SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	General

Return to Main Menu(s): Mechanical Manual Electrical Manual

SPECIFICATIONS

Master cylinder

Type	Tandem
I.D.	22.22 mm (1.875 in.)
Fluid level warning sensor	Provided

Brake booster

	RHD	**LHD**
Type	Vacuum	|
Effective dia.	240.4 mm (9.464 in.)	190 (7.480)+215 (8.465) mm (in.)
Boosting ratio (at stroke 10 mm)	4.5 : 1	6.0 : 1

Proportioning valve

Cut-in pressure (Split point)	3.92 MPa (40 kg/cm2, 569 psi)
Decompression ratio	3.7 : 1

Front brake

Type	Floating type with ventilated disc
Disc O.D.	257 mm (10.118 in.)
Disc thickness	22 mm (0.866 in.)
Pad thickness	9 mm (0.354 in.)
Cylinder I.D.	54 mm (2.126 in.)

Rear drum brake

Type	Leading-trailing drum
Drum I.D.	203.2 mm (8.0 in.)
Brake lining thickness	4.05 mm (0.159 in.)
Cylinder I.D	19.05 mm (0.75in.)
Clearance adjustment	Automatic

Rear disc brake

Type	Ventilated disc
Disc O.D	258 mm (10.157 in.)
Disc Thickness	10 mm (0.354 in.)
Pad Thickness	9 mm (0.354 in.)

Parking brake

Type	Mechanical brake acting on rear wheels
Braking type	Lever type (cam shape)
Cable arrangement	V type

ABSCM (ABS Control Module)

Operating voltage range	9.0-16.2V
Power consumption	150 mA or below
Control fuse	10A
Operating temperature range	-40° to +80°C

Service Reminder Indicator

Power consumption	1.2W
Service Reminder Indicator fuse	10A

Modulator

Operating voltage range	9.0-16.2V
Rated voltage	12A
Motor pump fuse	30A
Solenoid fuse	20A
Operating temperature range	-40°C to 120°C

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	General

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TIGHTENING TORQUE

	Nm	Kg.cm	lb.ft
Master cylinder booster mounting nut	8-12	80-120	6-9
Brake booster mounting nut	8-12	80-120	6-9
Brake booster vacuum hose fitting to surge tank	8-12	80-120	6-9
Bleeder screw	7-13	70-130	5-9.5
Brake tube flare nut, brake hose	13-17	130-170	9-12
Proportioning valve mounting nut	8-12	80-120	6-9
Caliper guide rod bolt	22-32	220-320	16-24
Caliper pin bolt	35-45	350-450	26-33
Caliper assembly to knuckle	69-85	690-850	44-63
Brake hose to front caliper	25-30	250-300	18-22
Backing plate mounting bolt	50-60	500-600	37-44
Sensor mounting bolt on the brake plate (Front)	7-11	70-110	5-8
Sensor mounting bolt on the brake plate (Rear)	17-26	170-260	12-19
Hydraulic unit mounting bolt	17-26	170-260	12-19
Hydraulic unit mounting bracket bolt	17-26	170-260	12-19
Six brake tubes on the Hydraulic unit	13-17	130-170	9-12

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
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TROUBLESHOOTING

Symptom	Probable cause	Remedy
Noise or vibration when brakes are applied	Backing plate or caliper improperly mounted	Correct
	Loose backing plate or caliper mounting bolts	Retighten
	Unevenly worn or cracked brake drum or brake disc	Replace
	Foreign material in brake drum	Clean
	Seized pad or lining contact surface	Replace
	Excessive caliper to pad assembly clearance	Correct
	Uneven pad contact	Correct
	Lack of lubrication in sliding parts	Lubricate
	Loose suspension parts	Retighten
Vehicle pulls to one side when brakes are applied	Difference in left and right tire inflation pressure	Adjust
	Improper front wheel alignment	Adjust
	Inadequate contact of pad or lining	Correct
	Grease or oil on pad or lining surface	Replace
	Drum eccentricity or uneven wear	Replace
	Incorrect wheel cylinder installation	Correct
	Auto adjuster malfunction	Correct
Insufficient braking power	Low or contaminated brake fluid	Replenish or change
	Air in brake system	Bleed the system
	Brake booster malfunction	Correct
	Inadequate contact of pad or lining	Correct
	Grease or oil on pad surface	Replace
	Auto adjuster malfunction	Correct
	Overheated brake rotor due to dragging of pad or lining	Correct
	Restricted brake line	Correct
	Proportioning valve malfunction	Replace
Increased pedal stroke (Reduced pedal to floorboard clearance)	Air in brake system	Bleed the system
	Brake fluid leaks	Correct

	Auto adjuster malfunction	Correct
	Excessive push rod to master cylinder clearance	Adjust
Brake drag	Incomplete release of parking brake	Correct
	Incorrect parking brake adjustment	Adjust
	Weak brake pedal return spring	Replace
	Restricted master cylinder return pod	Correct
	Broken rear drum brake shoe return spring	Replace
	Lack of lubrication in sliding pads	Lubricate
	Defective master cylinder check valve or piston return spring	Replace
	Insufficient push rod to master cylinder clearance	Replace
Insufficient parking brake function	Worn brake lining	Replace
	Grease or oil on lining surface	Replace
	Parking brake cable sticking	Replace
	Auto adjuster malfunction	Correct
	Excessive parking brake lever stroke	Adjust the parking brake lever stroke or check the parking brake cable routing

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
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Brake Systems	General

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SERVICE STANDARD

Standard value

Brake pedal height	190.1 mm (7.485 in.)
Stop lamp switch outer case to pedal stopper clearance	0.5-1.0 rnm (0.020-0.040 in.)
Brake pedal free play	3-8 mm (0.118-0.315 in.)
Brake pedal to floorboard clearance	65 mm (2.56 in.) or more
Booster push rod to master cylinder piston clearance	0 (at 500 mmHg vacuum)
Parking brake lever stroke when lever assembly is pulled with 196N (20kg, 441b force)	7-8 clicks

Service limit

Front disc brake pad thickness	2.0 mm (0.079 in.)
Front disc thickness (minimum)	20 mm (0.787 in.)
Front disc runout	0.04 mm (0.002 in.).
Drum brake lining thickness	1.5 mm (0.031 in.)
Brake drum I.D. (maximum)	205.2 mm (8.079 in.)
Wheel cylinder to piston clearance	0.15 mm (0.006 in.)

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	General

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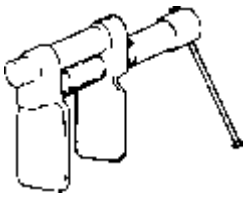
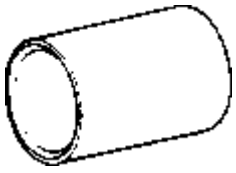
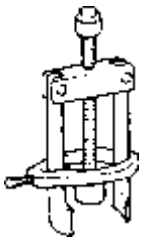
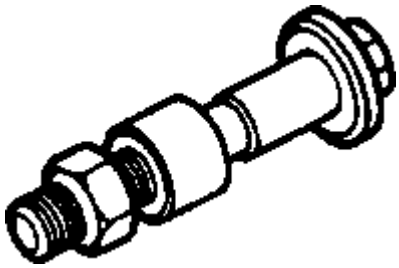
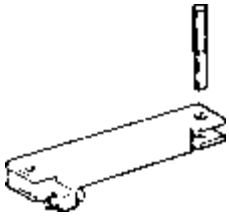
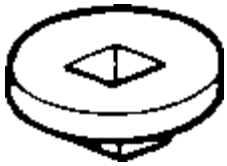
SPECIAL TOOLS

Tool (Number and Name)	Illustration	Use
09581 - 11000 Piston expander		Pushing back of the front disc brake piston
09580-34000 Rear brake piston adjuster		Removal and installation of the rear brake piston
09500-21000 Bar		Removal of front wheel bearing
09517-21000 Hub bearing remover		Removal of front wheel bearing (Use with 09500-21000)
09216-21300 Hub bearing installer		Installation of front wheel bearing
09495-33000 Puller		Removal of the front wheel bearing inner race

09517-21500 Front hub remover and installer		Removal & installation of front hub (Use with 09517-29000)
09517-29000 Knuckle arm bridge		Removal of the front hub (Use with 0951 7-21500)
09532-11600 Pre-load socket		Measuring of front wheel bearing preload (Use with 0917-21500, 30 m socket and torque wrench)
09526-11001 Axle shaft puller		Removal of the drive shaft front hub
09568-34000 Ball joint remover		Removal of the front lower arm ball joint and tie rod end ball joint

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

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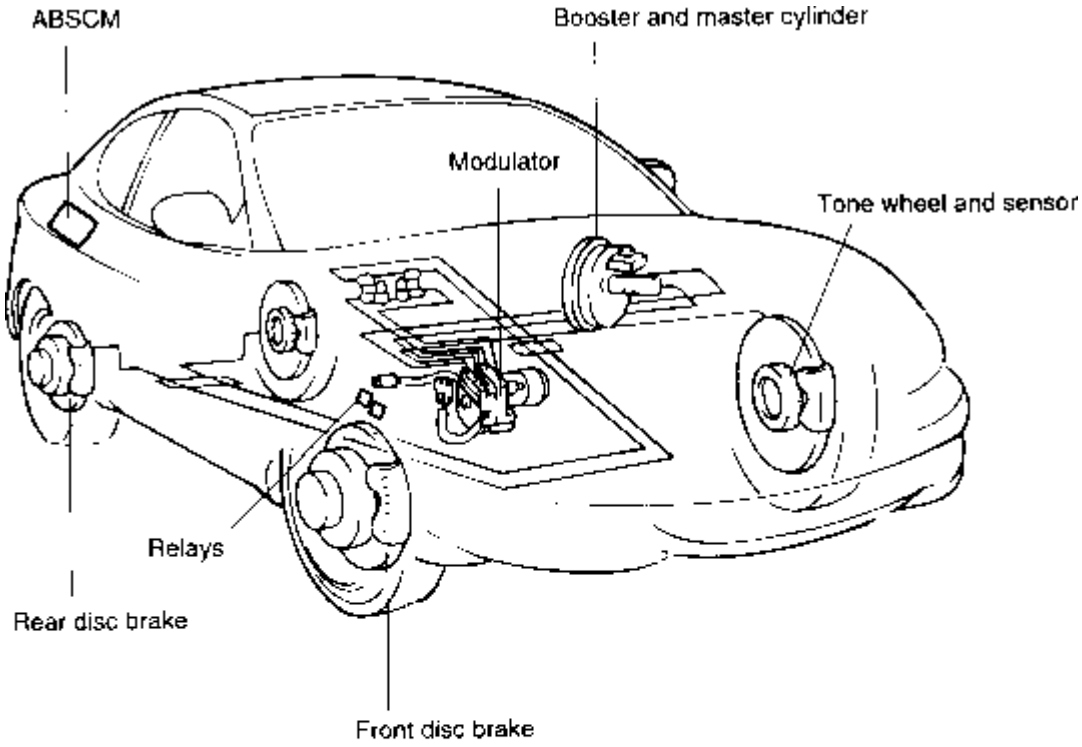
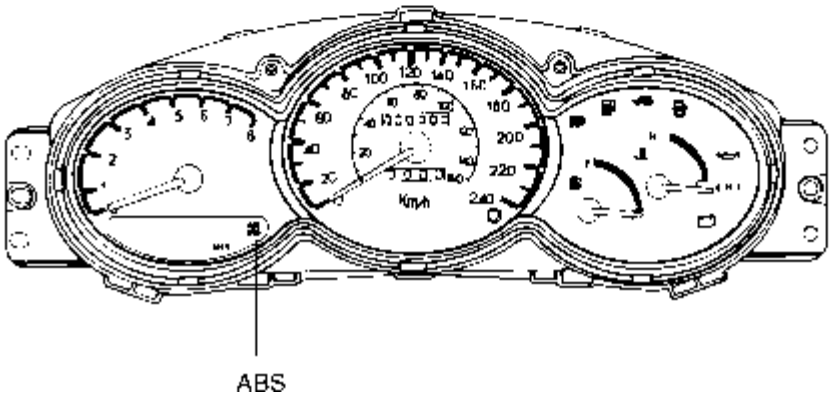
COMPONENTS





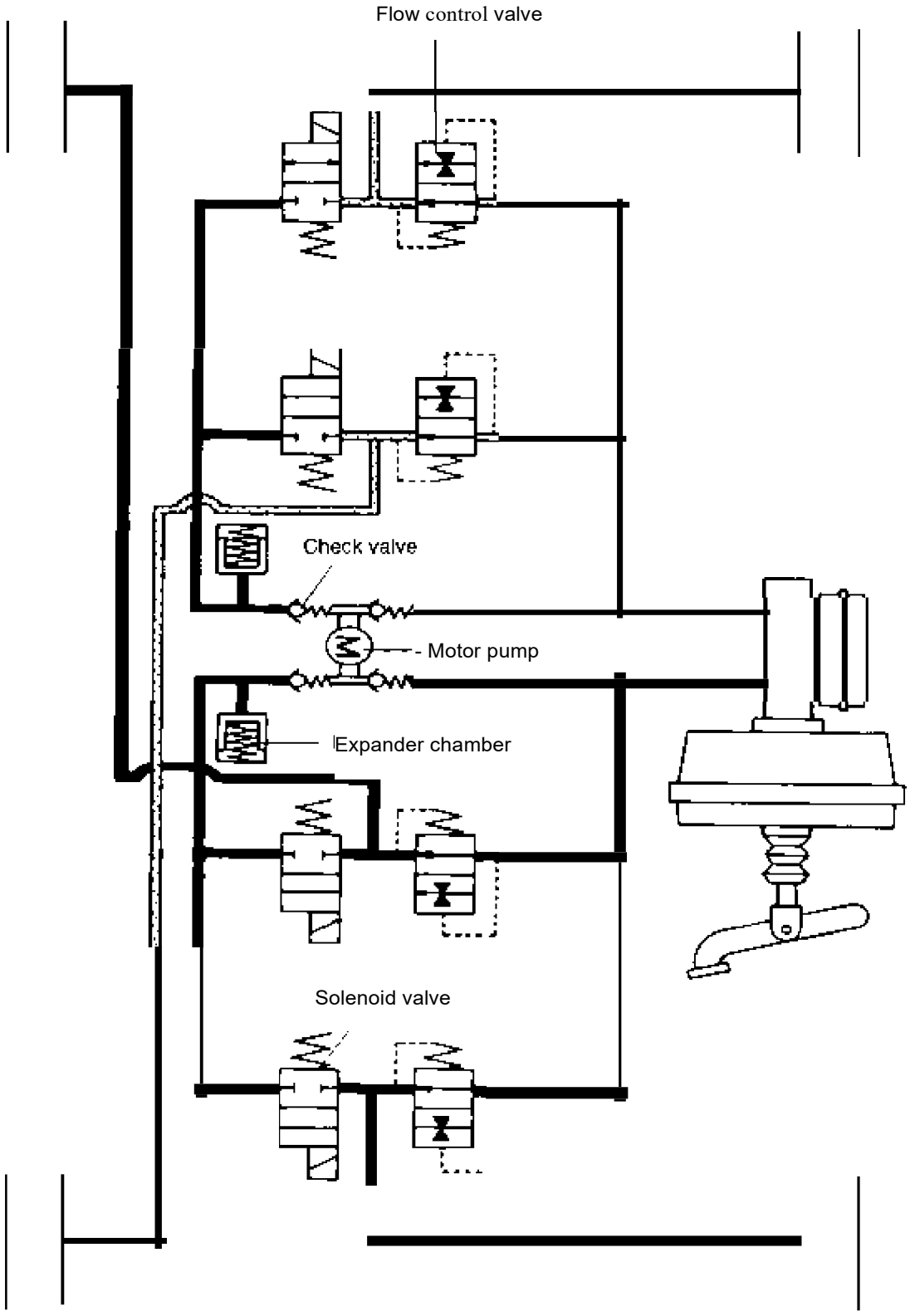
The Anti-Lock Brake System (ABS) controls the hydraulic brake pressure of all four wheels during sudden braking and braking on hazardous road surfaces, preventing the wheels from locking. The ABS provides the following benefits:

It enables steering around obstacles with a greater degree of certainty, even during panic braking.

It enables stopping during panic braking while allowing stability and steerability to a minimum, even on curves.

In case a malfunction occurs, a diagnosis function and fail-safe system have been included for serviceability.

HYDRAULIC SYSTEM DIAGRAM


Flow control valve
Check valve
- Motor pump
Expander chamber
Solenoid valve

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

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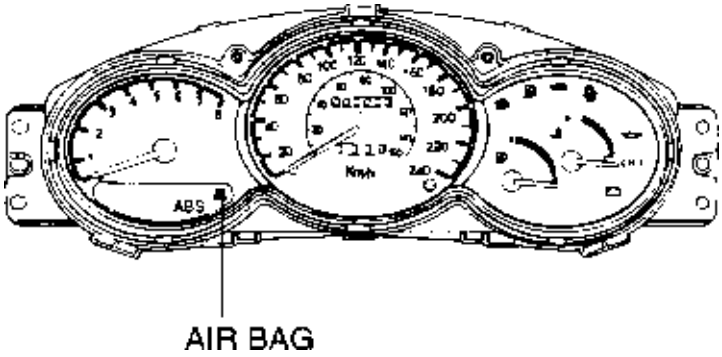
SYSTEM DIAGNOSIS

INDICATOR CHECK

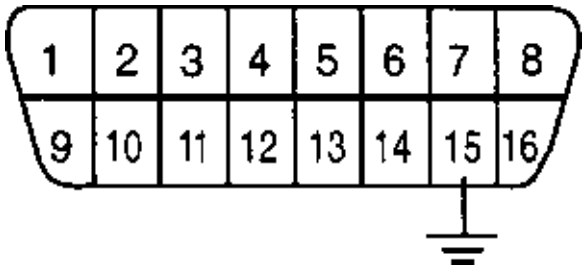
When the ignition switch is turned on, check that the ABS SRI goes ON for 6 seconds.

If the SRI is not illuminated immediately after ignition on, the ABS fail safe relay may be at fault.



SRI CODE CHECK

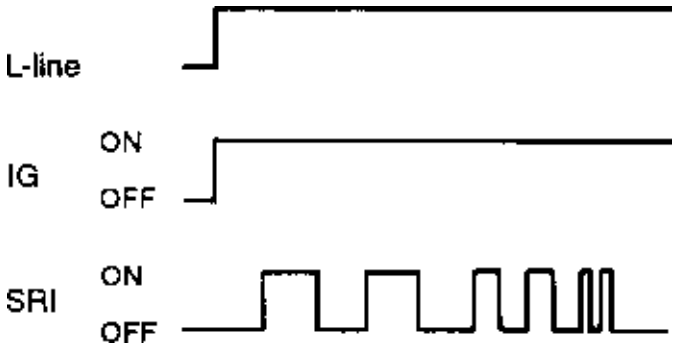
With the ignition switch turned ON and "L" terminal of data link connector shorted to ground, diagnostic trouble code No. can be checked, if faults are detected, with reading of SRI lamp flash.



Ground the "L" terminal (Pin No. 15) of data link connector with extension wire, otherwise fault code cannot be accessed.

Turn the ignition switch ON.

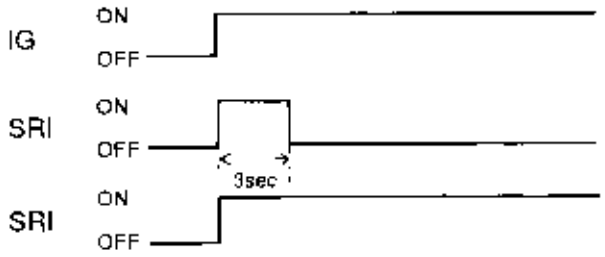
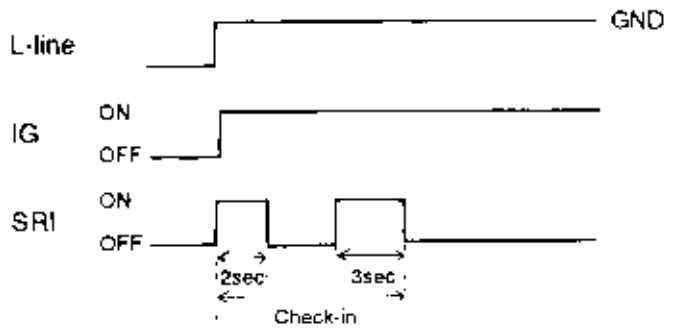
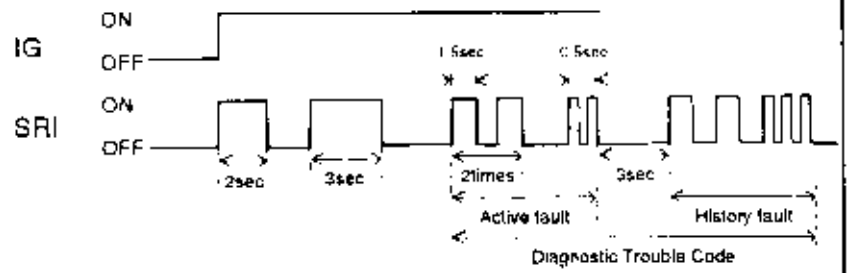
SRI lamp will illuminates for 2 seconds and followed by 3 seconds illumination meaning "Check-in" signal then read the following "Diagnostic trouble code".



The first digit of Diagnostic trouble code is determined by the number of long flashes (1.5 sec.) and after the following 2 seconds break, the second digit is determined by the number of short flashes (0.5 sec.).

Once the SRI lamp flashing is completed, next active trouble code or history trouble code stored at ABSCM will be followed after 3 sec. break while the "L" terminal is grounded or the ignition switch is ON.

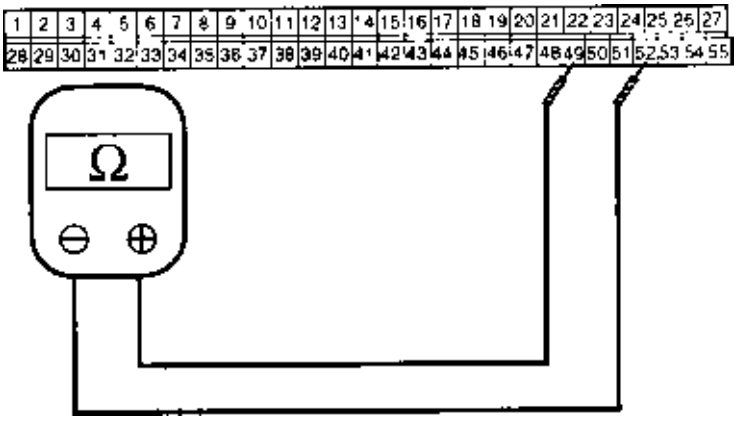
Diagnostic Trouble code will be retained in the ABSCM until the ignition has been switched ON and the vehicle speed exceeded 8km/h 20 times.

	SRI lamp flash pattern	Remarks
L-line ground OFF		o System normal or fault code is stored at ABSCM o ABSCM has active fault
L-line (Pin No. 15) Grounded		o System Normal
		o Active fault No.22 flashes after check-in period and followed by history fault code No.23

CONNECTOR CHECK

Remove the battery negative (-) terminal.

Disconnect the connectors and check the terminals follow the troubleshooting procedure.

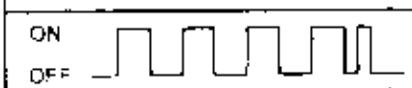


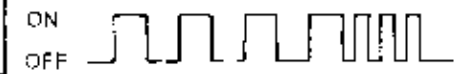
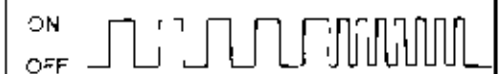
NOTE

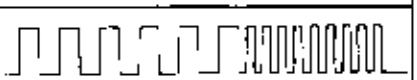
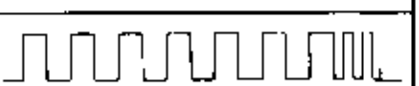
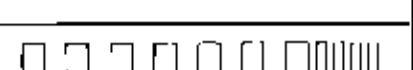
When you check terminals, be sure to use enough small pin which is not damage t the connector terminals.

DIAGNOSTIC TROUBLE CODE CHART

Diagnostic trouble code No.	DISPLAY ON SCAN TOOL SRI lamp flash pattern	Diagnosis item	Check Item
19	DEFECTIVE TONE WHEEL ON / OFF 	CHECK THE TONE WHEELS	Check for a defective tone wheel on a wheel.
21	LF SOLENOID CIRCUIT - SHORT BATT ON / OFF 	LEFT FRONT SOLENOID	Detection for short circuit to +12 Volt for the left front solenoid.
22	LF SOLENOID CIRCUIT - SHORT GND ON / OFF 	LEFT FRONT SOLENOID	Detection for open circuit or short circuit to GND for the left front solenoid.
23	RF SOLENOID CIRCUIT - SHORT BATT ON / OFF 	RIGHT FRONT SOLENOID	Detection for short circuit to +12 Volt for the right front solenoid.
24	RF SOLENOID CIRCUIT - SHORT GND ON / OFF 	RIGHT FRONT SOLENOID	Detection for open circuit or short circuit to GND for the right front solenoid.
25	LR SOLENOID CIRCUIT - SHORT BATT ON / OFF 	LEFT REAR SOLENOID	Detection for short circuit to +12 Volt for the left rear solenoid.
26	LR SOLENOID CIRCUIT - SHORT GND ON / OFF 	LEFT REAR SOLENOID	Detection for open circuit or short circuit to GND for the left rear solenoid.
27	RR SOLENOID CIRCUIT - SHORT BATT ON / OFF 	RIGHT REAR SOLENOID	Detection for short circuit to +12 Volt for the right rear solenoid.
28	RR SOLENOID CIRCUIT - SHORT GND ON / OFF 	RIGHT REAR SOLENOID	Detection for open circuit or short circuit to GND for the right rear solenoid.

Diagnostic trouble code No.	DISPLAY ON SCAN TOOL SRI lamp flash pattern	Diagnosis item	Check Item
31	LF WHEEL SPEED SENSOR AIR GAP 	LEFT FRONT SENSOR	Detection for the air gap of the tone wheel. This detection will be activated if all wheel speeds are zero and the ABS-function is not active.
32	RF WHEEL SPEED SENSOR AIR GAP 	RIGHT FRONT SENSOR	Detection for the air gap of the tone wheel. This detection will be activated if all wheel speeds are zero and the ABS-function is not active.
33	LR WHEEL SPEED SENSOR AIR GAP 	LEFT REAR SENSOR	Detection for the air gap of the tone wheel. This detection will be activated if all wheel speeds are zero and the ABS-function is not active.
34	RR WHEEL SPEED SENSOR AIR GAP 	RIGHT REAR SENSOR	Detection for the air gap of the tone wheel This detection will be activated if all wheel speeds are zero and the ABS-function is not active.
35	MOTOR PUMP 	MOTOR PUMP	Check for faulty or seized up of motor pump.
36	MOTOR PUMP RELAY - SHORT GND 	MOTOR RELAY CIRCUIT	Detection for a open circuit or a short circuit to GND from the motor pump relay.
37	MOTOR PUMP RELAY - SHORT BATT 	MOTOR RELAY CIRCUIT	Detection for a short circuit to +12 Volt from the motor pump relay.
38	MOTOR PUMP CIRCUIT - SHORT BATT 	PUMP MOTOR	Detection for a short circuit at the motor pump
39	MOTOR PUMP CIRCUIT - SHORT GND 	PUMP MOTOR	Detection for a short circuit to GND at the motor pump
41	FAIL SAFE RELAY CIRCUIT - SHORT 	FAIL SAFE RELAY	Fail safe relay contacts are short circuit.

Diagnostic trouble code No.	DISPLAY ON SCAN TOOL SRI lamp flash pattern	Diagnosis item	Check Item
42	FAIL SAFE RELAY CIRCUIT - OPEN ON / OFF 	FAIL SAFE RELAY	Fail safe relay contacts are open circuit
43	FAIL SAFE RELAY COIL ON / OFF 	FAIL SAFE RELAY COIL	The current from the fail safe relay is too high or too low
44	ABS SRI CIRCUIT - SHORT GND ON / OFF 	SERVICE REMINDER INDICATOR	Detection of a short circuit of the Service Reminder Indicator (Permanently on)
45	ABS SRI DIODE - OPEN ON / OFF 	SERVICE REMINDER INDICATOR DIODE	Detection for a open circuit of the diode for the Service Reminder Indicator ABS.
54	ABS SRI CIRCUIT - SHORT BATT ON / OFF 	SERVICE REMINDER INDICATOR	Detection for a short circuit to +12V of the Service Reminder Indicator
55	ABS SRI CIRCUIT - OPEN ON / OFF 	SERVICE REMINDER INDICATOR	Detection for a open circuit of the Service Reminder Indicator ABS.
56	BATTERY VOLTAGE - LOW ON / OFF 	BATTERY VOLTAGE	Battery voltage out of the function range (Under voltage) for the system.
57	BATTERY VOLTAGE - HIGH ON / OFF 	BATTERY VOLTAGE	Battery voltage out of the function range (Over voltage) for the system.
62	LF WHEEL SENSOR - CIRCUIT OPEN ON / OFF 	LEFT FRONT SENSOR CIRCUIT	Sensor open circuit or short to 12 Volt detection for the left front wheel
63	RF WHEEL SENSOR - CIRCUIT OPEN ON / OFF 	RIGHT FRONT SENSOR CIRCUIT	Sensor open circuit or short to 12 Volt detection for the right front wheel.

Diagnostic trouble code No.	DISPLAY ON SCAN TOOL SRI lamp flash pattern	Diagnosis item	Check item
64	LR WHEEL SENSOR - CIRCUIT OPEN ON / OFF 	LEFT REAR SENSOR CIRCUIT	Sensor open circuit or short to 12 Volt detection for the left rear wheel.
65	RR WHEEL SENSOR - CIRCUIT OPEN ON / OFF 	RIGHT REAR SENSOR CIRCUIT	Sensor open circuit or short to 12 Volt detection for the right rear wheel.
66	LF WHEEL SENSOR - SHORT GND ON / OFF 	LEFT FRONT SENSOR CIRCUIT	Sensor short to GND detection for the left front wheel
67	RF WHEEL SENSOR - SHORT GND ON / OFF 	RIGHT FRONT SENSOR CIRCUIT	Sensor short to GND detection for the right front wheel.
68	LR WHEEL SENSOR - SHORT GND ON / OFF 	LEFT REAR SENSOR CIRCUIT	Sensor short to GND detection for the left rear wheel.
69	RR WHEEL SENSOR - SHORT GND ON / OFF 	RIGHT REAR SENSOR CIRCUIT	Sensor short to GND detection for the right rear wheel.
71	LF TONE WHEEL TOOTH MISSING ON / OFF 	LEFT FRONT TONE WHEEL	Detection for missing teeth on the tone wheel or speed jumps over-100g on the left front wheel.
72	RF TONE WHEEL TOOTH MISSING ON / OFF 	RIGHT FRONT TONE WHEEL	Detection for missing teeth on the tone wheel or speed jumps over-100g on the right front wheel.
73	LR TONE WHEEL TOOTH MISSING ON / OFF 	LEFT REAR TONE WHEEL	Detection for missing teeth on the tone wheel or speed jumps over-100g on the left rear wheel.
74	RR TONE WHEEL TOOTH MISSING ON / OFF 	RIGHT REAR TONE WHEEL	Detection for missing teeth on the tone wheel or speed jumps over -100g on the right rear wheel.

Diagnostic trouble code No.	DISPLAY ON SCAN TOOL SRI lamp flash pattern	Diagnosis item	Check item
77	ABS CONTROL MODULE ON OFF 	ABSCM ERROR	Check for ABSCM (ABS Control module) error.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

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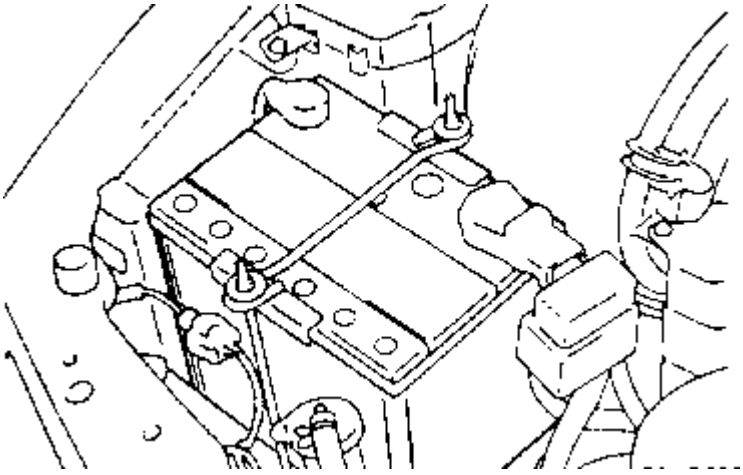
DTC - 56, 57

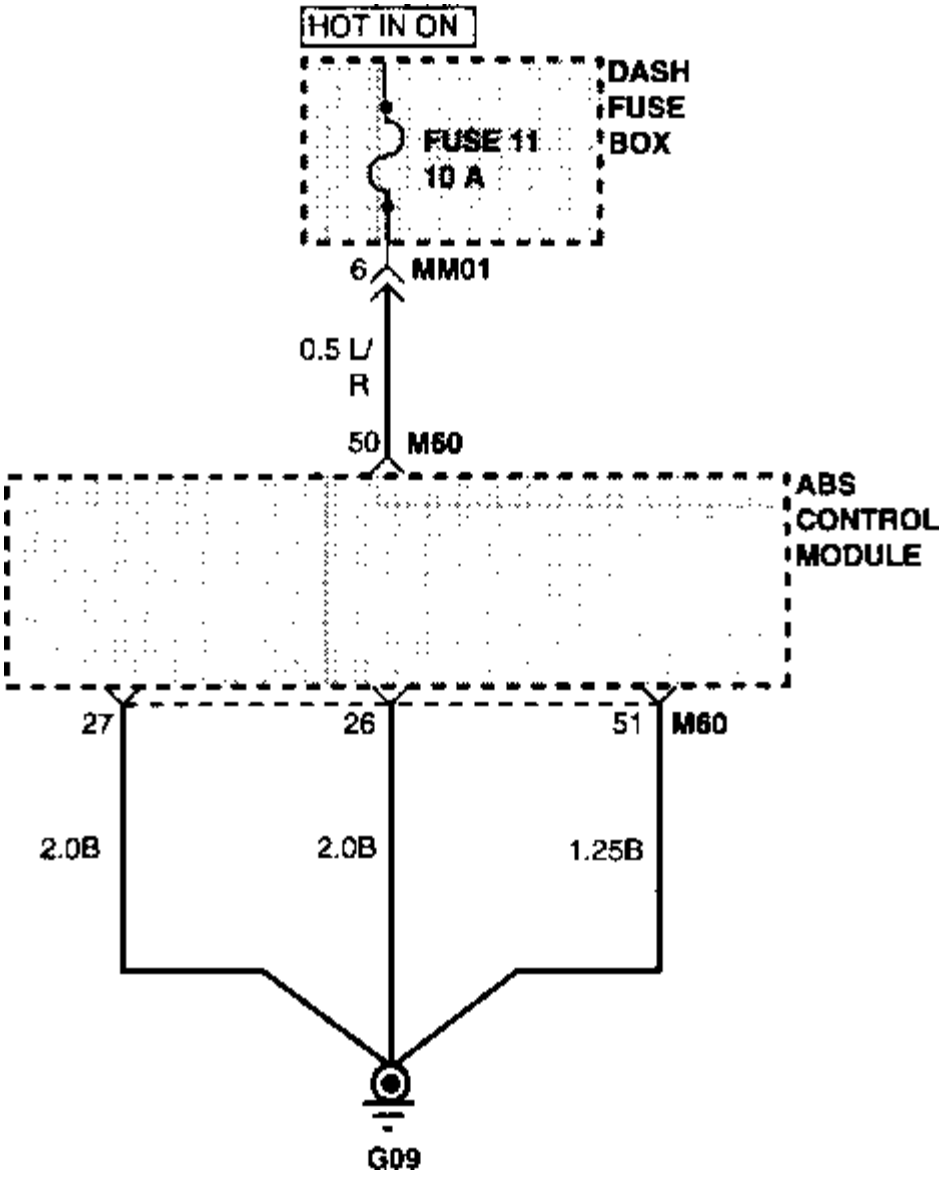
POWER SOURCE VOLTAGE

Detection of battery out of the function range for the system.



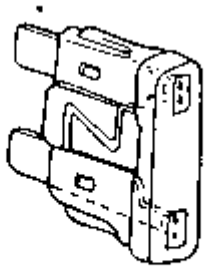
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible cause
56	BATTERY VOLTAGE - LOW	ABSCM power supply voltage is 8.9V or below	• Battery • Charging circuit • Harness connector between battery and ABSCM, ABSCM and body ground
57	BATTERY VOLTAGE - HIGH	ABSCM power supply voltage is 16.2V or higher	

WIRING DIAGRAM

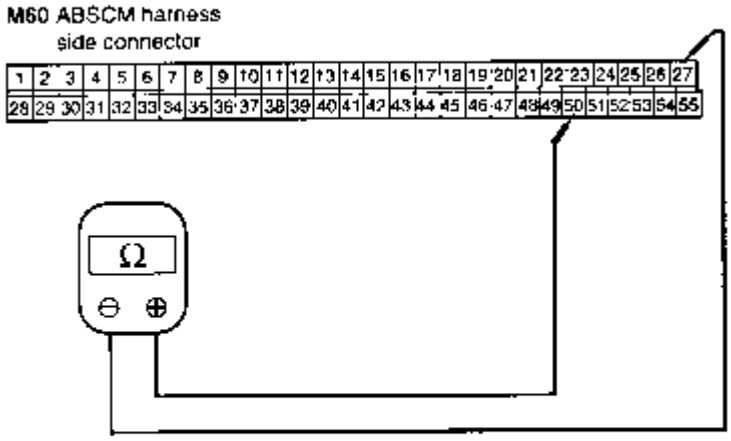


INSPECTION PROCEDURE

Check the ABSCM fuse.

	1. Remove the FUSE 11 and Inspect in the DASH FUSE BOX. LIMIT Continuity
OK→ 2	NG→ Replace Fuse 11 then recheck.

Check voltage between Battery (+) and GND of ABSCM connector.



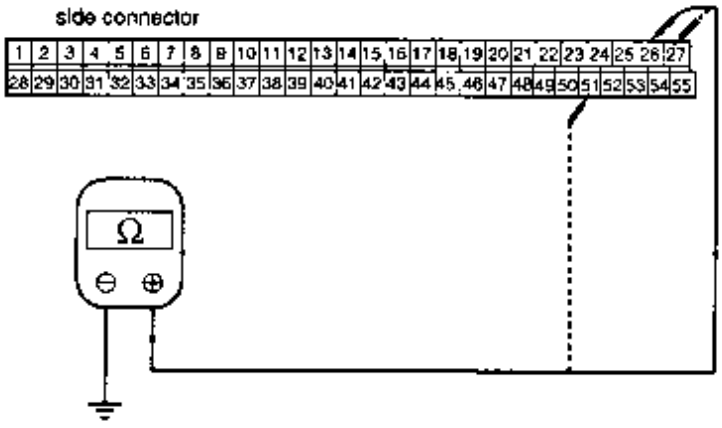
1. Remove battery negative(-) terminal.
2. Remove the ABSCM and disconnect the connector.
3. Connect battery negative(-) terminal.
4. Turn ignition switch to ON position.
5. Measure the supply voltage between terminals 50 and 27.

LIMIT 9.5V ~ 14.2V

OK→ Connect the ABSCM and re-check the diagnostic code. If code 56, 57 displayed, check for the ABSCM poor connection.

NG→ 3

Check continuity between the ABSCM connector GND and Body GND.



1. Turn the ignition switch to the LOCK position.
2. Disconnect ABSCM connector.
3. Measure the ground connection between terminal 27 and body ground, terminal 26 and body ground, terminals 51 and body ground.

LIMIT 0.5 Ω or below

OK→ Check for an open between the harness and the connector between the ABSCM and the battery

NG→
1. Check ground connection for corrosion and loosing
2. Repair harness or connector.

