESSURE TEST

SOLENOID CONNECTOR



PIN 1	LOCK-UP SOLENOID	11 - 15 OHMS
PIN 2	SHIFT SOLENOID #2	11 - 15 OHMS
PIN 3	SHIFT SOLENOID #1	11 - 15 OHMS
PIN 5 & 6	SPEED SENSOR	TURN ONE OF THE WHEELS METER SHOULD REPEATEDLY DEFLECT BETWEEN 0 OHMS AND INFINITI

SPEED SENSOR CONNECTOR

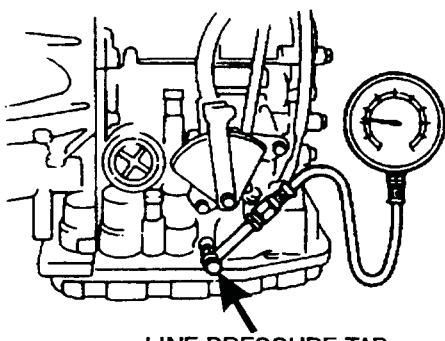
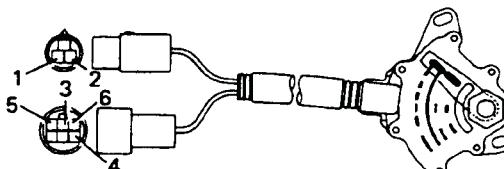


GEAR SOLENOID	1ST	2ND	3RD	4TH
SOL #1	ON	ON	OFF	OFF
SOL #2	OFF	ON	ON	OFF

Check the continuity between the following terminal pairs when the select switch is positioned to each range.

○-○ Current flows.

Range	Terminal					
	1	2	3	4	5	6
P	○-○					
N	○-○	○			○	
2			○-○			
L			○	○		



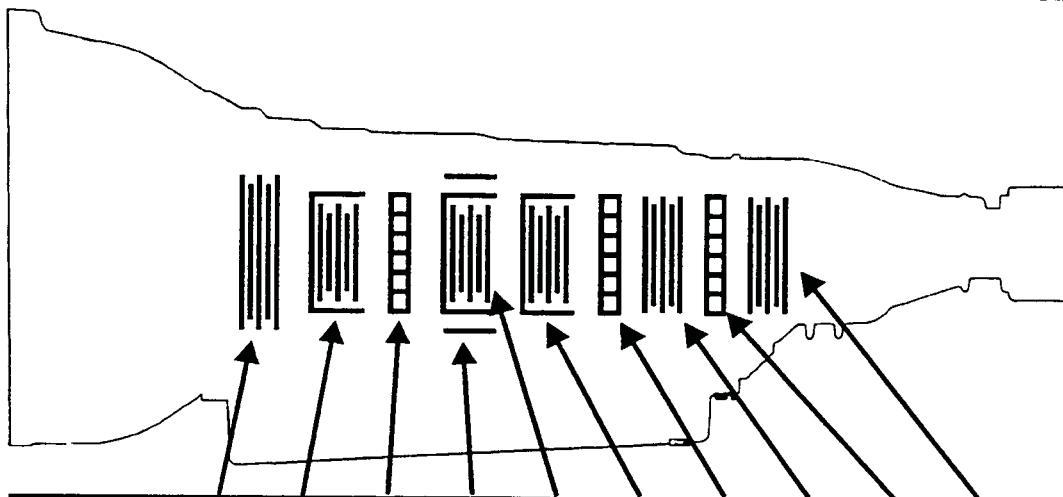
LINE PRESSURE TAP

ENGINE SPEED	LINE PRESSURE	
	DRIVE	REVERSE
IDLE	53 - 61	77 - 102
STALL	131-152	205-239



PASS BOOK

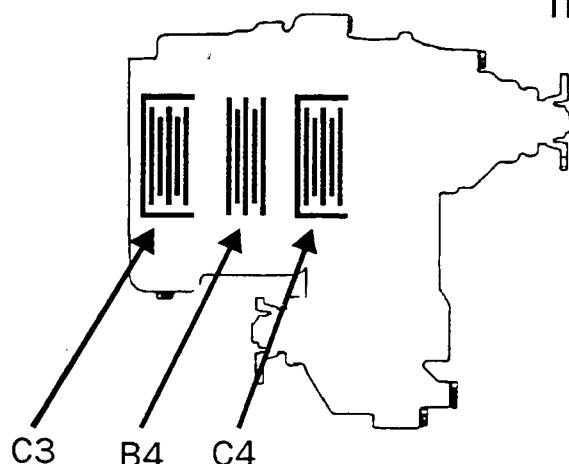
TOYOTA A340E APPLICATION CHART



RANGE	GEAR	O.D. CLUTCH (B0)	COAST CLUTCH (C0)	O.D. ONEWAY (F0)	2ND BAND (B1)	DIRECT CLUTCH (C2)	FWD CLUTCH (C1)	INT. ONEWAY (F1)	INT. CLUTCH (B2)	LOW ONEWAY (F2)	LOW/REV CLUTCH (B3)
R	REVERSE		ON			ON					ON
D	1ST		ON	ON			ON			ON	
	2ND		ON	ON			ON	ON	ON		
	3RD		ON	ON		ON	ON		ON		
	O/D	ON				ON	ON		ON		
2	1ST		ON	ON			ON			ON	
	2ND		ON	ON	ON		ON	ON	ON		
	3RD*		ON	ON		ON	ON		ON		
L	1ST		ON	ON			ON			ON	ON
	2ND*		ON	ON	ON		ON	ON	ON		

* = APPLIED TO PREVENT ENGINE OVERRUN

TRANSFER CASE

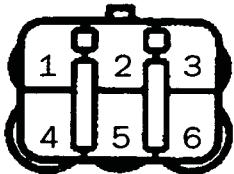


TRANSFER GEAR POSITION	#4 SOL.	DIRECT CLUTCH (C3)	FRONT DRIVE (B4)	LOW CLUTCH (C4)
H2	OFF	ON		
H4	OFF	ON	ON	
L4	ON		ON	ON



P A S S B O O K

TOYOTA A340E SOLENOID, SENSOR AND PRESSURE CHECK



PIN 1 LOCK-UP SOLENOID
PIN 2 SHIFT SOLENOID #2
PIN 3 SHIFT SOLENOID #1
PIN 4 GROUND
PIN 5 SOLENOID 4X4 ONLY
PIN 6 SPEED SENSOR

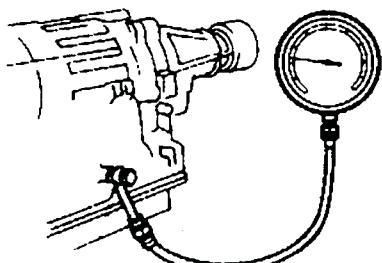
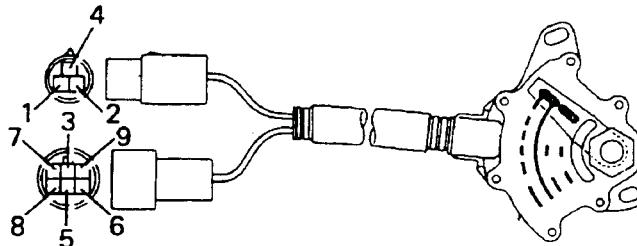
11 - 15 OHMS
11 - 15 OHMS
11 - 15 OHMS

TURN ONE OF THE WHEELS
METER SHOULD REPEATEDLY
DEFLECT BETWEEN 0 OHMS
AND INFINITI

GEAR SOLENOID	1ST	2ND	3RD	4TH
SOL #1	ON	ON	OFF	OFF
SOL #2	OFF	ON	ON	OFF

Check the continuity between the following terminal pairs when the select switch is positioned to each range.

Range	Terminal								
	1	2	3	4	5	6	7	8	9
P	○	○	○					○	
R			○	○					
N	○	○	○					○	
D			○	○					
2			○		○				
L			○			○			

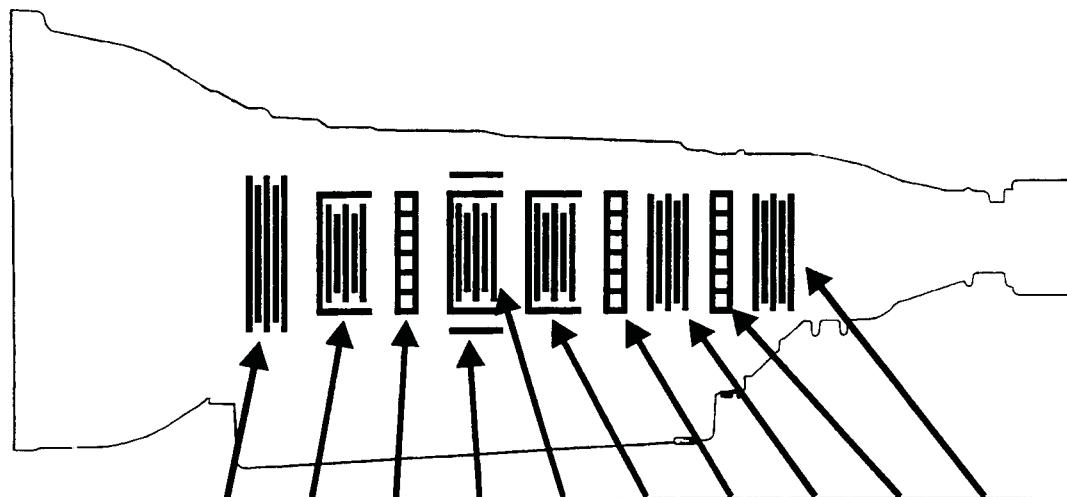


ENGINE SPEED	LINE PRESSURE	
	DRIVE	REVERSE
IDLE	50 - 61	70 - 87
STALL	158-196	220-273



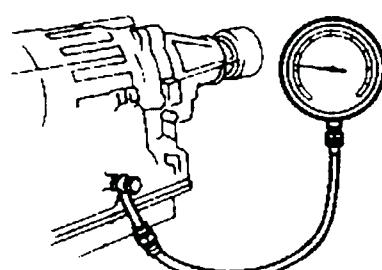
PASS BOOK

JEEP AW4 APPLICATION CHART & PRESSURE CHECK



RANGE	GEAR	O.D. CLUTCH (B0)	COAST CLUTCH (C0)	O.D. ONEWAY (FO)	2ND BAND (B1)	DIRECT CLUTCH (C2)	FWD CLUTCH (C1)	INT. ONEWAY (F1)	INT. CLUTCH (B2)	LOW ONEWAY (F2)	LOW/REV CLUTCH (B3)
R	REVERSE			ON							ON
D	1ST		ON	ON			ON			ON	
	2ND		ON	ON			ON	ON	ON		
	3RD		ON	ON		ON	ON		ON		
	O/D	ON				ON	ON		ON		
2	1ST		ON	ON			ON			ON	
	2ND		ON	ON	ON		ON	ON	ON		
	3RD*		ON	ON		ON	ON		ON		
L	1ST		ON	ON			ON			ON	ON
	2ND*		ON	ON	ON		ON	ON	ON		

* = APPLIED TO PREVENT ENGINE OVERRUN

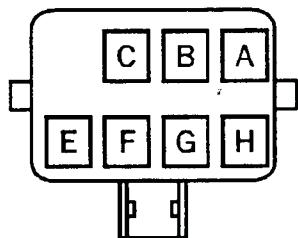
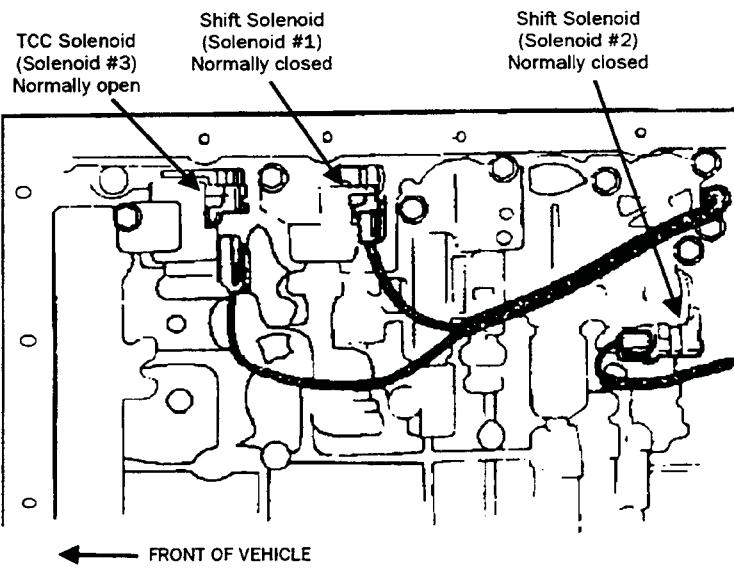


