INTRODUCTION

AISIN WARNER 50-42LE

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The Aisin Warner 50-42LE transmission first appeared in the Volvo 850, in model year 1992. Saab and Daewoo also implemented the 50-42LE in some of their models. This manual was produced using a 1995 model Volvo transmission for the photos. There are a few subtle differences between the Volvo, Saab and Daewoo versions and these differences are mentioned in the rebuilding process. Overall, the transmissions in all of these vehicle applications operate exactly the same. This manual will cover much needed information for diagnosis, service, repair and rebuild, including electrical information and hydraulic passage identification.

We wish to thank Lory's transmission parts for supplying the transmission to make this book possible

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AISIN WARNER 50-42LE

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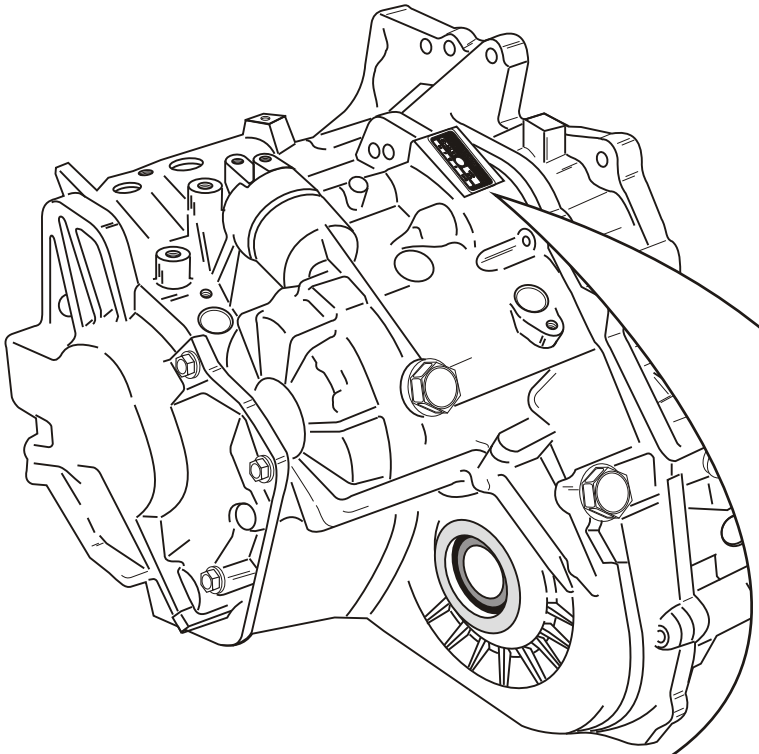
TRANSMISSION IDENTIFICATION