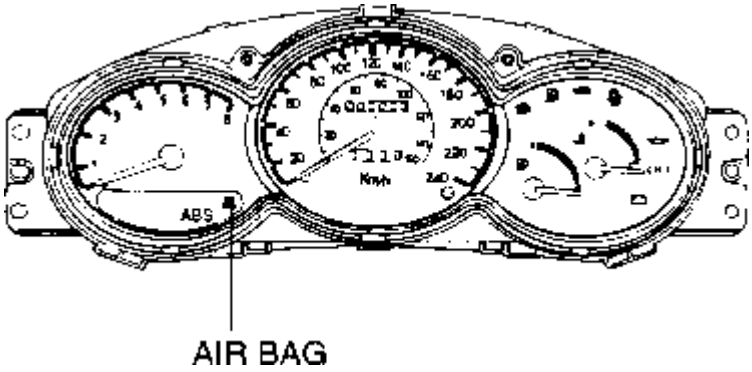
SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

ABS SRI (SERVICE REMINDER INDICATOR) CIRCUIT

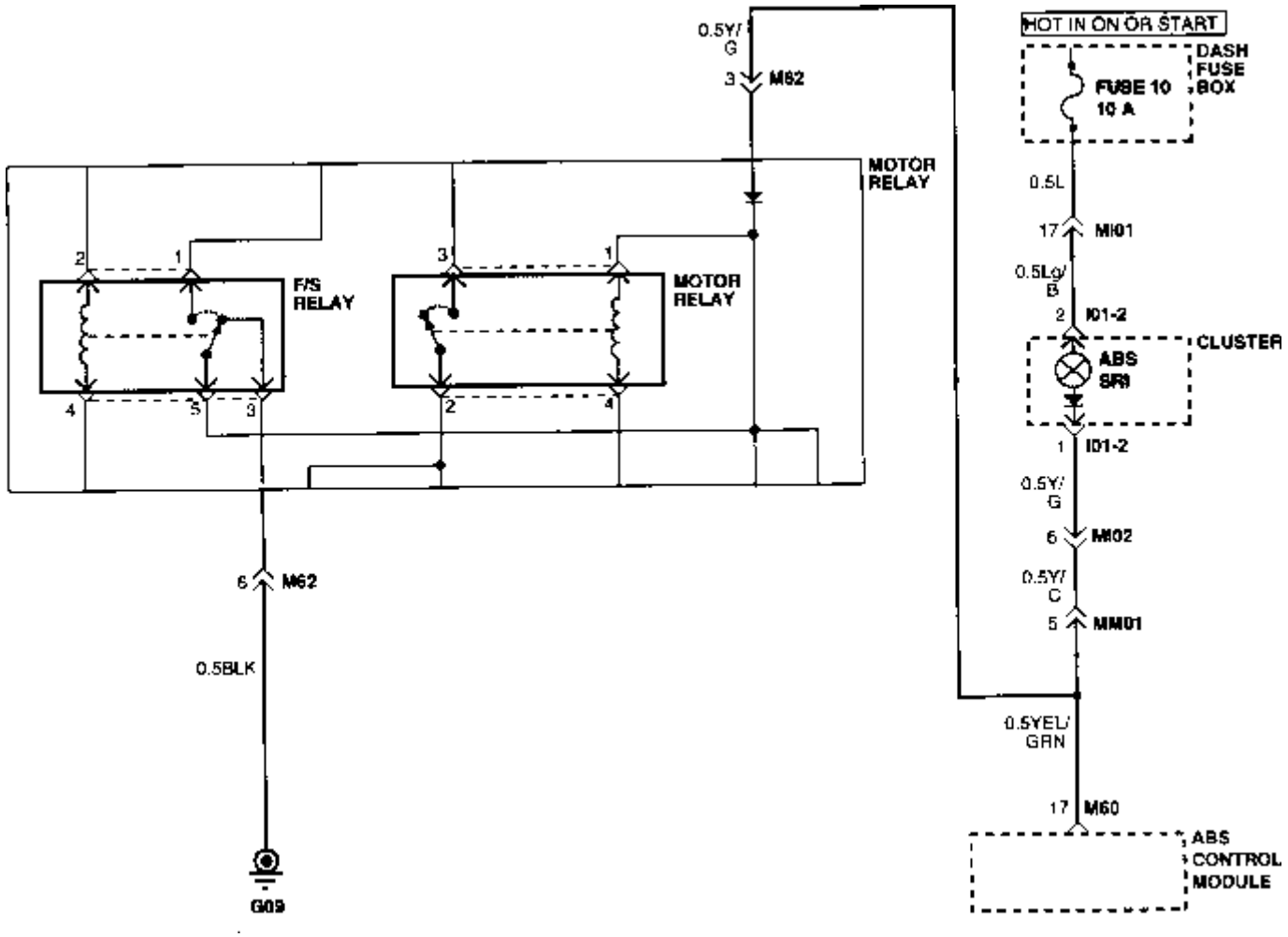
If trouble occurs, the ABSCM lights the ABS-SRI while at the same time terminating ABS operation. At this time, the ABSCM records a diagnostic code in memory.

If the ABSCM detects a fault in the Anti-Lock Brake System, the ABSCM turns the ABS SRI on and disables the ABS. At the same time a trouble code is stored in the ABSCM memory.



DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible Cause
44	ABS SRI CIRCUIT - SHORT GND	Service Reminder Indicator short to ground	• Service Reminder Indicator • Box (Fail safe Relay) • Fuse
45	ABS SRI DIODE - OPEN	Service Reminder Indicator diode not OK	
46	ABS SRI CIRCUIT - SHORT BATT	Service Reminder Indicator short to 12V	
47	ABS SRI CIRCUIT - OPEN	Service Reminder Indicator open circuit	

WIRING DIAGRAM

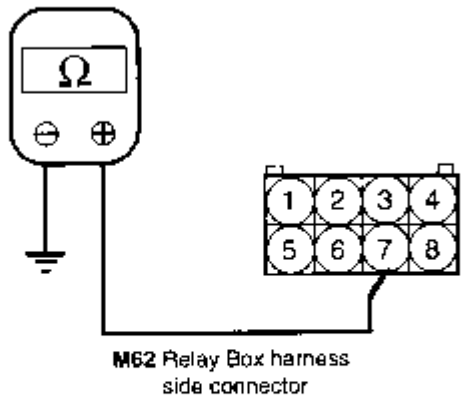


INSPECTION PROCEDURE

Check the ABS Service Reminder Indicator circuit without Relay-Box

ABS LAMP OFF	1. Disconnect the battery negative terminal 2. Disconnect the ABSCM connector 3. Remove the ABS Relay-Box connector, while ignition switch "LOCK". 4. Connect the battery negative (-) terminal 5. Turn ignition switch to ON position 6. Check the SRI condition. LIMIT Lamp OFF
OK→ 3	NG→ Goto step 4

Check the ABS Relay-Box harness



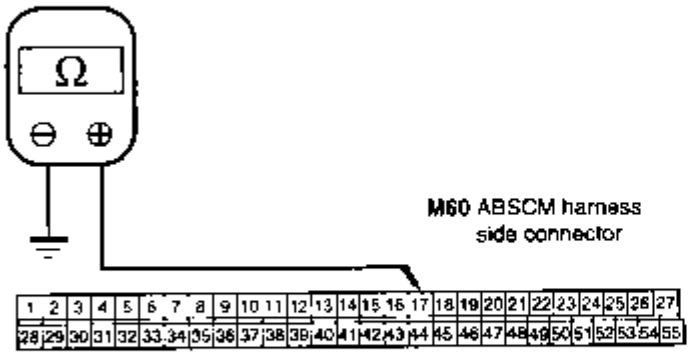
1. Turn ignition switch to "LOCK" position.
2. Disconnect the Relay Box connector.
3. Check the continuity between the Relay-Box harness terminal 7 and body ground.

LIMIT No continuity

OK→ 5

NG→ Repair the harness

Check the ABSCM connector harness



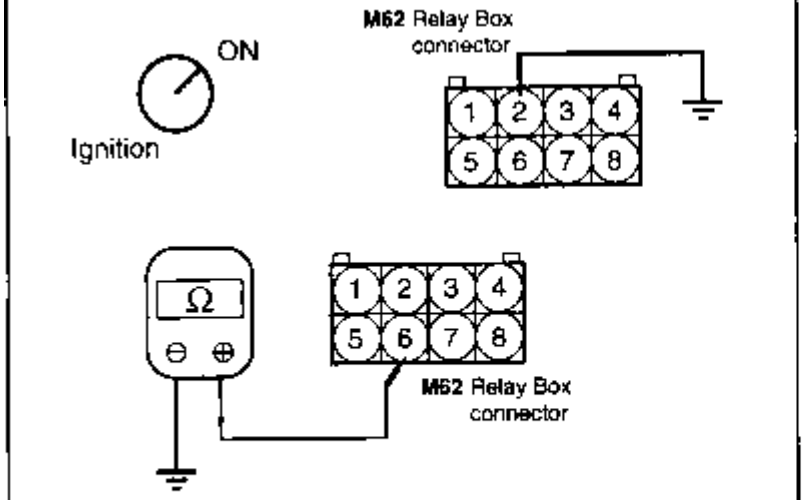
1. Disconnect the battery negative terminal.
2. Disconnect the ABSCM connector.
3. Check the continuity between ABSCM connector harness pin No.17 and body ground.

LIMIT No continuity

OK→ Re-connect the ABSCM and recheck from step 1.

NG→ Repair the harness

Check the ABS SRI Circuit



1. Turn ignition switch to "LOCK" position.
2. Remove the ABS Relay box connector and the ABSCM connector.
3. Ground Relay box terminal 2 and turn the ignition ON.

LIMIT SRI ON

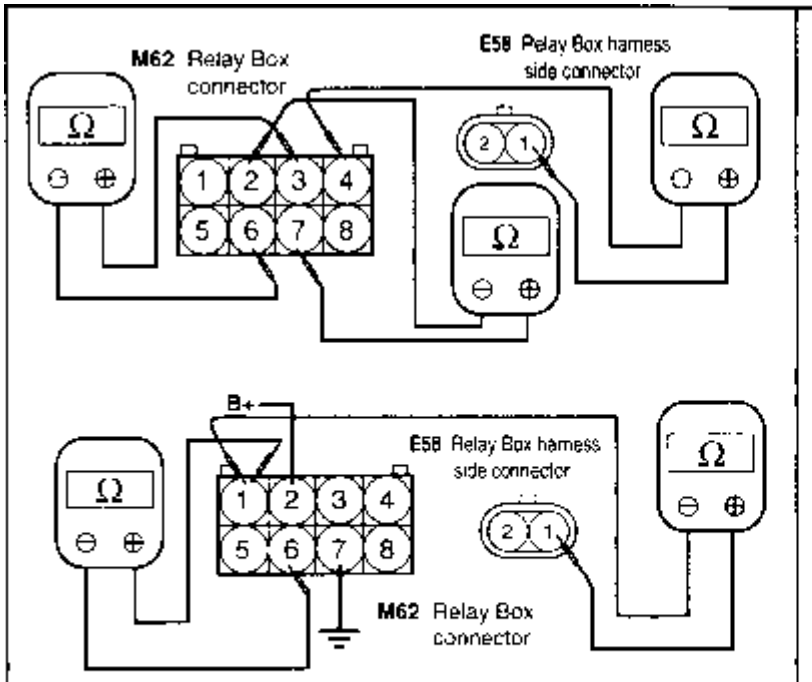
4. Turn ignition switch to "LOCK" position.
5. Check the continuity between terminal 6 and body ground.

LIMIT Continuity

OK→ 7

NG→ Repair the harness

Check the ABS-Relay Box (Fail safe relay)



1. Turn ignition switch to "LOCK" position.
2. Remove the ABS Relay Box connector.
3. Check continuity between each terminal of the Relay box.

LIMIT

Terminals 3, 6	Continuity
Terminals 2, 7	Continuity
Terminals M62-4, E58-1	No continuity

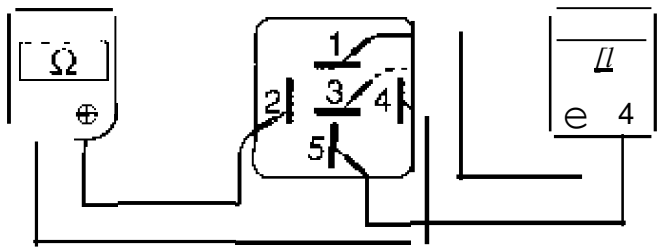
4. Apply battery voltage between terminals 2 and 7.
   Caution
   Never attempt to continue 2 sec. or more
5. Check for continuity.

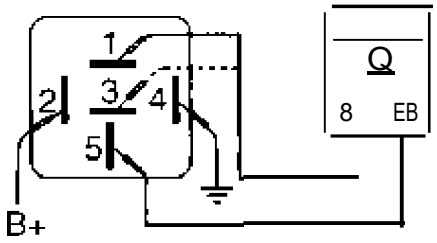
LIMIT

Terminals 6, 1	No continuity
Terminals M62-1, E58-1	Continuity

OK→ Re-connect the ABSCM and recheck from step 1.

Check the Fail safe relay





1. Turn ignition switch to "LOCK" position.
2. Remove the Relay-box cover.
3. Remove the Fail-sate retay.
4. Check cotiriuity beMeen terminals as foUows.

f LfMff f

Terminals 2 and 4	Continuity
Terminals 1 and 5	**No** continuity
Termirials. 3 and 5	Continuity

5. Apply battery voltage between terminal 2 and 4.

Caution

Never attempt to continue 2 sec. or more.

6. Check continuity between 1erminais asfollows.

(i:1 I I

Terminals t and 5	Continuity
Termina,s. 3 and 5	No continuity

QK-+ Re-connect the ABS-Relay arid recheck.

NG Replace the Fail safe relay

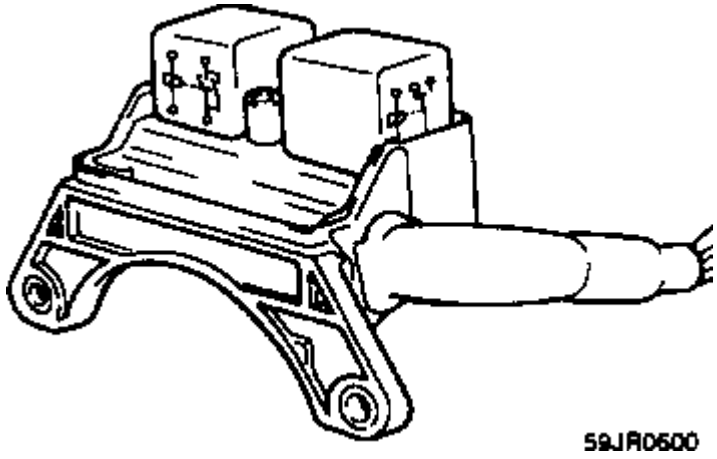
SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

CIRCUIT INSPECTION (ABS RELAY BOX CIRCUIT - FAIL SAFE RELAY)

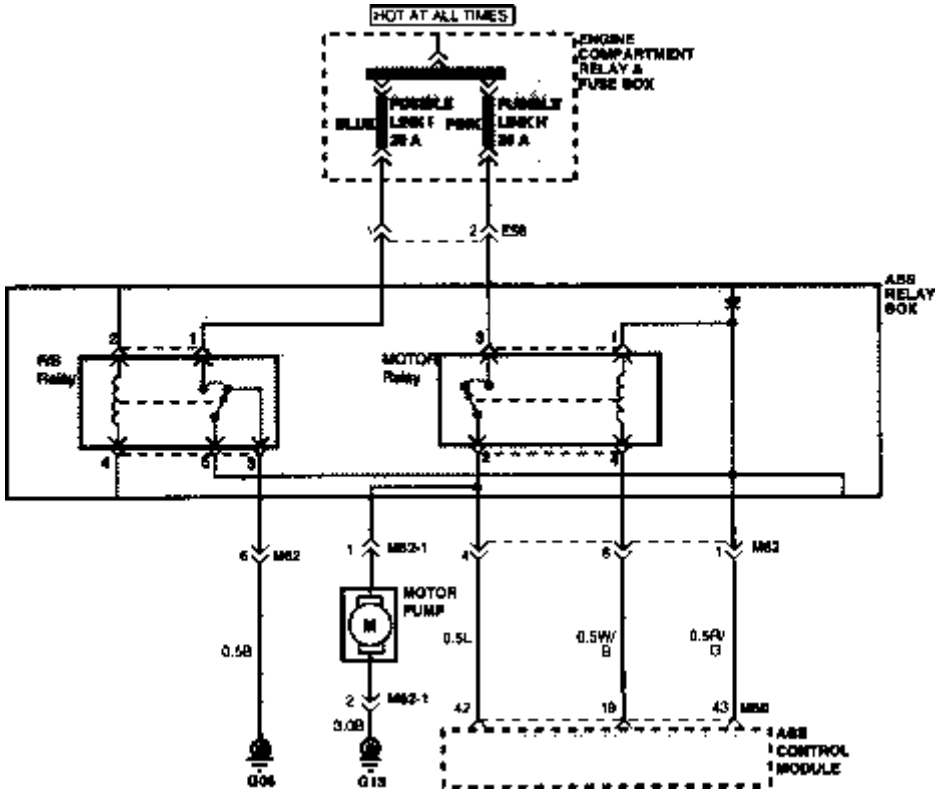
Fail safe relay supplies battery voltage to the modulator. After the ignition switch is turned ON, the relay goes on, if the initial check is good.

If a problem occurs in the ABS system, the ABSCM disables the relay and the ABS is disabled.



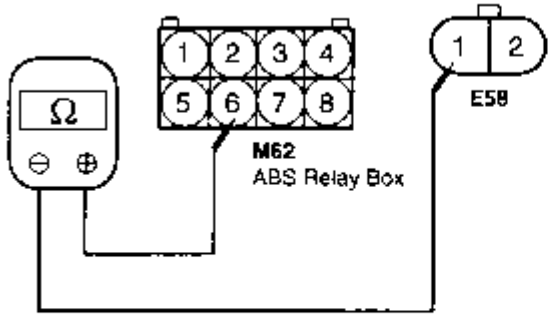
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible Cause
41	FAIL SAFE RELAY CIRCUIT - SHORT	Fail safe relay not set activeContact signal stay close	• Fail safe relay • Harness between Relay box and ABSCM • ABSCM
42	FAIL SAFE RELAY CIRCUIT - OPEN	Fail safe relay set activeContact signal stay not closed	• Fail safe Relay • Harness between Relay box and Power source • Harness between Relay box and ABSCM • ABSCM
43	FAIL SAFE RELAY COIL	Fail safe relay coil not OK	

WIRING DIAGRAM



INSPECTION PROCEDURE

Check ABS power supply



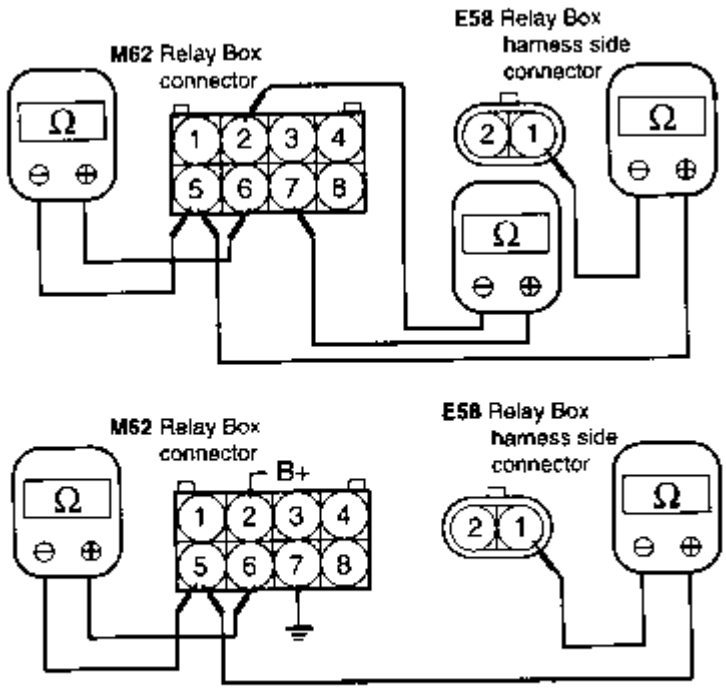
1. Turn ignition switch to "LOCK" position.
2. Disconnect the ABS Relay Box connector.
3. Measure the voltage between terminal M62-6 and E58-1 at harness side connector.

LIMIT Between 9.5-14.2V

OK→ 2

NG→ Repair the harness and connector from Battery Voltage, Relay box and body ground

Check the ABS Relay Box (Fail safe relay)



1. Turn ignition switch to "LOCK" position.
2. Disconnect the ABS Relay Box connector.
3. Check for continuity between as follows.

LIMIT

Terminal 5,6	Continuity
Terminal M62-5, E58-1	No continuity
Terminal 2,7	Continuity

4. Apply battery voltage between terminal 2 and 7.

Caution
Never attempt to continue 2 sec. or more

5. Check for continuity as follows.

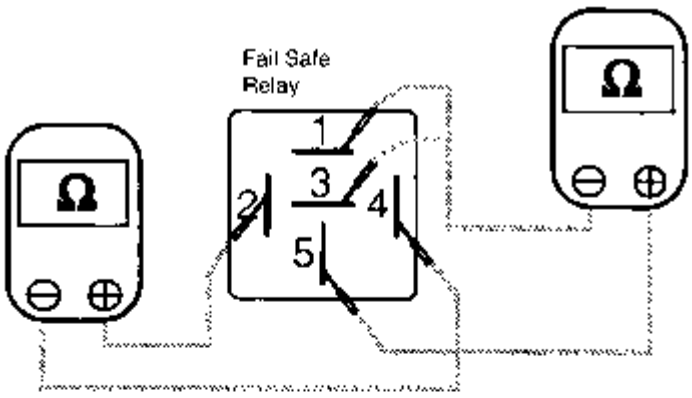
LIMIT

Terminal 5,6	No continuity
Terminal M62-5, E58-1	Continuity

OK→ 4

NG→ 3

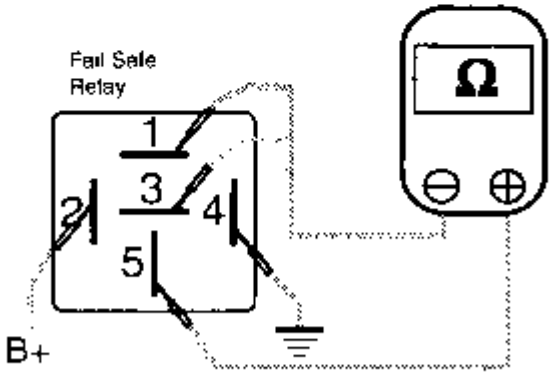
Check the Fail safe relay



1. Turn ignition switch to "LOCK" position.
2. Remove the Relay-box cover.
3. Remove the Fail-safe relay.
4. Check for continuity between terminals as follows.

LIMIT

Terminals 2 and 4	Continuity
Terminals 1 and 5	Noncontinuity
Terminals 3 and 5	Continuity



5. Apply battery voltage between terminals 2 and 4.

Caution
Never attempt to continue 2 sec. or more.

6. Check for continuity between terminals as follows.

LIMIT

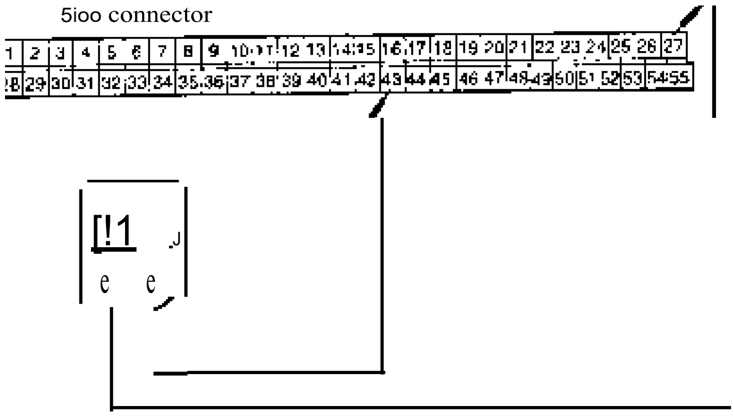
Terminals 1 and 5	Continuity
Terminals 3 and 5	No continuity

OK➔ Re-connect fail-safe relay and recheck from step 1.

NG➔ Replace the Fail safe relay

Check the ABSCM harness

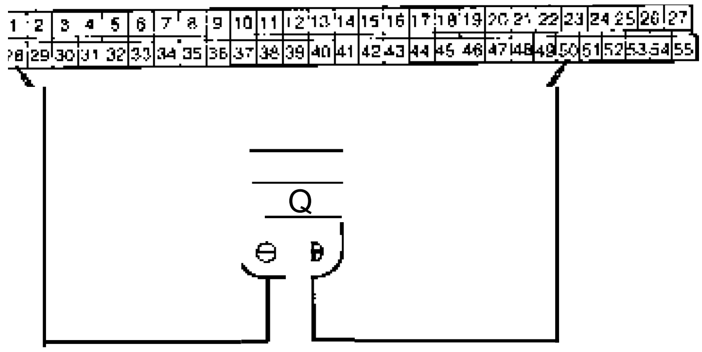
M60 ABSCM harness
5ioo connector



1. Turn ighi!ion switch to ""LOG K" position.
2. Connect the fail safe relay.
3. . Disconnect the ABSCM conn ector .
4, Measure the resistance between terminals 43 and 27.

} UMIf] .0 :LI or below

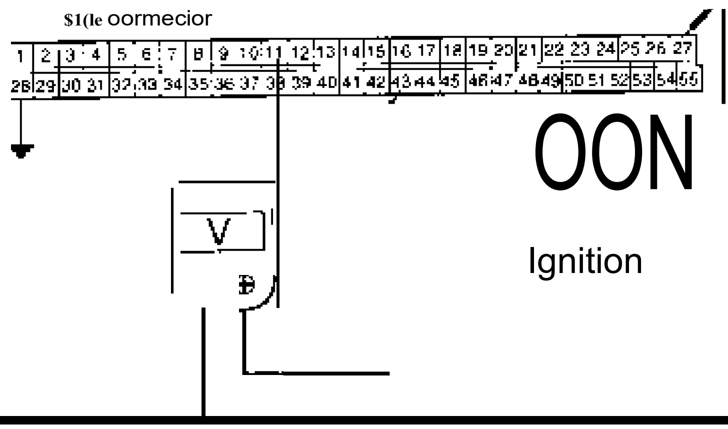
M60 ABSCM hB1rneS$
side conn-e,ctor



5. Measure the resistance between terminals 2B and 50.

LIMIT] 20.2a n

M60ABSGM harness
$1(le oormecior



6. Ground terminal 28.
7. Tum ignition switch !o "ON" position .
   Caution
   Never attempt to continue 2 sec. or rnore.

B. Me.asur the voltage be1ween terminal 43 and 27 .

LIMIT 9.0-14.2 V

OK-+ Re-connect the ABSCM amd recheck from step 1.	**NG** Repair the harness

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

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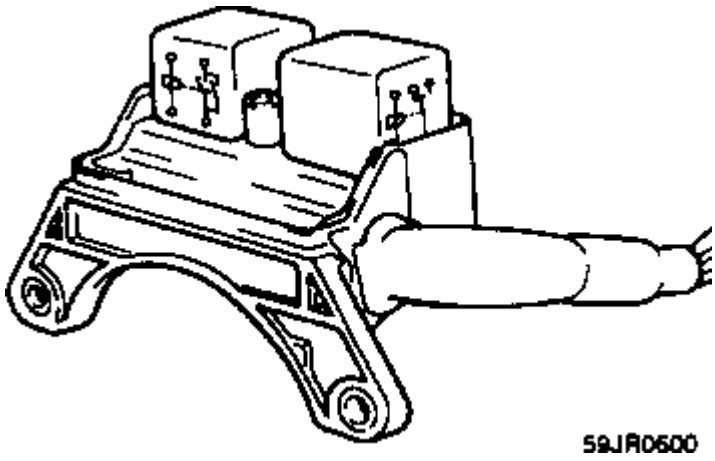
CIRCUIT INSPECTION (ABS RELAY BOX CIRCUIT - MOTOR PUMP RELAY, SHORT B+)

The motor pump relay supplies battery voltage to the motor pump.

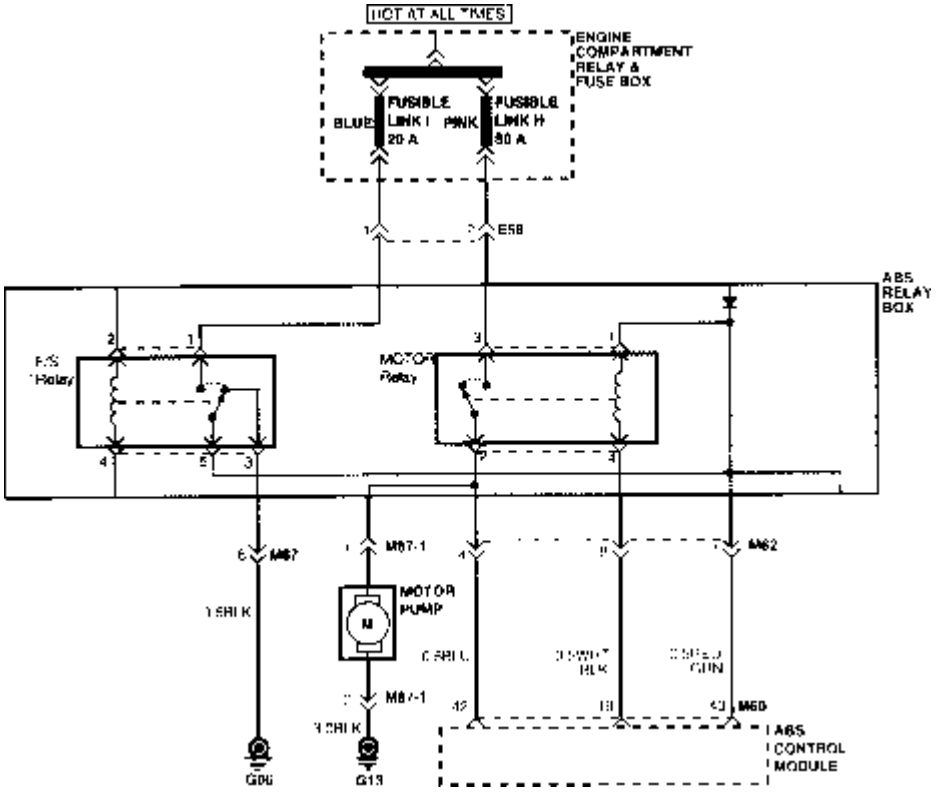
The ABSCM switches the motor relay ON and operates the ABS motor pump.

If a problem occurs in the ABS system, the ABSCM disables the motor pump relay.



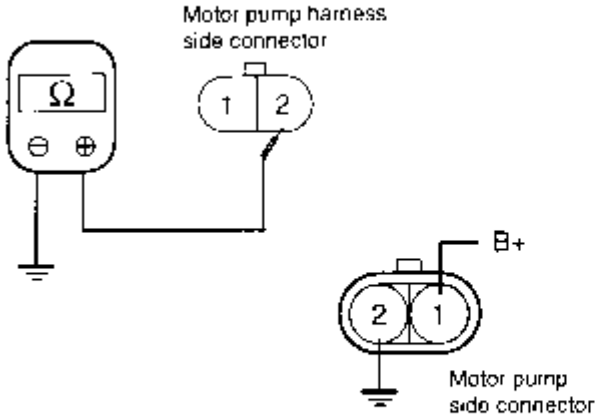
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible Cause
35	MOTOR PUMP	Motor pump does not operate	• Motor pump • Motor pump relay • Harness between the ABS and relay box • Harness between power supply and relay box
37	MOTOR PUMP RELAY - SHORT BATT	Motor pump relay circuit short to battery	• Motor pump relay • ABSCM • Harness between the Relay Box and the ABSCM
38	MOTOR PUMP CIRCUIT - SHORT BATT	Motor pump short to 12V or circuit open	• Motor pump relay • Harness between the ABS modulator and the Relay Box. • Harness between the power supply and Relay Box • Motor pump

WIRING DIAGRAM



INSPECTION PROCEDURE

Check for voltage between the Relay Box terminal E06-1 and BODY GND. Check motor pump.



1. Turn ignition switch to "LOCK" position
2. Disconnect the Relay Box connector.
3. Measure for voltage between terminals 2 and body ground.

LIMIT 9.0-14.2V

4. Disconnect the motor pump connector.
5. Apply battery voltage between terminals 1 and 2.

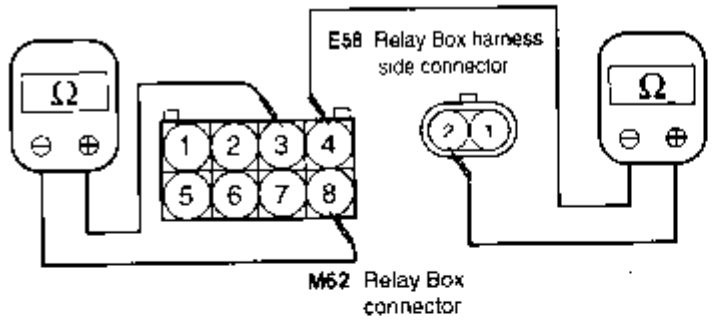
Note: Do not apply power for more than 2 seconds.

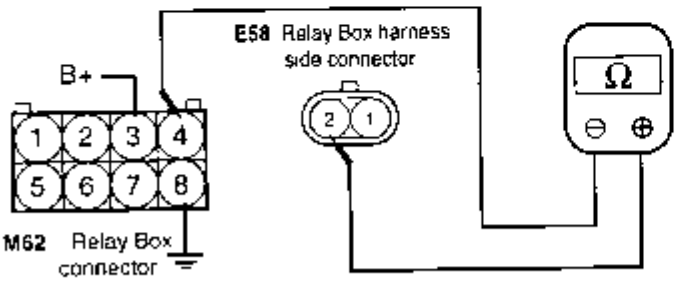
LIMIT Motor running

OK→ 2

NG→
1. Check ground connection for corrosion and loosing.
2. Replace the ABS Modulator.

Check ABS-Relay Box (Motor pump relay)





1. Turn ignition switch to "LOCK" position.
2. Disconnect the Relay Box connector
3. Check for continuity between the terminals as follows.

Terminal 3 and 8	Continuity
Terminal M62-4 and E58-2	No continuity

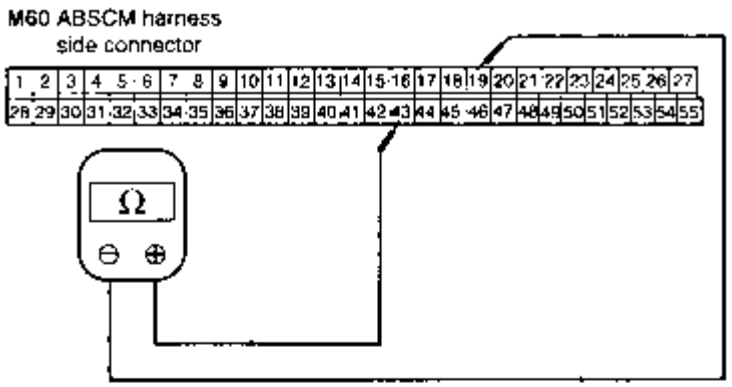
4. Apply battery voltage between terminals 3 and 8.
5. Check for continuity between terminals M62-4 and E58-2.

LIMIT Continuity

OK→ 4

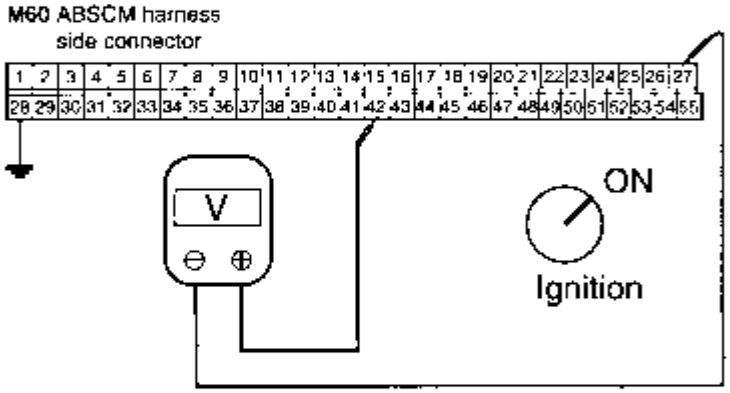
NG→ 3

Check resistance between each terminal of ABSCM connector



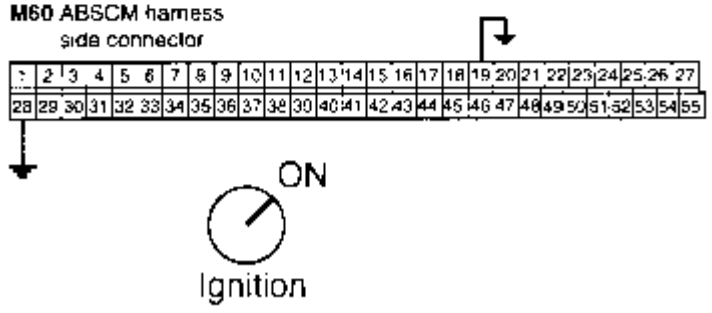
1. Turn ignition switch to "LOCK" position.
2. Disconnect the ABSCM connector.
3. Check for resistance between terminals 19 and 43.

LIMIT 50-60 Ω



4. Turn ignition switch to "ON" position.
5. Measure the continuity between terminals as follows.

LIMIT Terminals 42 and 27 : 0 V



6. Turn ignition switch "LOCK" position.
7. Ground terminal 19 and 28.
8. Turn ignition switch "ON" position.

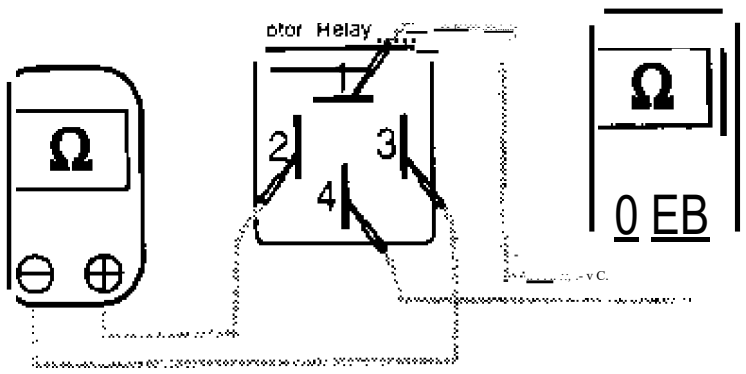
LIMIT Motor running

NOTE
Do not apply power for more than 2 seconds.

OK→ Reconnect the ABSCM and recheck from step 1.