ENGINE SPEED	LINE PRESSURE	
	DRIVE	REVERSE
IDLE	50 - 61	70 - 87
STALL	158-196	220-273

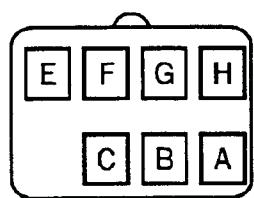


P A S S B O O K

JEEP AW4 SOLENOID TESTS



TRANSMISSION 7-WAY
CONNECTOR SIDE



TRANSMISSION 7-WAY
CONNECTOR HARNESS SIDE

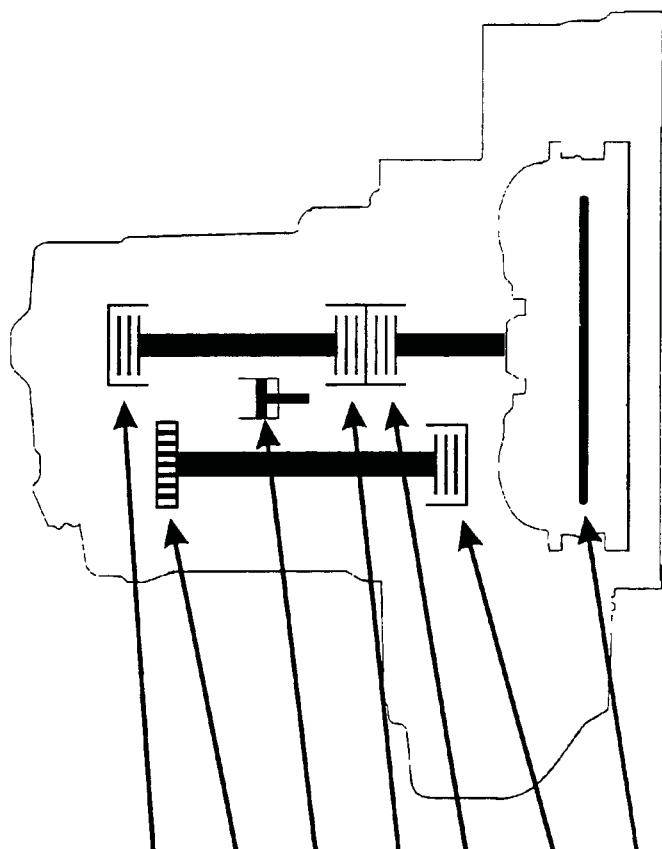
USUAL COLOR	G	F	E
GEAR	SOLENOID 1	SOLENOID 2	LOCKUP SOL
1st	ON	OFF	OFF
2nd	ON	ON	ON*
3rd	OFF	ON	ON*
4th	OFF	OFF	ON*
OHMS	11 - 15	11 - 15	11 - 15

* - AS DETERMINED BY COMPUTER



PASS BOOK

K4



SELECTOR POSITION	GEAR	FIRST CLUTCH	SPRAG	SERVO	FOURTH CLUTCH	SECOND CLUTCH	THIRD CLUTCH	T.C.C
R	REVERSE			ON	ON			
D4	1ST GEAR	ON	ON					
	2ND GEAR	ON ²				ON		ON ³
	3RD GEAR	ON ²					ON	ON ³
	4TH GEAR	ON ²			ON			ON ³
D3 or S3 ¹	1ST GEAR	ON	ON					
	2ND GEAR	ON ²				ON		
	3RD GEAR	ON ²					ON	
2	2ND GEAR				ON			

1 THE S GEAR SELECTOR POSITION IS A SPORT MODE WHICH GIVES A LATER SHIFT FROM 1st THROUGH 3rd GEAR. 1st THROUGH 4th GEAR AND TCC IS AVAILABLE WHEN THE DRIVER ENERGIZES AN ADDITIONAL S4 SWITCH WHEN THE SELECTOR IS IN S.

2 ON BUT NOT EFFECTIVE

3 MAY BE ON DEPENDING ON VEHICLE CONDITIONS



PASS BOOK

K4 PRESSURE CHART

Selector	Gear	Pressure Port And Conditions	Pressure in psi
P		LINE PORT AT 2000 RPM ¹	107-128
R	R	4TH PORT AT 1000 RPM ¹	107-128
R	R	4TH PORT AT W.O.T. STALL ¹	228-270
N		LINE PORT AT 2000 RPM ¹	107-128
D4	1st	1ST PORT AT 1000 RPM ¹	102-128
D4	1st	1ST PORT AT W.O.T. STALL ¹	215-250
D4	1st	THROTTLE B PORT AT IDLE ¹	MUST BE 0
D4	1st	THROTTLE B PORT AT 1000 RPM, TV LEVER UP ¹	102-128
D4	2nd	2ND PORT CLOSED THROTTLE	82
D4	2nd	2ND PORT WITH MORE THAN 1/4 THROTTLE	107 - 128
D4	3rd	3RD PORT CLOSED THROTTLE	82
D4	3rd	3RD PORT WITH MORE THAN 1/4 THROTTLE	107-128
D4	4th	4TH PORT CLOSED THROTTLE	82
D4	4th	4TH PORT WITH MORE THAN 1/4 THROTTLE	107-128
D4		ANY SOLENOID PORT, 12V TO SOLENOID	0 - 6
D4		ANY SOLENOID PORT, SOLENOID OFF	50 - up
D3 or S3	1st	1ST PORT AT 1000 RPM ¹	102-128
D3 or S3	1st	1ST PORT AT W.O.T. STALL ¹	215-250
2	2nd	2ND PORT AT 1000 RPM ¹	107-128
2	2nd	2ND PORT AT W.O.T. STALL ¹	215-250

¹ PRESSURE TEST PERFORMED WITH WHEELS OFF THE GROUND AND BRAKES APPLIED.



PASS BOOK

K4

K4-0000000

PRESSURE PORT FITTINGS
SIZE 8X1.25 METRIC

TRANS MODEL

TRANSAXLE
SERIAL NO.

A/T N.O. SPEED
PULSER
CONNECTOR
ON/OFF OHMS
SIGNAL WHEN
WHEELS ARE
ROTATED

FROM COOLER

TO COOLER

IDENTIFICATION TAG

TCC SOLENOID
CONNECTOR

SHIFT SOLENOID
A & B CONNECTOR

A/T SPEED
PULSER

TCC SOLENOID B
MODULATOR PRESSURE

TCC SOLENOID B

TCC SOLENOID A
MODULATOR PRESSURE

TCC SOLENOID A

THROTTLE B
PRESSURE

3rd CLUTCH
PRESSURE

2nd CLUTCH
PRESSURE

4th CLUTCH
PRESSURE

SHIFT SOLENOID A
MODULATOR
PRESSURE

SHIFT SOLENOID B
MODULATOR
PRESSURE

SHIFT
SOLENOID B
(INSIDE TRANS.)

TCC SOLENOID A

SHIFT
N.C. SOLENOID
CONNECTOR
14 - 30 OHMS

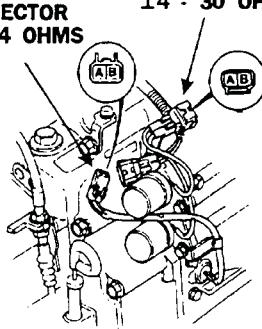
SHIFT
SOLENOID A
(INSIDE TRANS)

TCC SOLENOID B

TO ENERGIZE N.C. SHIFT
SOLENOIDS
APPLY 12 VOLTS

GEAR	SOLENOID A	SOLENOID B
1		ON
2	ON	ON
3	ON	
4		

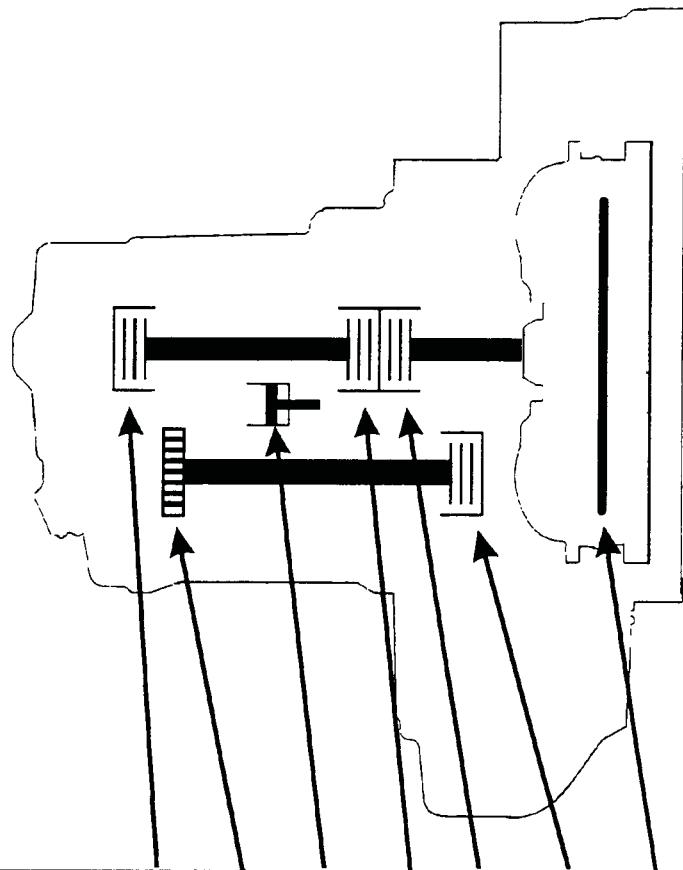
TO APPLY TCC
ENERGIZE BOTH
TCC SOLENOIDS





P A S S B O O K

MY8A APPLICATION CHART



SELECTOR POSITION	GEAR	FIRST CLUTCH	SPRAG	SERVO	FOURTH CLUTCH	SECOND CLUTCH	THIRD CLUTCH	T.C.C
R	REVERSE			ON	ON			
D4	1ST GEAR	ON	ON					
	2ND GEAR	ON ²				ON		ON ³
	3RD GEAR	ON ²					ON	ON ³
	4TH GEAR	ON ²			ON			ON ³
D3 or S3 ¹	1ST GEAR	ON	ON					
	2ND GEAR	ON ²				ON		
	3RD GEAR	ON ²					ON	
2	2ND GEAR					ON		

1 THE S GEAR SELECTOR POSITION IS A SPORT MODE WHICH GIVES A LATER SHIFT FROM 1st THROUGH 3rd GEAR. 1st THROUGH 4th GEAR AND TCC IS AVAILABLE WHEN THE DRIVER ENERGIZES AN ADDITIONAL S4 SWITCH WHEN THE SELECTOR IS IN S.

2 ON BUT NOT EFFECTIVE

3 MAY BE ON DEPENDING ON VEHICLE CONDITIONS



P A S S B O O K

MY8A PRESSURE CHART

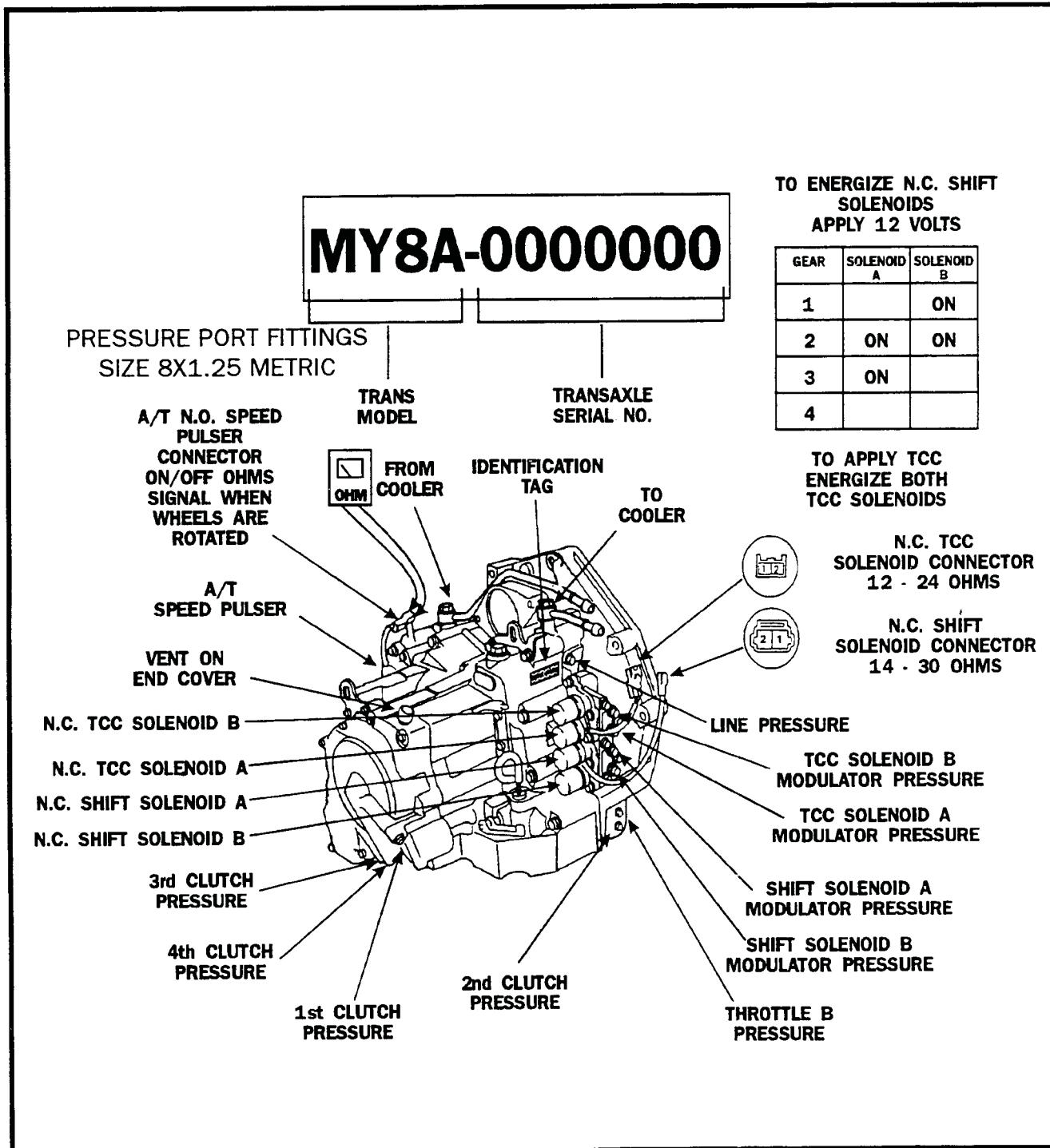
Selector	Gear	Pressure Port And Conditions	Pressure in psi
P		LINE PORT AT 2000 RPM ¹	107-128
R	R	4TH PORT AT 1000 RPM ¹	107-128
R	R	4TH PORT AT W.O.T. STALL ¹	228-270
N		LINE PORT AT 2000 RPM ¹	107-128
D4	1st	1ST PORT AT 1000 RPM ¹	102-128
D4	1st	1ST PORT AT W.O.T. STALL ¹	215-250
D4	1st	THROTTLE B PORT AT IDLE ¹	MUST BE 0
D4	1st	THROTTLE B PORT AT 1000 RPM, TV LEVER UP ¹	102-128
D4	2nd	2ND PORT CLOSED THROTTLE	82
D4	2nd	2ND PORT WITH MORE THAN 1/4 THROTTLE	107 - 128
D4	3rd	3RD PORT CLOSED THROTTLE	82
D4	3rd	3RD PORT WITH MORE THAN 1/4 THROTTLE	107-128
D4	4th	4TH PORT CLOSED THROTTLE	82
D4	4th	4TH PORT WITH MORE THAN 1/4 THROTTLE	107-128
D4		ANY SOLENOID PORT, 12V TO SOLENOID	0 - 6
D4		ANY SOLENOID PORT, SOLENOID OFF	50 - up
D3 or S3	1st	1ST PORT AT 1000 RPM ¹	102-128
D3 or S3	1st	1ST PORT AT W.O.T. STALL ¹	215-250
2	2nd	2ND PORT AT 1000 RPM ¹	107-128
2	2nd	2ND PORT AT W.O.T. STALL ¹	215-250

¹ PRESSURE TEST PERFORMED WITH WHEELS OFF THE GROUND AND BRAKES APPLIED.