I.D. TAG

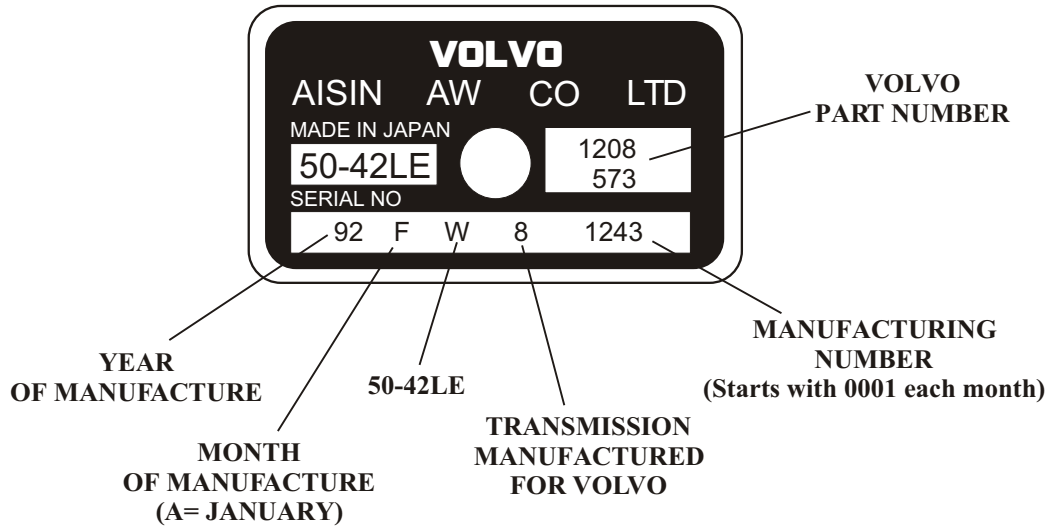
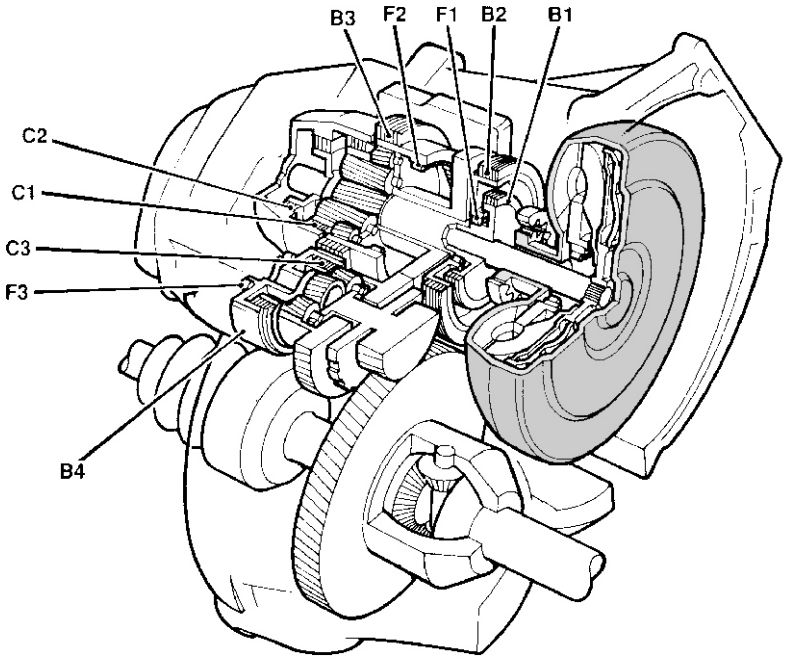


Figure 1

CLUTCH/BAND AND SOLENOID APPLICATION CHART



S1 = SHIFT SOLENOID "A"
S2 = SHIFT SOLENOID "B"

C1 = FORWARD CLUTCH
C2 = DIRECT CLUTCH
C3 = UNDERDRIVE CLUTCH

B1 = OVERRUN CLUTCH
B2 = INTERMEDIATE CLUTCH
B3 = LOW & REVERSE CLUTCH
B4 = UNDERDRIVE BRAKE BAND

F1 = INTERMEDIATE SPRAG
F2 = LOW SPRAG
F3 = UNDERDRIVE SPRAG

	SHIFT POSITION	S1	S2	C1	C2	C3	B1	B2	B3	B4	F1	F2	F3
P	PARK	OFF	ON							ON			
R	REVERSE (UNDER 4 MPH ▶)	OFF	ON		ON				ON	ON			
	REVERSE (REVERSE INHIBIT VSS OVER 4 MPH ▶)	ON	ON		ON					ON			
N	NEUTRAL	OFF	ON							ON			
D	FIRST	OFF	ON	ON						ON			ON
	SECOND	ON	ON	ON			ON	ON		ON	ON		ON
	THIRD	ON	OFF	ON		ON	ON	ON			ON		
	FOURTH	OFF	OFF	ON	ON	ON		ON					
3	FIRST	OFF	ON	ON						ON		ON	ON
	SECOND	ON	ON	ON			ON	ON		ON	ON		ON
	THIRD	ON	OFF	ON		ON	ON	ON			ON		
*2	SECOND	ON	ON	ON			ON	ON		ON	ON		ON
	THIRD	ON	OFF	ON		ON	ON	ON			ON		
1	FIRST	OFF	ON	ON					ON	ON		ON	ON
	SECOND	ON	ON	ON			ON	ON		ON	ON		ON