NG→ Repair the Harness

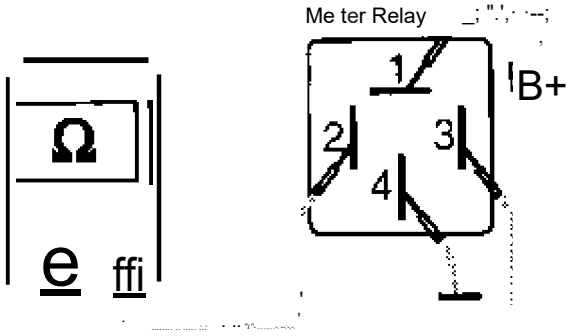
Check Motor pump relay



1. . Turn ignition switch to "LOC K" po sition .
2. Remo\le the Re,ay•bo)(cover.
3. Remove the **Motor** pump relay.
4. Check f□r continuity terminals between as follows_

[LIMIT]

Terminals 1 al'ld 4	Continuity
Terminals 2 am:i 3	No continuity



5. Apply battery voltage bP.tween terminals 1 and **4.**
6. . Clleck for continuity betwe-en termmals 2 and 3.

]UMIf] Continuity

OK-+ ReconneC1 molar pump relay

NG-t, Replace the Motor pumprelay

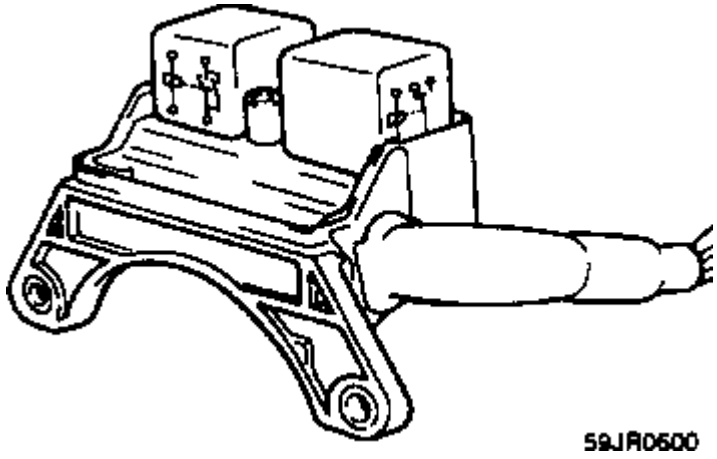
SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

CIRCUIT INSPECTION (ABS RELAY BOX CIRCUIT - MOTOR PUMP RELAY, SHORT GND)

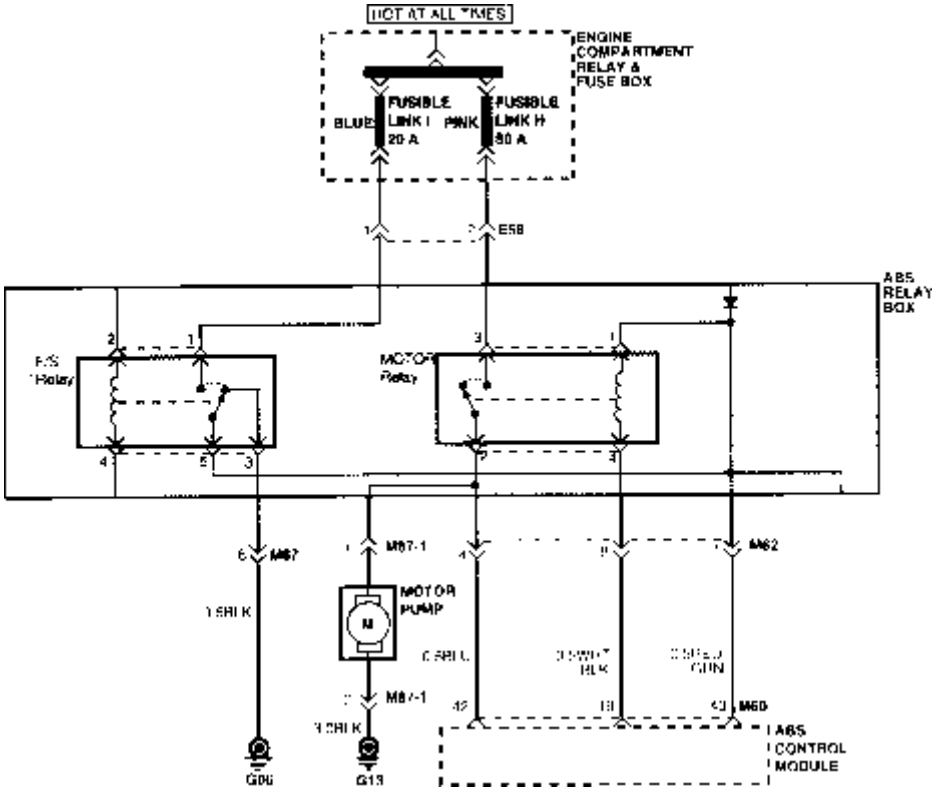
Motor pump relay supplies battery voltage to the motor pump. The ABSCM switches the motor relay ON and operates the ABS motor pump.

If a problem occurs in the ABS system, the ABSCM disables the motor pump relay.



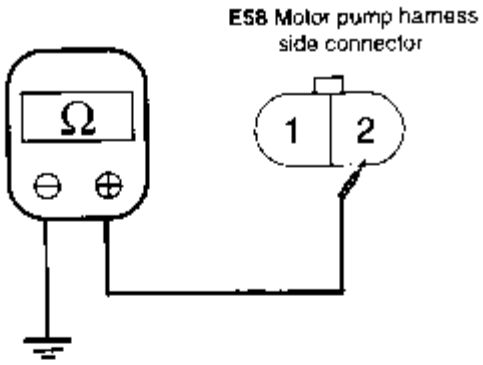
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible cause
36	MOTOR PUMP RELAY - SHORT GND	Motor pump relay circuit open or short to ground	• Motor pump relay • ABSCM • Harness between the Relay Box and the ABSCM • Harness between the power supply and the relay box
39	MOTOR PUMP CIRCUIT - SHORT GND	Motor pump short to ground	• Motor pump relay • Harness between the ABS modulator and Relay Box • Harness between the power supply and Relay Box • Motor pump

WIRING DIAGRAM



INSPECTION PROCEDURE

Check for voltage between the Relay Box terminal E58 and BODY GND.



1. Turn ignition switch to "LOCK" position.
2. Disconnect the Relay Box connector.
3. Measure for voltage between terminals 2 and body ground.

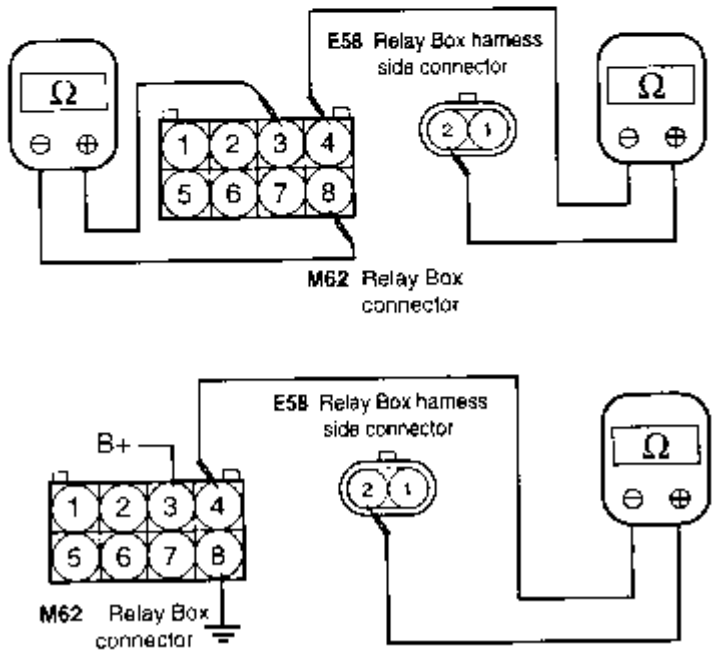
LIMIT 9.0-14.2V

OK→ 2

NG→ Repair the Motor harness

V5BR056A

2. Check the Motor pump relay (Motor pump relay).



1. Turn ignition switch to "LOCK" position.
2. Disconnect the Relay Box connector
3. Check for continuity between the terminals as follows.

Terminal 3 and 8	Continuity
Terminal M62-4 and E58-2	No continuity

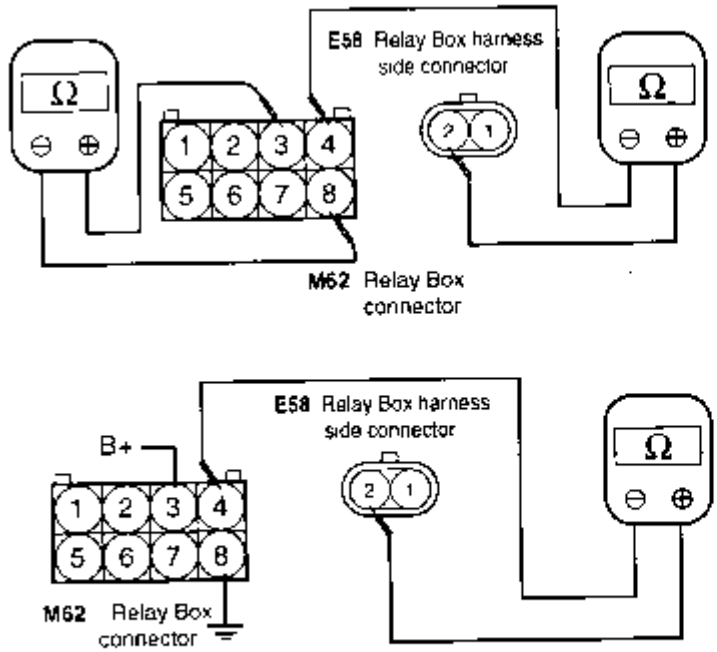
4. Apply battery voltage between terminals 3 and 8.
5. Check for continuity between terminals M62-4 and E58-2.

LIMIT Continuity

OK→ 4

NG→ 3

Check the Motor pump relay (Motor pump relay).



1. Turn ignition switch to "LOCK" position.
2. Disconnect the Relay Box connector
3. Check for continuity between the terminals as follows.

Terminal 3 and 8	Continuity
Terminal M62-4 and E58-2	No continuity

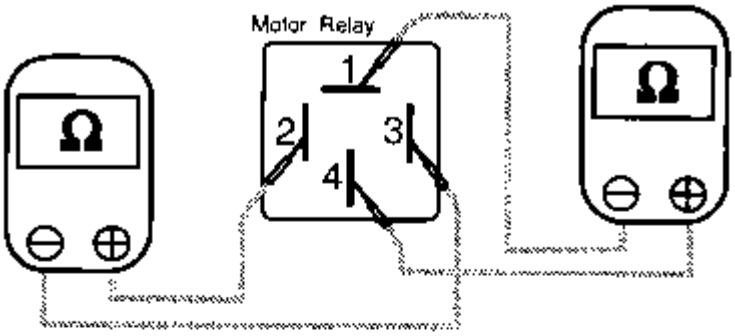
4. Apply battery voltage between terminals 3 and 8.
5. Check for continuity between terminals M62-4 and E58-2.

LIMIT Continuity

OK➔ 4

NG➔ 3

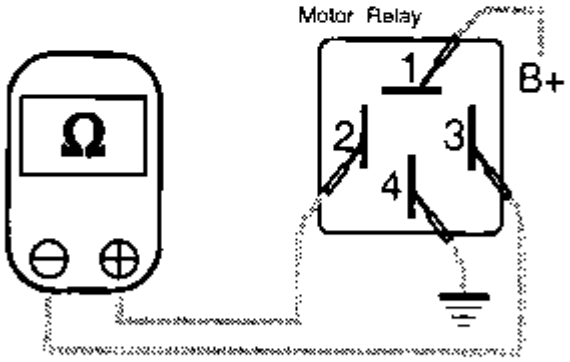
Check the Motor pump relay.



1. Turn ignition switch to "LOCK" position.
2. Remove the Relay-box cover.
3. Remove the Motor pump relay.
4. Check for continuity terminals between as follows.

LIMIT

Terminals 1 and 4	Continuity
Terminals 2 and 3	No continuity



5. Apply battery voltage between terminals 1 and 4.
6. Check for continuity between terminals 2 and 3

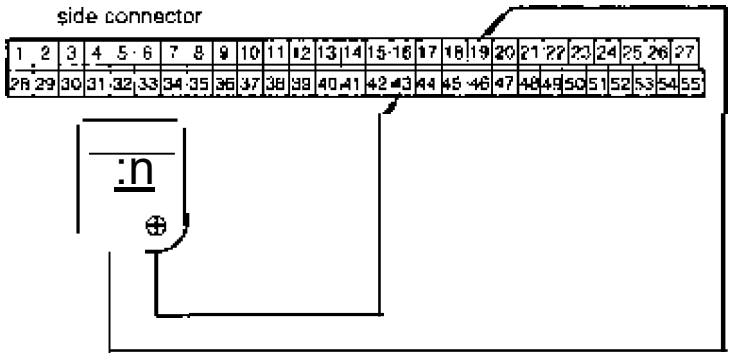
LIMIT Continuity

OK → Reconnect motor relay

NG → Replace the Motor pump relay

Check for resistance between each terminal of the ABSCM connector

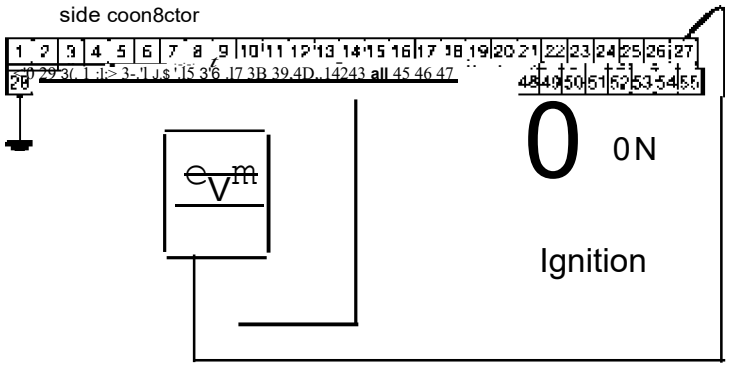
M60 ABSCM hame-ss
side connector



1. Turn ignition switch lo "LOCK" posilion.
2. Disconnect **the ABSCM** conriec1or.
3. Check for resistance between terminals 19 and **43.**

[L1MIT 1 50·60 n

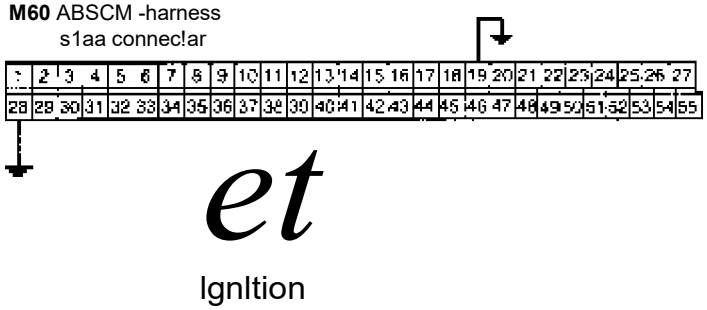
MGO ABSC **M** harnes5
side coon8ctor



4. Turn ignitiori swilch to ,.ON" positiori,
5. Measure the contmuity between tefminals as lollows.

LIMI [Terminals 42 and 27 '. 0 V

M60 ABSCM -harness
s1aa connec!ar



6. Tum ignition switch **"LOCK"** position.
7. Ground termihal 19 and 28.
8. Tum ignition switch "ON· position.

LIMIT **1** Mo1m running

NOTE
Do not apptypower for *more* than 2 seconds.

QK Recormect the ABSCM and recheck from step 1.

NG-+ Repair1he Harness

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

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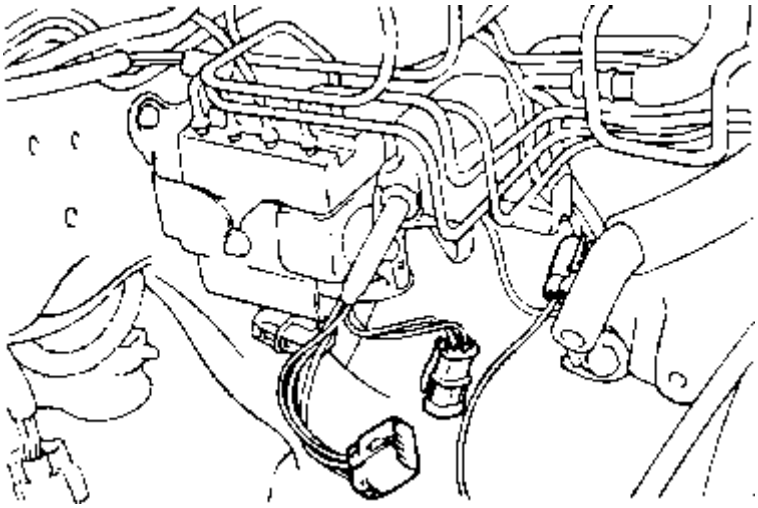
CIRCUIT INSPECTION (ABS MODULATOR CIRCUIT - SHORT B+)

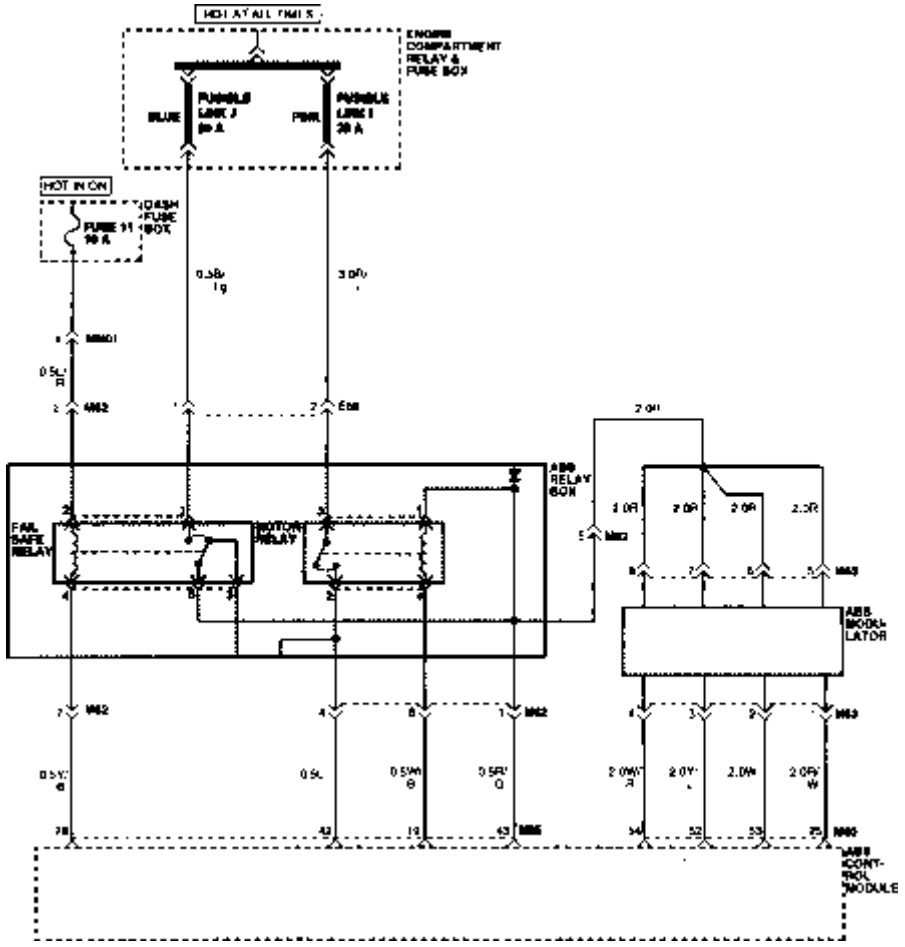
The modulator consists of four solenoid valves, one expander chamber per brake circuit, and a hydraulic pump.

The ABSCM activates the solenoid valves and controls the pressure to the wheel calipers.



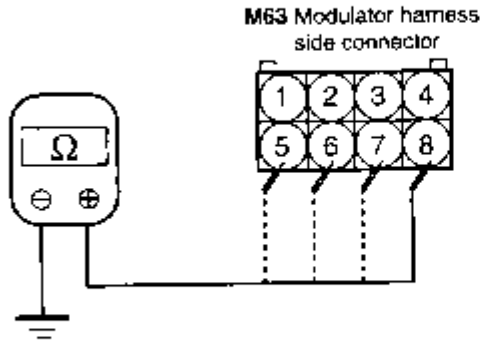
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible cause
21	LF SOLENOID CIRCUIT - SHORT BATT	LF solenoid valve short circuit to 12V	• ABS Modulator • ABS Relay-BOX • Harness or connector between ABSCM and modulator
23	RF SOLENOID CIRCUIT - SHORT BATT	RF solenoid valve short circuit to 12V	
25	LR SOLENOID CIRCUIT - SHORT BATT	LR solenoid valve short circuit to 12V	
27	RR SOLENOID CIRCUIT - SHORT BATT	RR solenoid valve short circuit to 12V	

WIRING DIAGRAM



INSPECTION PROCEDURE

Check for voltage between each terminal of the ABS modulator harness



1. Disconnect the battery negative (-) terminal.
2. Disconnect the ABS modulator connector and ABSCM connector.
3. Connect the battery negative terminal and ignition ON.
4. Measure the voltage between terminals and body ground as follows:

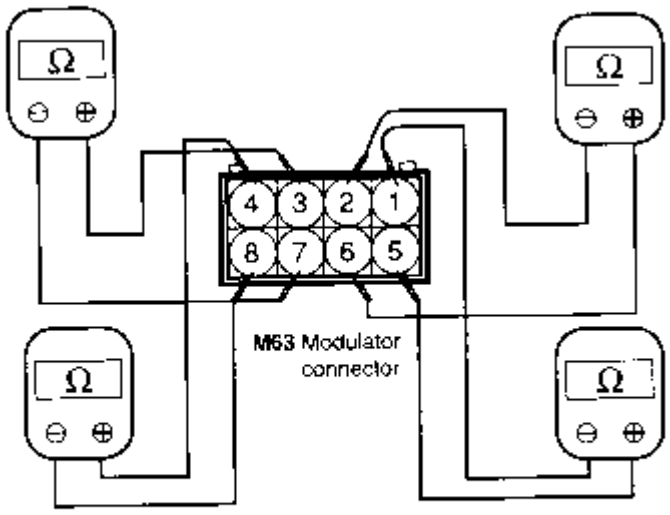
LIMIT

SOL. RR	Terminal 5 and ground	0V
SOL. LR	Terminal 6 and ground	0V
SOL. RF	Terminal 7 and ground	0V
SOL. LF	Terminal 8 and ground	0V

OK→ 2

NG→ Check and repair harness between terminal 5, 6, 7, 8 and relay box ground.

Check the ABS-Modulator



1. Turn ignition switch to "LOCK" position.
2. Disconnect the ABS modulator connector.
3. Check the resistance between terminals as follows.

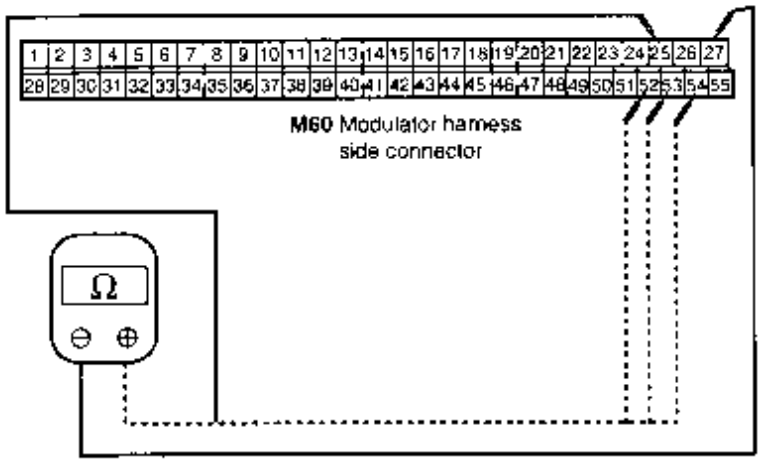
LIMIT

SOL. RR	Terminal 1 and 5	3.10-3.34 Ω
SOL. LR	Terminal 2 and 6	3.10-3.34 Ω
SOL. RF	Terminal 3 and 7	3.10-3.34 Ω
SOL. LF	Terminal 4 and 8	3.10-3.34 Ω

OK→ 3

NG→ Replace the ABS modulator.

Check the ABSCM harness



1. Disconnect the battery negative (-) terminal.
2. Disconnect ABSCM connector.
3. Connect the battery negative (-) terminal.
4. Turn ignition switch to "ON" position.
5. Measure the voltage between terminals and ground as follows.

SOL. RR	Terminal 25 and 27	0 V
SOL. LF	Terminal 54 and 27	0 V
SOL. LR	Terminal 53 and 27	0 V
SOL. RF	Terminal 52 and 27	0 V

OK→ Reconnect the ABSCM and recheck from step 1.

NG→ Repair the harness

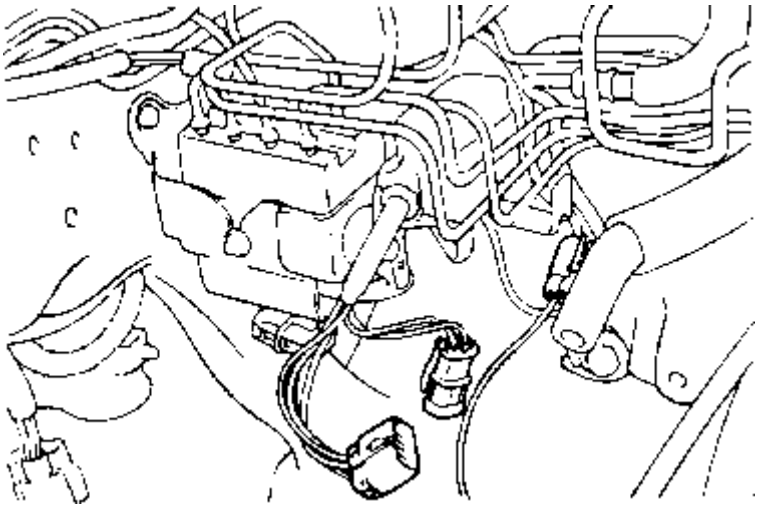
SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

CIRCUIT INSPECTION (ABS MODULATOR CIRCUIT)

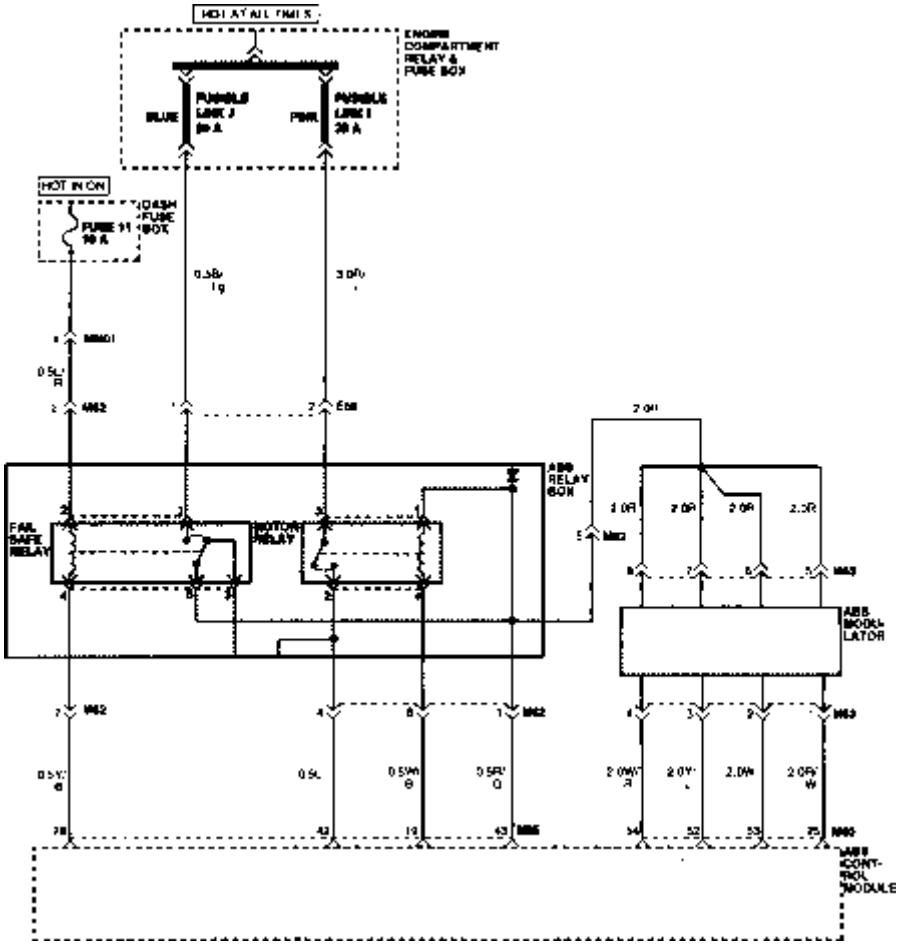
The modulator consists of four solenoid valves, one expander chamber per brake circuit, and a hydraulic pump.

The ABSCM activates the solenoid valves and controls the pressure to the wheel calipers.



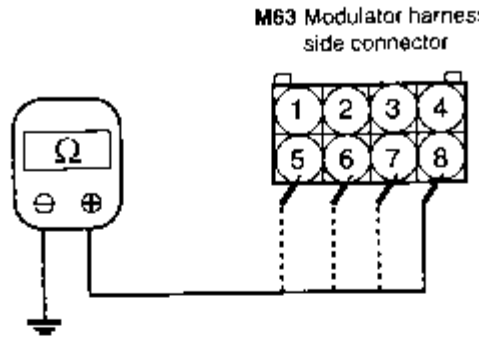
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible cause
22	LF SOLENOID CIRCUIT - SHORT GND	LF solenoid valve open or short-circuit to ground	• ABS Modulator • ABS Relay-Box • Harness or connector between the ABSCM and modulator
24	RF SOLENOID CIRCUIT - SHORT GND	RF solenoid valve open or short-circuit to ground	
26	LR SOLENOID CIRCUIT - SHORT GND	LR solenoid valve open or short-circuit to ground	
28	RR SOLENOID CIRCUIT - SHORT GND	RR solenoid valve open or short-circuit to ground	

WIRING DIAGRAM



INSPECTION PROCEDURE

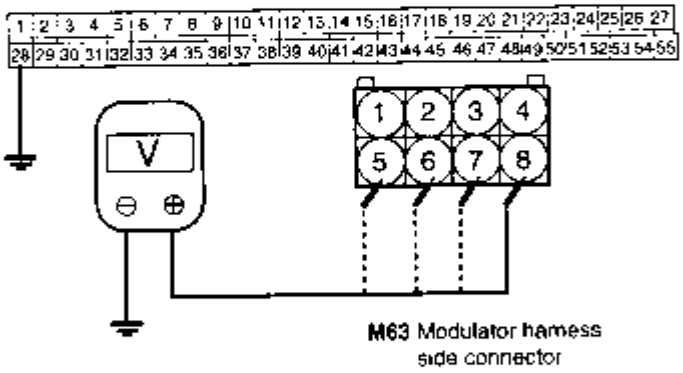
Check for continuity between each terminal of the ABS modulator harness.



1. Disconnect the battery negative (-) terminal.
2. Disconnect the ABS modulator connector and ABSCM connector.
3. Check for continuity between the terminals and body ground as follows.

LIMIT

SOL. RR	Terminal 5 and ground	Continuity
SOL. RL	Terminal 6 and ground	Continuity
SOL. FR	Terminal 7 and ground	Continuity
SOL. FL	Terminal 8 and ground	Continuity



4. Disconnect the ABSCM connector.
5. Ground ABSCM connector terminal 28.
6. Connect the battery negative terminal.
7. Turn ignition switch to "ON" position.
8. Measure voltage between terminals and body ground as follows.

LIMIT

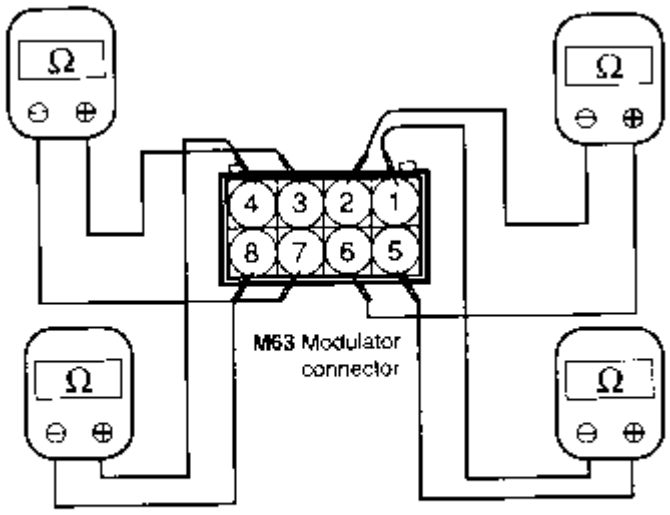
SOL. RR	Terminal 5 and ground	9.0-14.2 V
SOL. RL	Terminal 6 and ground	9.0-14.2 V
SOL. FR	Terminal 7 and ground	9.0-14.2 V
SOL. FL	Terminal 8 and ground	9.0-14.2 V

OK→ 2

NG→ Check and repair the harness between terminal 5, 6, 7, 8 and relay box ground.

SOL. : SOLENOID

Check ABS-Modulator.



1. Turn ignition switch to "LOCK" position.
2. Disconnect the ABS modulator connector.
3. Check the resistance between terminals as follows.

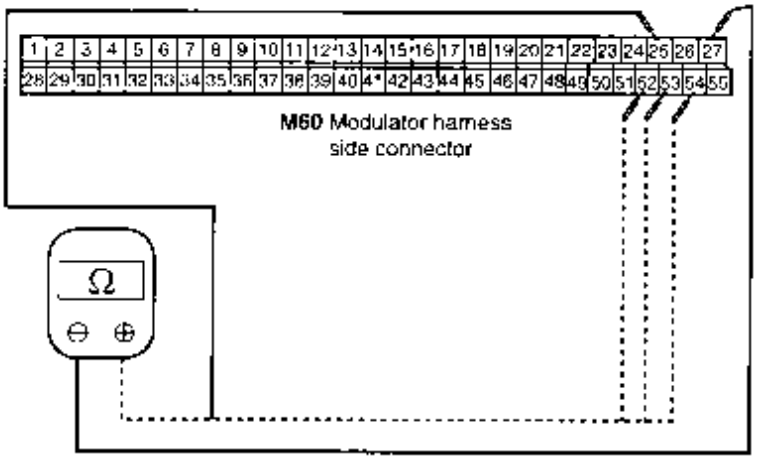
LIMIT

SOL. RR	Terminal 1 and 5	3.10-3.34 Ω
SOL. LR	Terminal 2 and 6	3.10-3.34 Ω
SOL. RF	Terminal 3 and 7	3.10-3.34 Ω
SOL. LF	Terminal 4 and 8	3.10-3.34 Ω

OK→ 3

NG→ Replace the ABS modulator.

Check ABSCM harness.



1. Disconnect the battery negative (-) terminal.
2. Disconnect ABSCM connector.
3. Connect the battery negative (-) terminal.
4. Turn ignition switch to "ON" position.
5. Measure the voltage between terminals and ground as follows.

SOL. RR	Terminal 25 and 27	0 V
SOL. LF	Terminal 54 and 27	0 V
SOL. LR	Terminal 53 and 27	0 V
SOL. RF	Terminal 52 and 27	0 V

OK→ Reconnect the ABSCM and recheck from step 1.

NG→ Repair the harness

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

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CIRCUIT INPECTION (SPEED SENSOR CIRCUIT - SHORT TO B+)

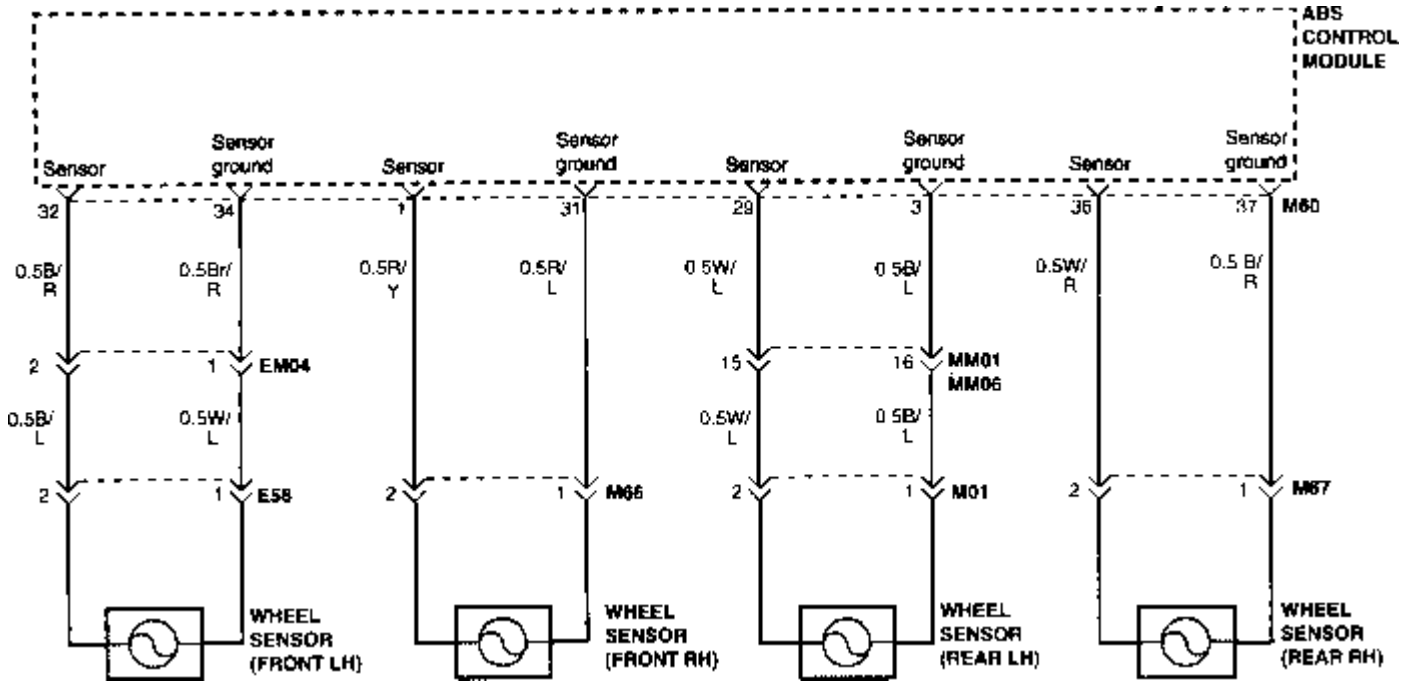
At each wheel hub there is a tone wheel and an inductive sensor, which supplies wheel speed information to the ABSCM. The sensor is comprised of a magnet and a pole piece surrounded by a coil. When the tone wheel rotates adjacent to the sensor pole piece, an alternating current signal is generated in the coil with a frequency proportional to wheel speed.

A special integrated circuit in the ABSCM translates the generated AC signal to a square wave.

This square wave is used by the microprocessor to operate the ABS.

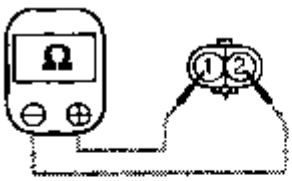
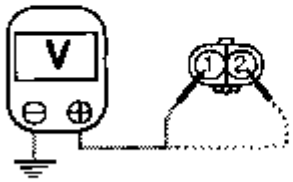
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible cause
62	LF WHEEL SENSOR - CIRCUIT OPEN	Sensor LF circuit open or short to 12V	• Wheel speed sensor • Harness or connector between the wheel speed sensor and ABSCM • ABSCM
63	RF WHEEL SENSOR - CIRCUIT OPEN	Sensor RF circuit open or short to 12V	
64	LR WHEEL SENSOR - CIRCUIT OPEN	Sensor LR circuit open or short to 12V	
65	RR WHEEL SENSOR - CIRCUIT OPEN	Sensor RR circuit open or short to 12V	

WIRING DIAGRAM

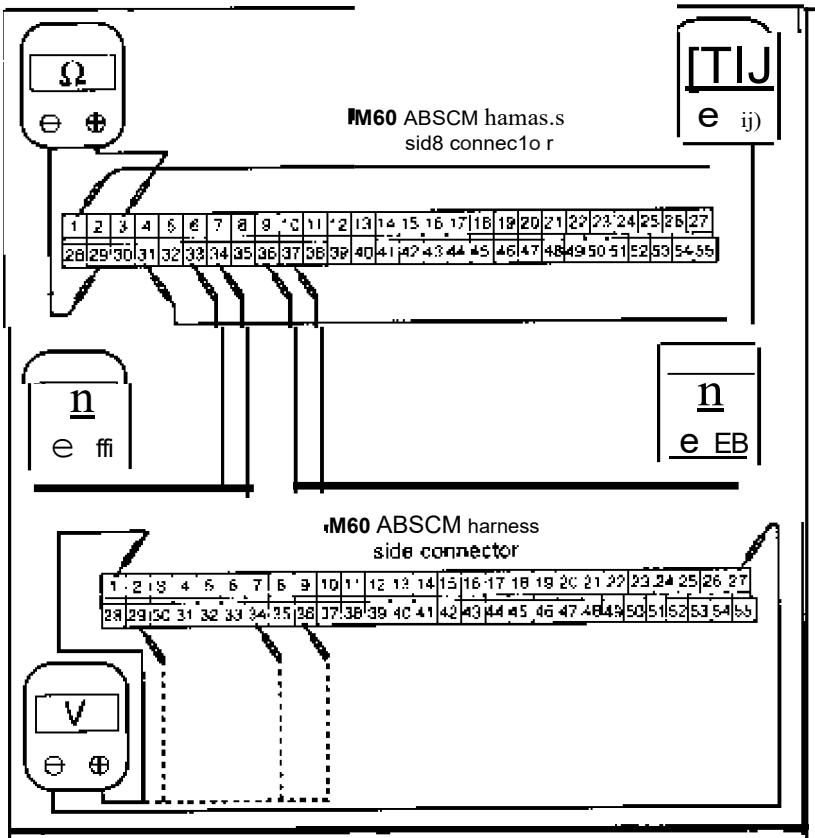


INSPECTION PROCEDURE

Check Wheel Speed Sensor.