PASS BOOK

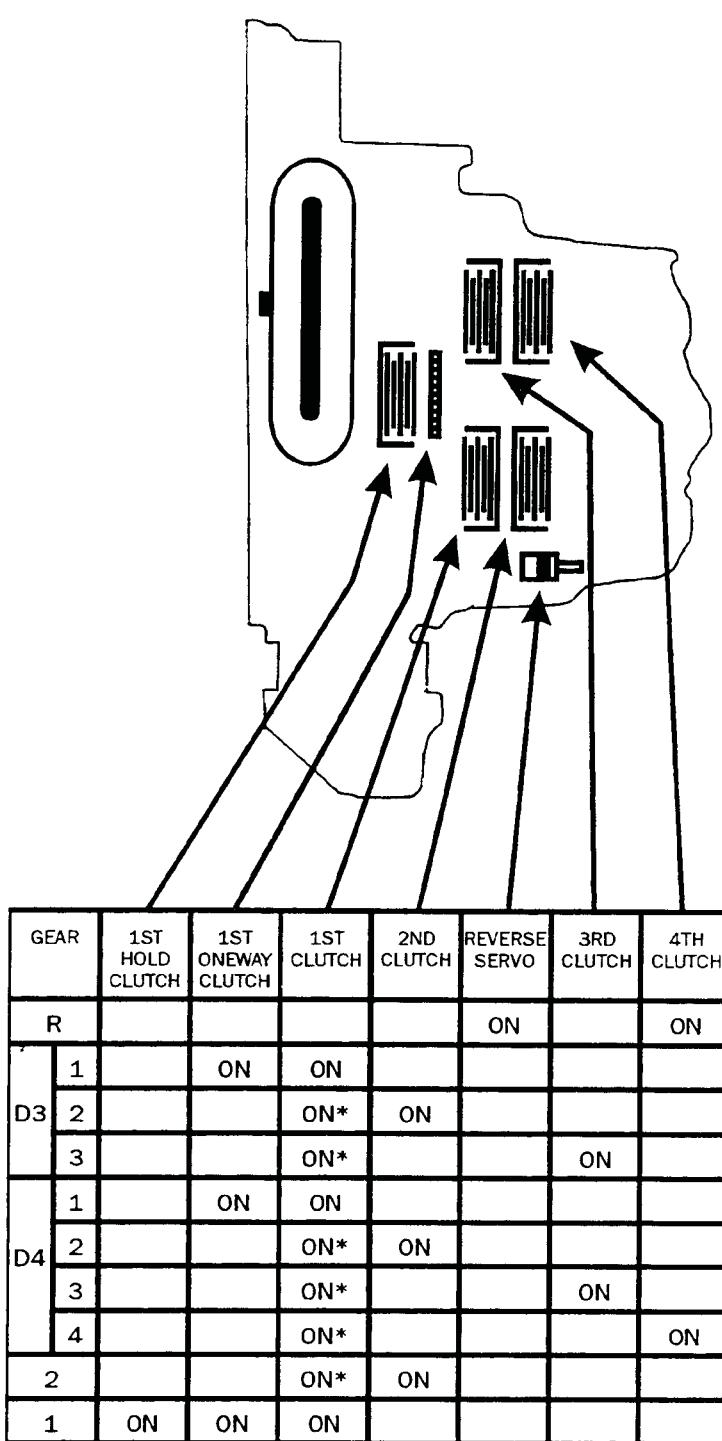
MY8A





PASS BOOK

PX4B APPLICATION CHART



* - ENGAGED BUT NOT TRANSMITTING POWER



PASS BOOK

PX4B PRESSURE CHART

SELECTOR POSITION	GEAR	PRESSURE PORT AND CONDITION	PRESSURE IN PSI
P		LINE PORT AT 2000 RPM ¹	107 - 121
R	R	4TH PORT AT 100 RPM ¹	107 - 121
R	R	4TH PORT AT WOT STALL ¹	250
N		LINE PORT AT 2000 RPM ¹	107 - 121
D4	1ST	1ST PORT AT 1000 RPM ¹	107 - 121
D4	1ST	1ST PORT AT WOT STALL ¹	250
D4	1ST	THROTTLE B PORT AT IDLE ¹	MUST BE 0
D4	1ST	THROTTLE B 1000 RPM W/TV LEVER UP ¹	107 - 121
D4	2ND	2ND PORT CLOSED THROTTLE	64 - 71
D4	2ND	2ND PORT WITH MORE THAN 1/4 THROTTLE	107 - 121
D4	3RD	3RD PORT CLOSED THROTTLE	64 - 71
D4	3RD	3RD PORT WITH MORE THAN 1/4 THROTTLE	107 - 121
D4	4TH	4TH PORT CLOSED THROTTLE	64 - 71
D4	4TH	4TH PORT WITH MORE THAN 1/4 THROTTLE	107 - 121
D3 or S3	1ST	1ST PORT AT 1000 RPM ¹	107 - 121
D3 or S3	1ST	1ST PORT AT WOT STALL ¹	250
2	2ND	2ND PORT AT 1000 RPM ¹	107 - 121
1	1ST	1ST HOLD PORT AT 1000 RPM ¹	107 - 121

1 - PRESSURE TEST PERFORMED WITH WHEELS OFF THE GROUND AND BRAKES APPLIED.



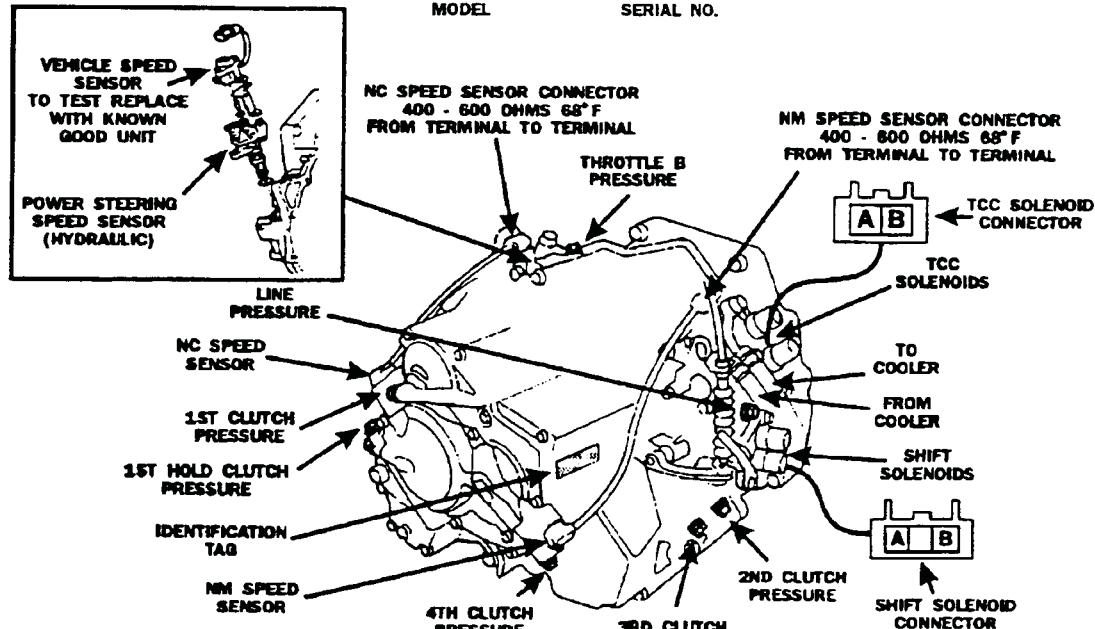
PASS BOOK

PX4B

PRESSURE PORT FITTINGS
SIZE 8X1.25 METRIC

PX4B-0000000

TRANS MODEL TRANSAXLE SERIAL NO.



TO ENERGIZE N.C. SHIFT SOLENOIDS
APPLY 12 VOLTS

GEAR	SOLENOID A	SOLENOID B
1		ON
2	ON	ON
3	ON	
4		

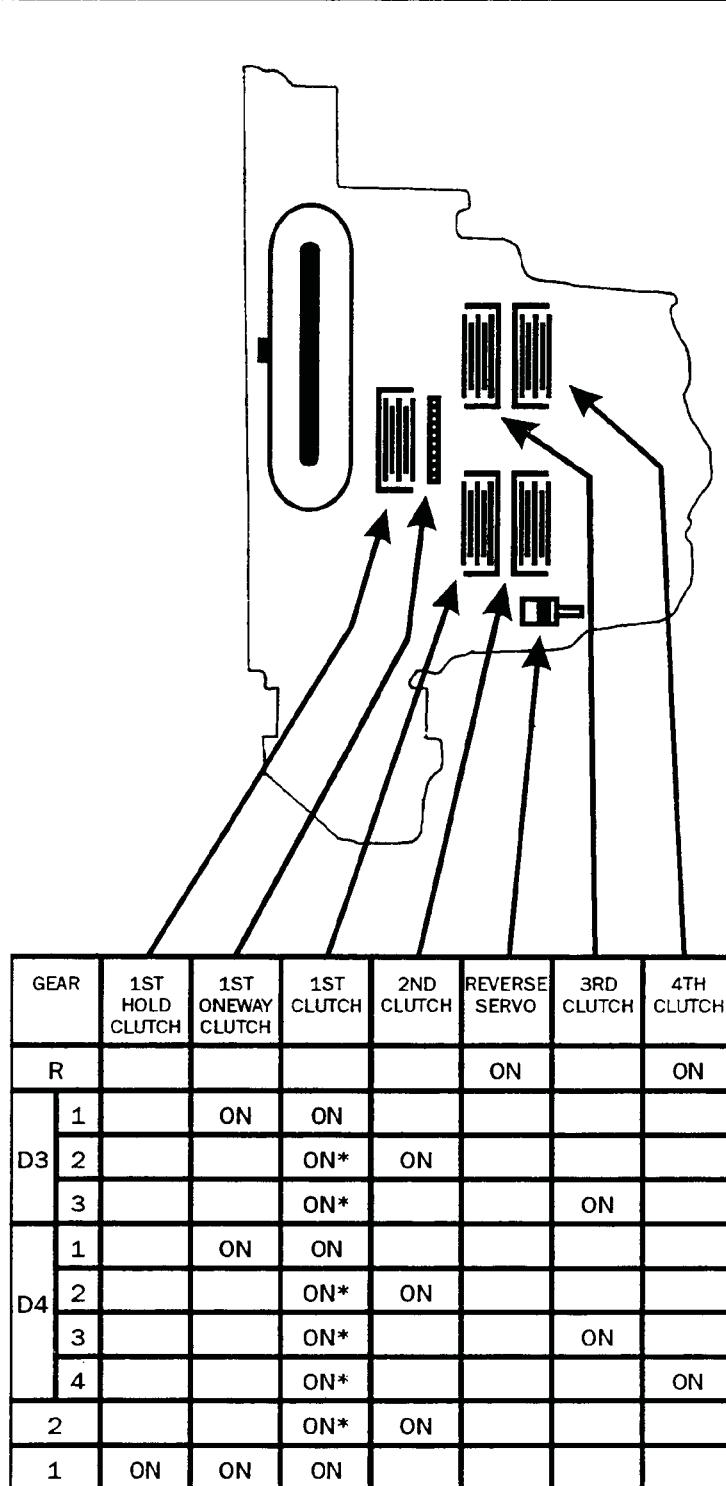
12 - 24 OHMS
N.C. SHIFT SOLENOID A TO GROUND
N.C. SHIFT SOLENOID B TO GROUND 12 - 24 OHMS
N.C. TCC SOLENOID A TO GROUND
N.C. TCC SOLENOID B TO GROUND

TO APPLY TCC ENERGIZE
BOTH N.C. SOLENOIDS WITH
12 VOLTS



PASS BOOK

AP4X APPLICATION CHART



* - ENGAGED BUT NOT TRANSMITTING POWER



PASS BOOK

APX4 PRESSURE CHART

SELECTOR POSITION	GEAR	PRESSURE PORT AND CONDITION	PRESSURE IN PSI
P		LINE PORT AT 2000 RPM ¹	107 - 121
R	R	4TH PORT AT 100 RPM ¹	107 - 121
R	R	4TH PORT AT WOT STALL ¹	250
N		LINE PORT AT 2000 RPM ¹	107 - 121
D4	1ST	1ST PORT AT 1000 RPM ¹	107 - 121
D4	1ST	1ST PORT AT WOT STALL ¹	250
D4	1ST	THROTTLE B PORT AT IDLE ¹	MUST BE 0
D4	1ST	THROTTLE B 1000 RPM W/TV LEVER UP ¹	107 - 121
D4	2ND	2ND PORT CLOSED THROTTLE	64 - 71
D4	2ND	2ND PORT WITH MORE THAN 1/4 THROTTLE	107 - 121
D4	3RD	3RD PORT CLOSED THROTTLE	64 - 71
D4	3RD	3RD PORT WITH MORE THAN 1/4 THROTTLE	107 - 121
D4	4TH	4TH PORT CLOSED THROTTLE	64 - 71
D4	4TH	4TH PORT WITH MORE THAN 1/4 THROTTLE	107 - 121
D3 or S3	1ST	1ST PORT AT 1000 RPM ¹	107 - 121
D3 or S3	1ST	1ST PORT AT WOT STALL ¹	250
2	2ND	2ND PORT AT 1000 RPM ¹	107 - 121
1	1ST	1ST HOLD PORT AT 1000 RPM ¹	107 - 121

1 - PRESSURE TEST PERFORMED WITH WHEELS OFF THE GROUND AND BRAKES APPLIED.