***SAAB ONLY**

Figure 2

SPECIFICATIONS

GEAR RATIOS:

GEAR	VOLVO	DAEWOO
1st Gear	3.61 : 1	3.900 : 1
2nd Gear	2.06 : 1	2.228 : 1
3rd Gear	1.37 : 1	1.477 : 1
4th Gear	0.98 : 1	1.062 : 1
Reverse	3.95 : 1	4.271 : 1

FLUID TYPE :

ATF - Type.....Dexron ll E
ATF - Type.....Volvo part number 1381166-6

FLUID CAPACITY:

Dry Fill.....5.1 liters (5.4 US qts)
Torque converter.....2.5 liters (2.6 US qts)

LINE PRESSURE SPECIFICATIONS:

Base line pressure in Drive.....57-65 psi.
Stall line pressure in Drive.....150-190psi.
Base line pressure in Reverse.....85-100psi.
Stall line pressure in Reverse.....280-290psi.

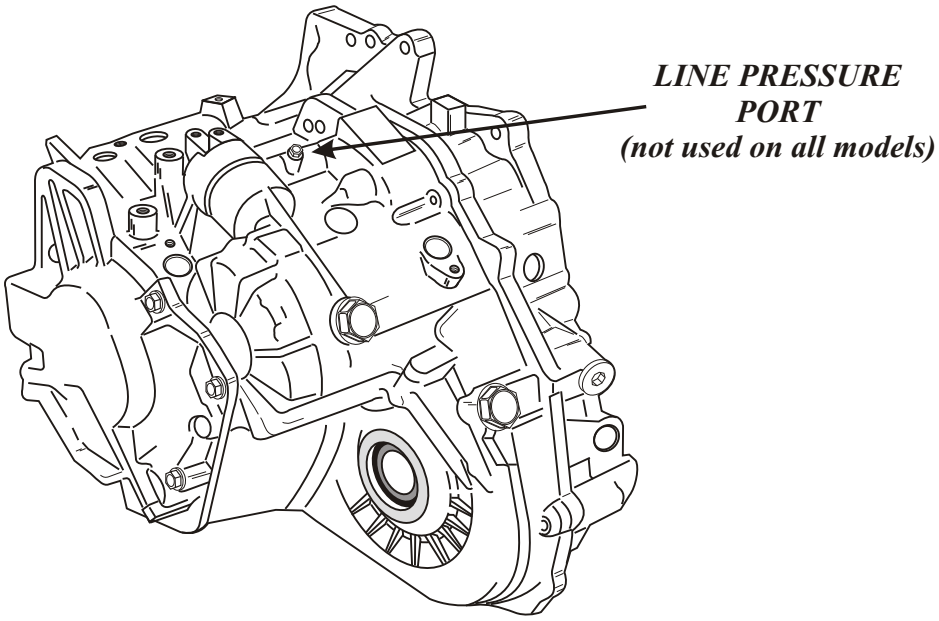


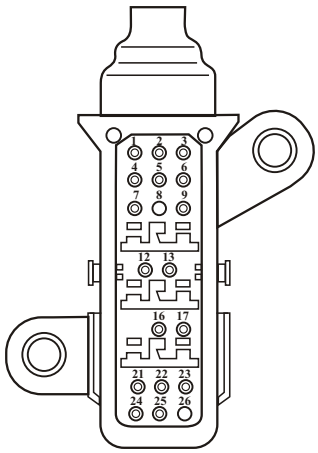
Figure 3

COMPONENT RESISTANCE CHARTS

VOLVO

COMPONENT	*OHMS*	*TERMINALS*
SOLENOID 1	11-15	21 & GND
SOLENOID 2	11-15	22 & GND
LOCK UP SOLENOID	11-15	23 & GND
STH SOLENOID (*Line Pressure*)	2-6	24 & 25
OIL TEMP SENSOR	900 @ 68°F (20°C) 75 @ 212°F (100°C)	12 & 13
TURBINE SENSOR	300-600	16 & 17
OUTPUT SENSOR	300-600	*NOT ROUTED THRU CONNECTOR*