 **E56** LF WHEEL SENSOR **M66** FR WHEEL SENSOR **M01** LR WHEEL SENSOR **M67** RR WHEEL SENSOR	1. Disconnect the wheel speed sensor. 2. Measure the resistance between terminals 1 and 2 the of wheel speed sensor connector. LIMIT 1000-1200 Ω
 **E56** LF WHEEL SENSOR **M66** FR WHEEL SENSOR **M01** LR WHEEL SENSOR **M67** RR WHEEL SENSOR	3. Measure voltage between wheel speed sensor connector terminals 1, 2 and body ground. LIMIT 0 V
OK→ 2	NG→ Replace wheel speed sensor

Check the harness and connector between the ABSCM and each wheel speed sensor



1. Turn ignition swi!ch to "LOCKn position.
2. Disconnect the ABSCM connector.
3. Turn ignition switch to ON" posiUon.
4. Measure the resistance be1ween the terminals as folkJws.

LIMIT

SNSR.LF	Terminals 33 and 34	1275-1495 n
SNSA.AF	Terminals 1 and 31	12, s-1495 n
SNSR .LR	Terminals :29 and 3	126O-1s40 n
SNSR.RA	TerminaLs. 36 and 37	12so-154O n

5. Measure the voltage between sensor 1erminals and body ground terminals as follo ws .

LIMff

SNSR.FL	Terminals 34 ahd *27*	OV
SNSA.FR	Terminals 1 and 27	*OV*
SNSR.RI	Terminals 29 and 27	OV
SNSR .R R	Terminals 36 and 27	OV

QK-+, Re-connect the ABSCM and re-check

NG Repair the harnes.s

SNSR: SENSOR

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

CIRCUIT INPECTION (SPEED SENSOR CIRCUIT - SHORT GND)

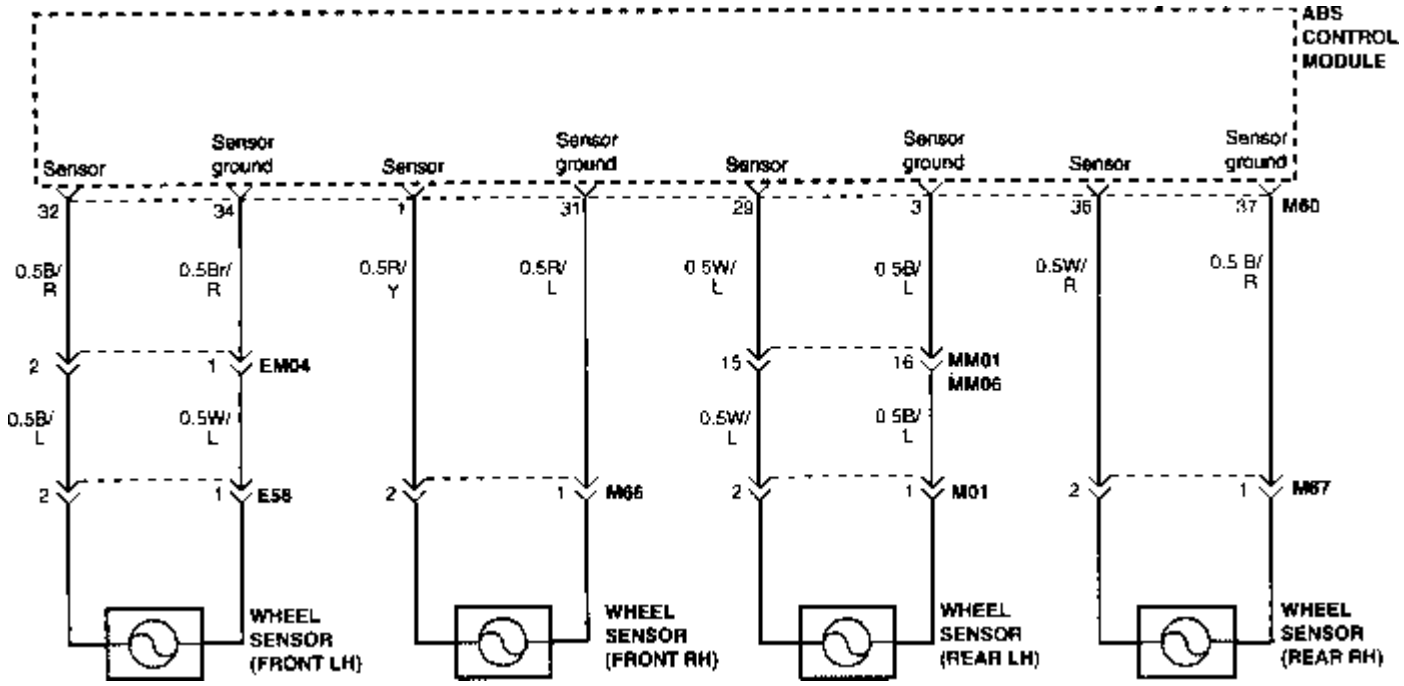
At each wheel hub there is a tone wheel and an inductive sensor, which supplies the wheel speed information to the ABSCM. The sensor is comprised of a magnet and a pole piece surrounded by a coil. When the tone wheel rotates adjacent to the sensor pole piece, an alternating current signal is generated in the coil with a frequency proportional to wheel speed.

A special integrated circuit in the ABSCM translates the generated AC signal to a square wave.

This square wave is used by the microprocessor to operate the ABS.

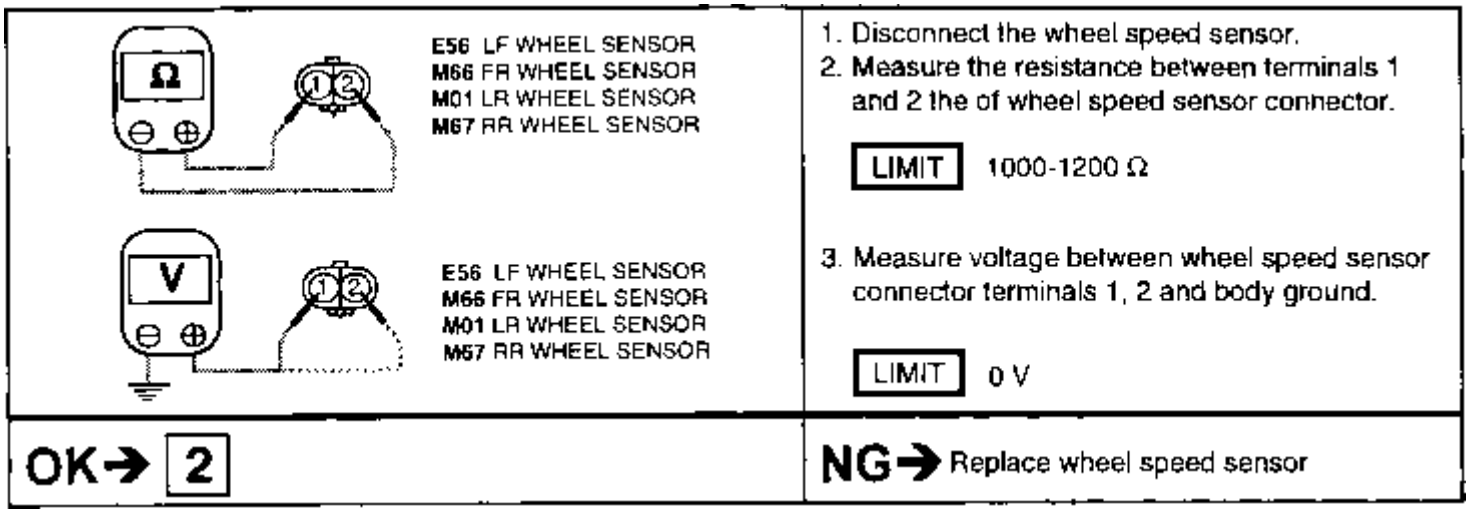
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible cause
66	LF WHEEL SENSOR - SHORT GND	Sensor LF circuit short to ground	• Wheel speed sensor • Harness or connector between the wheel speed sensor and ABSCM • ABSCM
67	RF WHEEL SENSOR - SHORT GND	Sensor RF circuit short to ground	
68	LR WHEEL SENSOR - SHORT GND	Sensor LR circuit short to ground	
69	RR WHEEL SENSOR - SHORT GND	Sensor RR circuit short to ground	

WIRING DIAGRAM

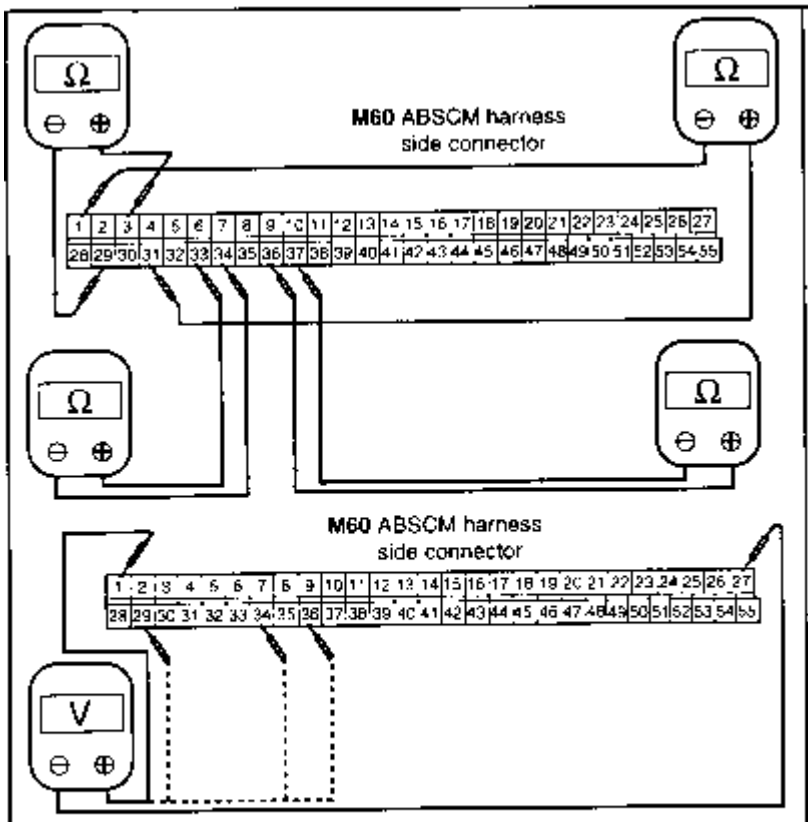


INSPECTION PROCEDURE

Check Wheel Speed Sensor



Check the harness and the connector between the ABSCM and each wheel speed sensor



1. Turn ignition switch to "LOCK" position.
2. Disconnect the ABSCM connector.
3. Turn ignition switch to "ON" position.
4. Measure the resistance between the terminals as follows.

LIMIT

SNSR.LF	Terminals 33 and 34	1275-1495 Ω
SNSR.RF	Terminals 1 and 31	1275-1495 Ω
SNSR.LR	Terminals 29 and 3	1260-1540 Ω
SNSR.RR	Terminals 36 and 37	1260-1540 Ω

5. Measure the voltage between sensor terminals and body ground terminals as follows.

LIMIT

SNSR.FL	Terminals 34 and 27	0 V
SNSR.FR	Terminals 1 and 27	0 V
SNSR.RL	Terminals 29 and 27	0 V
SNSR.RR	Terminals 36 and 27	0 V

OK → Re-connect the ABSCM and re-check

NG → Repair the harness

SNSR. : SENSOR

SNSR.: SENSOR

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

CIRCUIT INSPECTION (SPEED SENSOR CIRCUIT - AIR GAP SYMPTOM)

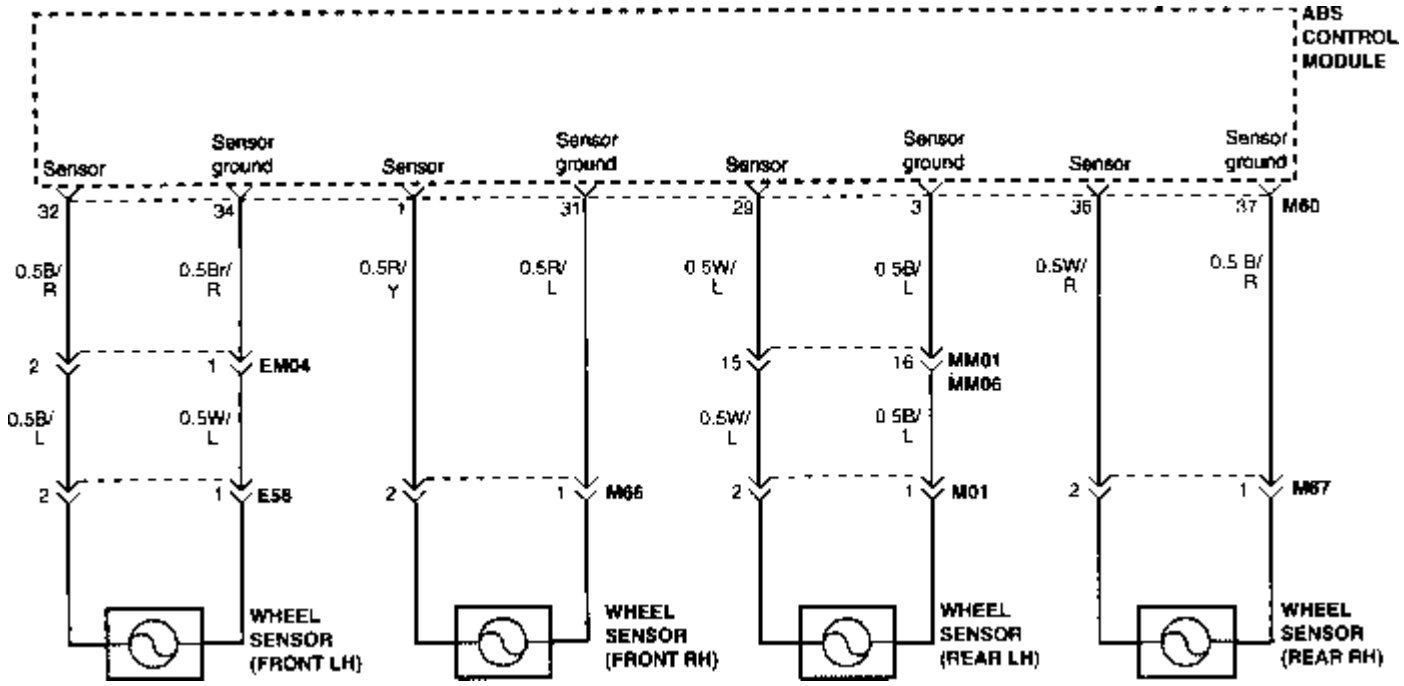
At each wheel hub there is a tone wheel and an inductive sensor, which supplies the wheel speed information to the ABSCM. The sensor is comprised of a magnet and a pole piece surrounded by a coil. When the tone wheel rotates adjacent to the sensor pole piece, an alternating current signal is generated in the coil with a frequency proportional to wheel speed.

A special integrated circuit in the ABSCM translates the generated AC signal to a square wave.

This square wave is used by the microprocessor to operate the ABS.

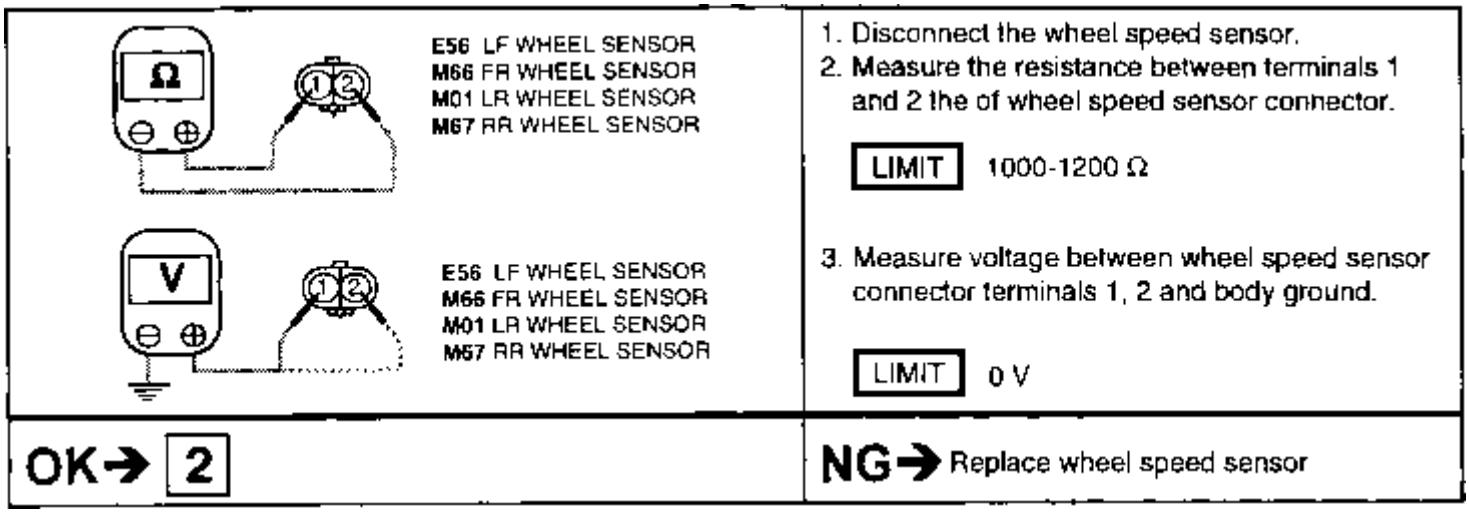
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible cause
31	LF WHEEL SPEED SENSOR AIR GAP	Air gap ON sensor LF incorrect	• Wheel speed sensor air gap • Wheel speed sensor • Harness or connector between the wheel speed sensor and ABSCM • ABSCM
32	RF WHEEL SPEED SENSOR AIR GAP	Air gap ON sensor RF incorrect	
33	LR WHEEL SPEED SENSOR AIR GAP	Air gap ON sensor LR incorrect	
34	RR WHEEL SPEED SENSOR AIR GAP	Air gap ON sensor RR incorrect	

WIRING DIAGRAM

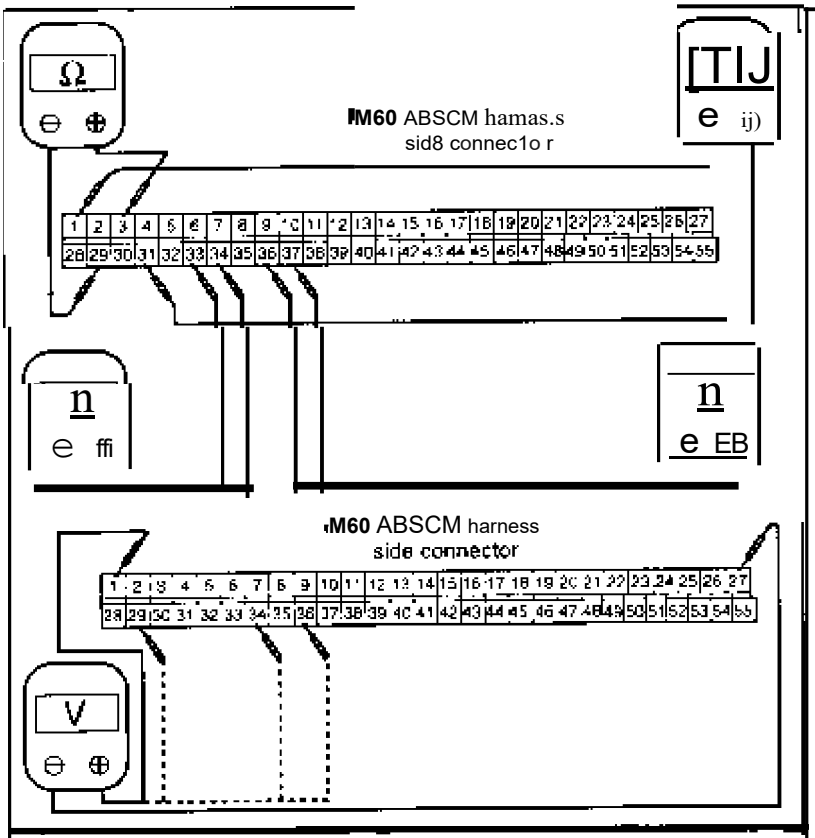


INSPECTION PROCEDURE

Check Wheel Speed Sensor



Check the harness and the connector between the ABSCM and each wheel speed sensor



1. Turn ignition swi!ch to "LOCKn position.
2. Disconnect the ABSCM connector.
3. Turn ignition switch to ON" posiUon.
4. Measure the resistance be1ween the terminals as folkJws.

LIMIT

SNSR.LF	Terminals 33 and 34	1275-1495 n
SNSA.AF	Terminals 1 and 31	12, s-1495 n
SNSR .LR	Terminals :29 and 3	126O-1s40 n
SNSR.RA	TerminaLs. 36 and 37	12so-154O n

5. Measure the voltage between sensor 1erminals and body ground terminals as follo ws .

LIMff

SNSR.FL	Terminals 34 ahd *27*	OV
SNSA.FR	Terminals 1 and 27	*OV*
SNSR.RI	Terminals 29 and 27	OV
SNSR .R R	Terminals 36 and 27	OV

QK-+, Re-connect the ABSCM and re-check

NG Repair the harnes.s

SNSR: SENSOR

CIRCUIT INSPECTION (SPEED SENSOR CIRCUIT - SPEED JUMP SYMPTOM)

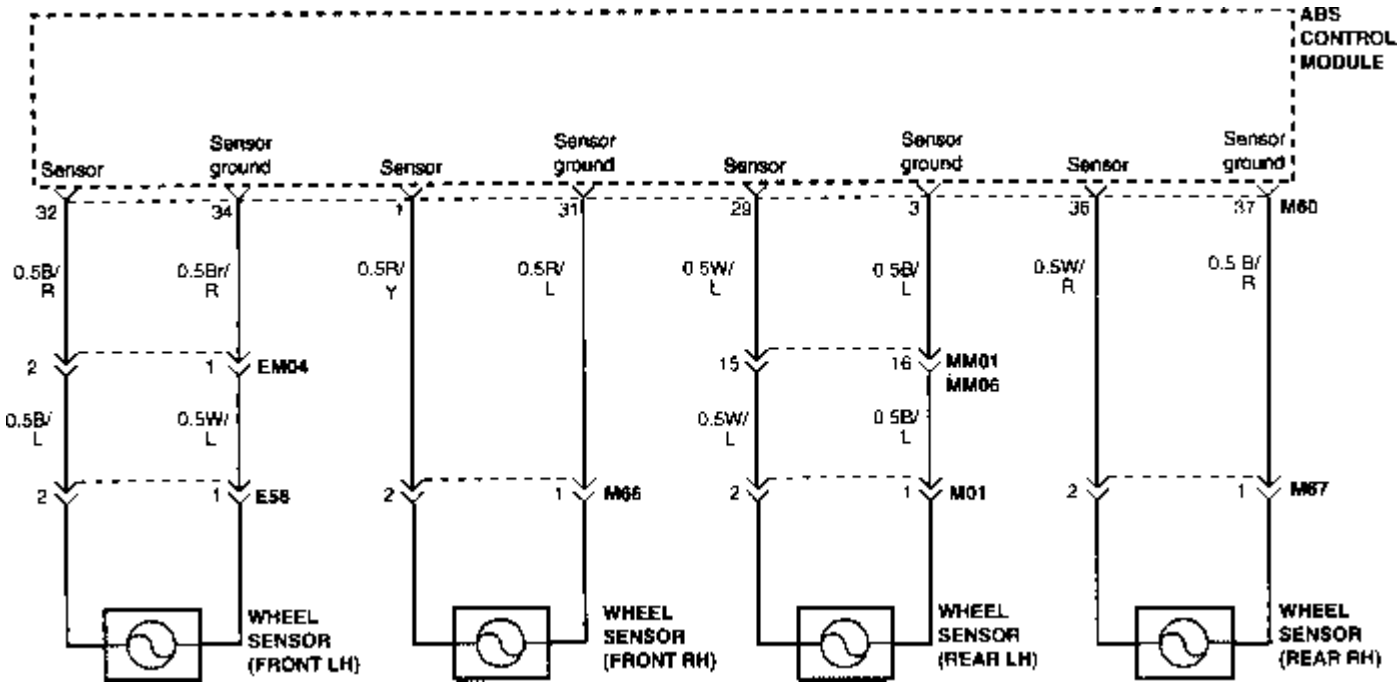
At each wheel hub there is a tone wheel and an inductive sensor, which supplies the wheel speed information to the ABSCM. The sensor is comprised of a magnet and a pole piece surrounded by a coil. When the tone wheel rotates adjacent to the sensor pole piece, an alternating current signal is generated in the coil with a frequency proportional to wheel speed.

A special integrated circuit in the ABSCM translates the generated AC signal to a square wave.

This square wave is used by the microprocessor to operate the ABS.

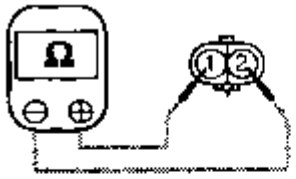
DTC Code	DISPLAY ON SCAN TOOL	Symptom	Possible cause
71	LF TONE WHEEL TOOTH MISSING	Speed jump on the exciter wheel FL	• Tone wheel • Wheel speed sensor • Harness or connector between the wheel speed sensor and the ABSCM • ABSCM
72	RF TONE WHEEL TOOTH MISSING	Speed jump on the exciter wheel FR	
73	LR TONE WHEEL TOOTH MISSING	Speed jump on the exciter wheel RL	
74	RR TONE WHEEL TOOTH MISSING	Speed jump on the exciter wheel RR	
19	DEFECTIVE TONE WHEEL	Check the tone wheels	• Tone wheel • Wheel speed sensor and harness

WIRING DIAGRAM



INSPECTION PROCEDURE

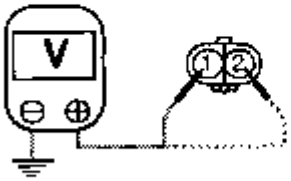
Check Wheel Speed Sensor



E56 LF WHEEL SENSOR
M66 FR WHEEL SENSOR
M01 LR WHEEL SENSOR
M67 RR WHEEL SENSOR

1. Disconnect the wheel speed sensor.
2. Measure the resistance between terminals 1 and 2 the of wheel speed sensor connector.

LIMIT 1000-1200 Ω



E56 LF WHEEL SENSOR
M66 FR WHEEL SENSOR
M01 LR WHEEL SENSOR
M67 RR WHEEL SENSOR

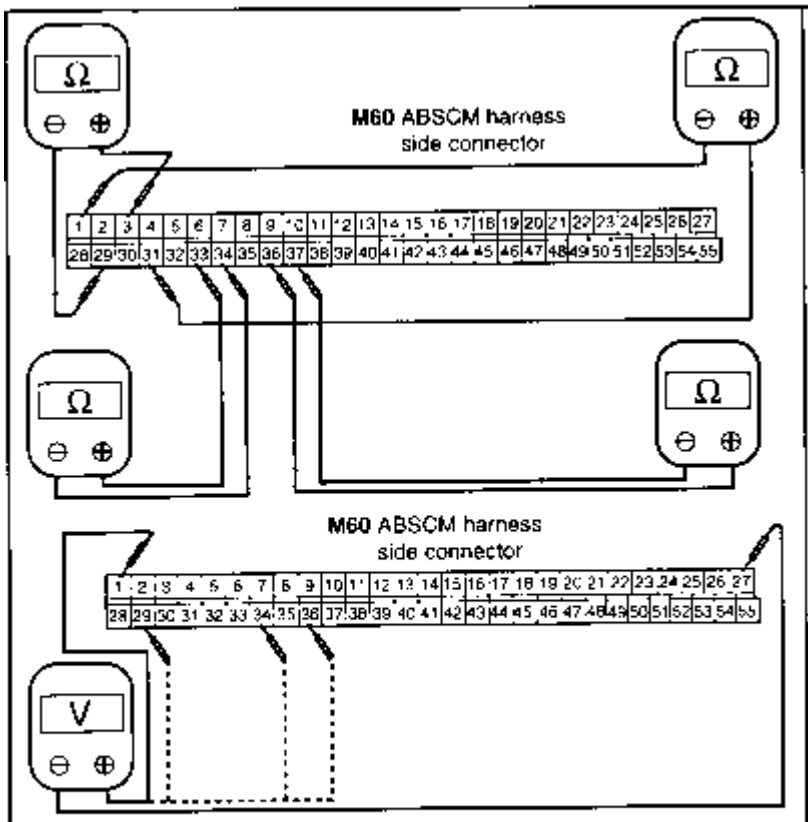
3. Measure voltage between wheel speed sensor connector terminals 1, 2 and body ground.

LIMIT 0 V

OK → 2

NG → Replace wheel speed sensor

Check the harness and the connector between the ABSCM and each wheel speed sensor



1. Turn ignition switch to "LOCK" position.
2. Disconnect the ABSCM connector.
3. Turn ignition switch to "ON" position.
4. Measure the resistance between the terminals as follows.

LIMIT

SNSR.LF	Terminals 33 and 34	1275-1495 Ω
SNSR.RF	Terminals 1 and 31	1275-1495 Ω
SNSR.LR	Terminals 29 and 3	1260-1540 Ω
SNSR.RR	Terminals 36 and 37	1260-1540 Ω

5. Measure the voltage between sensor terminals and body ground terminals as follows.

LIMIT

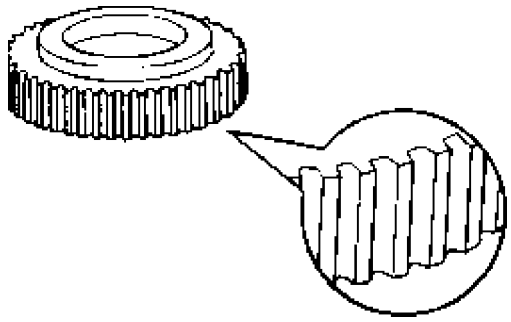
SNSR.FL	Terminals 34 and 27	0 V
SNSR.FR	Terminals 1 and 27	0 V
SNSR.RL	Terminals 29 and 27	0 V
SNSR.RR	Terminals 36 and 27	0 V

OK → Re-connect the ABSCM and re-check

NG → Repair the harness

SNSR. : SENSOR

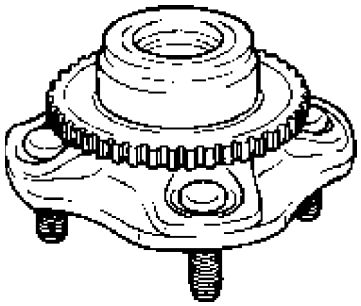
Check tone wheel and sensor installation



Front

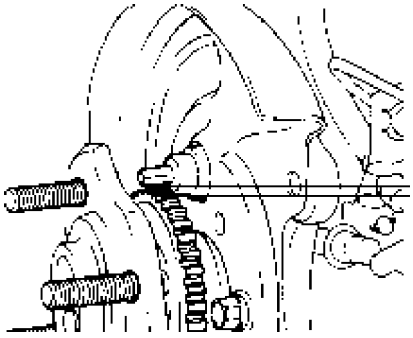
- o **Remove** the front tone **whe**
- o Check the tone wheel teeth *tot* mlssing or scratches.

Iu (r J Tone wh OK



- o Check the tone whee teeth for missing of scratches.

(LIMIT I Tone wheel OK



ALL

o Check the air gap between the wheel speed sensors and the tone wheel teeth.

I LIMIT J FRONT: 0.2- i 3 m m (0.008-0 .051 _in.)
REAR : 0.2•1.3 mrn(0.008-0.051 ,n .}

OK+ Re-connect the ABSCM and re-chedc.

NG.. Replace the components.

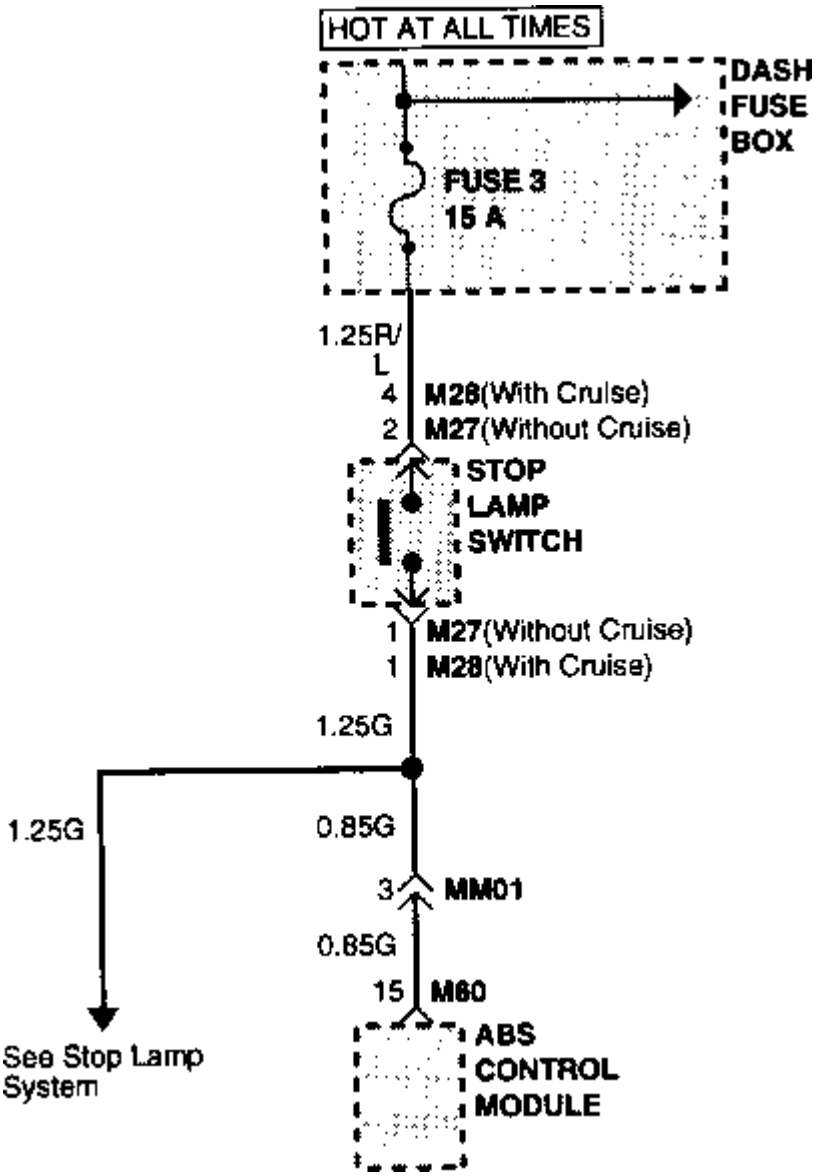
SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

STOP LAMP SWITCH CIRCUIT

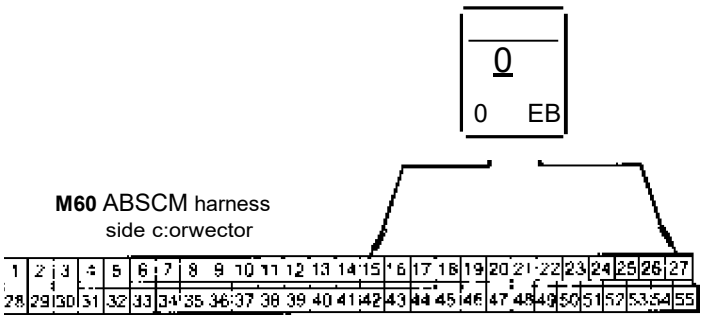
The stop lamp switch senses whether the brake pedal is depressed or released, and sends the signal to the ABSCM

WIRING DIAGRAM



INSPECTION PROCEDURE

Check the stop lamp switch circuit



1. Remove bat1ery negative(-) te-rmlnal.
2. Remove the A'BSCM arid disconnect the connector.
3. Connect battery negative(-) terminal.
4. Tum ignition switch to ON position.
5. Measure the supply vol1age between terminals 15 and 27.

LIMIT] 9.5V 14.2V

OK	Conned the ABSCM and re-check the diagnostic code, It code 6, 57 displayed, check for the ABSCM poor conlie,ct1on.	**NG-+, r"jl**

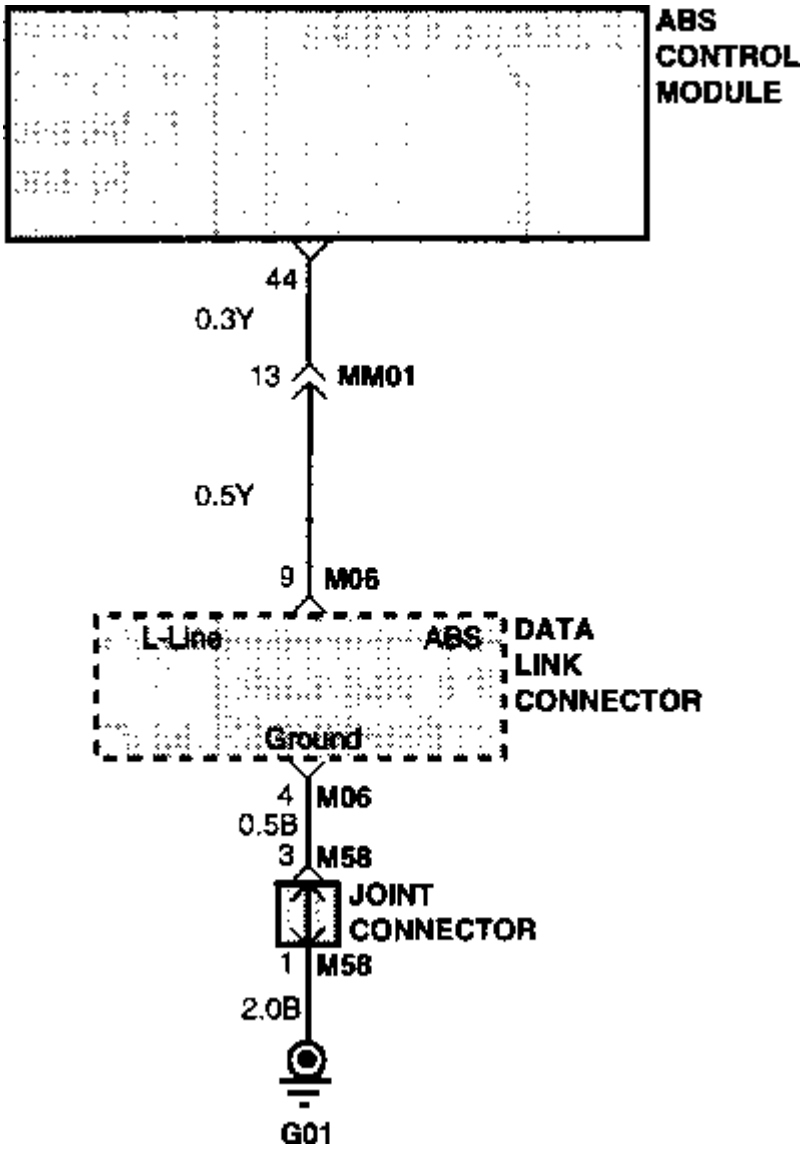
SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

DATA-LINK CIRCUIT

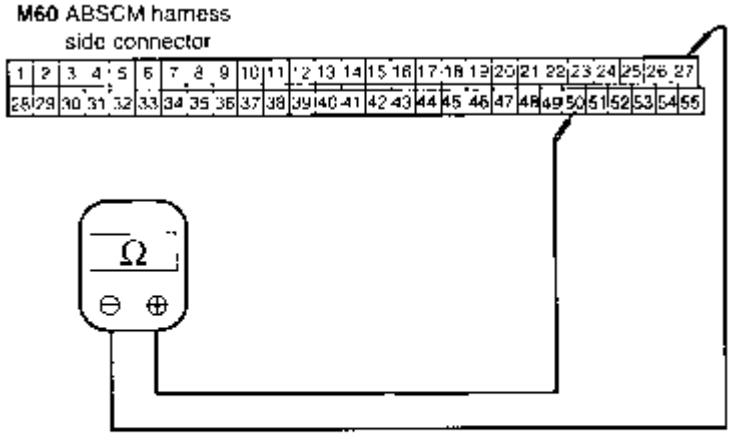
When a fault is detected the ABSCM, a code is stored in the ABSCM memory. The SCAN TOOL can be used to read the codes in the ABSCM memory.