PASS BOOK

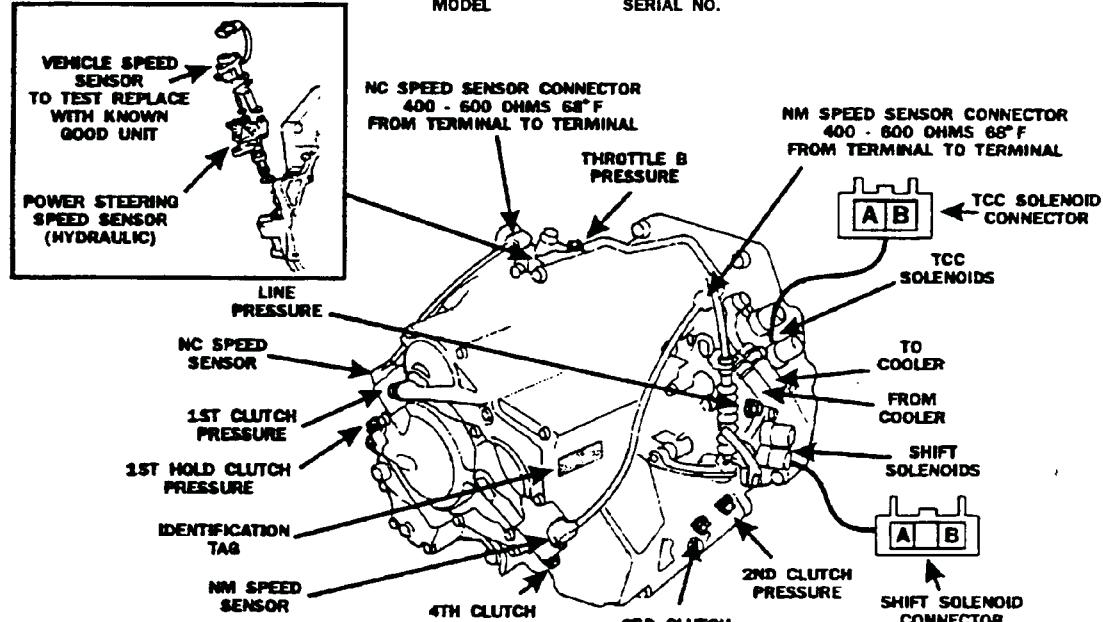
AP4X

PRESSURE PORT FITTINGS
SIZE 8X1.25 METRIC

AP4X-0000000

TRANS
MODEL

TRANSAXLE
SERIAL NO.



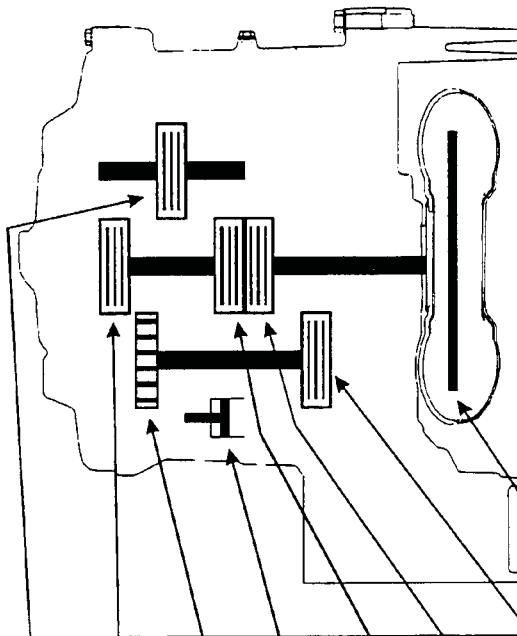
GEAR	SOLENOID A	SOLENOID B
1		ON
2	ON	ON
3	ON	
4		

TO APPLY TCC ENERGIZE
BOTH N.C. SOLENOIDS WITH
12 VOLTS



PASS BOOK

S5 APPLICATION CHART



SELECTOR POSITION	GEAR	LOW HOLD CLUTCH	FIRST CLUTCH	SPRAG	SERVO	FOURTH CLUTCH	SECOND CLUTCH	THIRD CLUTCH	T.C.C.
R	REVERSE				ON	ON			
D	1st		ON	ON					
	2nd		ON ³				ON		ON ⁵
	3rd		ON ³					ON	ON ⁵
	4th		ON ³			ON			ON ⁵
S ¹	1st		ON						
	2nd		ON ³				ON		ON ⁶
	3rd		ON ³					ON	ON ⁶
	4th (S4 ON)		ON ³			ON			ON ⁶
2 ²	1st	ON	ON	ON ⁴					
	2nd		ON ³				ON		

- 1 THE S GEAR SELECTOR POSITION IS A SPORT MODE WHICH GIVES A LATER SHIFT FROM 1st THROUGH 3rd GEAR. 1st THROUGH 4th GEAR AND TCC IS AVAILABLE WHEN THE DRIVER ENERGIZES AN ADDITIONAL S4 SWITCH WHEN THE SELECTOR IS IN S.
- 2 IN SELECTOR POSITION 2 THE FOLLOWING CONDITIONS OCCUR.
LOW SWITCH OFF: STAYS IN 2nd GEAR
LOW SWITCH ON AND BELOW 30 mph: STAYS IN 1st GEAR
LOW SWITCH ON AND ABOVE 30 mph: STAYS IN 2nd GEAR
- 3 ON BUT NOT EFFECTIVE
- 4 NOT EFFECTIVE ON ENGINE BRAKING
- 5 MAY BE ON DEPENDING ON VEHICLE CONDITIONS
- 6 ONLY ON WHEN S4 SWITCH IS ON DEPENDING ON VEHICLE CONDITIONS



P A S S B O O K

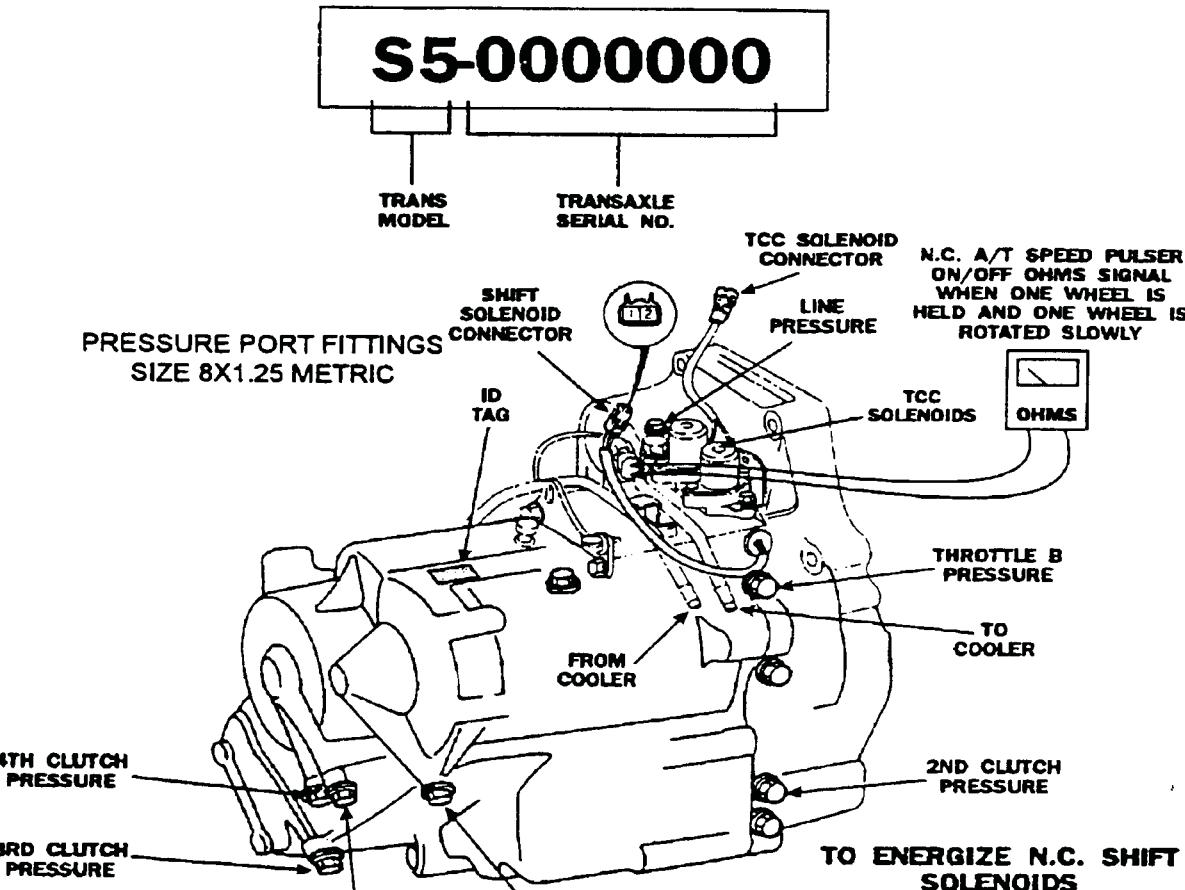
S5 PRESSURE CHART

SELECTOR POSITION	GEAR	PRESSURE PORT AND POSITION	PRESSURE IN PSI
P	—	LINE PORT AT 2000 RPM ¹	107-121
R	R	4TH PORT AT 1000 RPM ¹	107-121
N		LINE PORT AT 2000 RPM ¹	107-121
D4	1ST	1ST PORT AT 1000 RPM ¹	102-121
D4	1ST	1ST PORT AT W.O.T. STALL ¹	215-250
D4	1ST	THROTTLE B PORT AT IDLE ¹	MUST BE 0
D4	1ST	THROTTLE B PORT AT 1000 RPM - TV LEVER UP ¹	107-121
D4	2ND	2ND PORT CLOSED THROTTLE	64-71
D4	2ND	2ND PORT WITH MORE THAN 1/4 THROTTLE	107-121
D4	3RD	3RD PORT CLOSED THROTTLE	64-71
D4	3RD	3RD PORT WITH MORE THAN 1/4 THROTTLE	107-121
D4	4TH	4TH PORT CLOSED THROTTLE	64-71
D4	4TH	4TH PORT WITH MORE THAN 1/4 THROTTLE	107-121
D4		ANY MODULATOR SOLENOID PORT - 12 VOLTS TO SOLENOID	0 - 10
D4		ANY MODULATOR SOLENOID PORT - SOLENOID OFF	71-81
D3 OR S3	1ST	1ST PORT AT 1000 RPM ¹	107-128
D3 OR S3	1ST	1ST PORT AT W.O.T. STALL ¹	215-250
2	2ND	2ND PORT AT 1000 RPM ¹	107-121
2	2ND	2ND PORT AT W.O.T. STALL ¹	215-250
1	1ST	1ST HOLD PORT AT 1000 RPM	107 - 121
1	1ST	1ST HOLD PORT AT WOT	215 - 250