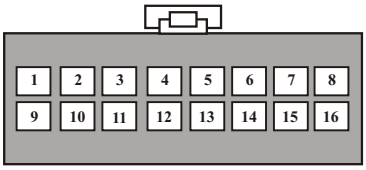
VOLVO CONNECTOR NUMBER 3/71



SAAB

COMPONENT	*OHMS*	*TERMINALS*
SOLENOID 1	11-15	1 & GND
SOLENOID 2	11-15	9 & GND
LOCK UP SOLENOID	11-15	10 & GND
ST SOLENOID (*Line Pressure*)	2-6	11 & 3
OIL TEMP SENSOR	900 @ 68°F (20°C) 75 @ 212°F (100°C)	12 & 4
TURBINE SENSOR	300-600	5 & 13
OUTPUT SENSOR	300-600	14 & 6

SAAB CONNECTOR NUMBER H16-3



DAEWOO

COMPONENT	*OHMS*	*TERMINALS*
SOLENOID 1	11-15	6 & GND
SOLENOID 2	11-15	12 & GND
LOCK UP SOLENOID	11-15	11 & GND
STH SOLENOID (*Line Pressure*)	2-6	4 & 10
OIL TEMP SENSOR	900 @ 68°F (20°C) 75 @ 212°F (100°C)	3 & 9
TURBINE SENSOR	300-600	5 & 13
OUTPUT SENSOR	300-600	14 & 6

DAEWOO CONNECTOR NUMBER C110

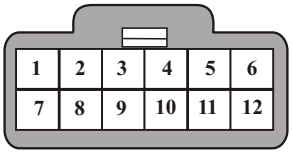


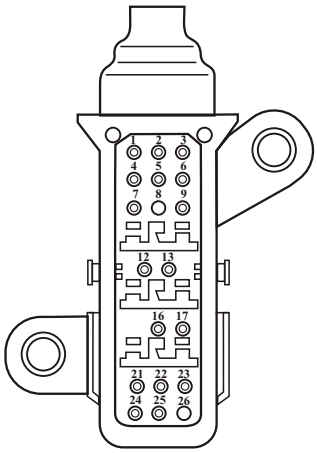
Figure 4

TRANSMISSION RANGE SWITCH OR GEAR POSITION SENSOR CHECK

VOLVO	PIN/SWITCH COMBINATIONS			
RANGE	PIN 1 (A)	PIN 2 (B)	PIN 3 (C)	PIN 4 (PA)
PARK	CLOSED	OPEN	OPEN	CLOSED
REVERSE	CLOSED	CLOSED	OPEN	OPEN
NEUTRAL	OPEN	CLOSED	OPEN	CLOSED
D	OPEN	CLOSED	CLOSED	OPEN
3	CLOSED	CLOSED	CLOSED	CLOSED
L	CLOSED	OPEN	CLOSED	OPEN

CONNECT POSITIVE LEAD TO THE SPECIFIED PIN
AND THE GROUND LEAD TO THE CASE.
OPEN = O.L. CLOSED = CONTINUITY

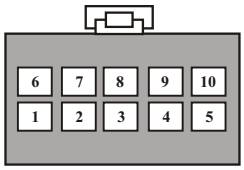
VOLVO CONNECTOR NUMBER 3/71



SAAB	PIN/SWITCH COMBINATIONS			
RANGE	PIN 1 (A)	PIN 3 (B)	PIN 2 (C)	PIN 4 (PA)
PARK	CLOSED	OPEN	OPEN	CLOSED
REVERSE	CLOSED	CLOSED	OPEN	OPEN
NEUTRAL	OPEN	CLOSED	OPEN	CLOSED
D	OPEN	CLOSED	CLOSED	OPEN
3	CLOSED	CLOSED	CLOSED	CLOSED
2	CLOSED	OPEN	CLOSED	OPEN
1	OPEN	OPEN	CLOSED	CLOSED