WIRING DIAGRAM



INSPECTION PROCEDURE

Check for voltage supply of ABSCM.



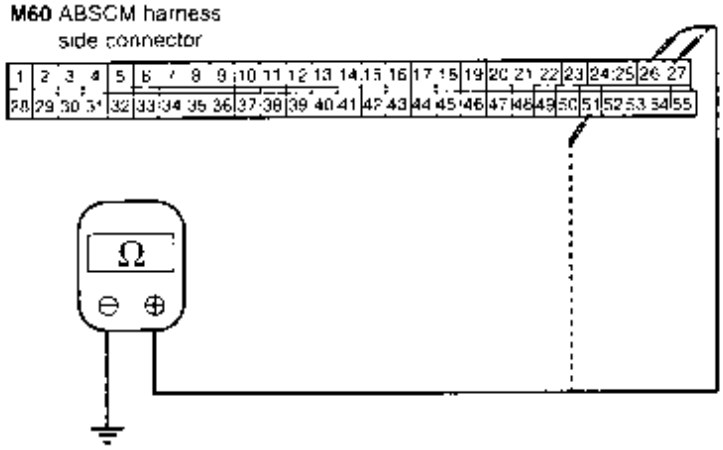
1. Remove battery negative(-) terminal.
2. Remove the ABSCM and disconnect the connector.
3. Connect battery negative(-) terminal.
4. Turn ignition switch to ON position.
5. Measure the supply voltage between terminals 50 and 27.

LIMIT 9.5V ~ 14.2V

OK➔ Connect the ABSCM and re-check the diagnostic code, If code 56, 57 displayed, check for the ABSCM poor connection.

NG➔ 3

Check continuity between the ABSCM connector GND and Body GND.



1. Turn the ignition switch to the LOCK position.
2. Disconnect ABSCM connector.
3. Measure the ground connection between terminal 27 and body ground, terminal 26 and body ground, terminals 51 and body ground.

LIMIT 0.5 Ω or below

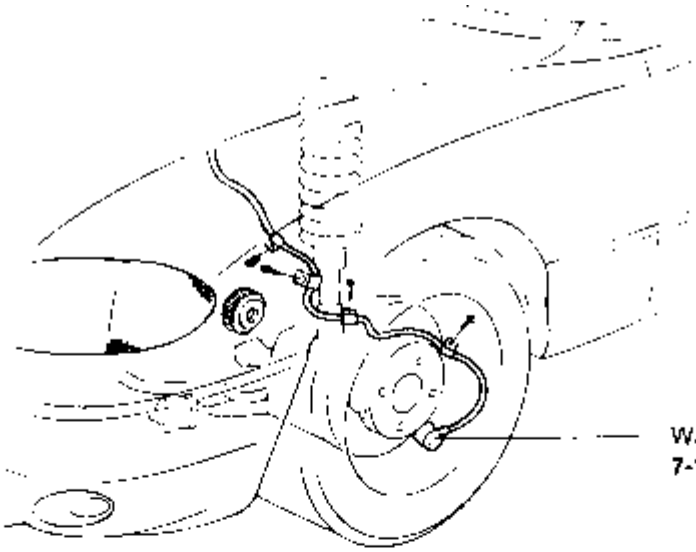
OK➔ Check for an open between the harness and the connector between the ABSCM and the battery

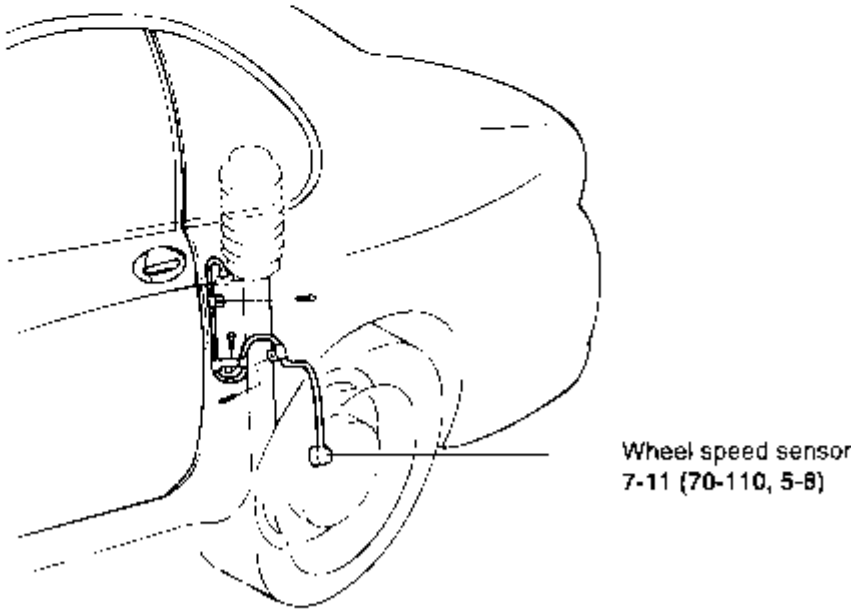
NG➔
1. Check ground connection for corrosion and loosing
2. Repair harness or connector.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

WHEEL SPEED SENSOR



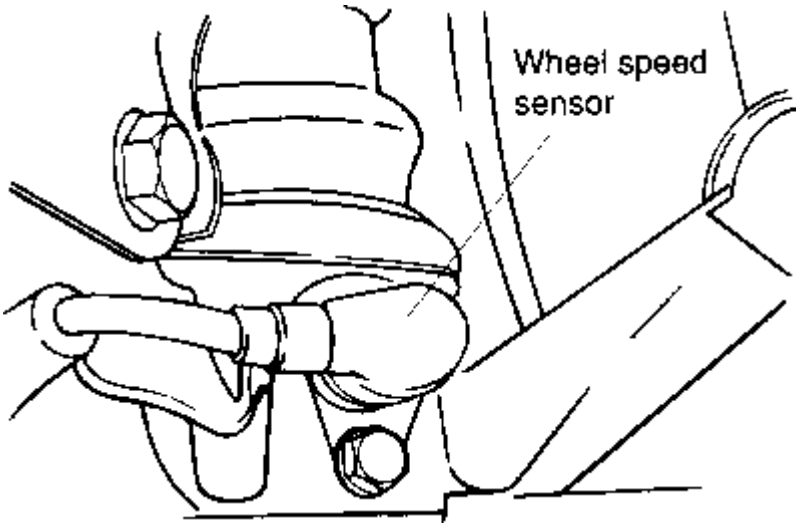


TORQUE : Nm (kg·cm, lb·ft)

Return to Main Menu(s): Mechanical Manual Electrical Manual

REMOVAL

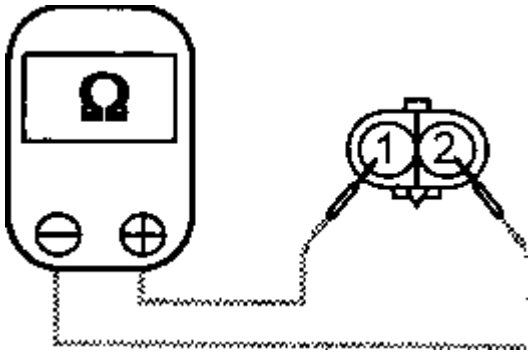
Disconnect the wheel speed sensor connector and mounting bolts.



Return to Main Menu(s): Mechanical Manual Electrical Manual

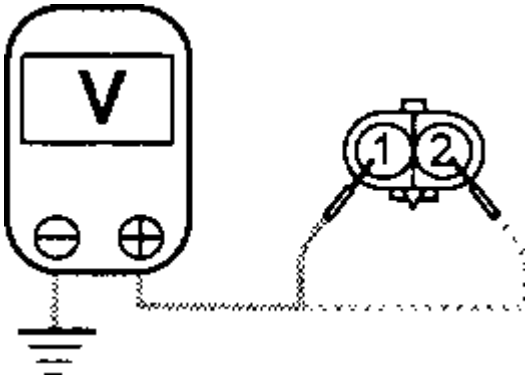
INSPECTION

Connect an ohmmeter between the wheel speed sensor terminals and measure the resistance.



RESISTANCE SPECIFICATION	
Service standard (Front)	1275-1495 O
Service standard (Rear)	1260-1540 O

Connect a voltmeter between the wheel speed sensor terminals, and measure the voltage by turning the wheel.



NOTE

Set the voltmeter to measure AC voltage.

Service standard: AC voltage detected.

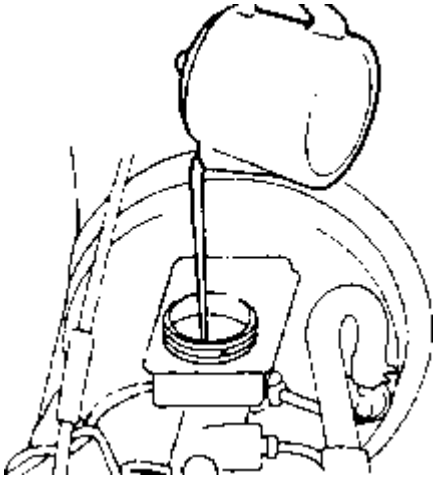
Return to Main Menu(s): Mechanical Manual Electrical Manual

BLEEDING OF BRAKE SYSTEM

NOTE

There is no special bleeding procedure for the ABS SYSTEM. For bleeding, please use the standard rules as described for the conventional brake system as follows.

Remove the reservoir cap and fill the brake reservoir with brake fluid.



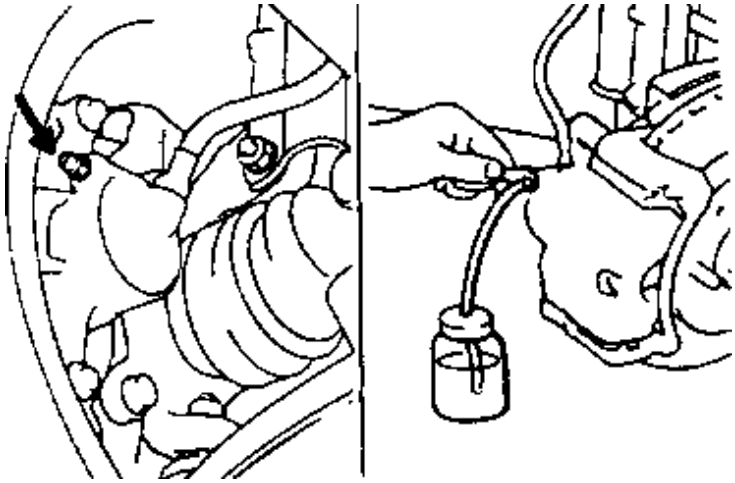
CAUTION

Do not allow brake fluid to remain on a painted surface. Wash it off immediately.

NOTE

When bleeding by pressurized fluid, do not depress the brake pedal.

Connect the vinyl tube to the wheel cylinder bleeder screw, and insert the other end of tube in a half-full container of brake fluid.



Slowly pump the brake pedal several times.

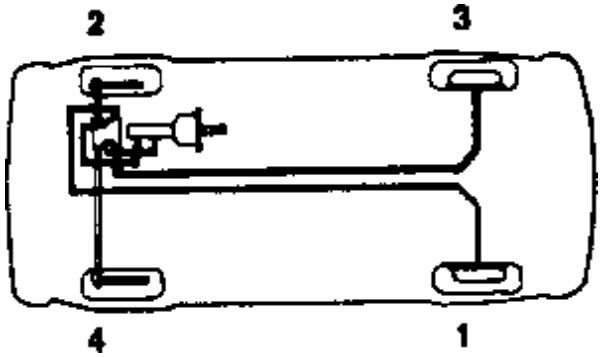
While depressing the brake pedal fully, loosen the bleeder screw until fluid starts to run out. Then close the bleeder screw.

Repeat steps 3 and 4 until there are no more bubbles in the fluid.

Tighten the bleeder plug screw.

TORQUE SPECIFICATION	
Bleed screw (front)	7-13 Nm (70-130 kg·cm, 5-10 lb·ft)
Bleed screw (rear)	8-20 Nm (80-200 kg·cm, 6-15 lb·ft)

Repeat the above procedure for each wheel in the sequence shown in the illustration.

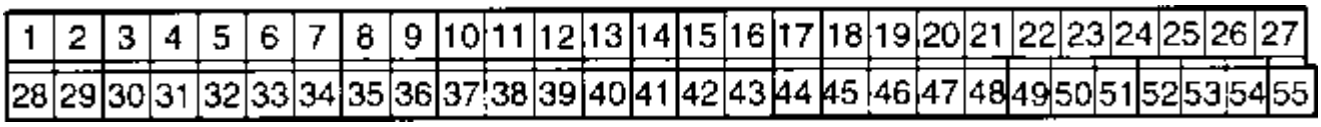


ELECTRICAL TROUBLESHOOTING MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-1999	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

ANTI-LOCK BRAKING SYSTEM CONTROL MODULE

ABSCM CONNECTOR (M60, ABSCM HARNESS SIDE CONNECTOR)



PIN NO	PLUG ASSIGNMENT	I/O	PIN NO	PLUG ASSIGNMENT	I/O
1	SENSOR RIGHT FRONT	I	32	SENSOR LEFT FRONT	I
3	SENSOR LEFT REAR GROUND	I	34	SENSOR LEFT FRONT GND	I
13	MIL FLASH CODE	O	36	SENSOR RIGHT REAR	I
15	BRAKE LIGHT SWITCH	I	37	SENSOR RIGHT REAR GND	I
17	ABS SRI	O	42	MOTOR MONITOR LINE	I
19	MOTOR RELAY DRIVE	O	43	F/SF RELAY MONITOR	I
25	SOLENOID REAR RIGHT	O	44	DLC INPUT/OUTPUT	I/O
26	GROUND FOR SOLENOIDS	I	50	IGNITION SIGNAL	I
27	GROUND FOR SOLENOIDS	I	51	CONTROLLER GROUND	I
28	F/SF RELAY DRIVE	O	52	SOLENOID RIGHT FRONT	O
29	SENSOR LEFT REAR	I	53	SOLENOID LEFT REAR	O
31	SENSOR RIGHT FRONT GND	I	54	SOLENOID LEFT FRONT	O

I: INPUT

MIL: Malfunction Indicator Light

O: OUTPUT

SRI: Service Reminder Indicator

F/SF: Fail safe

DLC: Data Link Connector

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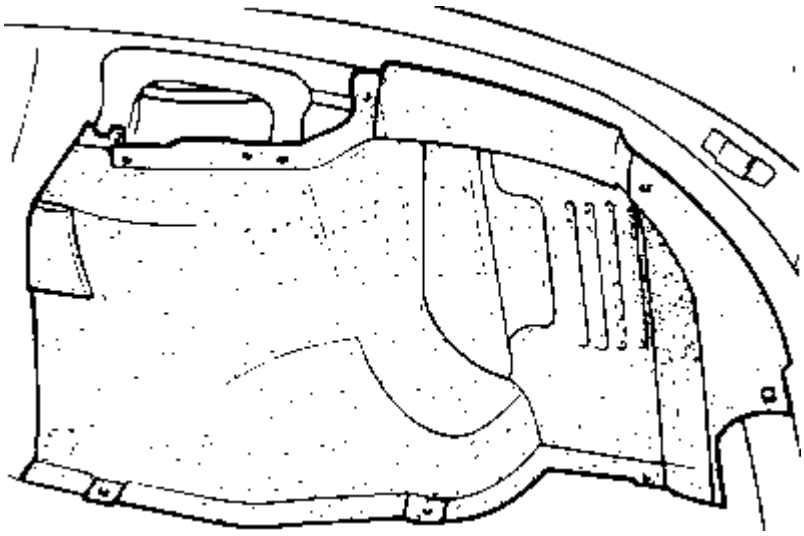
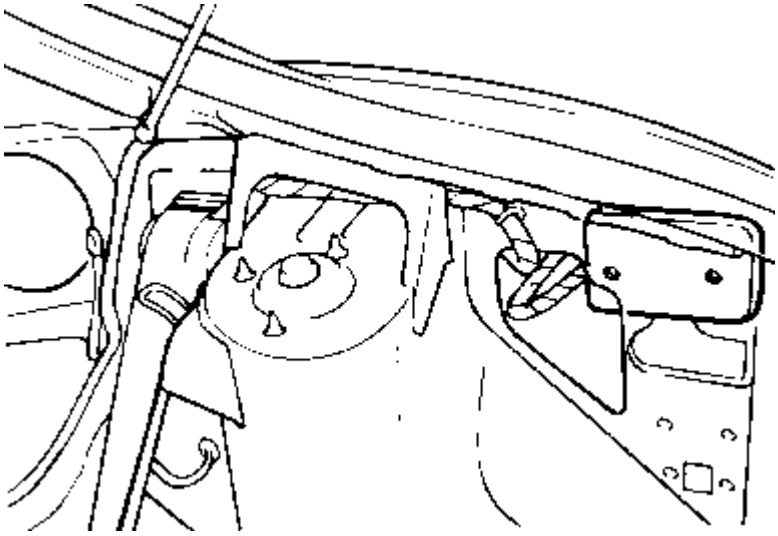
REMOVAL

Remove the luggage side trim.



Remove the ABSCM and disconnect connector.



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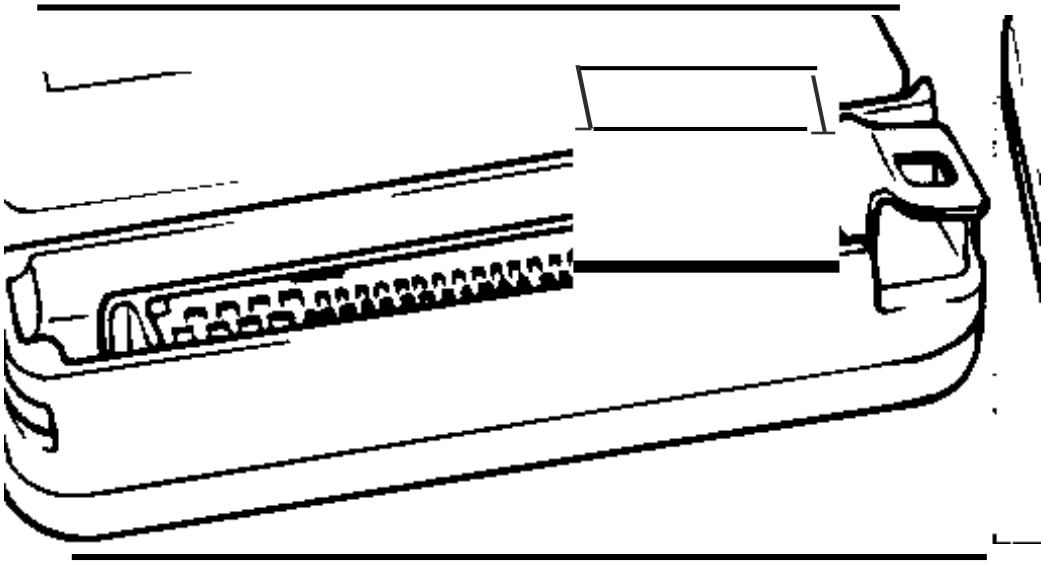
ABSCM (ABS CONTROL MODULE)



ELECTRICAL TROUBLESHOOTING MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-1999	
GROUP	
Brake Systems	Anti-lock Brake System

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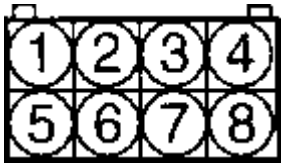
ANTI-LOCK BRAKING SYSTEM MODULATOR

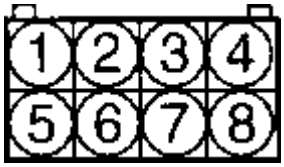
MODULATOR CONNECTOR (M63, HARNESS SIDE)



PIN NO.	PLUG ASSIGNMENT	PIN NO.	PLUG ASSIGNMENT
1	RIGHT REAR SOLENOID GND	5	RIGHT REAR SOLENOID GND
2	LEFT REAR SOLENOID GND	6	LEFT REAR SOLENOID GND
3	RIGHT FRONT SOLENOID GND	7	RIGHT FRONT SOLENOID GND
4	LEFT FRONT SOLENOID GND	8	LEFT FRONT SOLENOID GND

Return to Main Menu(s): Mechanical Manual Electrical Manual

RELAY BOX CONNECTOR (M62, HARNESS SIDE)



PIN NO.	PLUG ASSIGNMENT	PIN NO.	PLUG ASSIGNMENT
1	RIGHT REAR SOLENOID GND	5	RIGHT REAR SOLENOID GND
2	LEFT REAR SOLENOID GND	6	LEFT REAR SOLENOID GND
3	RIGHT FRONT SOLENOID GND	7	RIGHT FRONT SOLENOID GND
4	LEFT FRONT SOLENOID GND	8	LEFT FRONT SOLENOID GND

Return to Main Menu(s): Mechanical Manual Electrical Manual

INSTALLATION

Follow the reverse order of removal.

Tighten the modulator mounting bolts and brake tube nuts to the specified torque.

TORQUE SPECIFICATION	
Modulator mounting bolt	17-26 Nm (170-260 kg·cm, 12-19 lb·ft)
Brake tube nut	13-17 Nm (130-170 kg·cm, 9-12 lb·ft)

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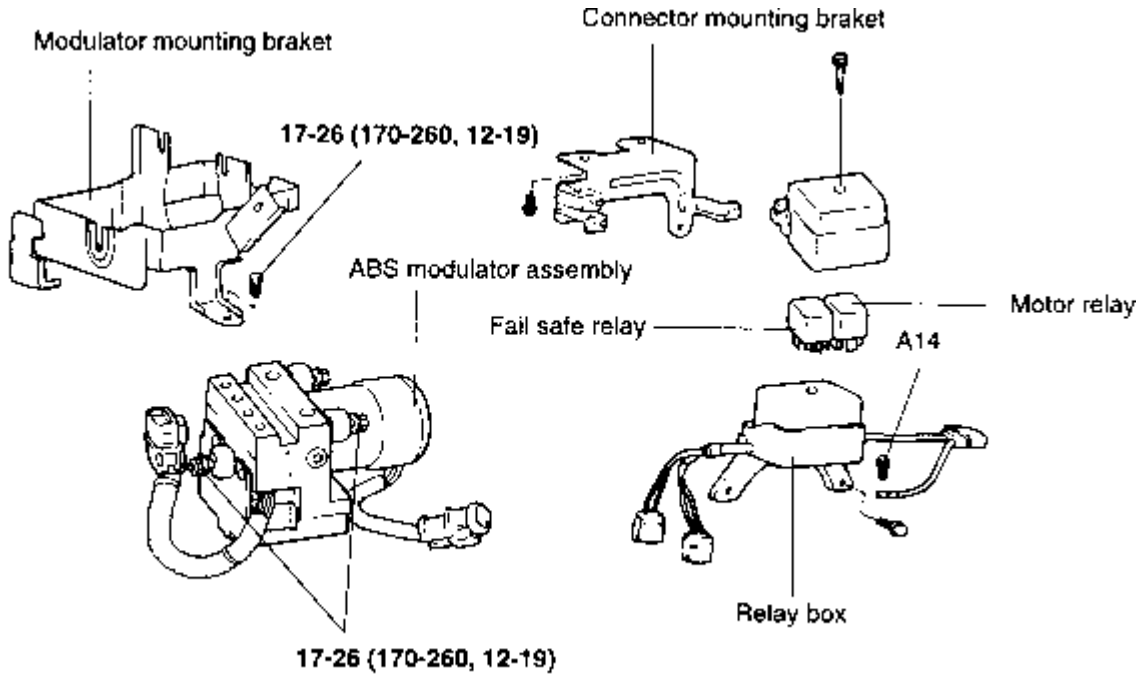
COMPONENTS



TORQUE : Nm (kg·cm, lb·ft)

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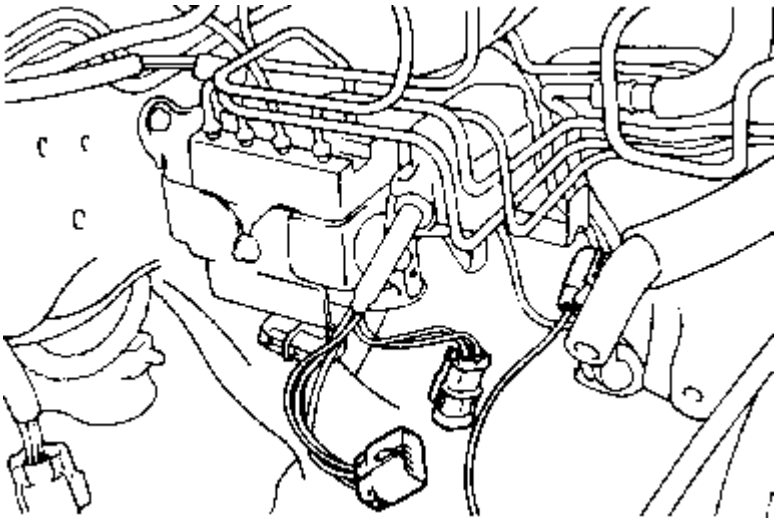
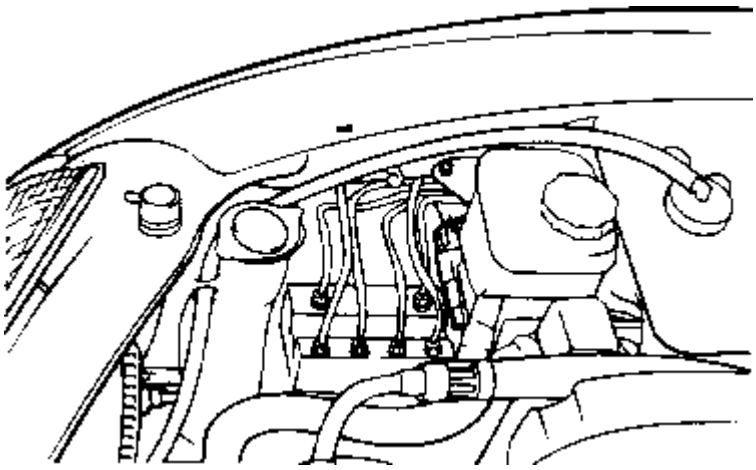
REMOVAL

Push up the power steering fluid reservoir.

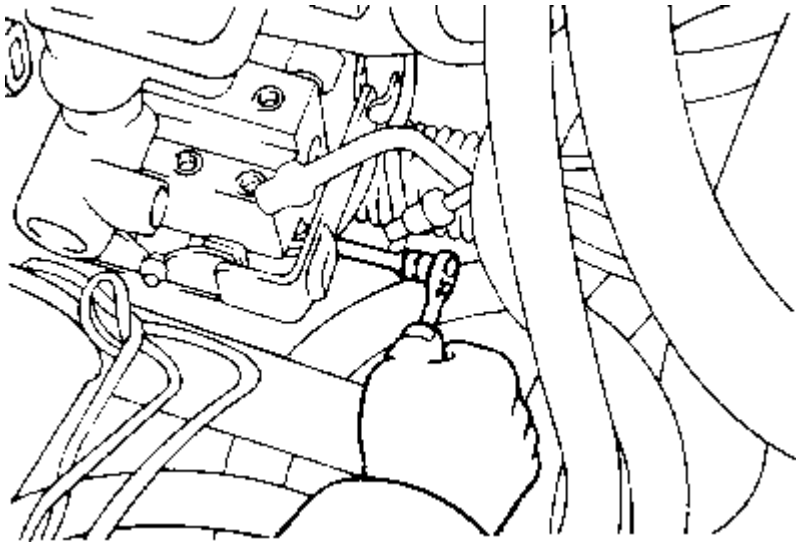
Disconnect the ABS Relay box harness, Motor Pump harness and modulator harness located in right front fender.



Disconnect the brake tubes from the ABS modulator to the brake master cylinder and proportioning valve.



Remove the Modulator mounting Bracket and remove the modulator.



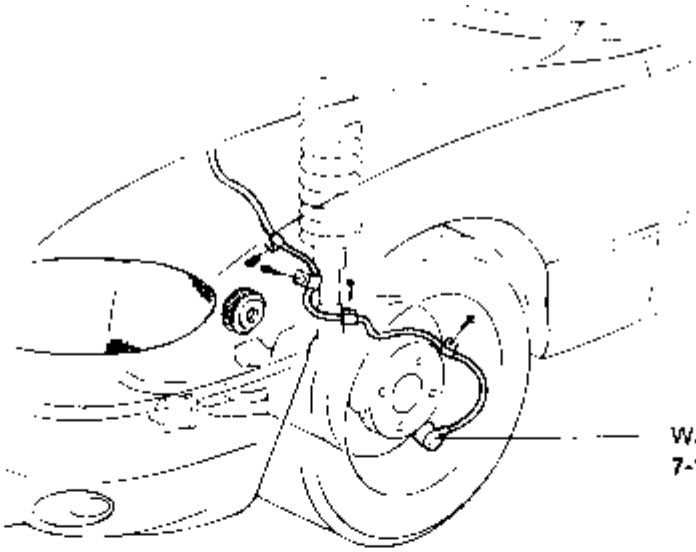
CAUTION

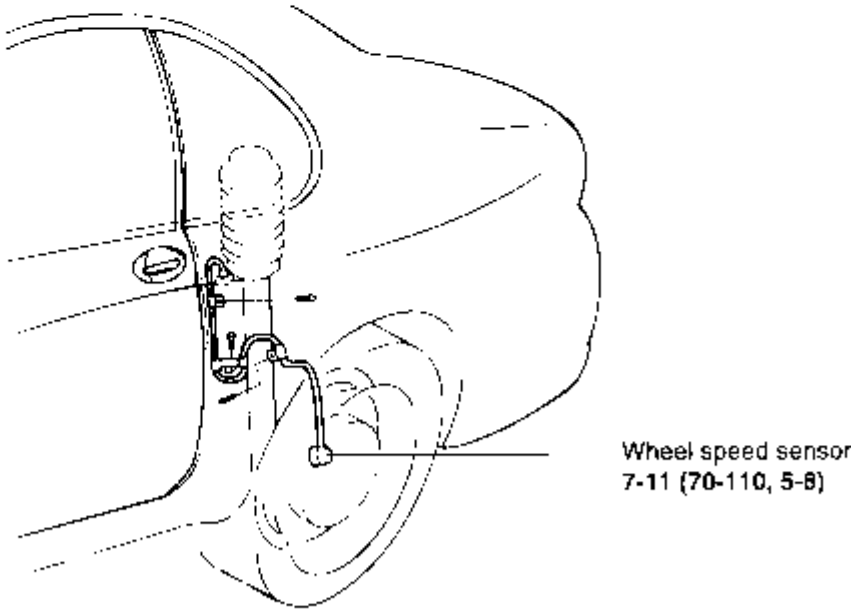
1. **Never attempt to disassemble the ABS modulator.**
2. **The modulator must be transported and stored in upright position and with sealed ports. The modulator must not be drained.**

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Anti-lock Brake System

Return to Main Menu(s): Mechanical Manual Electrical Manual

WHEEL SPEED SENSOR





TORQUE : Nm (kg·cm, lb·ft)

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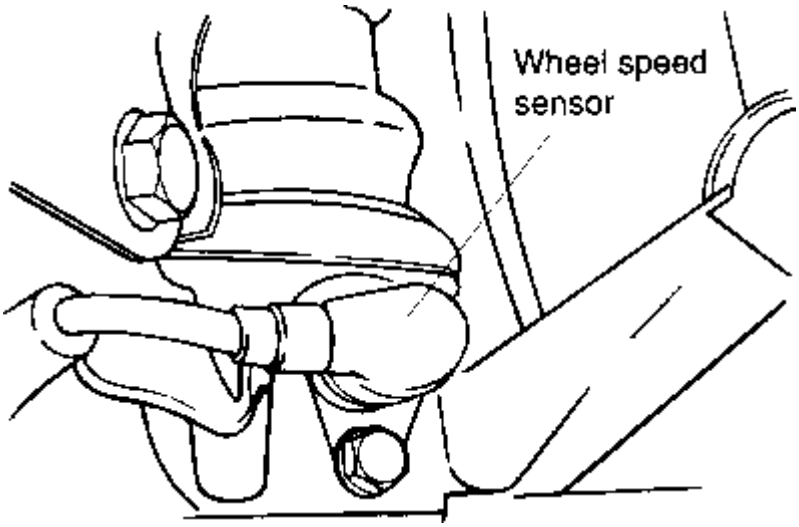
REMOVAL

Disconnect the wheel speed sensor connector and mounting bolts.



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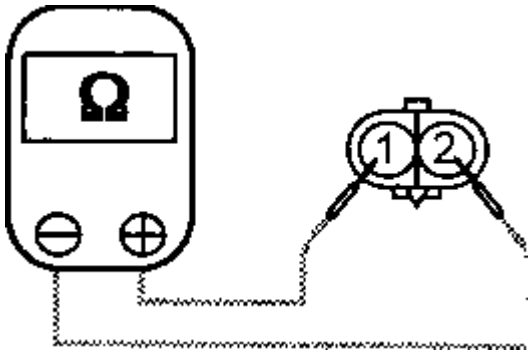
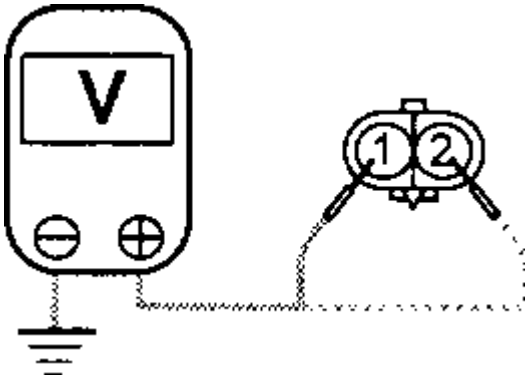
INSPECTION

Connect an ohmmeter between the wheel speed sensor terminals and measure the resistance.



RESISTANCE SPECIFICATION	
Service standard (Front)	1275-1495 O
Service standard (Rear)	1260-1540 O

Connect a voltmeter between the wheel speed sensor terminals, and measure the voltage by turning the wheel.



NOTE

Set the voltmeter to measure AC voltage.

Service standard: AC voltage detected.

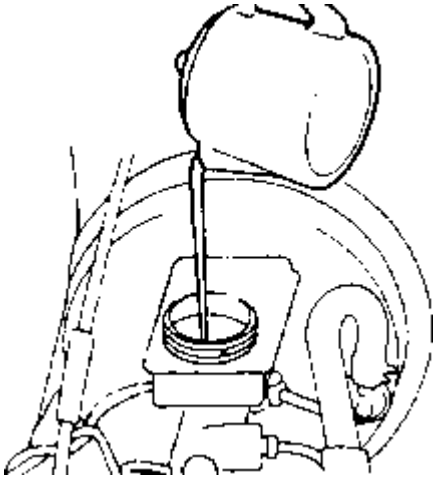
Return to Main Menu(s): Mechanical Manual Electrical Manual

BLEEDING OF BRAKE SYSTEM

NOTE

There is no special bleeding procedure for the ABS SYSTEM. For bleeding, please use the standard rules as described for the conventional brake system as follows.

Remove the reservoir cap and fill the brake reservoir with brake fluid.



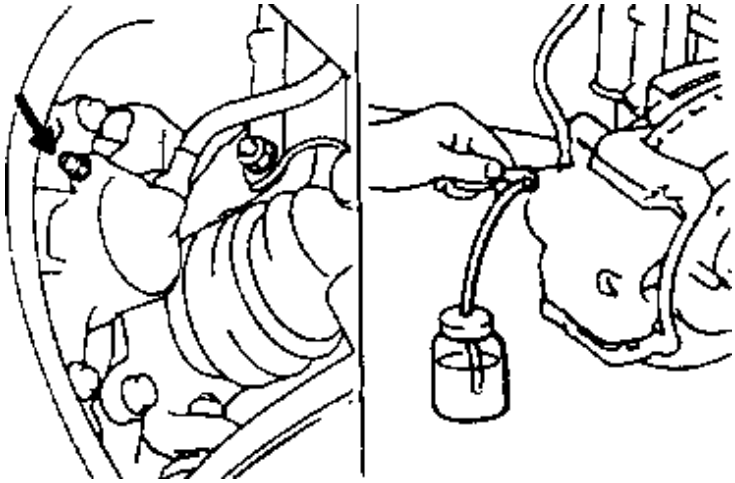
CAUTION

Do not allow brake fluid to remain on a painted surface. Wash it off immediately.

NOTE

When bleeding by pressurized fluid, do not depress the brake pedal.

Connect the vinyl tube to the wheel cylinder bleeder screw, and insert the other end of tube in a half-full container of brake fluid.



Slowly pump the brake pedal several times.

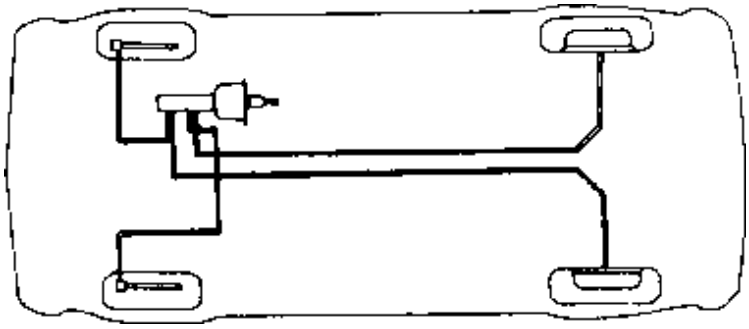
While depressing the brake pedal fully, loosen the bleeder screw until fluid starts to run out. Then close the bleeder screw.

Repeat steps 3 and 4 until there are no more bubbles in the fluid.

Tighten the bleeder plug screw.

TORQUE SPECIFICATION	
Bleed screw (front)	7-13 Nm (70-130 kg·cm, 5-10 lb·ft)
Bleed screw (rear)	8-20 Nm (80-200 kg·cm, 6-15 lb·ft)

Repeat the above procedure for each wheel in the sequence shown in the illustration.

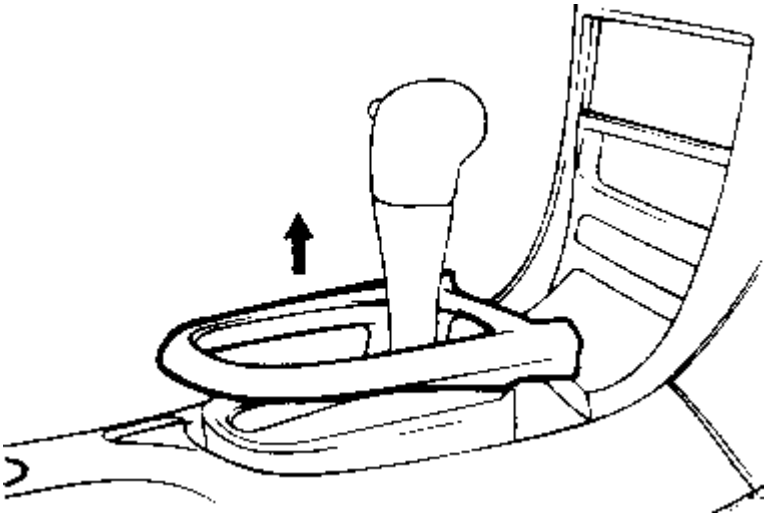


SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Parking Brake System

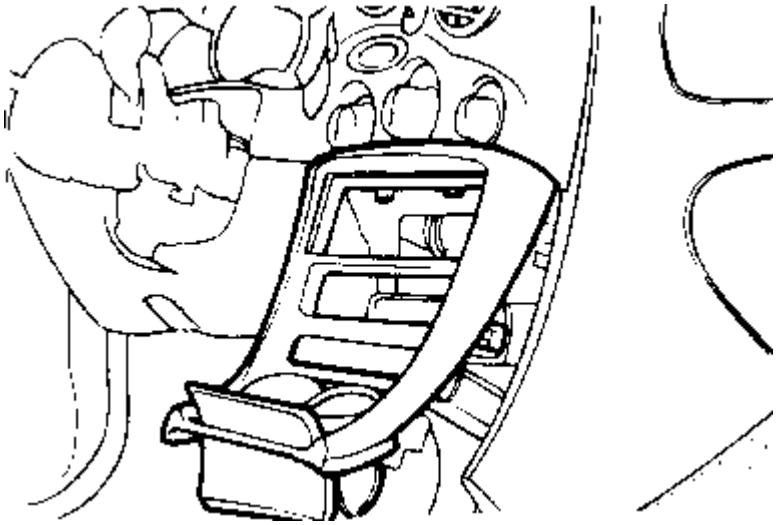
Return to Main Menu(s): Mechanical Manual Electrical Manual

REMOVAL

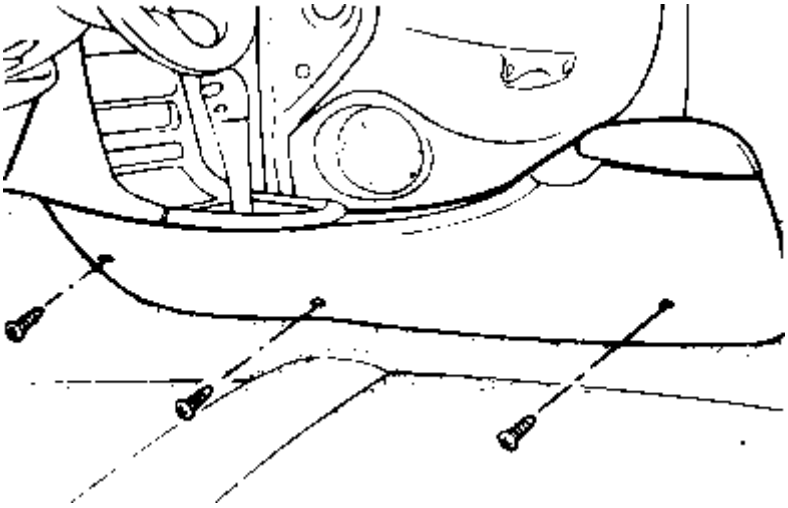
Remove the console upper cover.