PASS BOOK

S5



TO ENERGIZE N.C. SHIFT SOLENOIDS
APPLY 12 VOLTS

GEAR	SOLENOID A	SOLENOID B
1		ON
2	ON	ON
3	ON	
4		

TO APPLY TCC
ENERGIZE BOTH
N.C. TCC SOLENOIDS
WITH 12 VOLTS

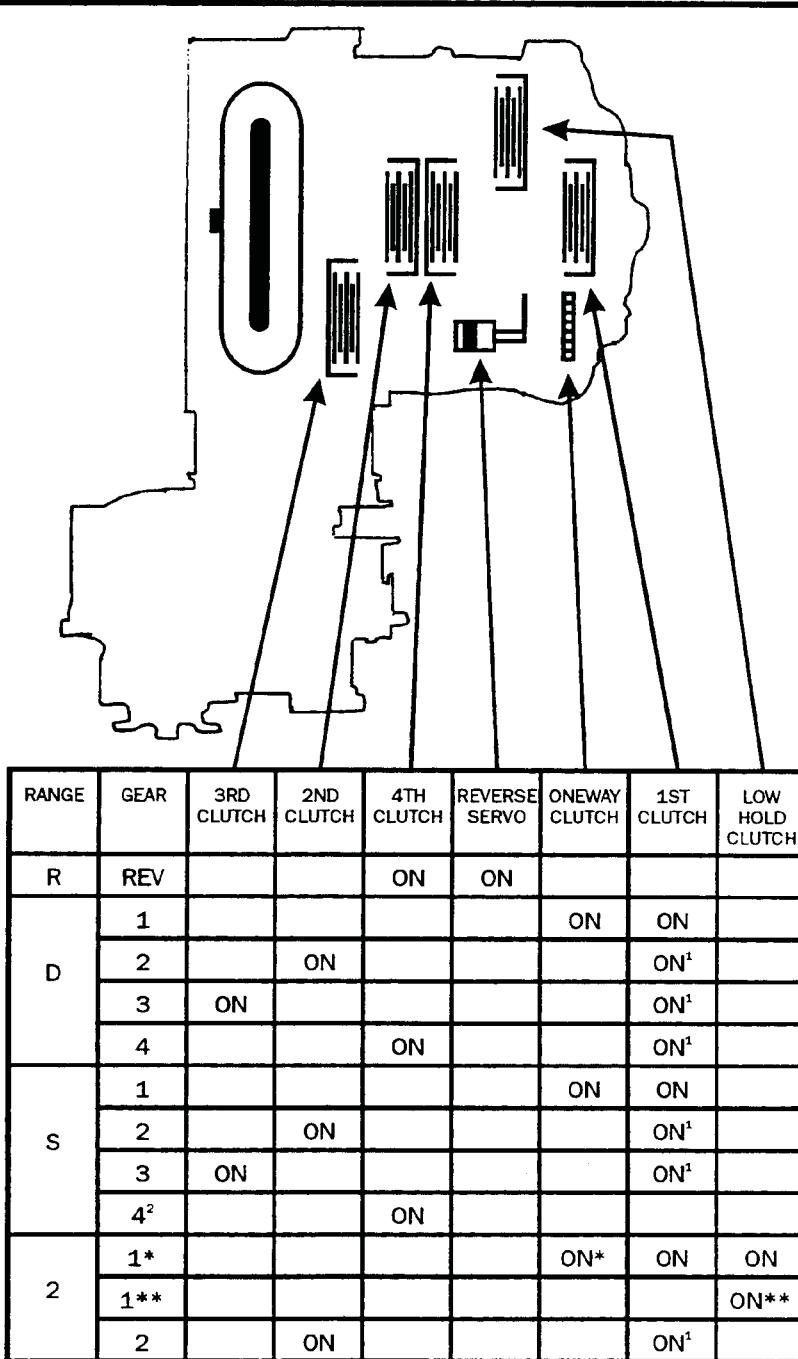
14-30 OHMS
N.C. TCC SOLENOID A TO GROUND
N.C. TCC SOLENOID B TO GROUND

12-24 OHMS
N.C. SHIFT SOLENOID A TO GROUND
N.C. SHIFT SOLENOID B TO GROUND



PASS BOOK

MPSA APPLICATION CHART



1 - APPLIED BUT NOT EFFECTIVE

2 - S4 SWITCH MUST BE ON

* - ACCELERATION

** - DECELERATION



PASS BOOK

MPSA PRESSURE SPECIFICATIONS

SHIFT LEVER POSITION	PORT AND CONDITION	PRESSURE IN PSI
P or N	LINE PRESSURE AT 2000 RPM	107 - 121
S or D	1ST CLUTCH AT 2000 RPM	107 - 121
2 ¹	1ST HOLD CLUTCH AT 2000 RPM	107 - 121
2 ²	2ND CLUTCH AT 2000 RPM	107 - 121
S or D	2ND CLUTCH T.V. LEVER FULLY CLOSED	64 - 71
S or D	2ND CLUTCH T.V. LEVER MORE THAN 3/8 OPEN	107 - 121
S ³	3RD CLUTCH T.V. LEVER FULLY CLOSED	64 - 71
S ³	3RD CLUTCH T.V. LEVER MORE THAN 3/8 OPEN	107 - 121
R	4TH CLUTCH AT 2000 RPM	107 - 121
S ⁴	4TH CLUTCH T.V. LEVER FULLY CLOSED	64 - 71
S ⁴	4TH CLUTCH T.V. LEVER MORE THAN 3/8 OPEN	107 - 121
S or D	2ND CLUTCH T.V. LEVER FULLY CLOSED	64 - 71
S ³	3RD CLUTCH T.V. LEVER FULLY CLOSED	64 - 71
S ⁴	4TH CLUTCH T.V. LEVER FULLY CLOSED	64 - 71
S or D	2ND CLUTCH T.V. LEVER 1/2 OPEN	107 - 121
S ³	3RD CLUTCH T.V. LEVER 1/2 OPEN	107 - 121
S ⁴	4TH CLUTCH T.V. LEVER 1/2 OPEN	107 - 121
S or D	THROTTLE "B" PRESSURE T.V. LEVER FULLY OPEN	107 - 121

- 1 - CHECK PRESSURE WITH LOW SWITCH ON
- 2 - CHECK PRESSURE WITH LOW SWITCH OFF
- 3 - CHECK PRESSURE WITH S4 SWITCH OFF
- 4 - CHECK PRESSURE WITH S4 SWITCH ON



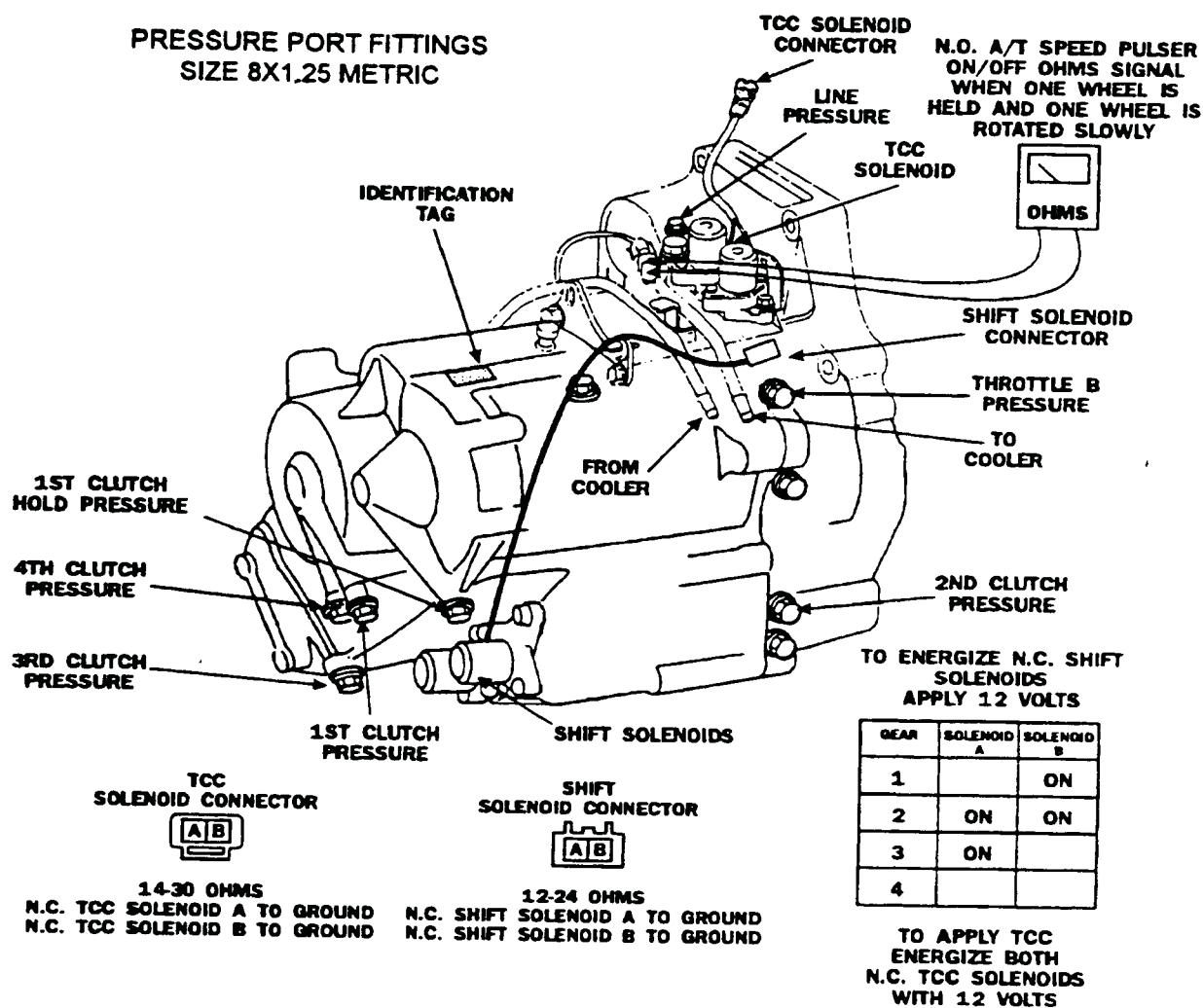
PASS BOOK

MPSA

MPSA-0000000

TRANS MODEL TRANSAXLE SERIAL NO.

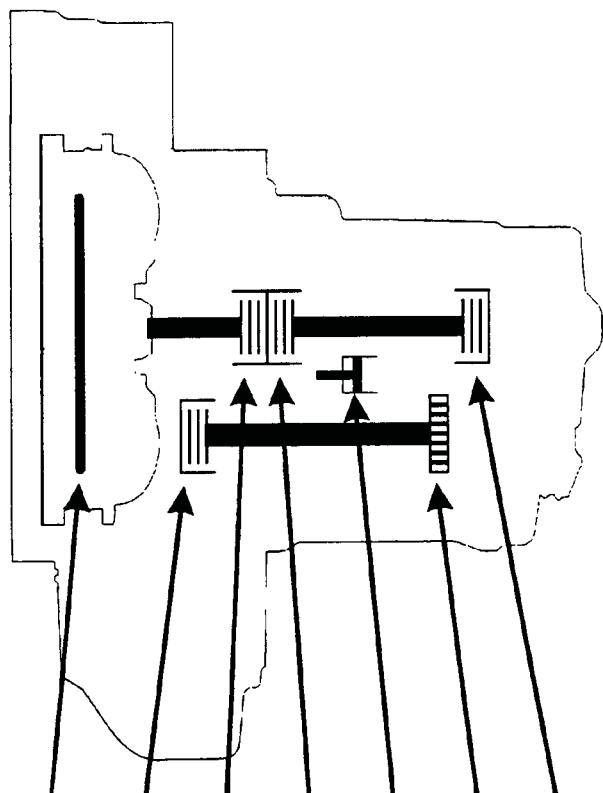
PRESSURE PORT FITTINGS
SIZE 8X1.25 METRIC





PASS BOOK

L5 APPLICATION CHART



SELECTOR POSITION	GEAR	T.C.C	THIRD CLUTCH	SECOND CLUTCH	FOURTH CLUTCH	SERVO	SPRAG	FIRST CLUTCH
R	REVERSE				ON	ON		
D4	1ST GEAR						ON	ON
	2ND GEAR	ON ²		ON				ON ³
	3RD GEAR	ON ²	ON					ON ³
	4TH GEAR	ON ²			ON			ON ³
D3 or S3 ¹	1ST GEAR						ON	ON
	2ND GEAR			ON				ON ³
	3RD GEAR		ON					ON ³
2	2ND GEAR			ON				

1 THE S GEAR SELECTOR POSITION IS A SPORT MODE WHICH GIVES A LATER SHIFT FROM 1st THROUGH 3rd GEAR. 1st THROUGH 4th GEAR AND TCC IS AVAILABLE WHEN THE DRIVER ENERGIZES AN ADDITIONAL S4 SWITCH WHEN THE SELECTOR IS IN S.