CONNECT POSITIVE LEAD TO THE PIN 8
AND THE GROUND LEAD TO THE SPECIFIED PIN
OPEN = O.L. CLOSED = CONTINUITY

SAAB CONNECTOR NUMBER H10-1



DAEWOO

RANGE	PIN 4	PIN 8	PIN 9	PIN 10	PIN 11	PIN 1	PIN 2
PARK	●	●					
REVERSE	●		●				
NEUTRAL	●			●			
D	●				●		
3	●					●	
L	●						●

CONNECT POSITIVE LEAD TO PIN 4
AND THE GROUND LEAD TO THE SPECIFIED PIN.
CONTINUITY MUST BE PRESENT BETWEEN THE
PINS CONNECTED IN THE CHART ABOVE.

DAEWOO CONNECTOR

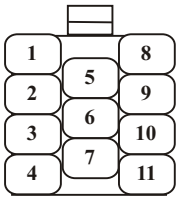


Figure 5

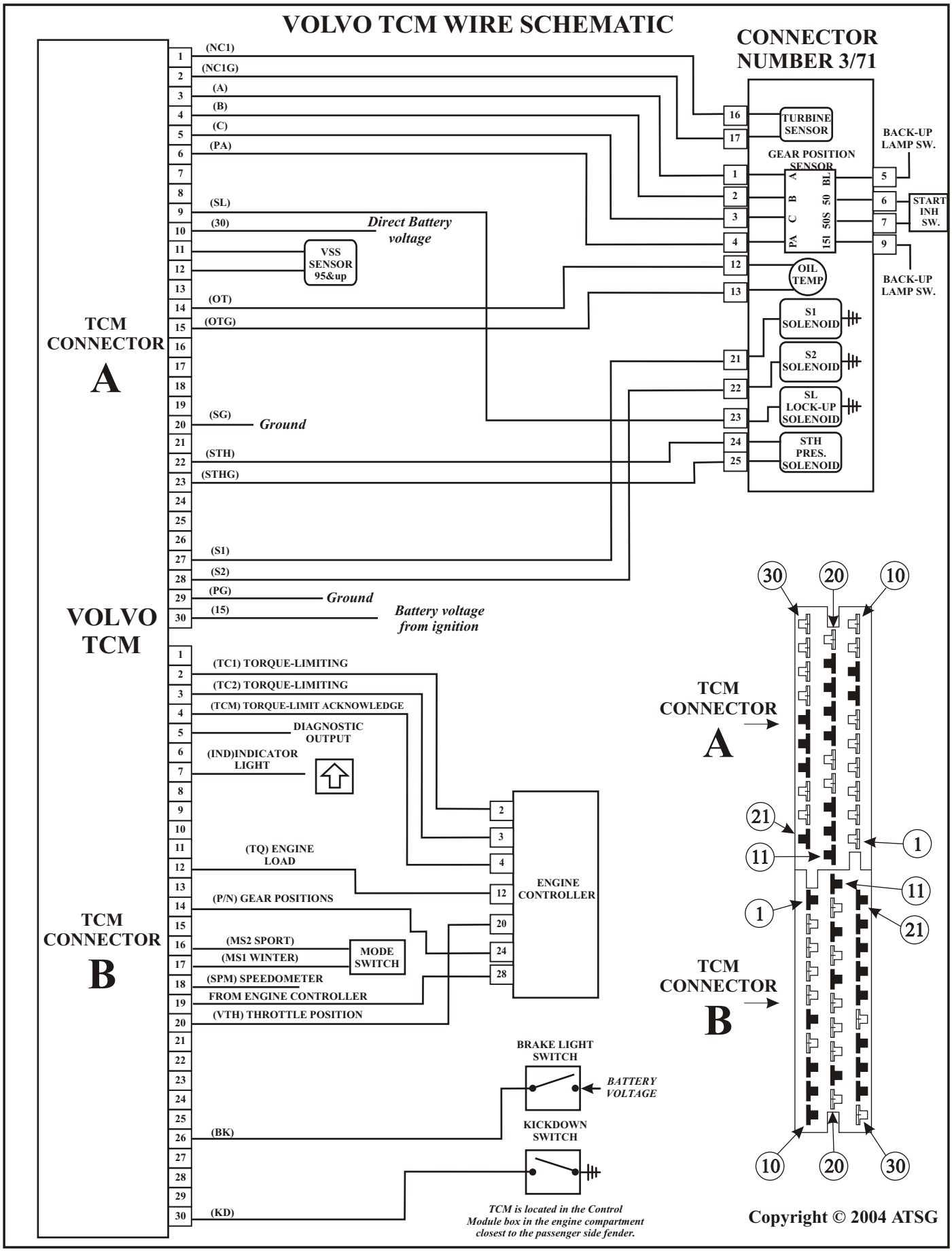

VOLVO TCM WIRE SCHEMATIC
CONNECTOR NUMBER 3/71
TCM CONNECTOR A
VOLVO TCM
TCM CONNECTOR B
(NC1)
(NC1G)
(A)
(B)
(C)
(PA)
(SL)
(30)
Direct Battery voltage
VSS SENSOR 95&up
(OT)
(OTG)
(SG)
Ground
(STH)
(STHG)
(S1)
(S2)
(PG)
Ground
(15)
Battery voltage from ignition
TURBINE SENSOR
GEAR POSITION SENSOR
A B C PA BL 50 50S 15I
BACK-UP LAMP SW.
START INH SW.
BACK-UP LAMP SW.
OIL TEMP
S1 SOLENOID
S2 SOLENOID
SL LOCK-UP SOLENOID
STH PRES. SOLENOID
(TC1) TORQUE-LIMITING
(TC2) TORQUE-LIMITING
(TCM) TORQUE-LIMIT ACKNOWLEDGE
DIAGNOSTIC OUTPUT
(IND)INDICATOR LIGHT
(TQ) ENGINE LOAD
(P/N) GEAR POSITIONS
(MS2 SPORT)
(MS1 WINTER)
MODE SWITCH
(SPM) SPEEDOMETER
FROM ENGINE CONTROLLER
(VTH) THROTTLE POSITION
ENGINE CONTROLLER
BRAKE LIGHT SWITCH
BATTERY VOLTAGE
KICKDOWN SWITCH
(BK)
(KD)
TCM is located in the Control Module box in the engine compartment closest to the passenger side fender.
TCM CONNECTOR A
TCM CONNECTOR B
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Figure 6