Remove the crash pad center facia panel.



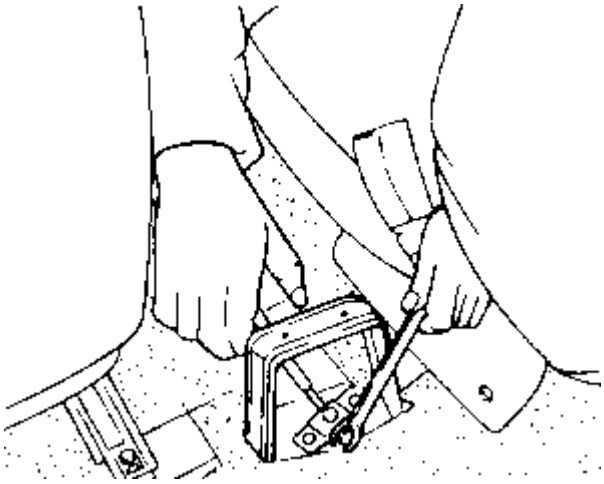
Remove the console assembly.



Remove the parking cable adjusting nut.

Detach the parking brake switch assembly.

Remove the parking brake lever assembly.

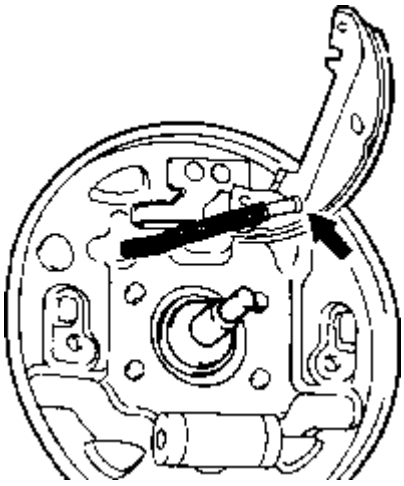


Remove the wheel and tire.

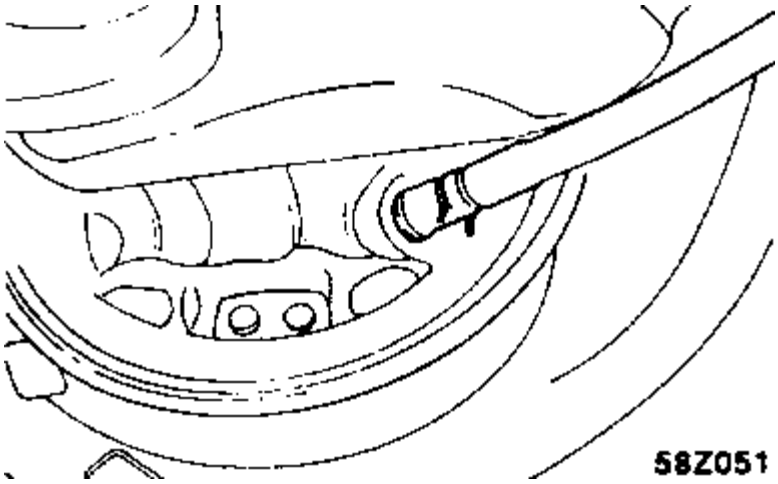
Remove the brake drum.

Remove the brake shoes as outlined before.

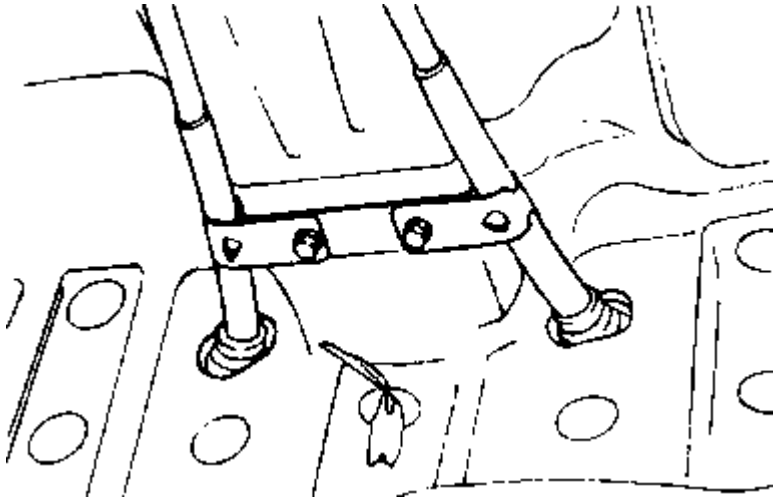
Detach the parking brake cable from the brake shoe.



Remove the parking cable retaining ring in the rear of the backing plate.



Remove the rear seat cushion assembly and roll up the carpet.



Loosen the parking brake cable clamp and remove the parking brake cable assembly.

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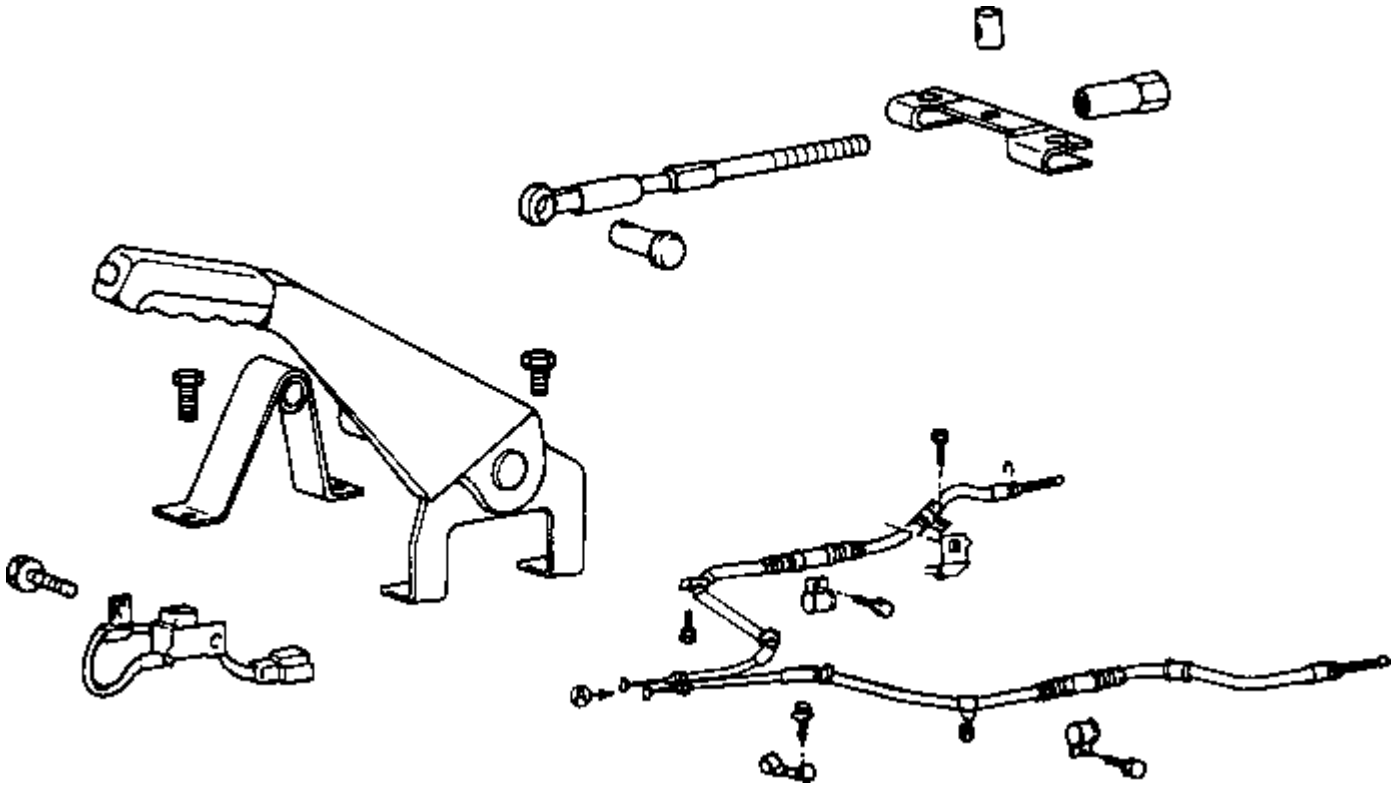
COMPONENTS



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INSPECTION

Check the parking brake switch operation.

Check the parking brake lever ratchet for wear.

Check the parking brake cable for fraying or damage.

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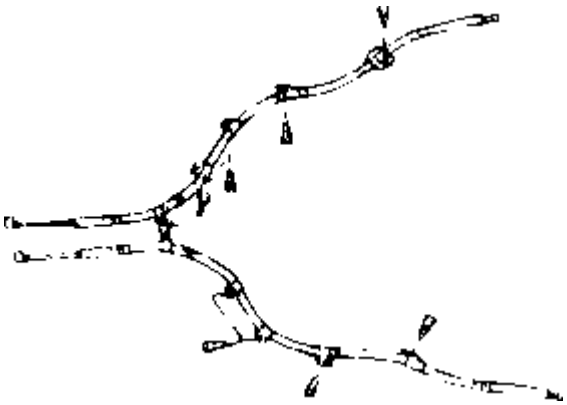
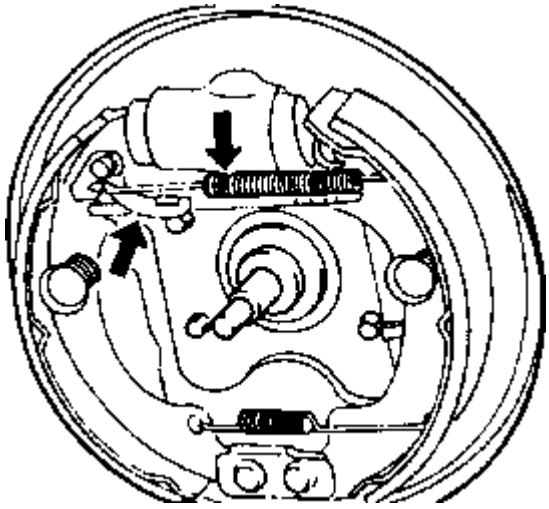
INSTALLATION

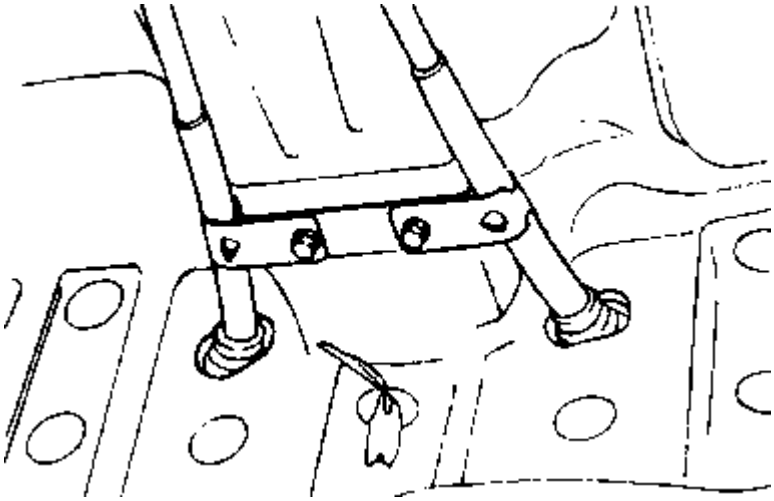
Check the parking brake cables for left and right identification marks and install accordingly.



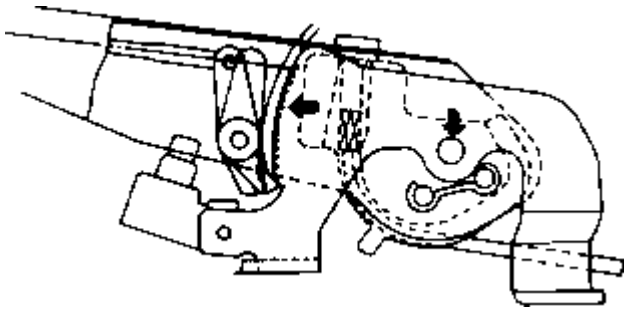
Move the adjuster lever all the way back when installing the shoe-to-shoe spring.



Install the grommets in the direction shown in the illustration.



Apply a coating of the specified grease to the sliding pads of the ratchet plate and ratchet pawl.



Specified grease: Multipurpose grease SAE J310, NLGI No. 2

After installing the cable adjuster, adjust the parking brake lever stroke.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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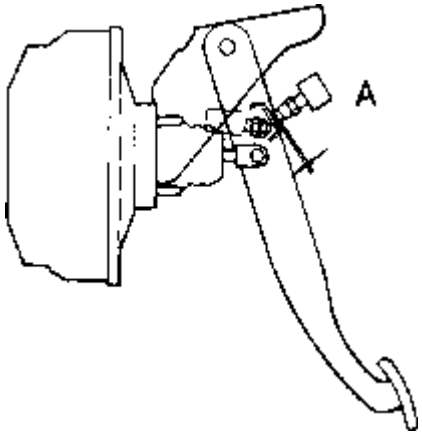
ADJUSTMENT

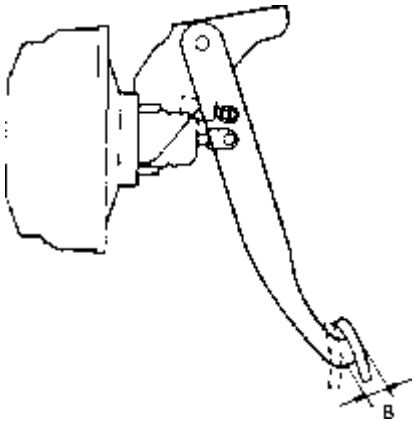
Clearance between the stop lamp switch outer case and pedal arm.

MEASUREMENT SPECIFICATION	
"A"	0.5 - 1.0 mm (10.02 - 0.039 in)

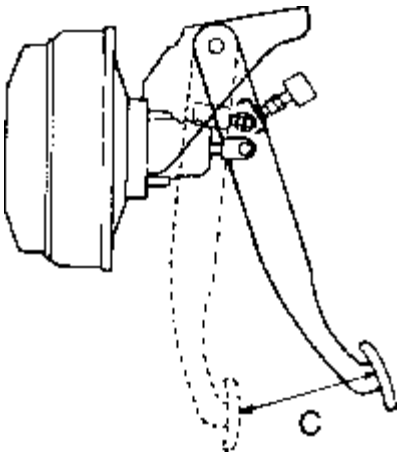


Free play of brake pedal B

MEASUREMENT SPECIFICATION	
Free play of brake pedal C	3-8 mm (0.118-0.315 in)



Start the engine, apply the brake pedal with approximately 500 N (50 kg, 110 lbs.) of force, and measure pedal stroke.



Standard value: Pedal stroke "C" When pedal is depressed 50 kg (110 lb.) force 145 mm(1.776 in.) or more

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Conventional BrakeSystem

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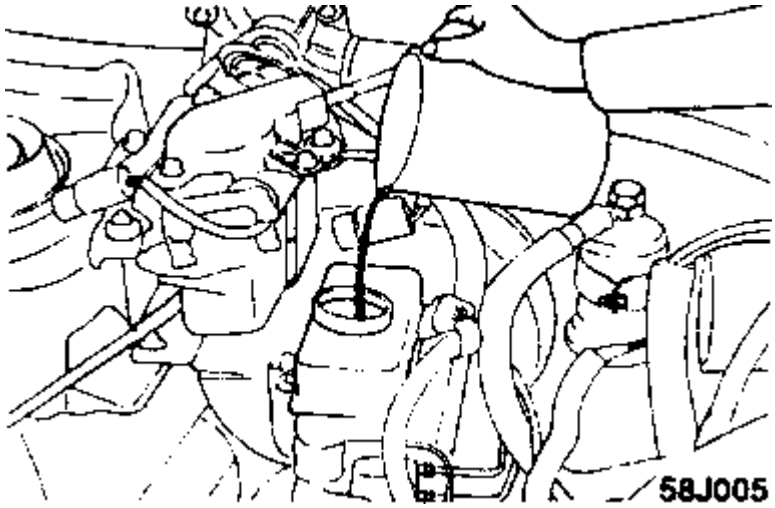
BLEEDING OF BRAKE SYSTEM

Remove the reservoir cap and fill the brake reservoir with brake fluid.



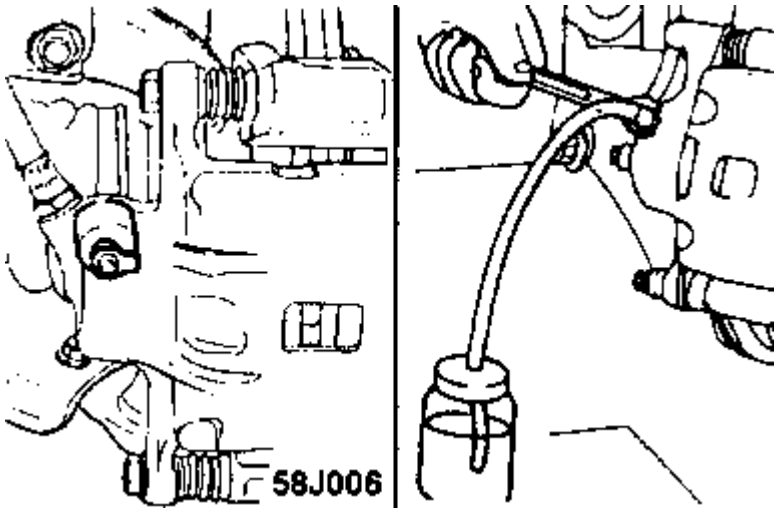
CAUTION

Do not allow brake fluid on a painted surface. Wash it off immediately.

NOTE

When bleeding by pressurized fluid, do not depress the brake pedal.

Connect the vinyl tube to the wheel cylinder bleeder plug, and insert the other end of tube in a half-full container of brake fluid.



Slowly pump the brake pedal several times.

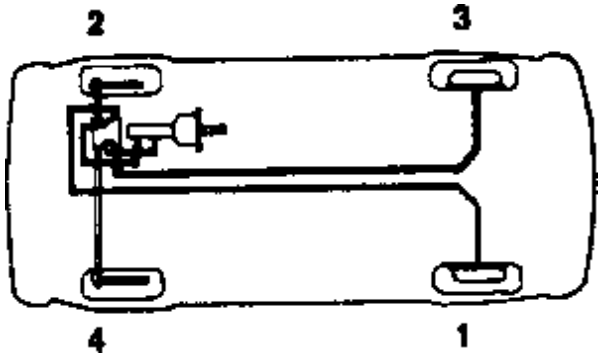
While depressing the brake pedal fully, loosen the bleeder plug until fluid starts to run out. Then close the bleeder screw,

Repeat steps 3 and 4 until there are no more bubbles in the fluid.

Tighten the bleeder plug screw.

TORQUE SPECIFICATION	
Bleeder screw	7-9 Nm (70-90 kg·cm, 5.1-6.6 lb·ft)

Repeat the above procedure for each wheel in the sequence shown in the illustration.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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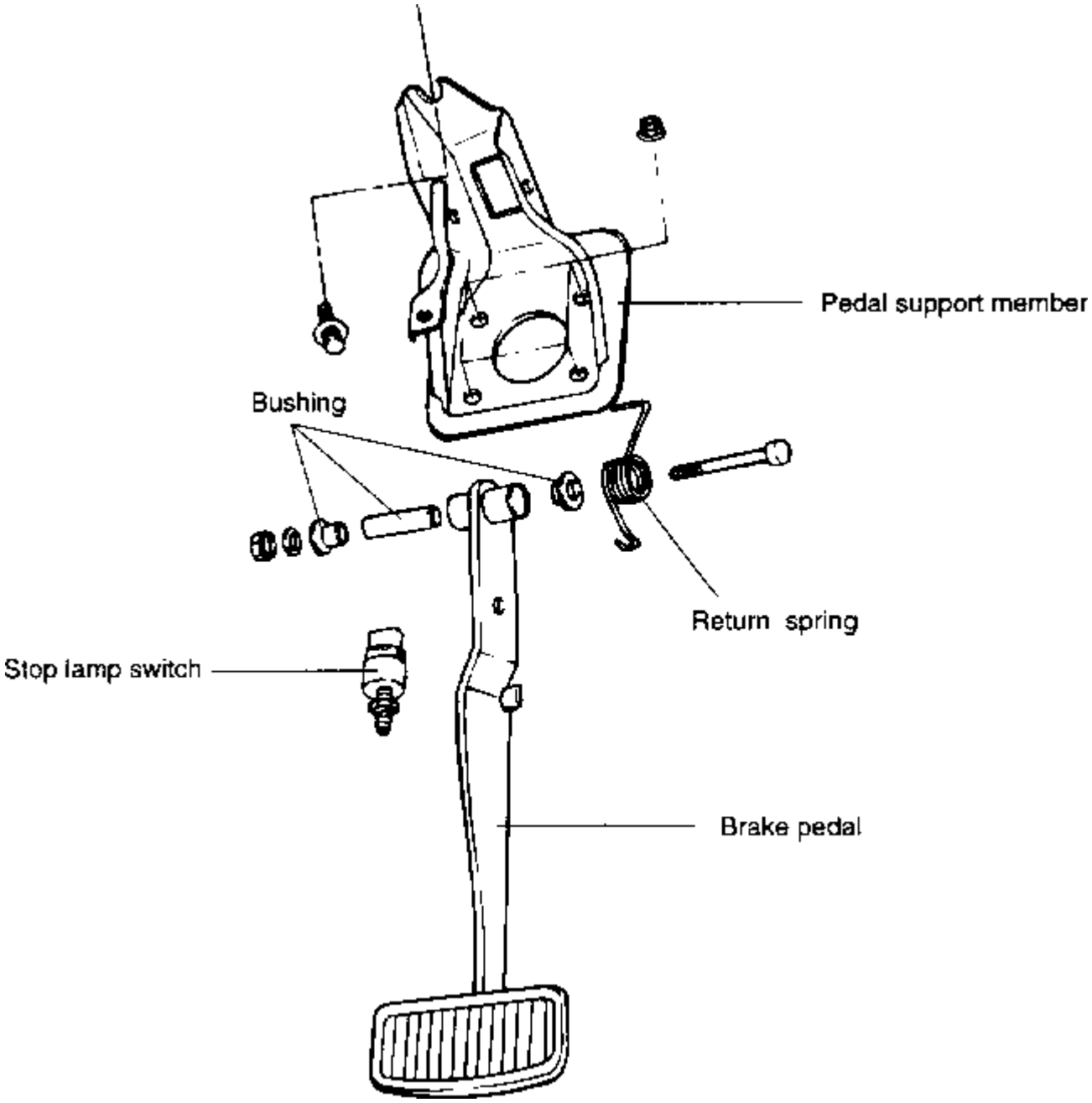
BRAKE PEDAL COMPONENTS



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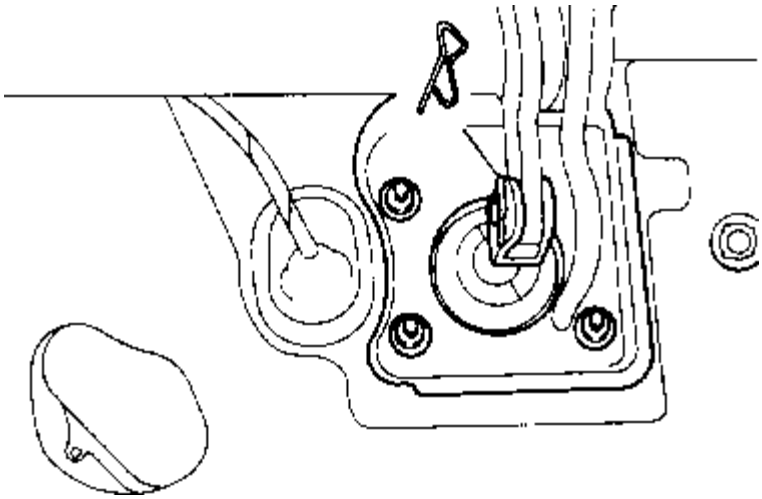
DISASSEMBLY

Remove the stop lamp switch.



Remove the flange nuts (4EA) & bolt (1EA) of the brake mounting bracket.

Remove the clevis pin.

Remove the brake pedal assembly.

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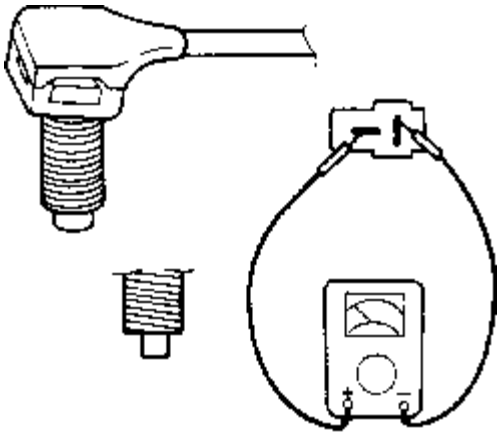
INSPECTION



BRAKE SWITCH CHECK

Check the bushing for wear.

Check the brake pedal for distortion.

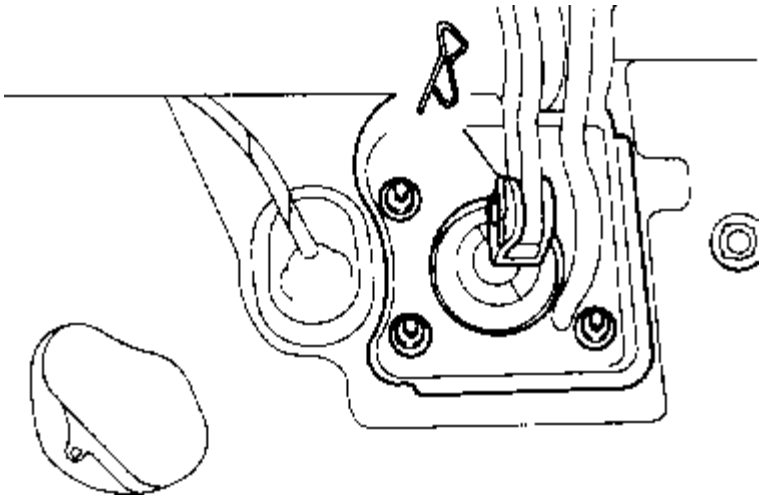
Check the brake pedal return spring for damage.

Check the stop lamp switch.

With an ohmmeter connected to the stop lamp switch terminals, check for continuity.
If there is no continuity when the plunger is depressed and there is continuity when the plunger is released, the stop lamp switch is normal

Return to Main Menu(s): Mechanical Manual Electrical Manual

INSTALLATION



Apply chassis grease to the sliding surface of the brake pedal and operating rod clevis pin.

> **CAUTION**
>
> **Be sure to install the split pin on the operating rod clevis pin.**

Install the brake pedal assembly and tighten the flange nuts (booster mounting nuts) and bolt.

TORQUE SPECIFICATION	
Tighten the flange nuts	8-12 Nm (80-120 kg·cm, ? lb·ft)

Adjust the brake pedal height and free play.

Install the stop lamp switch.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Conventional BrakeSystem

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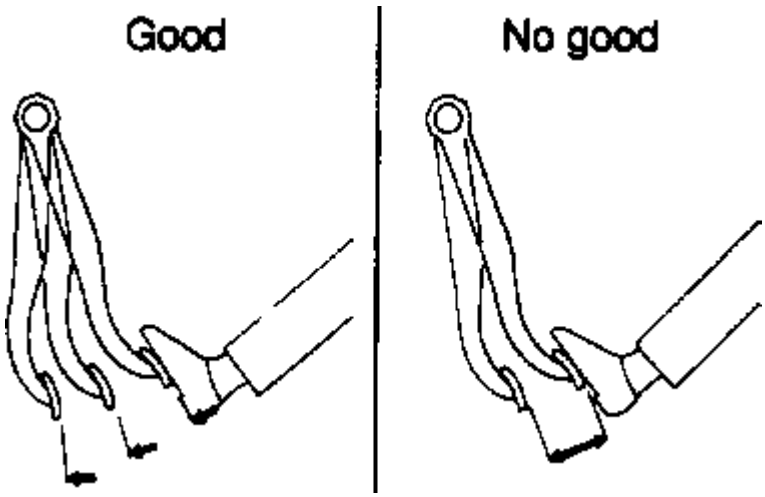
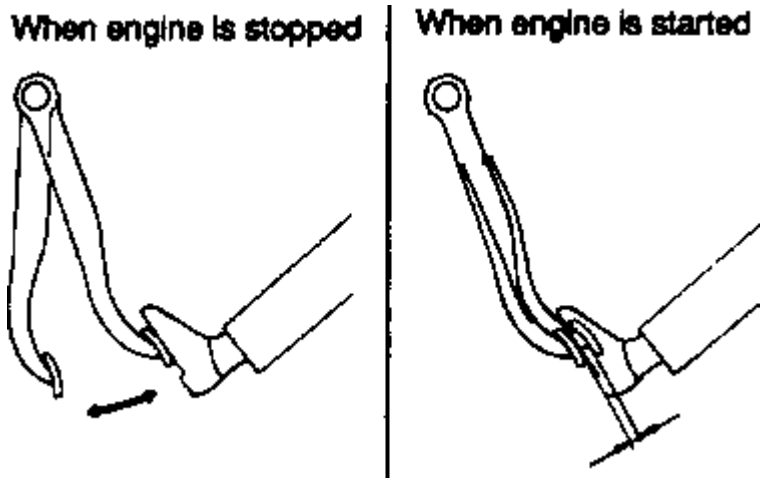
BRAKE BOOSTER OPERATION TEST WITHOUT A TESTER

For a simple check of brake booster operation, make the following tests.

Run the engine for one or two minutes, and then stop it. Depress the brake pedal several times at normal foot pressure. If the pedal goes down further at the first time, but gradually rises after the second or third time, the brake booster is functioning properly. Go to step 2.



With the engine stopped, depress the brake pedal several times. Depress the brake pedal and start the engine. If the pedal goes down slightly, the booster is in good condition. Go to step 3.



With the engine running, depress the brake pedal and then stop the engine. Hold the pedal depressed for 30 seconds. If the pedal height does not change, the booster is in good condition.

If one of the above three tests is not okay, check the vacuum hoses and the brake booster, make any necessary corrections. If all tests are OK, the unit is good

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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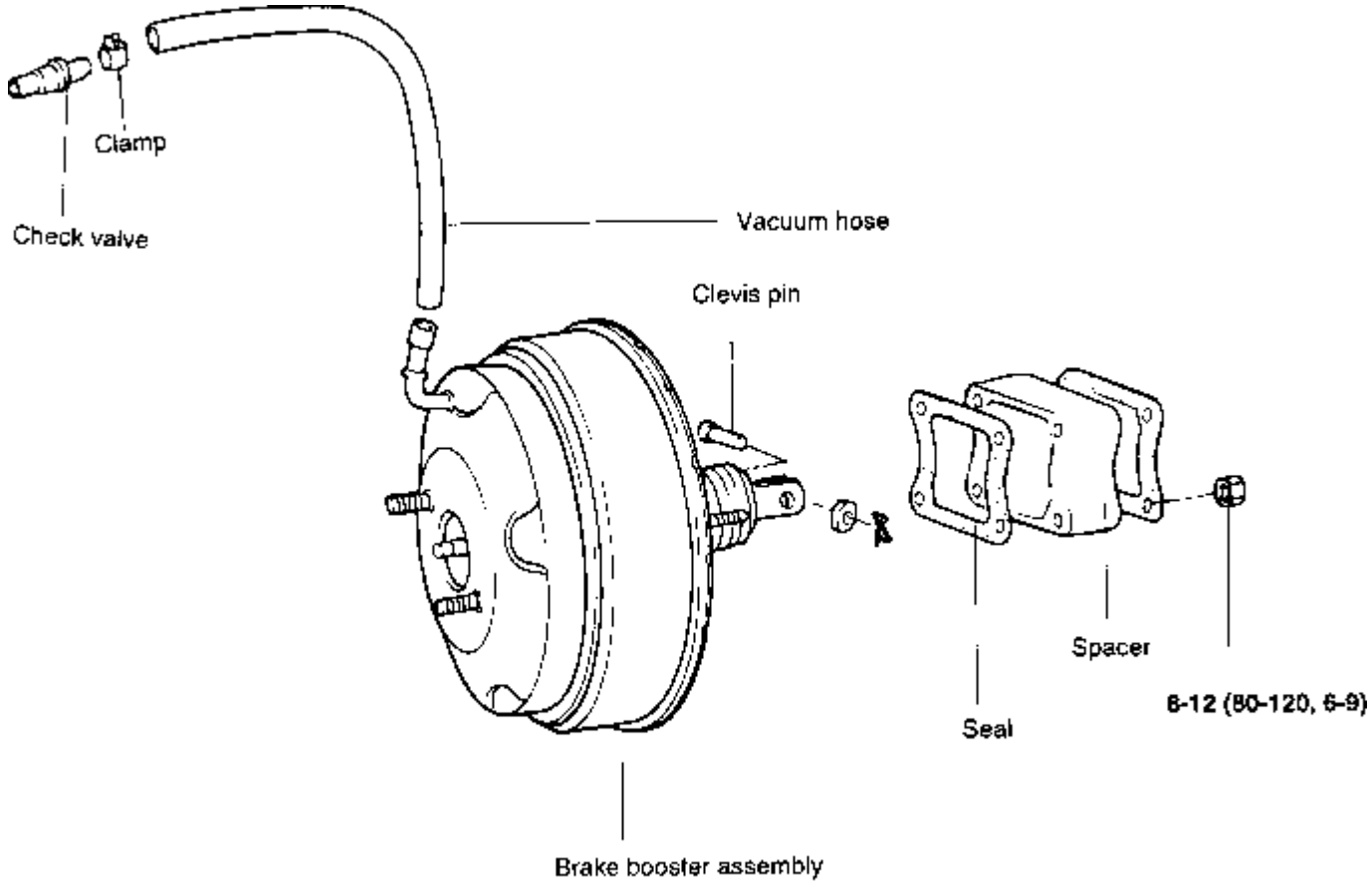
COMPONENTS



TORQUE : Nm (kg·cm, lb·ft)

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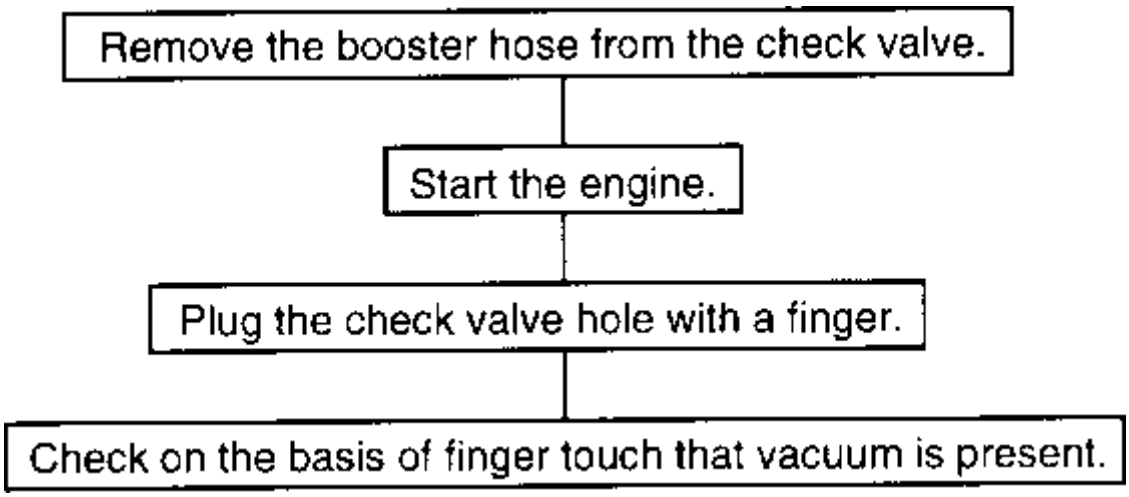
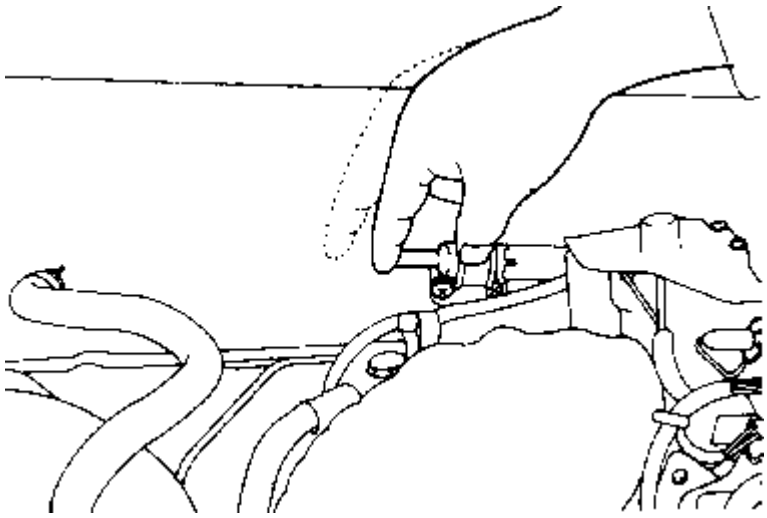
CHECK VALVE OPERATING TEST





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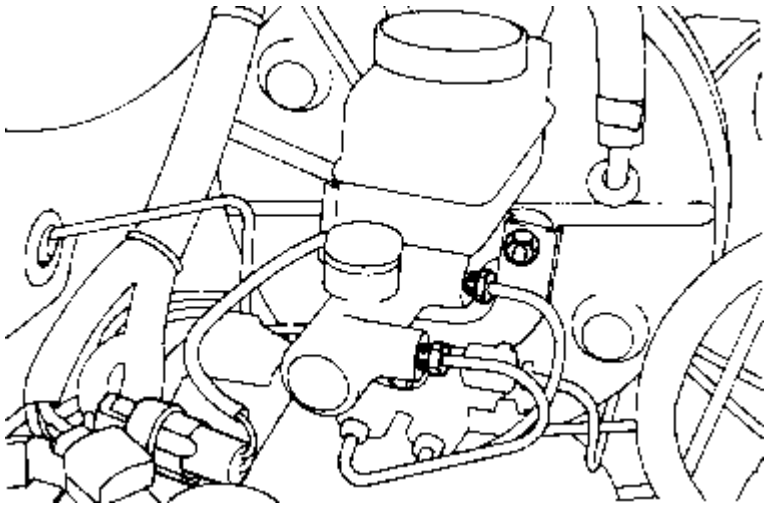
REMOVAL

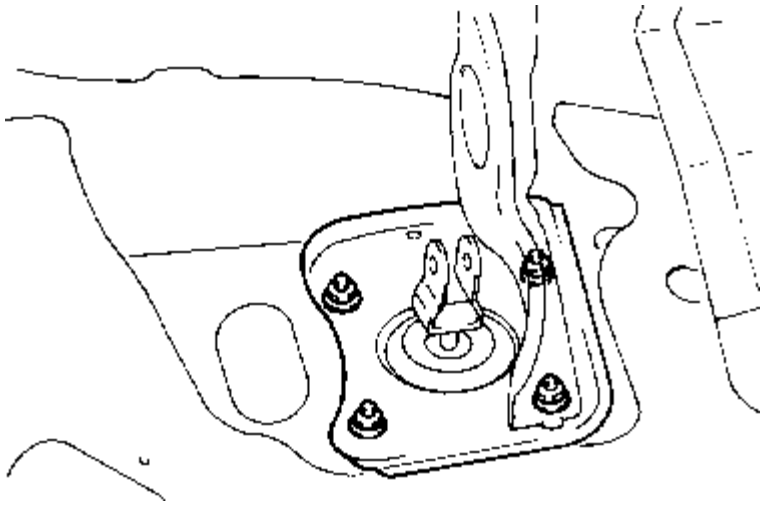


Disconnect the brake tube from the master cylinder.