2 MAY BE ON DEPENDING ON VEHICLE CONDITIONS

3 ON BUT NOT EFFECTIVE



PASS BOOK

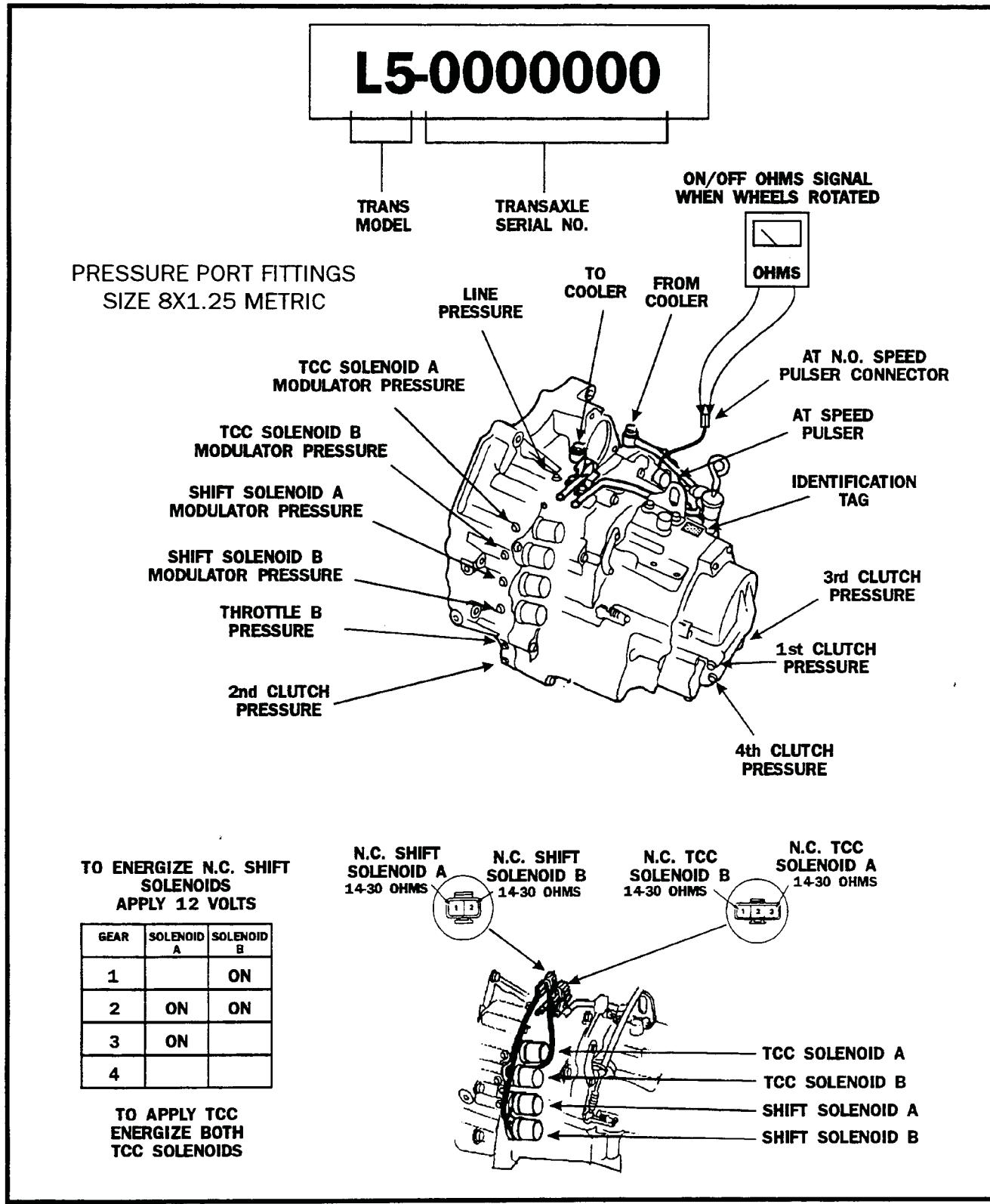
L5 PRESSURE CHART

SELECTOR POSITION	GEAR	PRESSURE PORT AND POSITION	PRESSURE IN PSI
P	—	LINE PORT AT 2000 RPM ¹	107-121
R	R	4TH PORT AT 1000 RPM ¹	107-121
N		LINE PORT AT 2000 RPM ¹	107-121
D4	1ST	1ST PORT AT 1000 RPM ¹	102-121
D4	1ST	1ST PORT AT W.O.T. STALL ¹	215-250
D4	1ST	THROTTLE B PORT AT IDLE ¹	MUST BE 0
D4	1ST	THROTTLE B PORT AT 1000 RPM - TV LEVER UP ¹	107-121
D4	2ND	2ND PORT CLOSED THROTTLE	64-71
D4	2ND	2ND PORT WITH MORE THAN 1/4 THROTTLE	107-121
D4	3RD	3RD PORT CLOSED THROTTLE	64-71
D4	3RD	3RD PORT WITH MORE THAN 1/4 THROTTLE	107-121
D4	4TH	4TH PORT CLOSED THROTTLE	64-71
D4	4TH	4TH PORT WITH MORE THAN 1/4 THROTTLE	107-121
D4		ANY MODULATOR SOLENOID PORT - 12 VOLTS TO SOLENOID	0 - 10
D4		ANY MODULATOR SOLENOID PORT - SOLENOID OFF	71-81
D3 OR S3	1ST	1ST PORT AT 1000 RPM ¹	107-128
D3 OR S3	1ST	1ST PORT AT W.O.T. STALL ¹	215-250
2	2ND	2ND PORT AT 1000 RPM ¹	107-121
2	2ND	2ND PORT AT W.O.T. STALL ¹	215-250



PASS BOOK

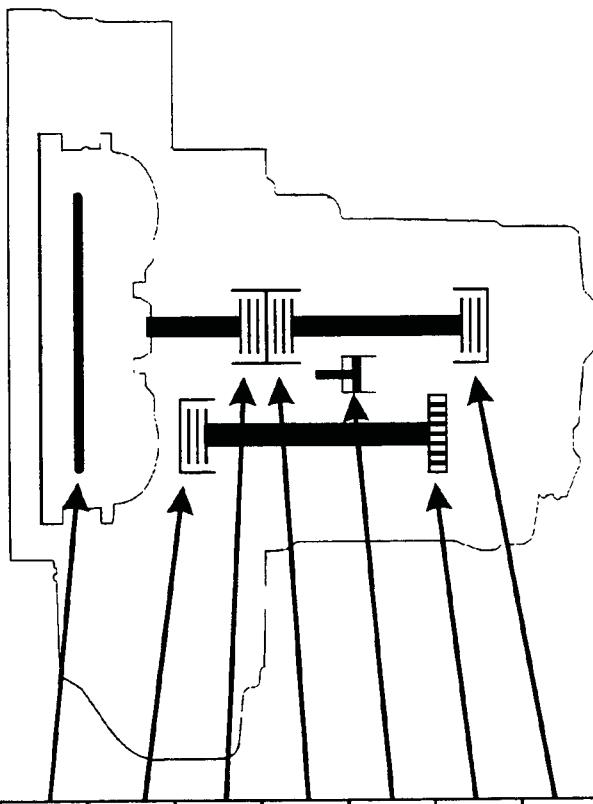
L5





PASS BOOK

PL5X APPLICATION CHART



SELECTOR POSITION	GEAR	T.C.C	THIRD CLUTCH	SECOND CLUTCH	FOURTH CLUTCH	SERVO	SPRAG	FIRST CLUTCH
R	REVERSE				ON	ON		
D4	1ST GEAR						ON	ON
	2ND GEAR	ON ²		ON				ON ³
	3RD GEAR	ON ²	ON					ON ³
	4TH GEAR	ON ²			ON			ON ³
D3 or S3 ¹	1ST GEAR						ON	ON
	2ND GEAR			ON				ON ³
	3RD GEAR		ON					ON ³
2	2ND GEAR			ON				

1 THE S GEAR SELECTOR POSITION IS A SPORT MODE WHICH GIVES A LATER SHIFT FROM 1st THROUGH 3rd GEAR. 1st THROUGH 4th GEAR AND TCC IS AVAILABLE WHEN THE DRIVER ENERGIZES AN ADDITIONAL S4 SWITCH WHEN THE SELECTOR IS IN S.

2 MAY BE ON DEPENDING ON VEHICLE CONDITIONS

3 ON BUT NOT EFFECTIVE



PASS BOOK

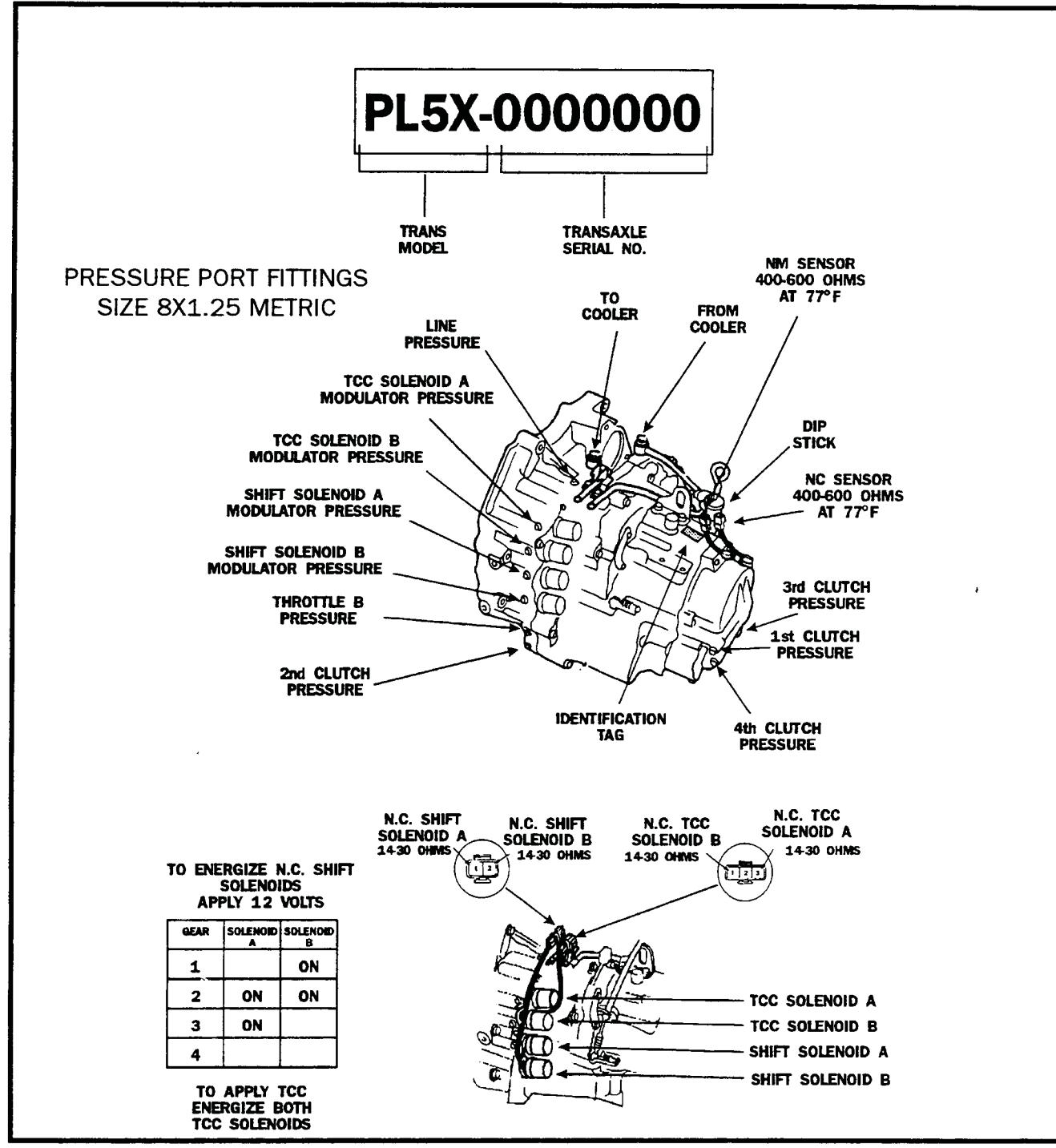
PL5X PRESSURE CHART

SELECTOR POSITION	GEAR	PRESSURE PORT AND POSITION	PRESSURE IN PSI
P	—	LINE PORT AT 2000 RPM ¹	107-121
R	R	4TH PORT AT 1000 RPM ¹	107-121
N		LINE PORT AT 2000 RPM ¹	107-121
D4	1ST	1ST PORT AT 1000 RPM ¹	102-121
D4	1ST	1ST PORT AT W.O.T. STALL ¹	215-250
D4	1ST	THROTTLE B PORT AT IDLE ¹	MUST BE 0
D4	1ST	THROTTLE B PORT AT 1000 RPM - TV LEVER UP ¹	107-121
D4	2ND	2ND PORT CLOSED THROTTLE	64-71
D4	2ND	2ND PORT WITH MORE THAN 1/4 THROTTLE	107-121
D4	3RD	3RD PORT CLOSED THROTTLE	64-71
D4	3RD	3RD PORT WITH MORE THAN 1/4 THROTTLE	107-121
D4	4TH	4TH PORT CLOSED THROTTLE	64-71
D4	4TH	4TH PORT WITH MORE THAN 1/4 THROTTLE	107-121
D4		ANY MODULATOR SOLENOID PORT - 12 VOLTS TO SOLENOID	0 - 10
D4		ANY MODULATOR SOLENOID PORT - SOLENOID OFF	71-81
D3 OR S3	1ST	1ST PORT AT 1000 RPM ¹	107-128
D3 OR S3	1ST	1ST PORT AT W.O.T. STALL ¹	215-250
2	2ND	2ND PORT AT 1000 RPM ¹	107-121
2	2ND	2ND PORT AT W.O.T. STALL ¹	215-250



