



# A.B.S. (ANTI-LOCK BRAKE SYSTEM)

#### SYSTEM OUTLINE

THIS SYSTEM CONTROLS THE RESPECTIVE BRAKE FLUID PRESSURES ACTING ON THE DISC BRAKE CYLINDERS OF THE RIGHT FRONT WHEEL, LEFT FRONT WHEEL AND REAR WHEELS WHEN THE BRAKES ARE APPLIED IN A PANIC STOP SO THAT THE WHEELS DO NOT LOCK. THIS RESULTS IN IMPROVED DIRECTIONAL STABILITY AND STEERABILITY DURING PANIC BRAKING.

#### 1. INPUT SIGNALS

(1) SPEED SENSOR SIGNAL

THE SPEED OF THE WHEELS IS DETECTED AND INPUT TO TERMINALS FL+, FR+, RL+ AND RR+ OF THE A.B.S. ECU.

(2) STOP LIGHT SW SIGNAL

A SIGNAL IS INPUT TO TERMINAL STP OF THE A.B.S. ECU WHEN BRAKE PEDAL IS OPERATED.

(3) PARKING BRAKE SW SIGNAL

A SIGNAL IS INPUT TO TERMINAL PKB OF THE A.B.S. ECU WHEN THE PARKING BRAKE IS OPERATED.

#### 2. SYSTEM OPERATION

DURING SUDDEN BRAKING THE A.B.S. ECU WHICH HAS SIGNALS INPUT FROM EACH SENSOR, CONTROLS THE CURRENT FLOWING TO THE SOLENOID INSIDE THE ACTUATOR AND LETS THE HYDRAULIC PRESSURE ACTING ON EACH WHEEL CYLINDER ESCAPE TO THE RESERVOIR. THE PUMP, INSIDE THE ACTUATOR IS ALSO OPERATING AT THIS TIME AND IT RETURNS THE BRAKE FLUID FROM THE RESERVOIR TO THE MASTER CYLINDER, THUS PREVENTING LOCKING OF THE VEHICLE WHEELS.

IF THE ECU JUDGES THAT THE HYDRAULIC PRESSURE ACTING ON THE WHEEL CYLINDER IS INSUFFICIENT, THE CURRENT ACTING ON SOLENOID IS CONTROLLED AND THE HYDRAULIC PRESSURE IS REDUCTION, HOLDING AND INCREASE ARE REPEATED TO MAINTAIN VEHICLE STABILITY AND TO IMPROVE STEERABILITY DURING SUDDEN BRAKING.

#### SERVICE HINTS

## A 1 (A), A 2 (B), A 3 (C) A.B.S. ACTUATOR

(A) 1, (A) 2-GROUND: ALWAYS APPROX. 12 VOLTS

(B) 4-GROUND: ALWAYS CONTINUITY

(C) 1, (C) 5, (C) 4, (C) 6–GROUND : APPROX. 1.15 $\Omega$  (IGNITION SW OFF)

(C) 2-GROUND : APPROX.  $5\Omega$  (IGNITION SW OFF)

### A 6, A 7, A32, A33 A.B.S. SPEED SENSOR FRONT LH, RH, REAR LH, RH

1–2 : APPROX. **1.0**KΩ (**20**°C, **68**°F)

## A16 (B), A17 (A) A.B.S. ECU

(B) 7 —GROUND : APPROX. 12 VOLTS WITH IGNITION SW ON

(B) 5, (B) 16 -GROUND : ALWAYS CONTINUITY
(B) 6 -GROUND : ALWAYS APPROX. 12 VOLTS

(A) 1, (B) 8, (A) 6 -GROUND : APPROX. 12 VOLTS WITH IGNITION SW ON

(A) 5 —GROUND : CONTINUITY WITH PARKING BRAKE PEDAL DEPRESSED

(A) 3 —GROUND : APPROX. 12 VOLTS WITH STOP LIGHT SW ON

### **P3 PARKING BRAKE SW**

1-GROUND: CLOSED WITH PARKING BRAKE PEDAL DEPRESSED

## S15 STOP LIGHT SW

1-3: CLOSED WITH BRAKE PEDAL DEPRESSED

# : PARTS LOCATION

CODE		SEE PAGE	CC	DE	SEE PAGE	CODE	SEE PAGE	
A 1	Α	24	A16	В	26	F13	24	
A 2	В	24	A17	Α	26	J 2	27	
A 3	С	24	Α	32	28	P 3	27	
A 4	Α	24	А	33	28	S15	27	
A 5	В	24	С	3	24	T 8	27	
Α	6	24	C12	Α	26			
A 7		24	C13	В	26			

### : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	18	COWL WIRE AND J/B NO.1 (LEFT SIDE OF STEERING COLUMN TUBE)
1B	18	INSTRUMENT PANEL WIRE AND J/B NO.1 (LEFT SIDE OF STEERING COLUMN TUBE)
1G	18	COWL WIRE AND J/B NO.1 (LEFT SIDE OF STEERING COLUMN TUBE)
4A	23	COWL WIRE AND J/B NO.4 (BEHIND THE COMBINATION METER)

# : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)			
IH2	34	INSTRUMENT PANEL WIRE AND COWL WIRE (BEHIND GLOVE BOX)			
IL1	- 36	ENCINE WIRE AND COMI, WIRE (LINDER THE CLOVE DOV)			
IL2		ENGINE WIRE AND COWL WIRE (UNDER THE GLOVE BOX)			
ВМ3	38	COWL WIRE AND FLOOR NO.1 WIRE (RIGHT KICK PANEL)			
BQ1	20	COWL WIRE AND FLOOR NO.2 WIRE (LEFT KICK PANEL)			
BQ3	_ 30				

# : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EC	32	REAR SIDE OF CYLINDER HEAD RH
IF	34	INSTRUMENT PANEL BRACE LH
IH	34	RIGHT KICK PANEL

# : SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	l
E 6	32	ENGINE ROOM MAIN WIRE	I 78	36	COWL WIRE	İ
E 44	32	ENGINE WIRE	I110			
E 81	32	COWL WIRE	I131			
I 6	36	OOVE WIKE	I177	36	ENGINE WIRE	ĺ