Remove the master cylinder.

> **CAUTION**
>
> **Do not allow brake fluid to remain on a painted surface. Wash it off immediately.**

Disconnect the vacuum hose the booster.



Remove the operating rod from the brake pedal.

Remove the stop lamp switch.

Loosen the booster mounting nuts.

Lift out the booster assembly.

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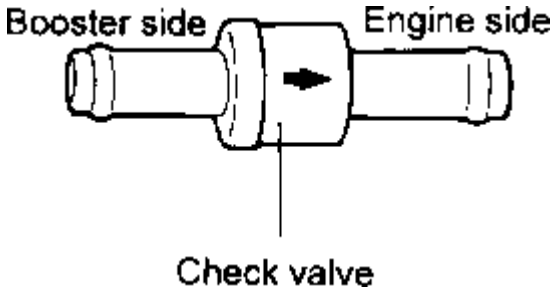
INSTALLATION

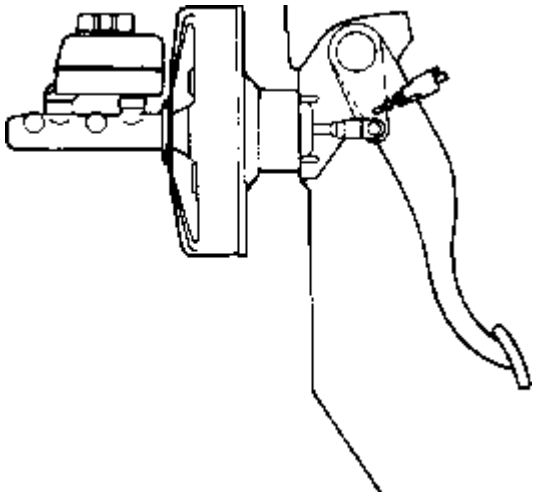
When the booster assembly is installed, replace the packing at each end of the booster mounting holder, if necessary.



Install brake booster and tighten the mounting nuts.

TORQUE SPECIFICATION	
Mounting nuts	8-12 Nm (80-120 kg·cm, 6-9 lb·ft)

Connect clevis to brake pedal with clevis pin and install the split pin to the clevis pin.



Install master cylinder and connect the brake tube to the master cylinder.

Connect vacuum hose to brake booster.

Pay attention to the direction of the check valve when installing.

Fill brake reservoir with brake fluid and bleed the system.

Check for fluid leakage.

Check and adjust the brake pedal.

After installation, apply sufficient grease to the clevis and brake pedal contacting points.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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REASSEMBLY

Install the brake hoses without twisting them.

The brake tubes should be installed away from sharp edges, weld beads or moving parts.

Tighten the connections to the specified torque.

TORQUE SPECIFICATION	
Flare nuts	13-17 Nm (130-170 kg·cm, 9-12 lb·ft)
Brake hose to front caliper	25-30 Nm (250-300 kg·cm, 18-22 lb·ft)

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INSPECTION

Check the brake lines for cracks, crimps and corrosion.

Check the brake hoses for cracks, damage and leakage.

Check the brake line flare nuts for damage and leakage.

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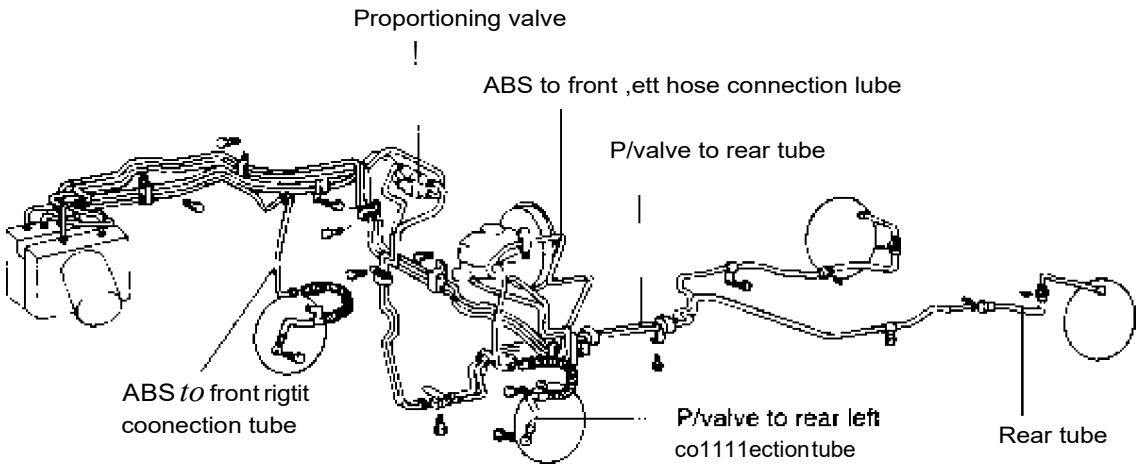
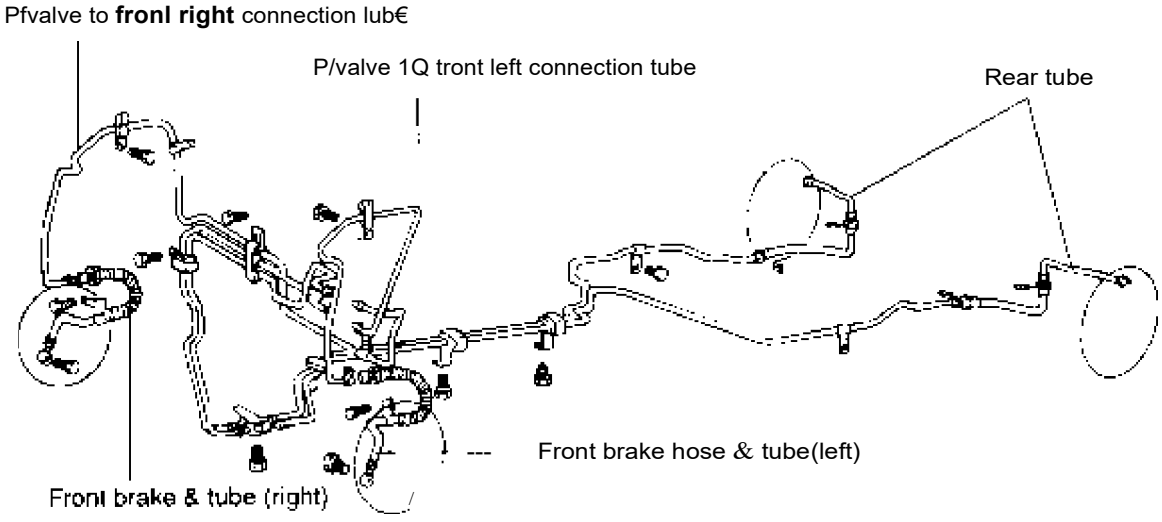
COMPONENTS

[ABSJ



{Non ABS}



TORQUE: Nm (kg-cm, lb•ft)

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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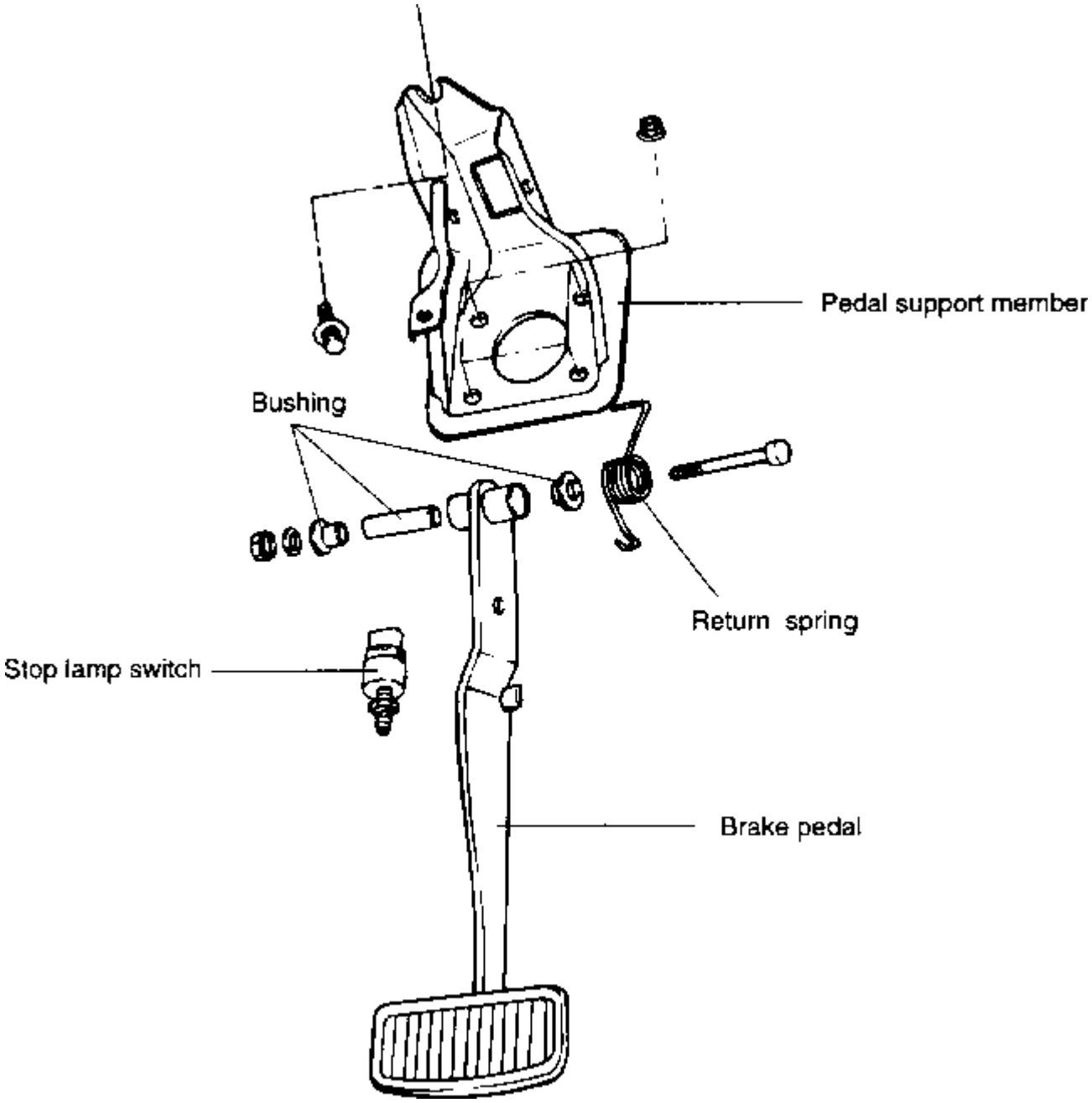
BRAKE PEDAL COMPONENTS



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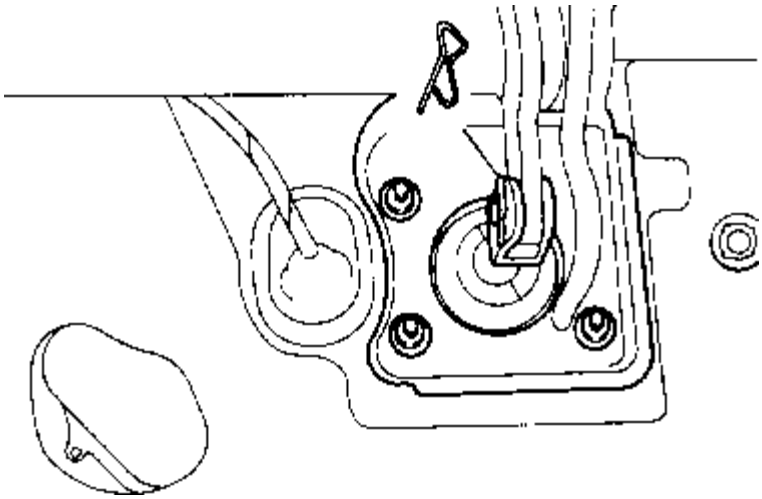
DISASSEMBLY

Remove the stop lamp switch.



Remove the flange nuts (4EA) & bolt (1EA) of the brake mounting bracket.

Remove the clevis pin.

Remove the brake pedal assembly.

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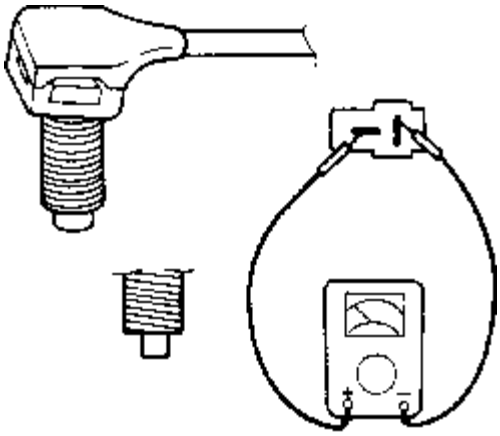
INSPECTION



BRAKE SWITCH CHECK

Check the bushing for wear.

Check the brake pedal for distortion.

Check the brake pedal return spring for damage.

Check the stop lamp switch.

With an ohmmeter connected to the stop lamp switch terminals, check for continuity.
If there is no continuity when the plunger is depressed and there is continuity when the plunger is released, the stop lamp switch is normal

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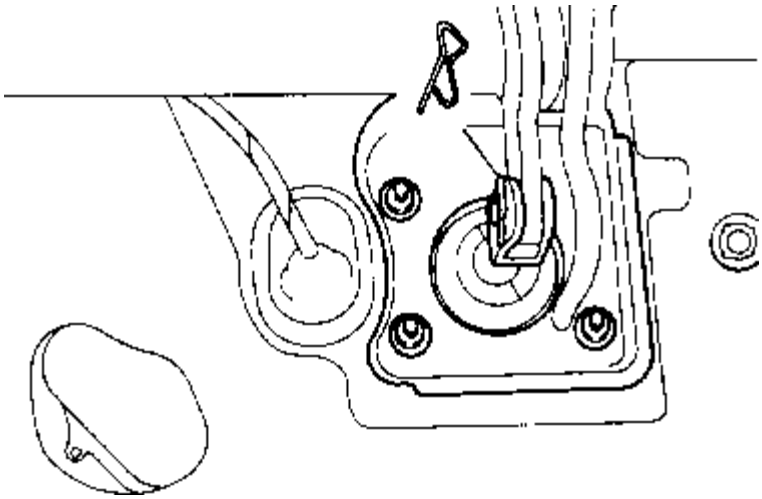
INSTALLATION



Apply chassis grease to the sliding surface of the brake pedal and operating rod clevis pin.

> **CAUTION**
>
> **Be sure to install the split pin on the operating rod clevis pin.**

Install the brake pedal assembly and tighten the flange nuts (booster mounting nuts) and bolt.

TORQUE SPECIFICATION	
Tighten the flange nuts	8-12 Nm (80-120 kg·cm, ? lb·ft)

Adjust the brake pedal height and free play.

Install the stop lamp switch.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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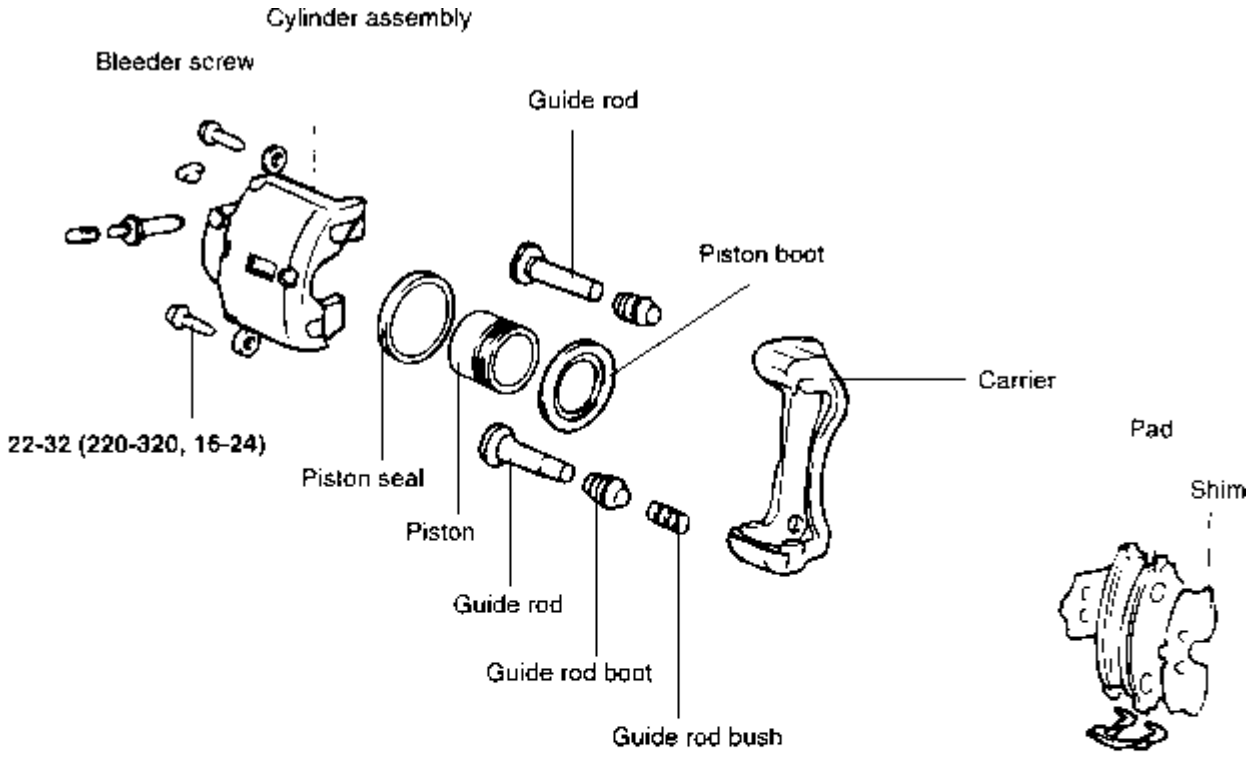
COMPONENTS



TORQUE : Nm (kg·cm, lb·ft)

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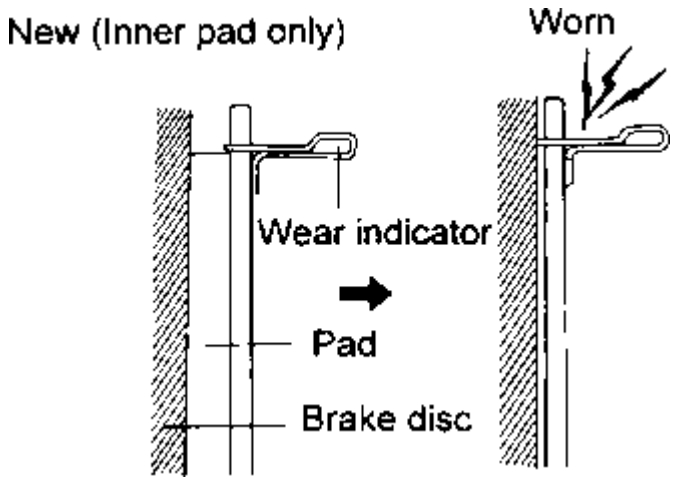
REPLACEMENT OF BRAKE PADS

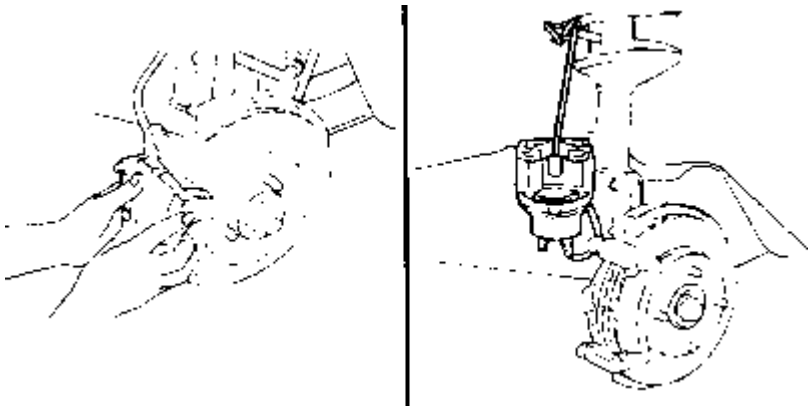
The brake pads have wear indicators that contact the brake disc when the brake pad thickness becomes 2 mm (0.08 in.) or less. The wear indicators will generate a squealing sound to warn the driver.



REMOVAL

Remove the lower bolt and lift the caliper assembly up and out of the way. Secure it with wire or some other retaining method.

Remove the pads.



CAUTION

Do not depress the brake pedal while disassembling the pads.

INSPECTION

Check the pads for wear or oil contamination and replace, if necessary.

NOTE

The pads for the right and left wheels should be replaced at the same time. Never "split" or intermix brake pad sets. All four pads must be replaced as a complete set.

	Standard value	Service limit
Pad thickness mm (in.)	11 (0.433)	2.0 (0.079)

Check the shims for damage or deformation

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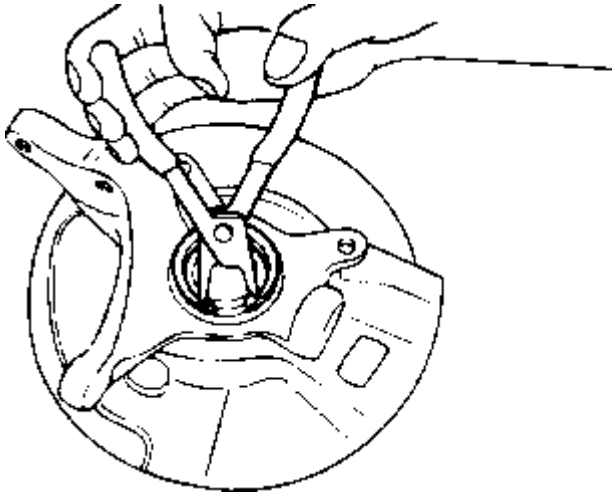
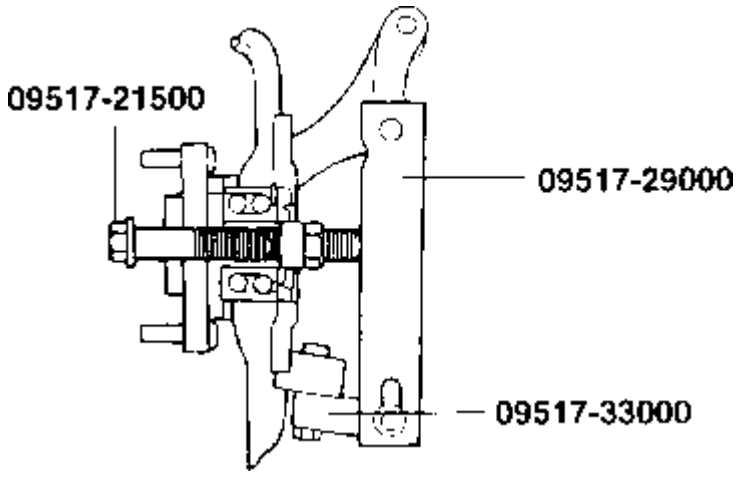
BEARING REPLACEMENT

Remove the snap ring.



Install the special tools as illustrated.

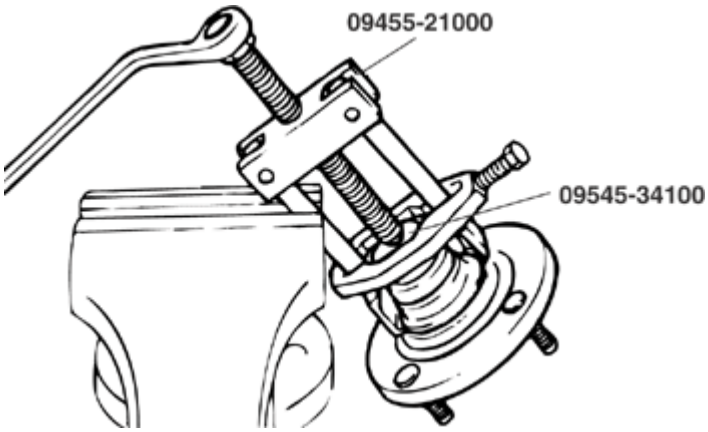


Secure the knuckle in a vise.

Tighten the nut of the special tool and remove the front hub from the knuckle.

> **NOTE**
>
> **When removing wheel hub or wheel bearing from knuckle, replace wheel bearing assembly (outer race, inner races and grease seals) with a new one.**

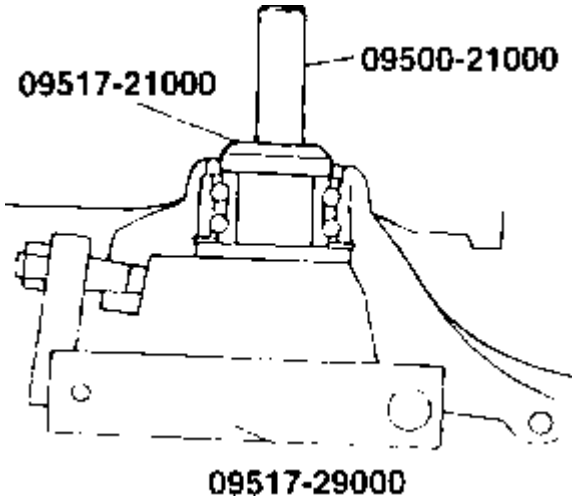
Remove the wheel bearing inner race (outside) from the front hub by using the special tool.



NOTE

When removing the inner race (outside) from the hub, be careful not to drop the hub.

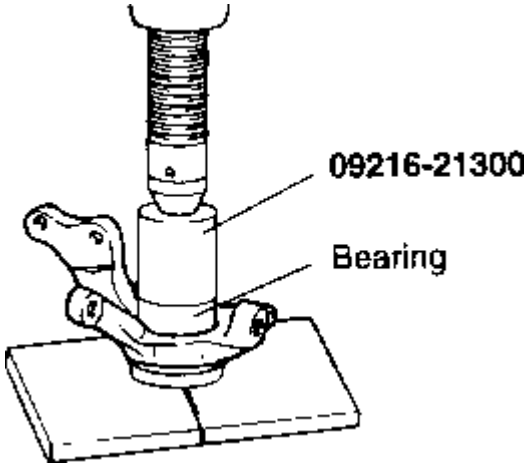
Install the inner race (outside) that was removed from the hub to the wheel bearing, and then use the special tool to remove the wheel bearing.



Fill the wheel bearing with multipurpose grease.

Apply a thin coating of multipurpose grease to the knuckle and bearing contact surfaces.

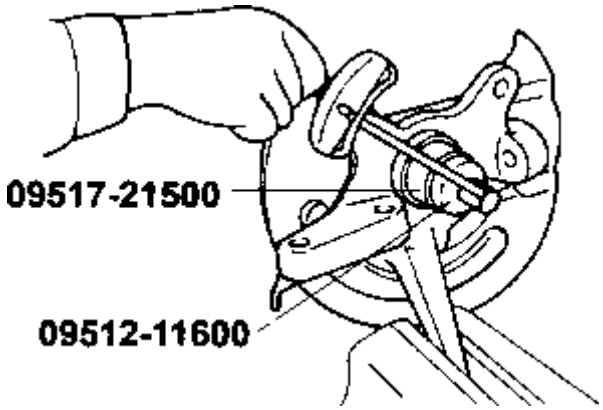
Press-in the bearing by using the special tool.



NOTE

Do not press inner race of wheel bearing assembly.

Install snap ring into groove of knuckle.



Install the disc to the hub and torque to specification.

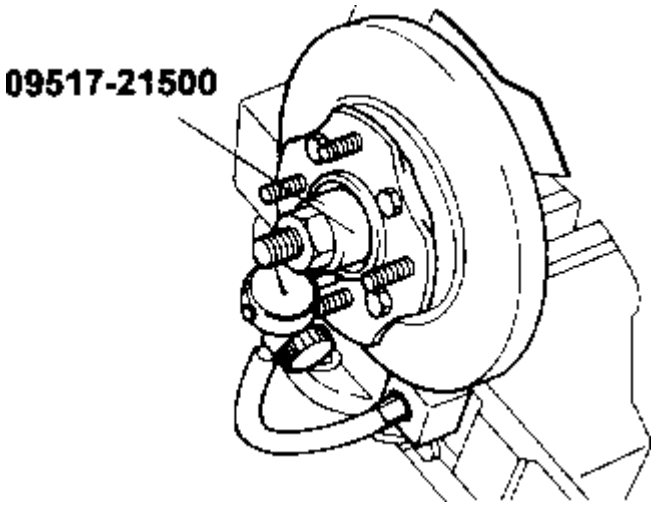
TORQUE SPECIFICATION	
Torque	50-60 Nm (500-600 kg·cm, 36-43 lb·ft)

Use the special tool to mount the hub onto the knuckle.

Tighten the hub to the knuckle to 200-260 Nm (2000-2600 kg.cm, 148-192 lb.ft) with the special tool.

Rotate the hub to seat the bearing.

Measure the hub bearing starting torque.



MEASUREMENT SPECIFICATION	
Hub bearing starting torque	1.3 mm (13 kg.cm,lb.in or less in)

If the starting torque is 0 Nm (0 lb-in), measure the hub bearing axial play.

If the hub axial play exceeds the limit while the nut is tightened to 200-260 Nm (2,000-2,600 kg.cm, 148-192 lb.ft), the bearing, hub and knuckle have not been installed correctly. Repeat the disassembly and assembly procedure.

MEASUREMENT SPECIFICATION	
Hub bearing axial play	0.008 mm (0.0003 in)

Remove the special tool.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Brake Systems	Conventional BrakeSystem

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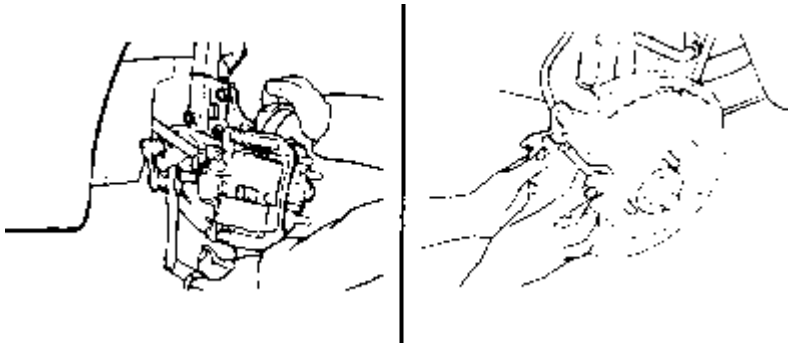
CALIPER ASSEMBLY

REMOVAL



Remove the wheel and tire.

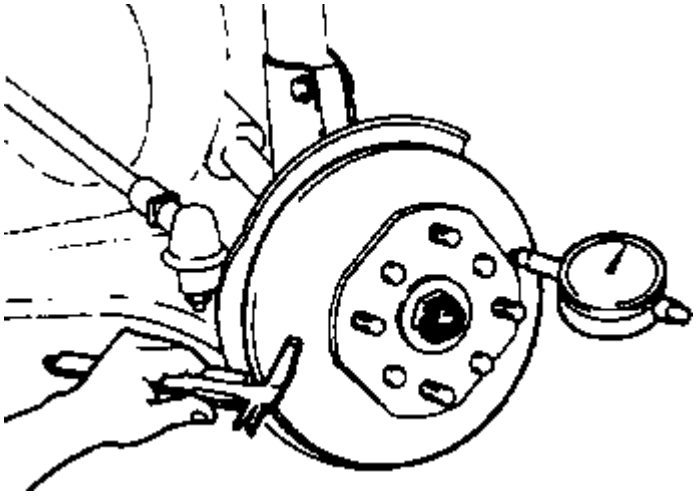
Disconnect the brake hose.

Remove the pads.

Remove the sleeve.

Remove the pin boot and sleeve boot.

Remove the caliper assembly.



Check the caliper for wear, damage, cracks and rust.

Check the piston for rust, damage, cracks and wear on the outer surface.

Check the sleeve and pin for damage and rust.

Check the pad spring and boots for damage.

Check the carrier for damage, rust, wear and cracks.

NOTE

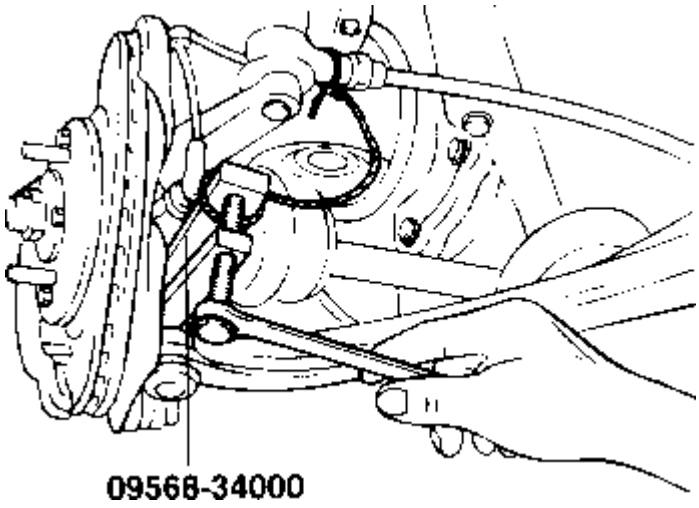
1. Do not use sand paper on the piston surface.

1. All rubber parts must be replaced with new ones.

Inspect the disc using a caliper and dial gauge.

	Standard value	Service limit
Thickness of disc mm (in.)	22 (0.876)	20 (0.787)
Total runout of front axle assembly mm (in.)	-	0.06 (0.0024)

If necessary, replace the brake disc.

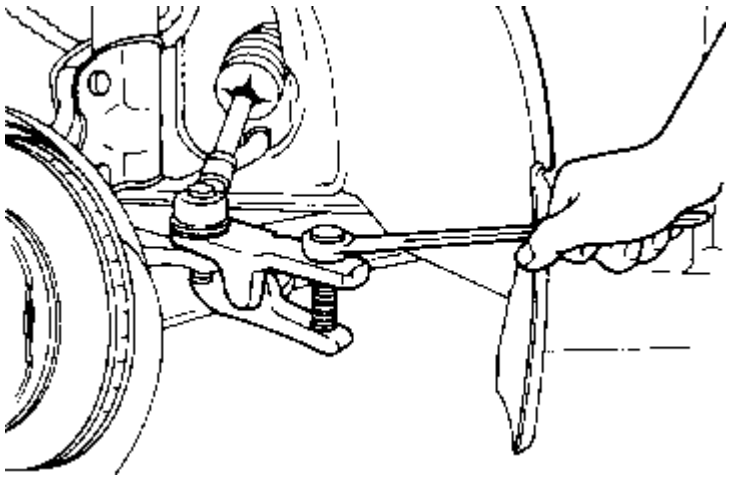


Remove the drive shaft nut.
Jack up the vehicle and support it with jack stands.
Remove the wheel and tire.
Remove the front wheel brake assembly from the knuckle and suspend it with a wire.

NOTE

Brake hose does not need to be disconnected from brake calliper. Be careful not do depress brake pedal, or piston will popout.

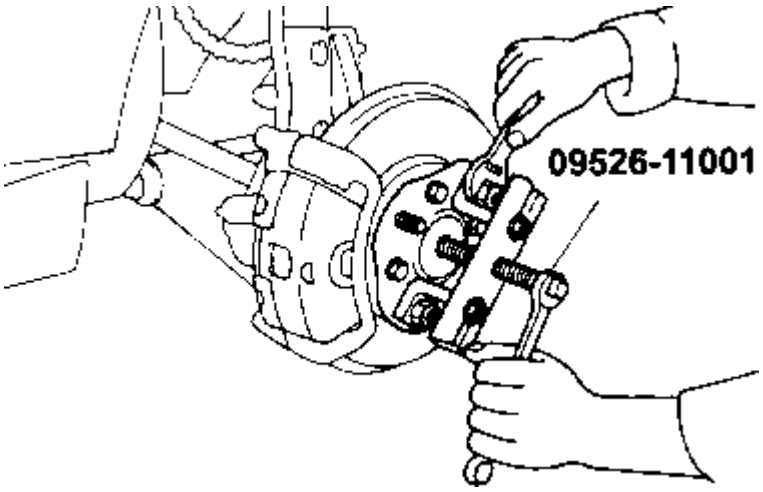
Disconnect the lower arm ball joint from the knuckle using the Special Tool (09568-31000).
Remove the wheel speed sensor mounting bolt and wire clamp and then remove the wheel speed sensor. (For ABS vehicle only).
Disconnect the tie rod and ball joint from the knuckle using the special tool.



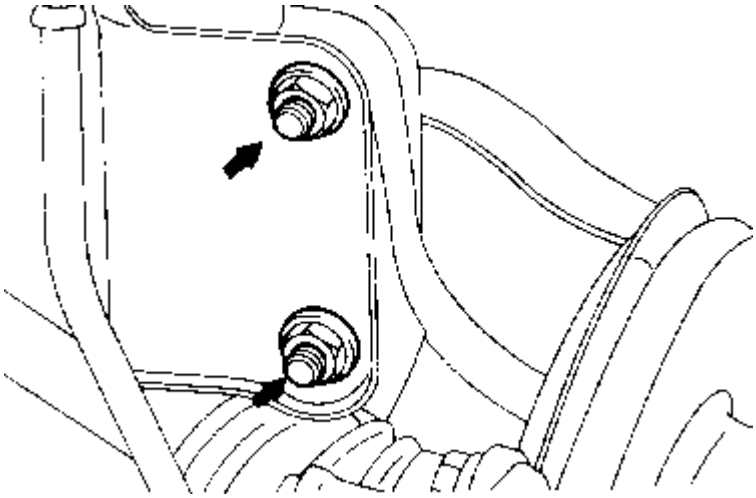
NOTE

1. **Be sure to tie the cord of the special tool to the nearby part.**
2. **Loose the nut, but do not remove it.**

Disconnect the drive shaft from the hub using the special tool.



Remove the hub and knuckle as an assembly from the strut.



Check the hub for cracks and the splines for wear.

Check the snap ring for cracking or damage.

Check the brake disc for scoring and damage.

Check the steering knuckle for cracks.

Check for a defective bearing. (Refer to "Wheel bearing trouble shooting".)

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INSTALLATION

Install parts to torque specifications.

Be sure to install the washer and wheel bearing nut in the specified direction.

After installing the wheel, lower the vehicle to the ground and tighten the wheel bearing nut.

If the position of the split pin holes do not match, tighten the nut up to 260 Nm (2600 kg.cm, 188 lb.ft) maximum.