PASS BOOK

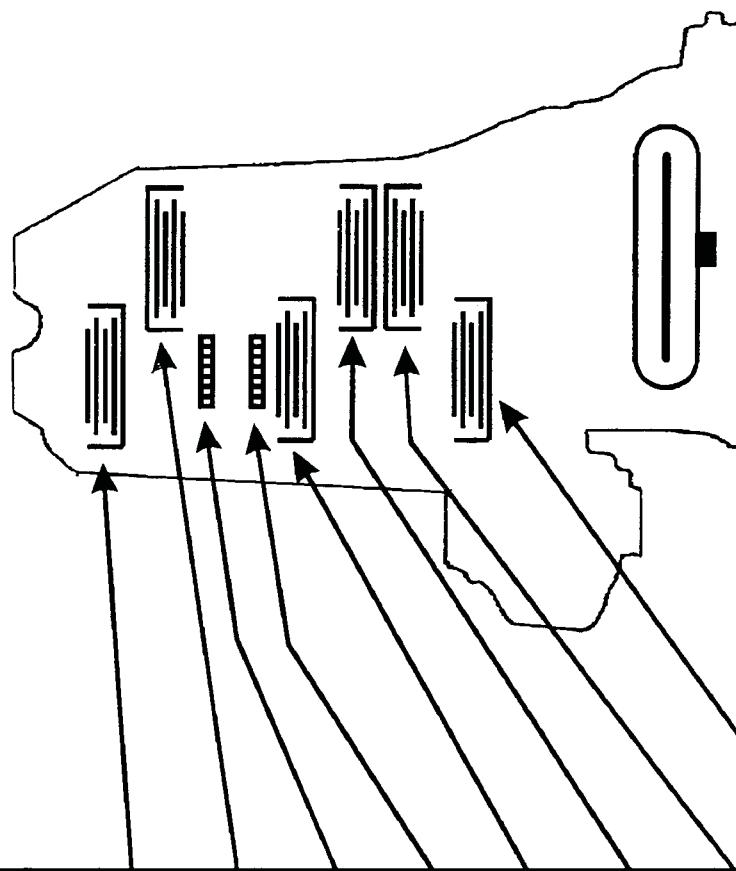
PL5X





PASS BOOK

MPYA APPLICATION CHART

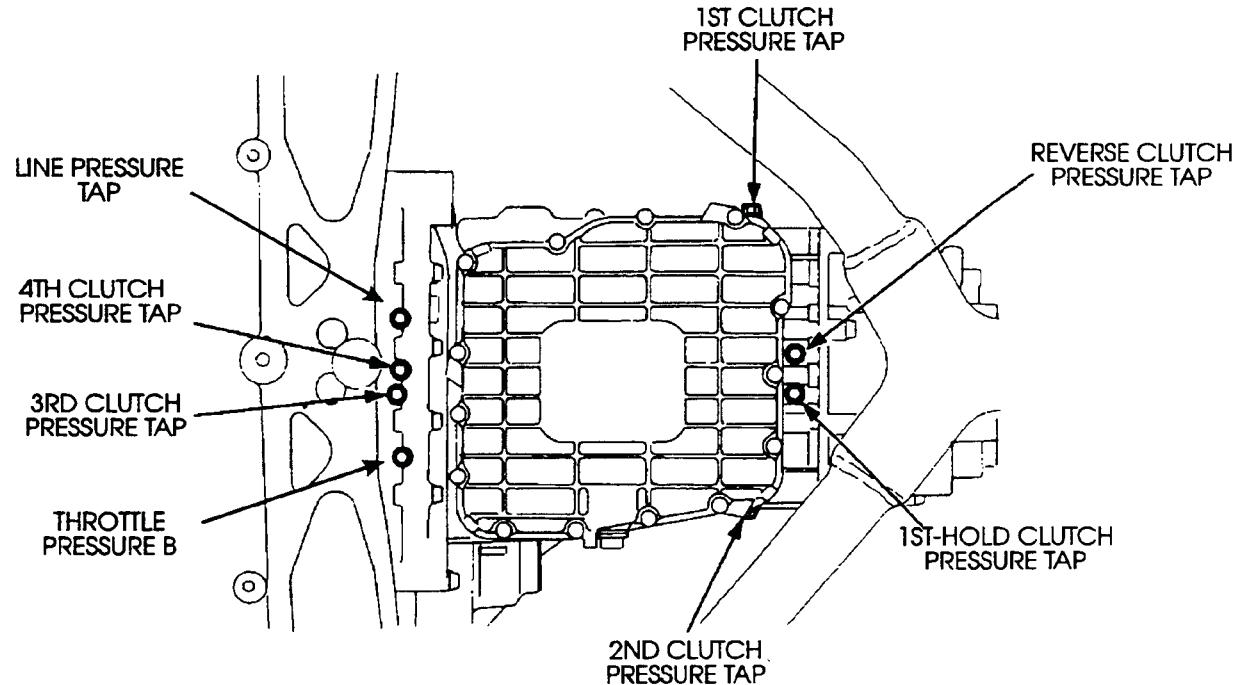


RANGE	GEAR	REVERSE CLUTCH	2ND CLUTCH	2ND ONEWAY CLUTCH	1ST ONE-WAY CLUTCH	1ST HOLD CLUTCH	1ST CLUTCH	4TH CLUTCH	3RD CLUTCH
R	REV	ON							
D4	1ST			ON	ON		ON		
	2ND		ON	ON			ON*		
	3RD		ON*				ON*		ON
	4TH		ON*					ON	
D3	1ST			ON	ON		ON		
	2ND		ON	ON			ON*		
	3RD		ON*				ON*		ON
2	1ST		ON	ON		ON			
1	2ND			ON	ON	ON	ON		



PASS BOOK

MPYA PRESSURE SPECIFICATIONS



PRESSURE TAP LOCATIONS ARE STAGED AROUND THE PAN ON THE BOTTOM OF THE TRANSMISSION.

- Line Pressure

- 1. Set the parking brake and block both wheels securely.
- 2. Run the engine at 2,000 rpm.
- 3. Shift the select lever to **N** or **P**.
- 4. Measure line pressure.

PRESSURE	SELECTOR POSITION	FLUID PRESSURE	
		Standard	Service Limit
Line	N or P	800–860 kPa (8.0–8.6 kg/cm ² , 114–122 psi)	750 kPa (7.5 kg/cm ² , 107 psi)

NOTE: Higher pressures may be indicated if measurements are made in selector positions other than **N** or **P**.



PASS BOOK

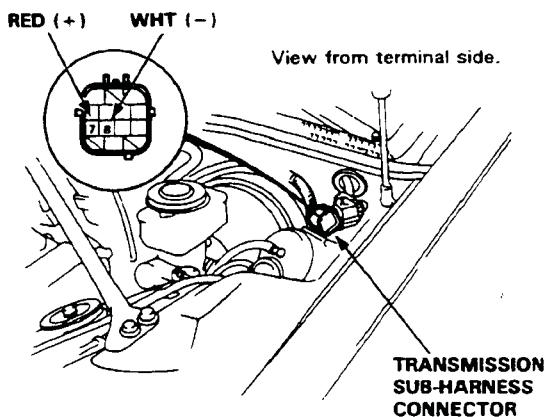
MPYA PRESSURE CONTINUED

PRESSURE	SELECTOR POSITION	FLUID PRESSURE	
		Standard	Service Limit
2nd Clutch	D₄	460–860 kPa (4.6–8.6 kg/cm ² , 65–123 psi) varies with throttle opening	430 kPa (4.3 kg/cm ² , 61 psi) with accelerator pedal released
3rd Clutch			750 kPa (7.5 kg/cm ² , 107 psi)
4th Clutch			with accelerator pedal more than 2/8 opened

• Throttle B Pressure Measurement

WARNING While testing, be careful of the rotating front wheels.

- 1. Allow the front wheels to rotate freely.
- 2. Disconnect the transmission sub-harness connector.
- 3. Shift the select lever to **D₄** position.
- 4. Run the engine at 1,000 rpm.
- 5. Measure full open throttle B pressure.
- 6. Connect battery voltage to the linear solenoid terminals of the transmission sub-harness connector.
- 7. Measure full closed throttle B pressure.



PRESSURE	SELECTOR POSITION	FLUID PRESSURE	
		Standard	Service Limit
Throttle B	D₄	0–15 kPa (0–0.15 kg/cm ² , 0–2 psi) throttle full closed	—
		590–640 kPa (5.9–6.4 kg/cm ² , 84–91 psi) throttle full opened	550 kPa (5.5 kg/cm ² , 78 psi)



PASS BOOK

MPYA PRESSURE CONTINUED

● Clutch Pressure Measurement

⚠ WARNING While testing, be careful of the rotating front wheels.

- 1. Set the parking brake and block both rear wheels securely.
- 2. Raise the front of the car and support with safety stands.
- 3. Allow the front wheels to rotate freely.
- 4. Run the engine at 2,000 rpm.
- 5. Measure each clutch pressure.

PRESSURE	SELECTOR POSITION	FLUID PRESSURE	
		Standard	Service Limit
1st Clutch	[D ₄] or [D ₃]	800–860 kPa (8.0–8.6 kg/cm ² , 113–123 psi)	750 kPa (7.5 kg/cm ² , 107 psi)
2nd Clutch	[D ₄]	460 kPa (4.6 kg/cm ² , 65 psi) (throttle fully closed)	430 kPa (4.3 kg/cm ² , 61 psi) (throttle fully closed)
3rd Clutch		860 kPa (8.6 kg/cm ² , 123 psi)	750 kPa (7.5 kg/cm ² , 107 psi)
4th Clutch		(throttle more than 2/8 opened)	(throttle more than 2/8 opened)
1st Clutch	[2] or [1]	800–860 kPa (8.0–8.6 kg/cm ² , 113–123 psi)	750 kPa (7.5 kg/cm ² , 107 psi)
2nd Clutch			
1st-Hold Clutch			
Reverse Clutch	[R]	1,190–1,270 kPa (11.9–12.7 kg/cm ² , 169–181 psi)	1,150 kPa (11.5 kg/cm ² , 163 psi)

● Clutch Low/High Pressure Measurement

⚠ WARNING While testing, be careful of the rotating front wheels.

- 1. Allow the front wheels to rotate freely.
- 2. Start the engine and let it idle.
- 3. Shift the select lever to [D₄] position.
- 4. Slowly press down the accelerator pedal to increase engine rpm until pressure is indicated on the oil pressure gauge. Then release the accelerator pedal, allowing the engine return to an idle, and measure the pressure reading.
- 5. Repeat step -4 for each clutch pressure being inspected.
- 6. With the engine idling, press down the accelerator pedal approximately 1/2 of its possible travel and increase the engine rpm until pressure is indicated on the gauge, measure the highest pressure reading obtained.
- 7. Repeat step -6 for each clutch pressure being inspected.



PASS BOOK

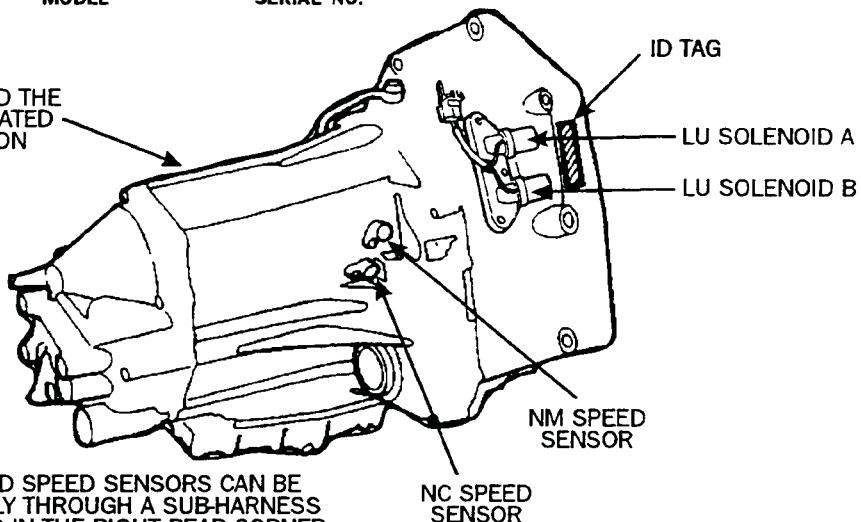
MPYA

MPYA-0000000

TRANS
MODEL

TRANSAXLE
SERIAL NO.

SHIFT SOLENOIDS A & B AND THE
LINEAR SOLENOID ARE LOCATED
INSIDE THE TRANSMISSION



ALL SOLENOIDS AND SPEED SENSORS CAN BE
CHECKED EXTERNALLY THROUGH A SUB-HARNESS
CONNECTOR LOCATED IN THE RIGHT REAR CORNER
OF THE ENGINE COMPARTMENT.

NC SENSOR - CHECK TERMINALS 5 &
6 (ORANGE AND WHITE WIRE)
SHOULD MEASURE 400 TO 600

NM SENSOR - CHECK TERMINALS 9 &
10 (BLUE/YELLOW AND BLUE/GREEN
WIRE) SHOULD MEASURE 400 TO 600

LU SOLENOID A - TERMINAL 1 (YELLOW
WIRE) TO GROUND SHOULD MEASURE
12-24 OHMS

LU SOLENOID B - TERMINAL 2 (GREY
WIRE) TO GROUND SHOULD MEASURE
12-24 OHMS

SHIFT SOLENOID A - TERMINAL 4
(BLUE WIRE) TO GROUND SHOULD
MEASURE 12-24 OHMS

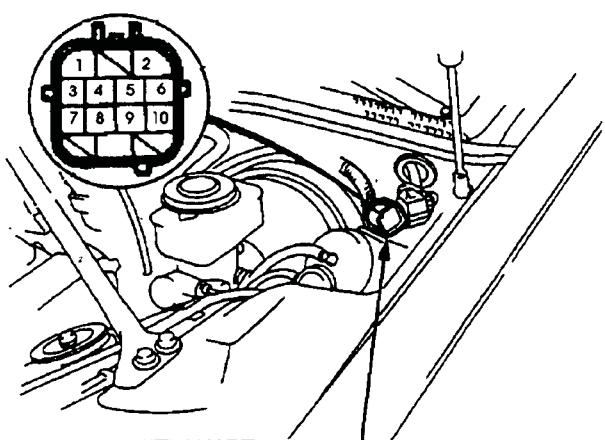
SHIFT SOLENOID B - TERMINAL 3 (GREEN
WIRE) TO GROUND SHOULD MEASURE
12-24 OHMS

LINEAR SOLENOID - TERMINALS 7 & 8
(RED(+) AND WHITE (-) WIRE) SHOULD
MEASURE 5.0 TO 5.6 OHMS @ 70
DEGREES FAHRENHEIT

SOLENOID SHIFT CHART

GEAR	SSA	SSB
1	OFF	ON
2	ON	ON
3	ON	OFF
4	OFF	OFF

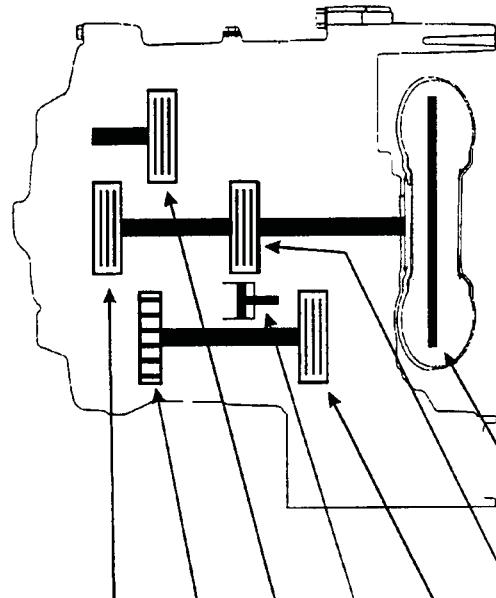
TRANSMISSION
SUB-HARNESS
CONNECTOR





PASS BOOK

RO APPLICATION CHART



SELECTOR POSITION	GEAR	1st CLUTCH	SPRAG	2nd CLUTCH	SERVO	3rd CLUTCH	4th CLUTCH	TCC
R	REVERSE				ON		ON	
D	1st	ON	ON					
	2nd	ON ²		ON				ON ³
	3rd	ON ²				ON		ON ³
	4th	ON ²					ON	ON ³
S ¹	1st	ON	ON					
	2nd	ON ²		ON				ON ⁴
	3rd	ON ²				ON		ON ⁴
	4th (S4 ON)	ON ²					ON	ON ⁴
2	2nd	ON ²		ON				