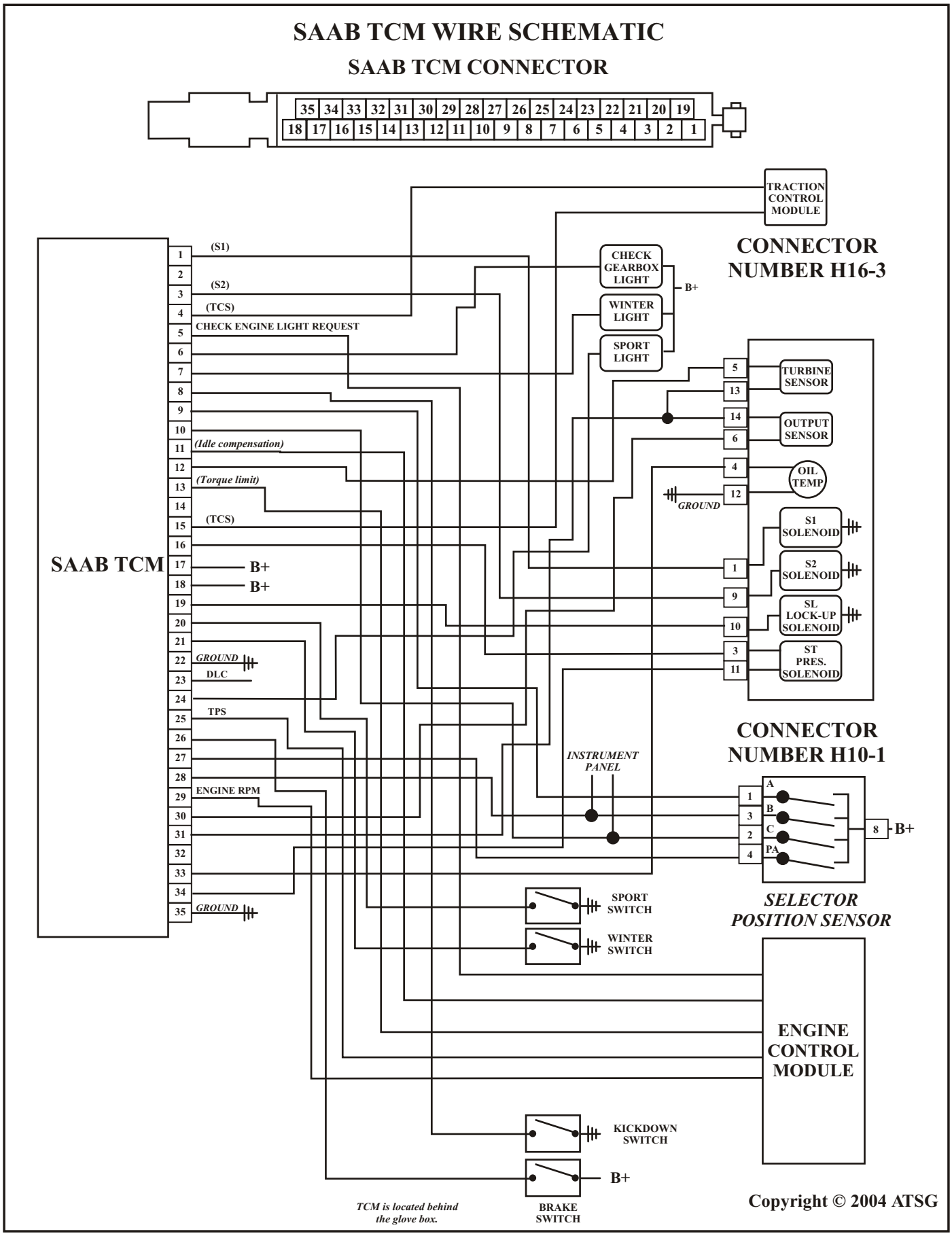
SAAB TCM WIRE SCHEMATIC
SAAB TCM CONNECTOR
35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
TRACTION CONTROL MODULE
CONNECTOR NUMBER H16-3
SAAB TCM
(S1)
(S2)
(TCS)
CHECK ENGINE LIGHT REQUEST
(Idle compensation)
(Torque limit)
(TCS)
B+
B+
GROUND
DLC
TPS
ENGINE RPM
GROUND
CHECK GEARBOX LIGHT
WINTER LIGHT
SPORT LIGHT
B+
TURBINE SENSOR
OUTPUT SENSOR
OIL TEMP
GROUND
S1 SOLENOID
S2 SOLENOID
SL LOCK-UP SOLENOID
ST PRES. SOLENOID
CONNECTOR NUMBER H10-1
INSTRUMENT PANEL
A
B
C
PA
B+
SELECTOR POSITION SENSOR
SPORT SWITCH
WINTER SWITCH
ENGINE CONTROL MODULE
KICKDOWN SWITCH
B+
BRAKE SWITCH
TCM is located behind the glove box.
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Figure 7