1 THE S GEAR SELECTOR POSITION IS A SPORT MODE WHICH GIVES A LATER SHIFT FROM 1st THROUGH 3rd GEAR. 1st THROUGH 4th GEAR AND TCC IS AVAILABLE WHEN THE DRIVER ENERGIZES AN ADDITIONAL S4 SWITCH WHEN THE SELECTOR IS IN S.

2 ON BUT NOT EFFECTIVE

3 MAY BE ON DEPENDING ON VEHICLE CONDITIONS

4 ONLY ON WHEN S4 SWITCH IS ON DEPENDING ON VEHICLE CONDITIONS



PASS BOOK

RO PRESSURE CHART

PORT	SELECTOR POSITION	PRESSURE IN PSI	
		19 - 24 in. HG	0 in. HG
LINE	N or P	64 - 85	104 - 118
1ST	S or D	64 - 85	105 - 119
3RD	S (S4 OFF)	64 - 85	105 - 119
4TH	S or D S4 (ON)	64 - 85	105 - 119
4TH	R	64 - 85	105 - 119
2ND	2	104 - 125	148 - 162
THROTTLE B	S or D	0	104 - 118
MODULATOR	N or P	64 - 80 *	
2ND	S or D	64 - 119 *	
3RD	S (S4 OFF)	64 - 119 *	
4TH	S or D S4 (ON)	64 - 119 *	

* - VACUUM LINE CONNECTED

DO ALL OTHER PRESSURE TESTS USING A VACUUM PUMP



PASS BOOK

RO

PRESSURE PORT FITTINGS
SIZE 8X1.25 METRIC

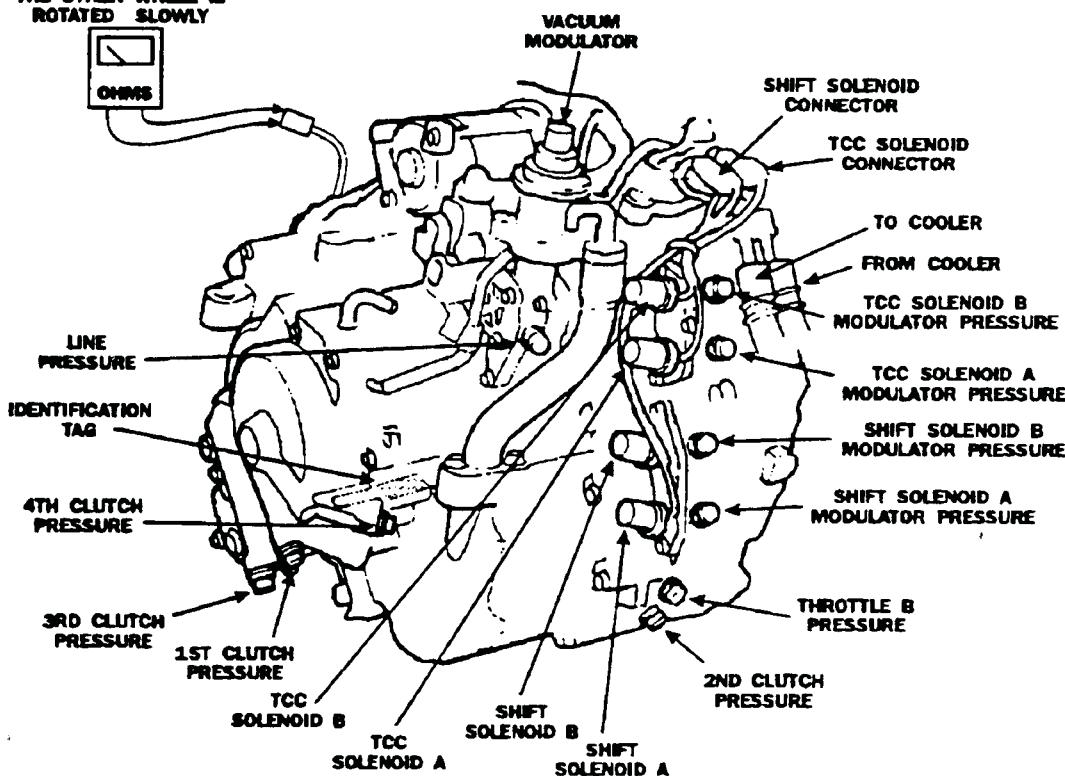
RO-0000000

A/T N.O. SPEED PULSER
ON/OFF OHMS SIGNAL WHEN
ONE WHEEL IS HELD AND
THE OTHER WHEEL IS
ROTATED SLOWLY



TRANS
MODEL

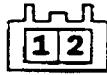
TRANSMISSION
SERIAL NO.



TO ENERGIZE N.C. SHIFT
SOLENOIDS
APPLY 12 VOLTS



LOCK-UP N.C. SOLENOID
CONNECTOR
12 - 24 OHMS



SHIFT N.C. SOLENOID
CONNECTOR
12 - 24 OHMS

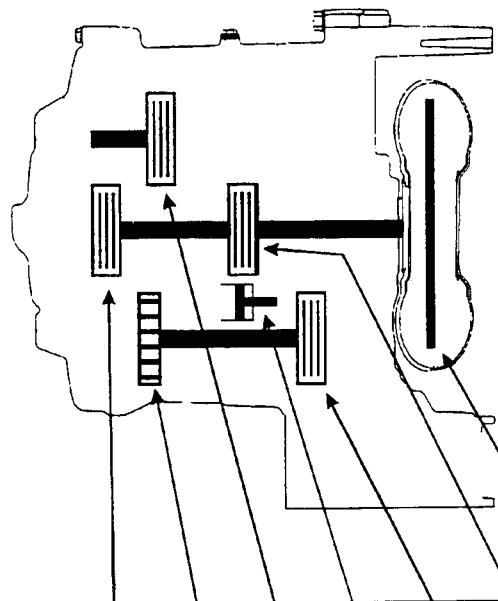
GEAR	SOLENOID A	SOLENOID B
1		ON
2	ON	ON
3	ON	
4		

TO APPLY TCC
ENERGIZE BOTH
N.C. TCC SOLENOIDS
WITH 12 VOLTS



PASS BOOK

MPRA APPLICATION CHART



SELECTOR POSITION	GEAR	1st CLUTCH	SPRAG	2nd CLUTCH	SERVO	3rd CLUTCH	4th CLUTCH	TCC
R	REVERSE				ON		ON	
D	1st	ON	ON					
	2nd	ON ²		ON				ON ³
	3rd	ON ²				ON		ON ³
	4th	ON ²					ON	ON ³
S ¹	1st	ON	ON					
	2nd	ON ²		ON				ON ⁴
	3rd	ON ²				ON		ON ⁴
	4th (S4 ON)	ON ²					ON	ON ⁴
2	2nd	ON ²		ON				

1 THE S GEAR SELECTOR POSITION IS A SPORT MODE WHICH GIVES A LATER SHIFT FROM 1st THROUGH 3rd GEAR. 1st THROUGH 4th GEAR AND TCC IS AVAILABLE WHEN THE DRIVER ENERGIZES AN ADDITIONAL S4 SWITCH WHEN THE SELECTOR IS IN S.

2 ON BUT NOT EFFECTIVE

3 MAY BE ON DEPENDING ON VEHICLE CONDITIONS

4 ONLY ON WHEN S4 SWITCH IS ON DEPENDING ON VEHICLE CONDITIONS



PASS BOOK

MPRA PRESSURE CHART

PORT	SELECTOR POSITION	PRESSURE IN PSI	
		19 - 24 in. HG	0 in. HG
LINE	N or P	64 - 85	104 - 118
1ST	S or D	64 - 85	105 - 119
3RD	S (S4 OFF)	64 - 85	105 - 119
4TH	S or D S4 (ON)	64 - 85	105 - 119
4TH	R	64 - 85	105 - 119
2ND	2	104 - 125	148 - 162
THROTTLE B	S or D	0	104 - 118
MODULATOR	N or P	64 - 80 *	
2ND	S or D	64 - 119 *	
3RD	S (S4 OFF)	64 - 119 *	
4TH	S or D S4 (ON)	64 - 119 *	

* - VACUUM LINE CONNECTED

DO ALL OTHER PRESSURE TESTS USING A VACUUM PUMP



PASS BOOK

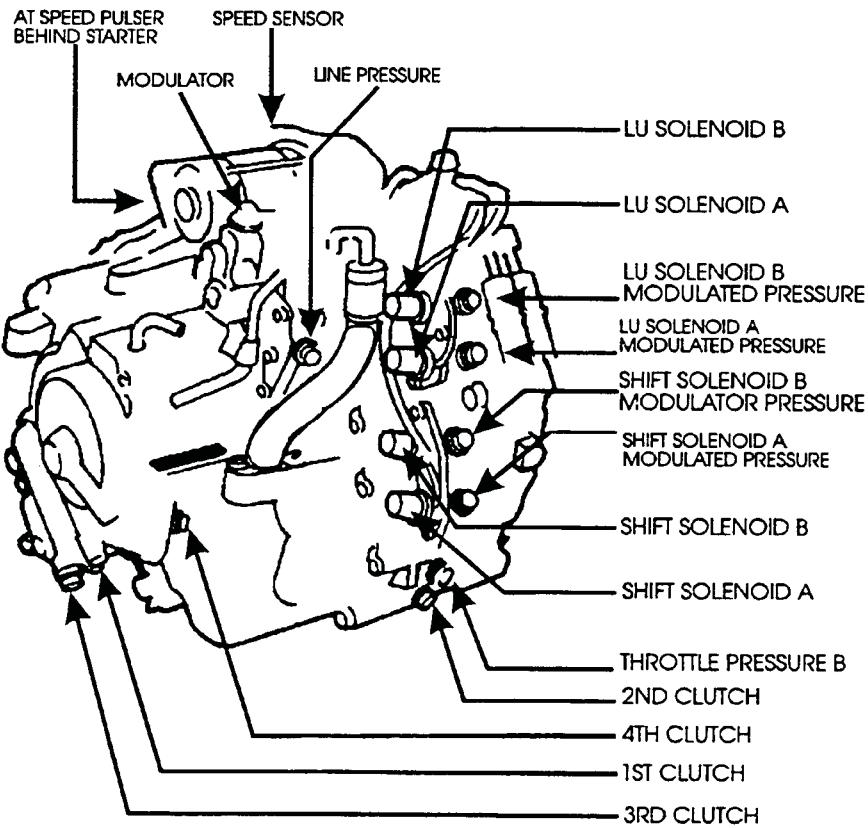
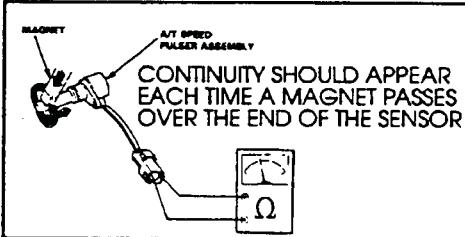
MPRA

MPRA-0000000

TRANS
MODEL

TRANSAXLE
SERIAL NO.

GEAR	A	B
1ST		ON
2ND	ON	ON
3RD	ON	
4TH		



TERMINAL #1 = LU SOL A (RED WIRE)
TERMINAL #2 = LU SOL B (GREEN/BLK WIRE)
PLACE NEGATIVE LEAD TO GROUND AND
PROBE TERMINALS 1 & 2 WITH THE POSITIVE
LEAD. SOLENOIDS SHOULD HAVE 12 TO 24
OHMS RESISTANCE AT ROOM TEMPERATURE.
THESE ARE N.C. SOL



TERMINAL 1 = SSA (BLUE WIRE)
TERMINAL 2 = SSB (GREEN WIRE)
PLACE NEGATIVE LEAD TO GROUND AND
PROBE TERMINALS 1 & 2 WITH THE POSITIVE
LEAD. SOLENOIDS SHOULD HAVE 12-24 OHMS
RESISTANCE AT ROOM TEMPERATURE. THESE ARE
N.C. SOLENOIDS.