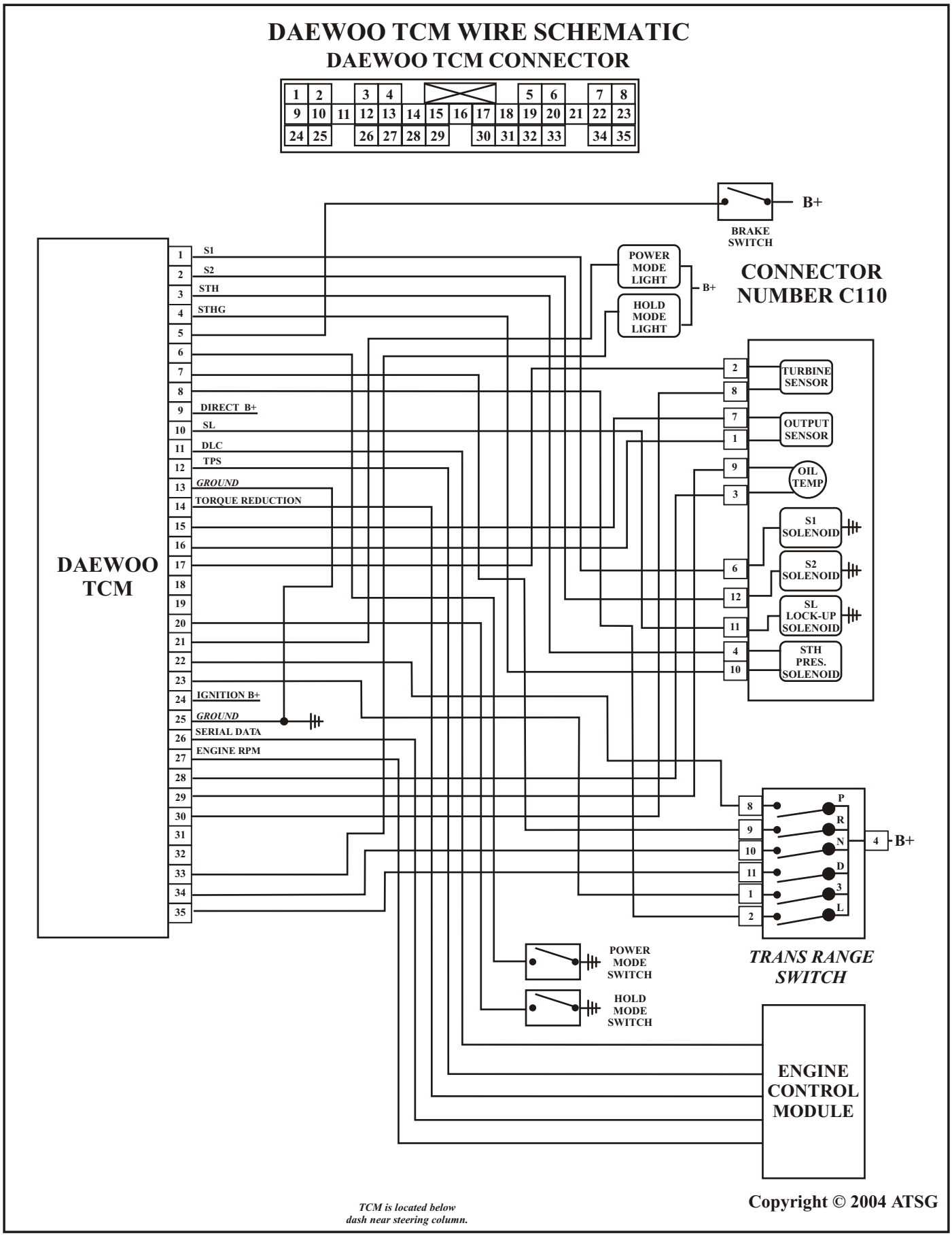

Figure 8