Install the split pin in the first matching holes and bend it over.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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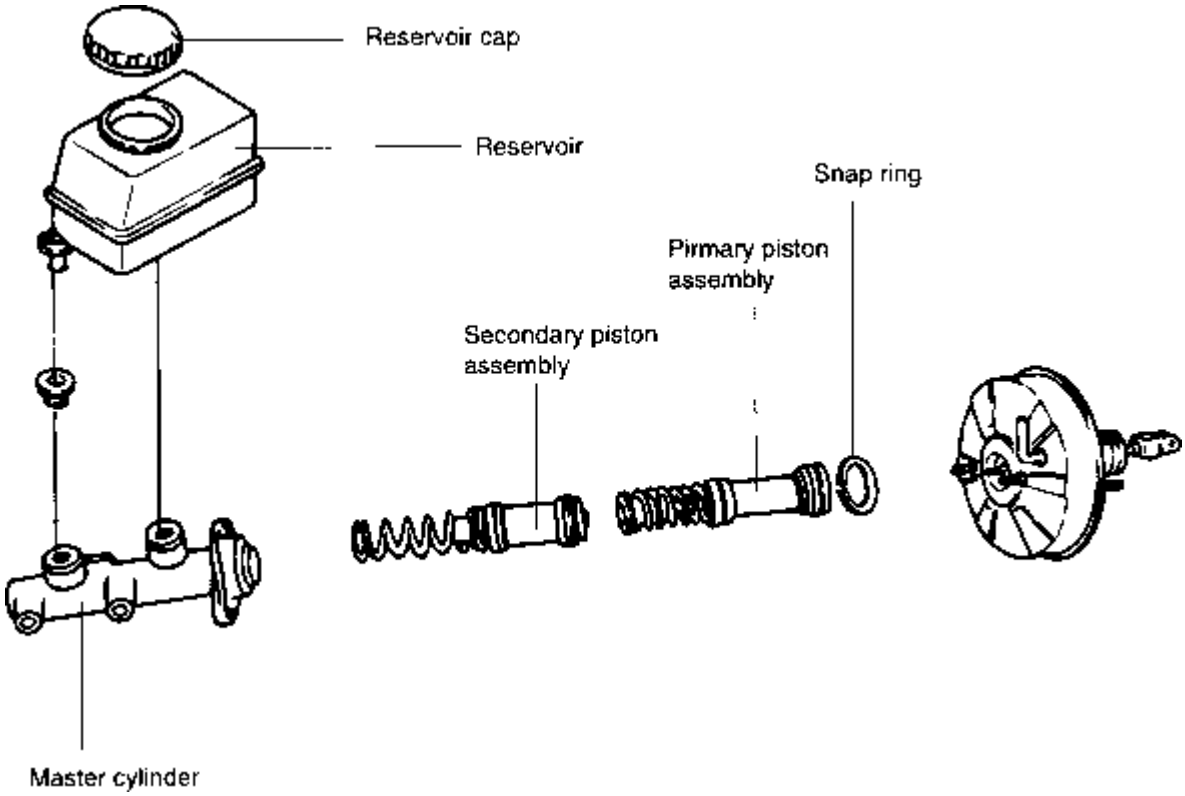
COMPONENTS



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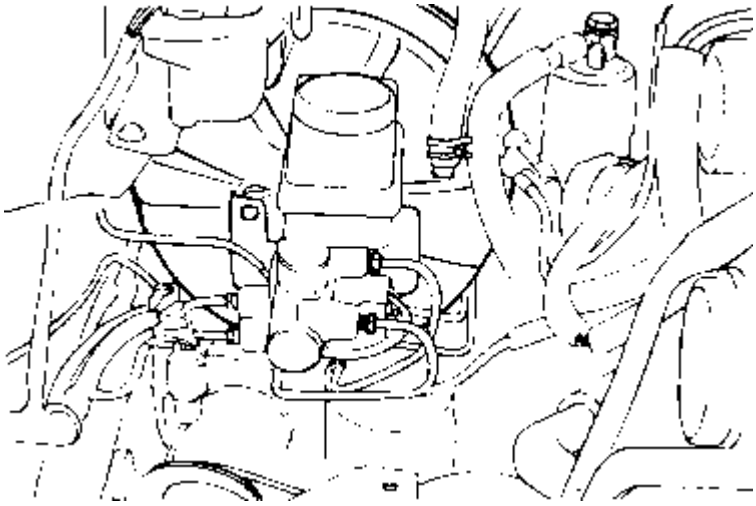
REMOVAL

Remove the fluid level warning device connector.

Disconnect the brake lines from the master cylinder, and plug the opening ports.



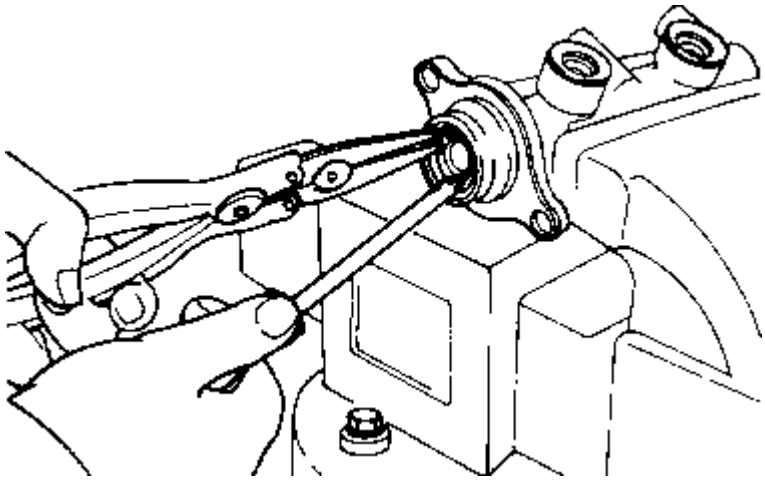
CAUTION

Do not allow brake fluid to remain on a painted surface. Wash it off immediately.

Remove the master cylinder mounting nuts. Disconnect the proportioning valve mounting bracket, then lift out the master cylinder.

Remove the reservoir cap and drain the brake fluid into a suitable container.

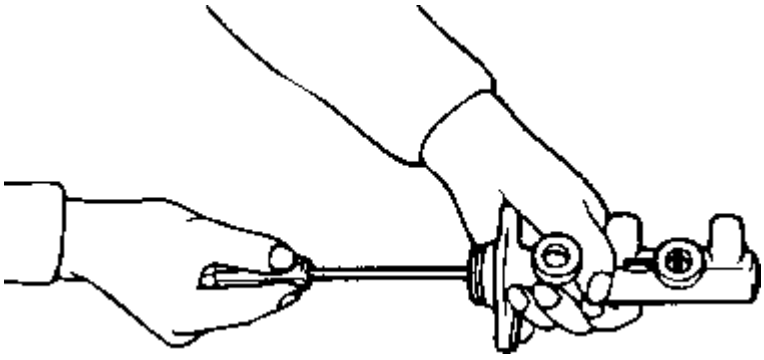
Remove the reservoir from the master cylinder.



NOTE

If necessary, support the master cylinder in a vise at its flange not at its bore.

While depressing the piston, remove the snap ring.



Remove the primary and secondary piston from the master cylinder, and then push the secondary piston through the master cylinder by using a screw driver and then remove the secondary piston stopper pin by slightly tilting the master cylinder.

NOTE

1. **Be careful not to damage the cylinder bore.**
1. **Do not disassemble the primary and secondary piston assemblies.**

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INSPECTION

Check the master cylinder bore for rust or scoring.

Check the primary and secondary pistons for rust, scoring, wear, damage or deterioration.

Check the primary and secondary piston springs for deterioration.

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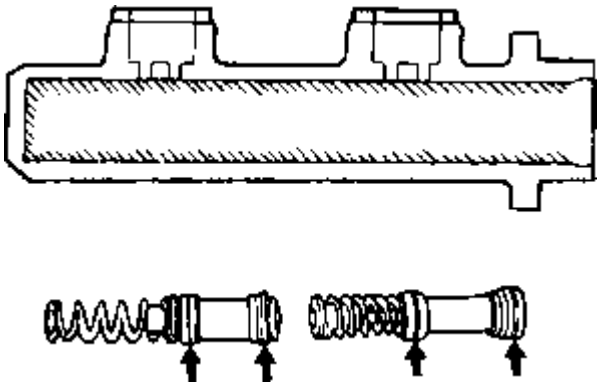
ASSEMBLY

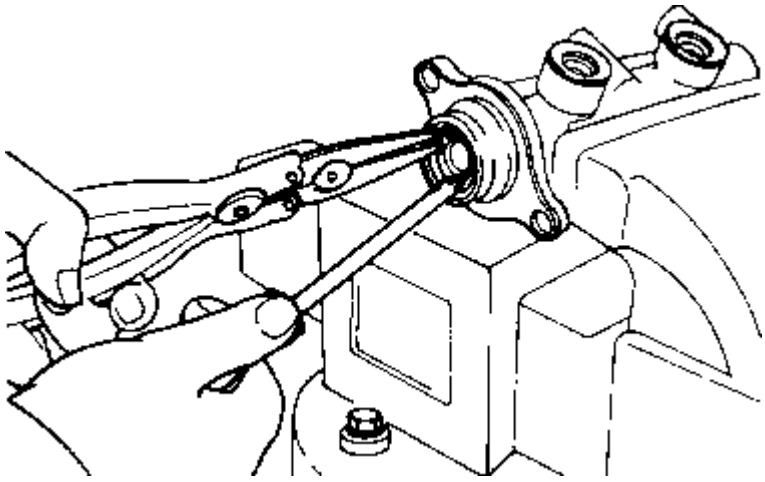
Apply the specified brake fluid to the inner surface of the master cylinder body and to the outside of the secondary and primary pistons.



Recommended brake fluid: DOT 3 or equivalent

Installation is the reverse of the removal procedure.

Depress the primary piston and install the snap ring in the cylinder bore groove as illustrated.



Install the reservoir cap on the reservoir.

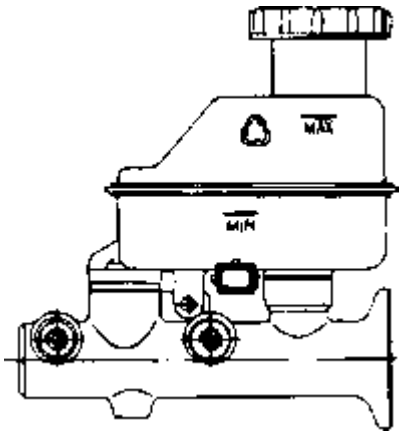
Lubricate the two grommets at both inside and outside with genuine brake fluid and then insert them into the master cylinder body.

> **NOTE**
>
> **Whenever the reservoir is replaced, the grommets must also be replaced.**

Press the reservoir into the master cylinder body with the fluid level indicator socket facing inboard. The reservoir should snap in place indicating that it is secure as illustrated.

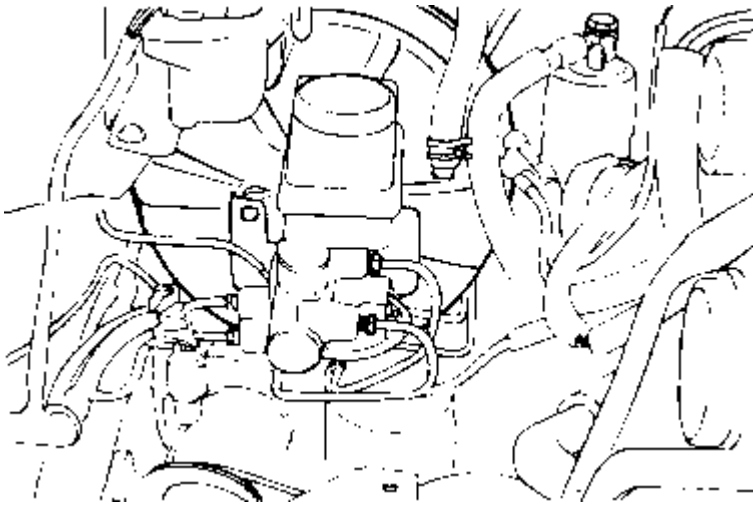
Connect the fluid level warning connector in the socket on the reservoir.

Install the master cylinder on the brake booster with two nuts.



TORQUE SPECIFICATION	
Nut	8-12 Nm (80-120 kg·cm, 6-9 lb·ft)

Connect two brake tubes and fluid level warning connector.



TORQUE SPECIFICATION	
Brake tube flare nut	13-17 Nm (130-170 kg·cm, 9-12 lb·ft)

Fill the master cylinder reservoir with brake fluid and bleed the system.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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PROPORTIONING VALVE

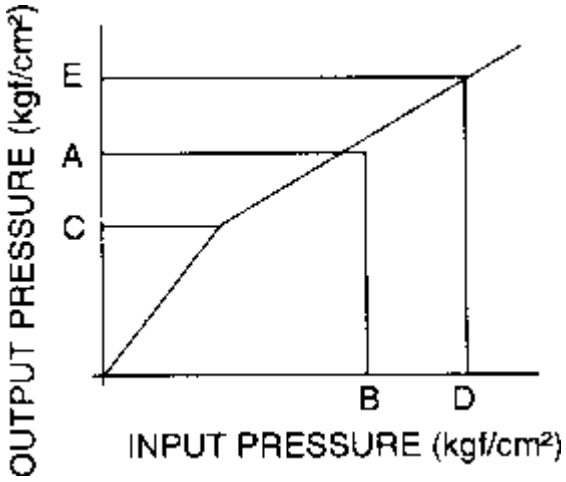
Do not disassemble the proportioning valve. The proportioning valve regulates the distribution of fluid pressure to the front and rear brakes to prevent skidding in the event of rear wheel lock and to obtain a higher brake efficiency.

PROPORTIONING VALVE FUNCTION TEST

Connect two pressure gauges, one to the input side and one to the output side of the proportioning valve.

> **NOTE**
>
> **Be sure to bleed the system after you connect the pressure gauges.**

With the brakes applied, measure the input pressure and the output pressure. If the measured pressures are within the ranges as illustrated, the proportioning valve is good.



Reconnect the brake lines in their original positions and bleed the system.

> **NOTE**
>
> **This figure shows characteristics of the proportioning valve during pressure increase.**

A	51 ± 3.5
B	80
C	40
D	140
E	67 ± 4

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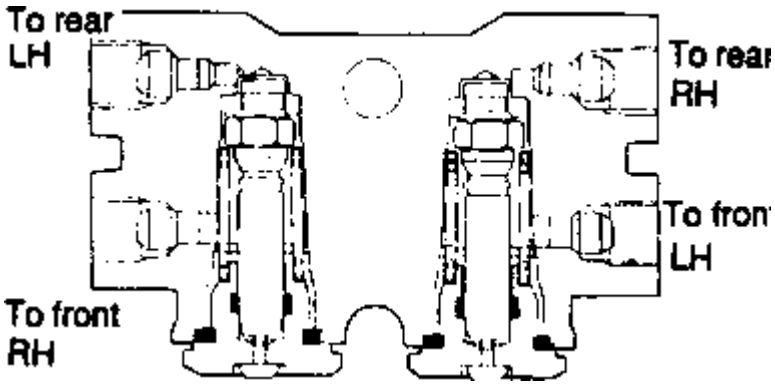
PROPORTIONING VALVE INSTALLATION

Install the brake lines according to the illustration.



Tighten the flare nuts and bleed the system.

TORQUE SPECIFICATION	
Brake tube flare nut	13-17 Nm (130-170 kg·cm, 9-12 lb·ft)
Proportioning valve mounting nut	8-12 Nm (80-120 kg·cm, 5.8-8.7 lb·ft)

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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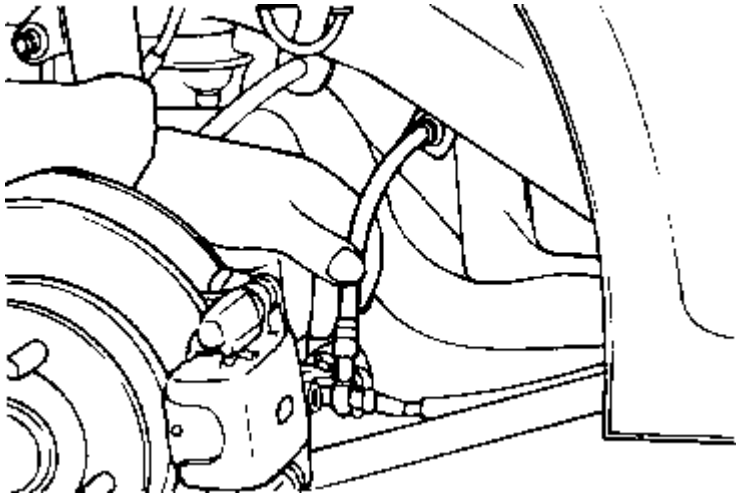
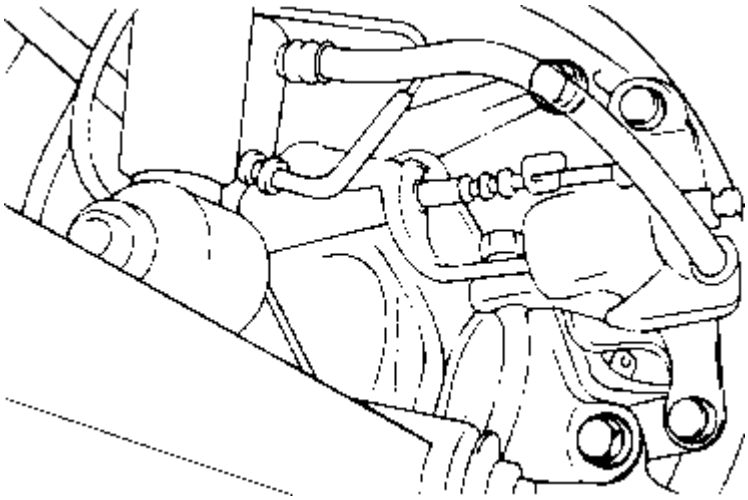
DISASSEMBLY

Remove the wheel.

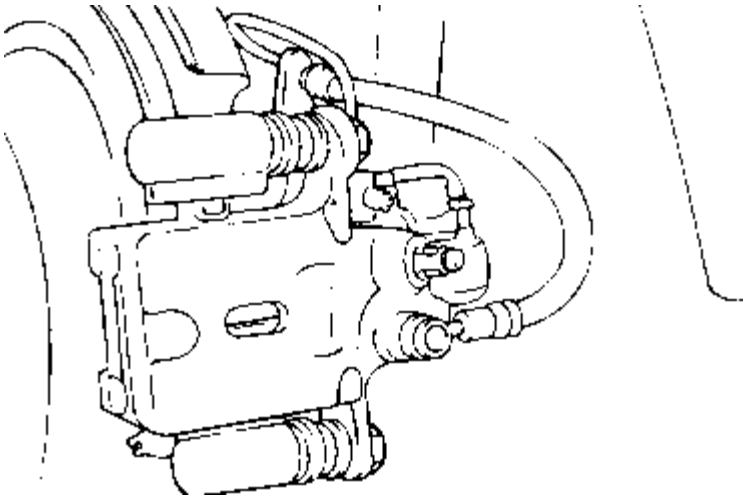
Remove the brake fluid hose.



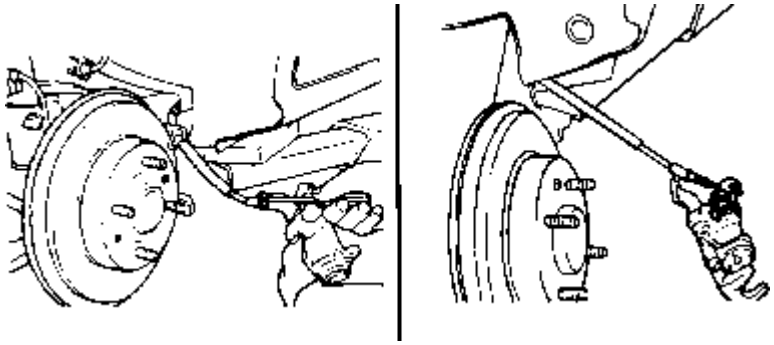
Remove the caliper assembly mounting bolts (2EA).



Remove the brake pad and caliper assembly.



Remove the parking cable after disconnecting the parking cable mounting clip.



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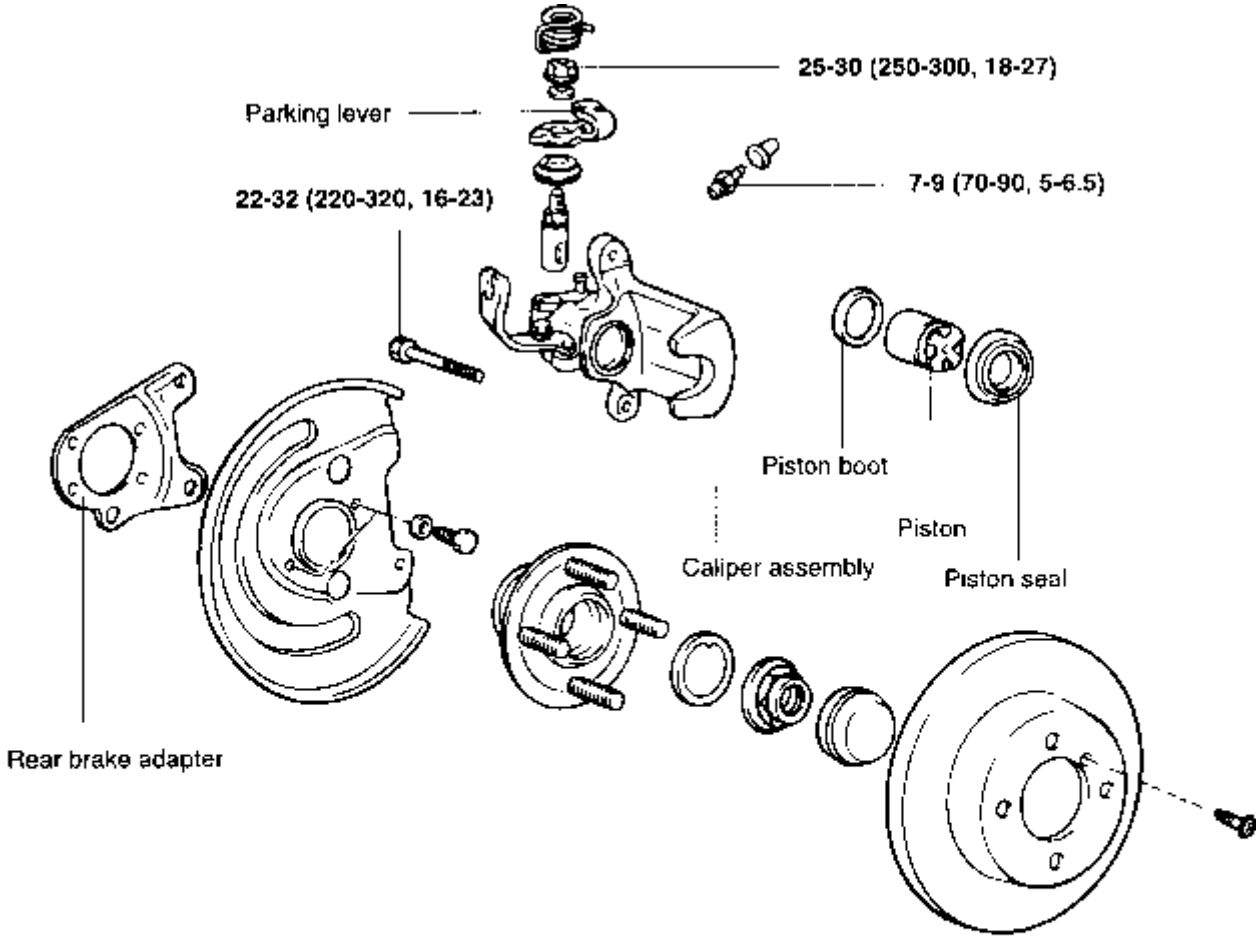
COMPONENTS



TORQUE : Nm (kg·cm, lb·ft)

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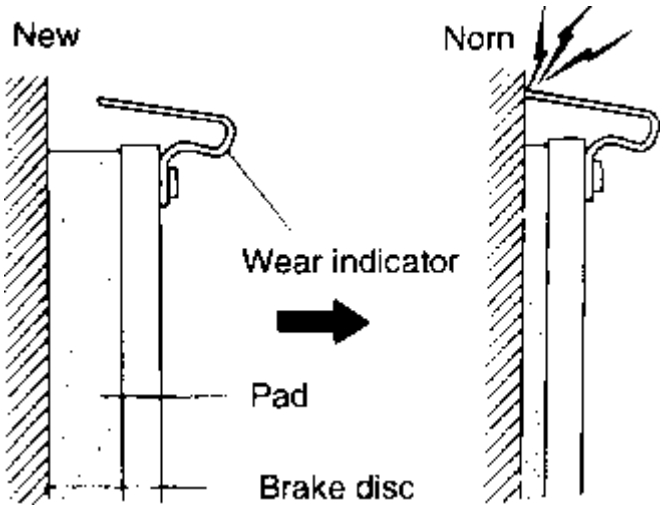
INSPECTION

Check the pads for wear or oil contamination and replace if necessary.



NOTE

The pads for the right and left wheels should be replaced at the same time,

Pad thickness wear limit: 0.8 mm

Check the leading and trailing shoe keys and retaining screw for damage, or wear. Replace the keys and retaining screw at the same time the pads are replaced.

Check for worn or damaged dust boots if dust or mud has entered the caliper assembly through this seal, the caliper assembly must be replaced or rebuilt.

Before replacing the brake pads, remove brake fluid from the master cylinder reservoir until it is half full.

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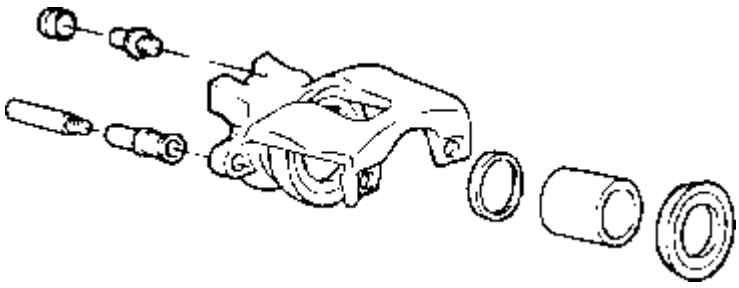
ASSEMBLY

Check for worn, damaged, or rusted piston bore and piston.



Replace the damaged parts if necessary.

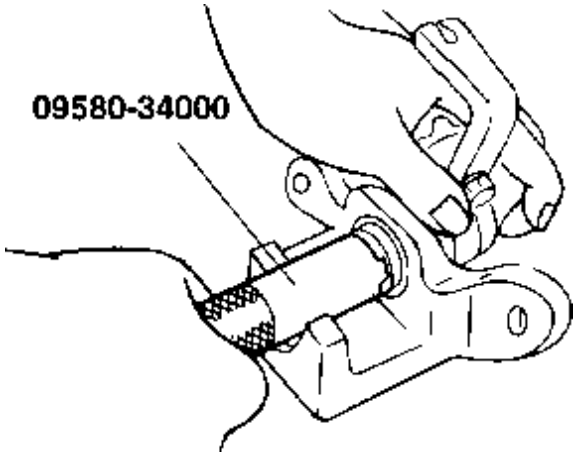
Check for damaged piston seal, boot, and pin insulators.

Apply a recommended lubricant to the following parts:

Parts	Recommended lubricant	Quantity
Piston seal	Brake fluid (Dot 3)	As required
Cylinder inner side	Brake fluid (Dot 3)	As required
Piston boot	Brake fluid (Dot 3)	As required
Piston outer surface	Brake fluid (Dot 3)	As required

Guide-rod insulation	Rubber grease	As required

push the piston into the caliper with special tool.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Brake Systems	Conventional BrakeSystem

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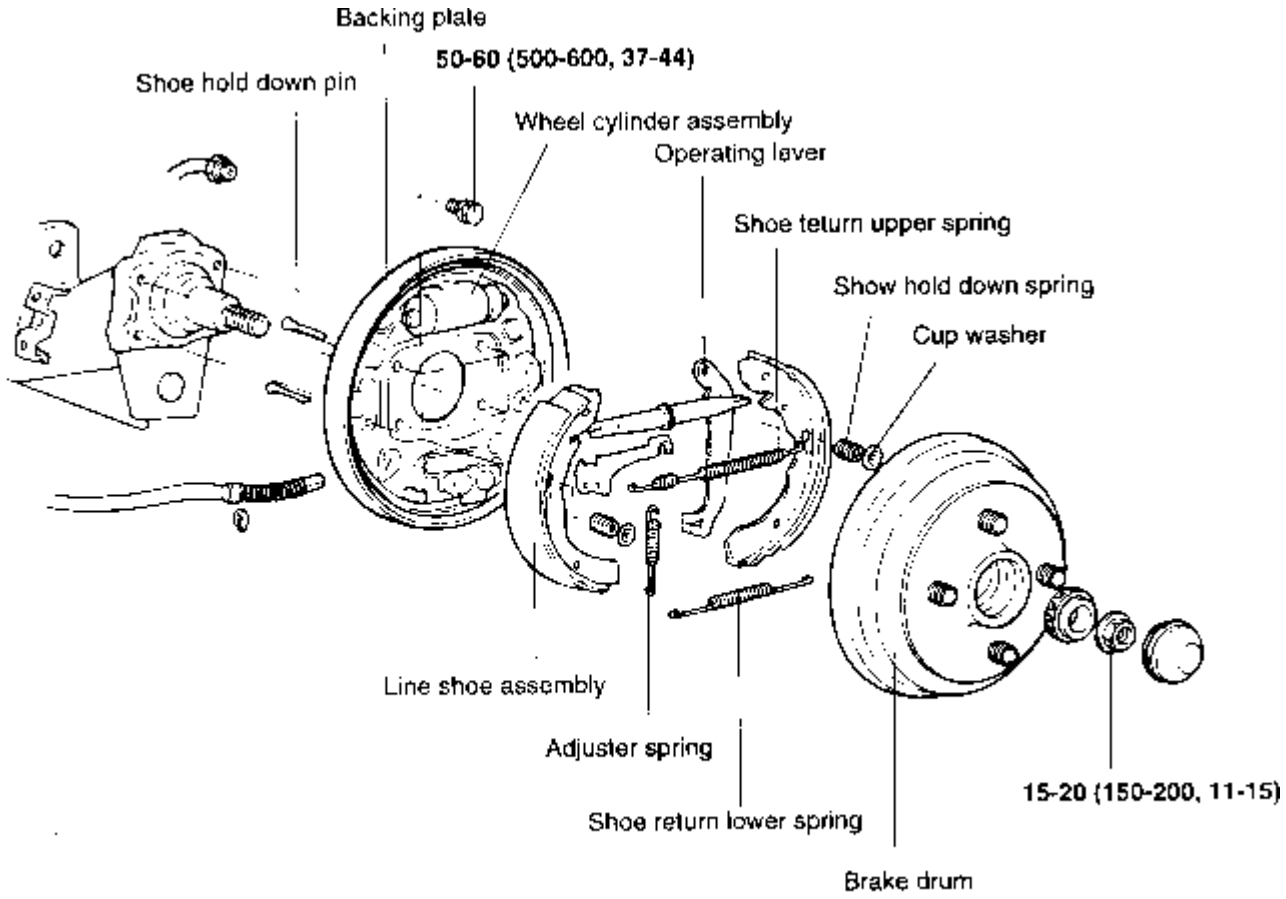
COMPONENTS



TORQUE : Nm (kg·cm, lb·ft)

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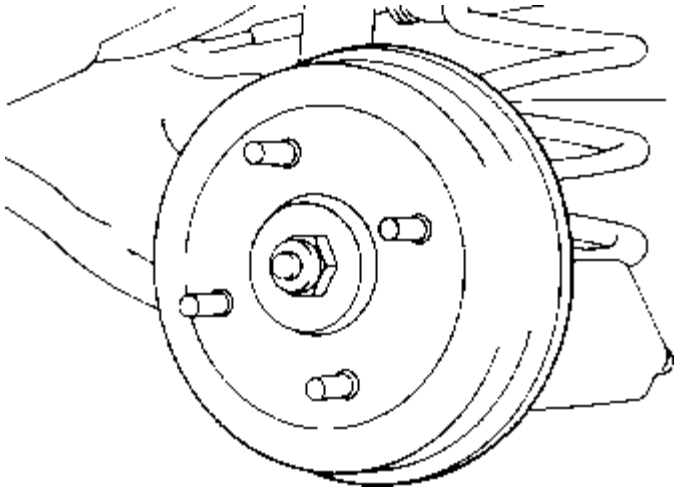
REMOVAL

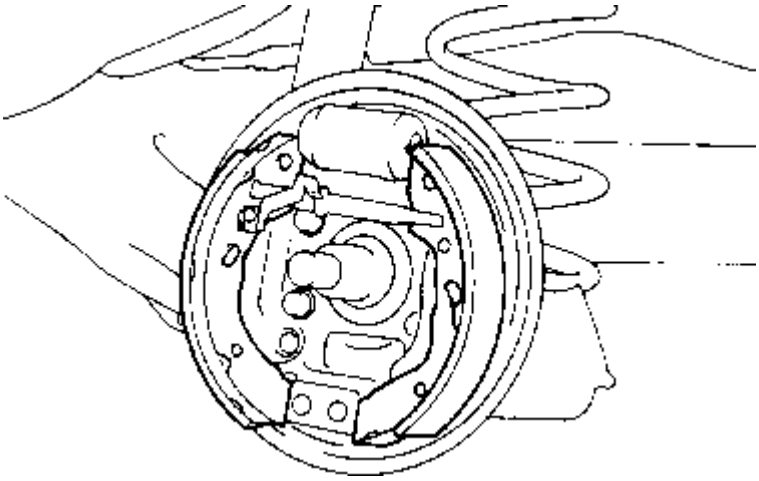
Remove the wheel and tire, then remove brake drum.

After removing the rear wheel bearing nut, remove the rear hub with the brake drum.



Remove the shoe return lower spring, shoe hold down spring.

Remove the shoes and adjuster as an assembly.



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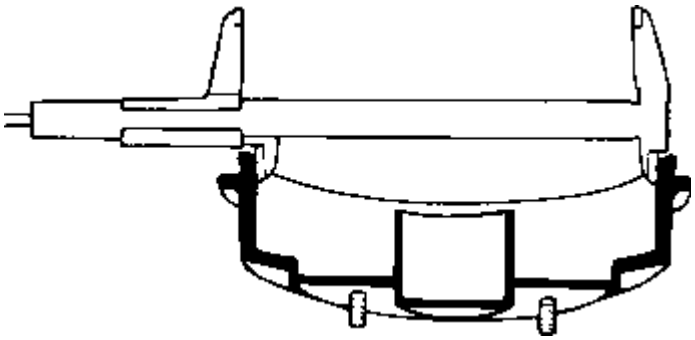
INSPECTION

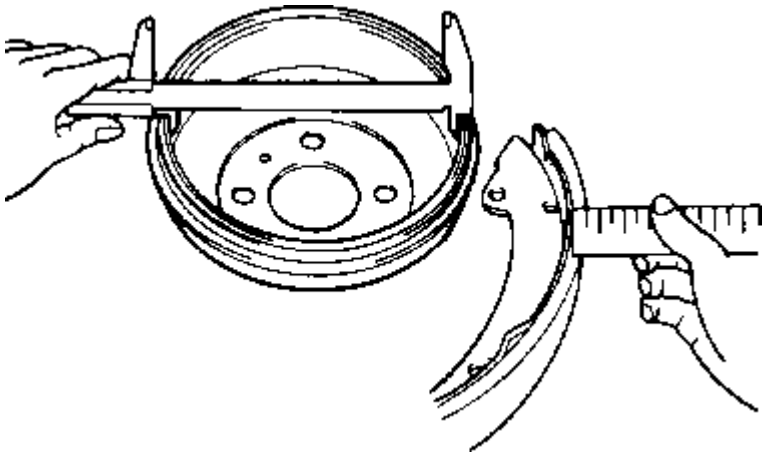
Measure the brake drum inside diameter.

Check the runout of the brake drum using a dial indicator.



	Standard value	Service limit
Inside diameter	203.2 (8)	205.2 (8.079)
Out-of-rounded of brake drum	-	0.015 (0.0006)

Measure the brake shoe lining thickness.



	Standard value	Service limit
Lining thickness mm (in.)	4.05 (0.159)	1.5 (0.059)

Inspect the brake lining and drum for proper contact.

Inspect the wheel cylinder outside for excessive corrosion and damage.

Inspect the backing plate for wear or damage.

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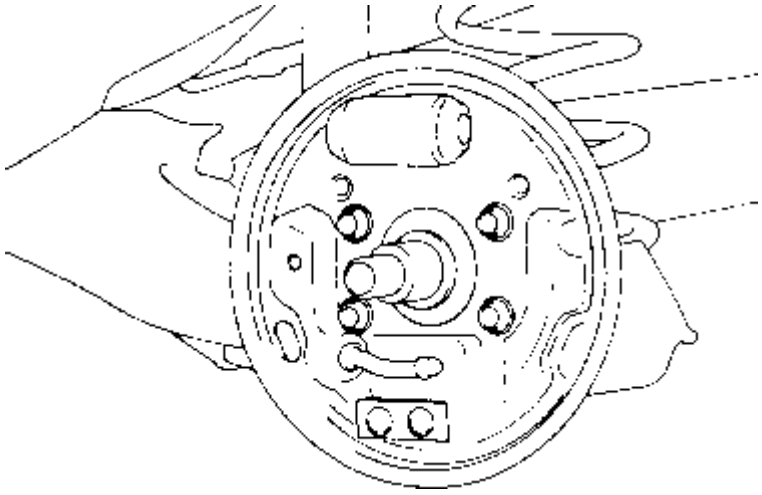
INSTALLATION

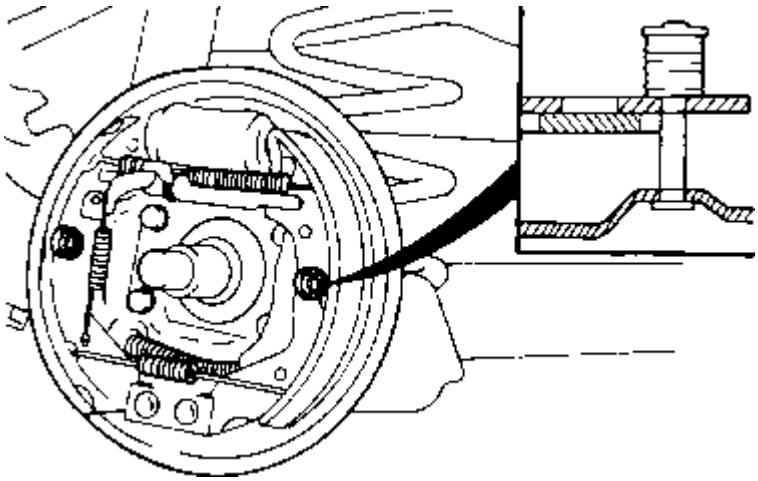
Apply the specified grease to the locations indicated in the illustration and to each component.



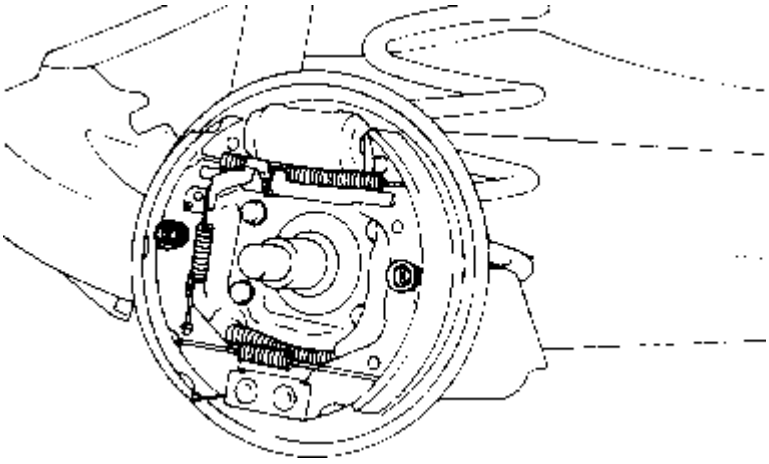
- Shoe and backing plate contact surfaces

Shoe and anchor plate contact surfaces
Recommended grease: Multipurpose grease SAE J310, NLGI No.2

Install the shoe hold down pin.



Assemble the return spring with the push rod shortened.



After assembling the drum components, pull the parking brake lever all the way up several times.

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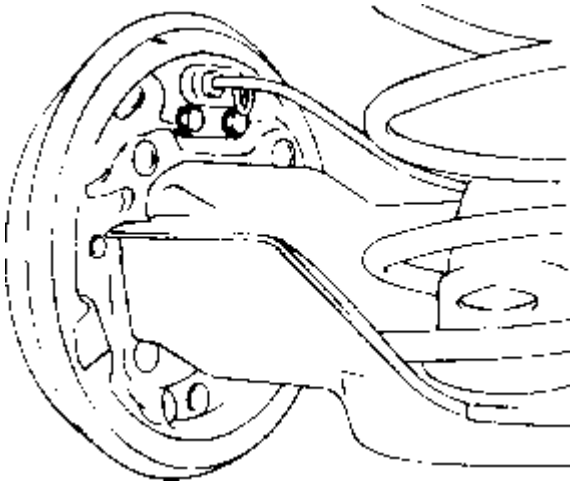
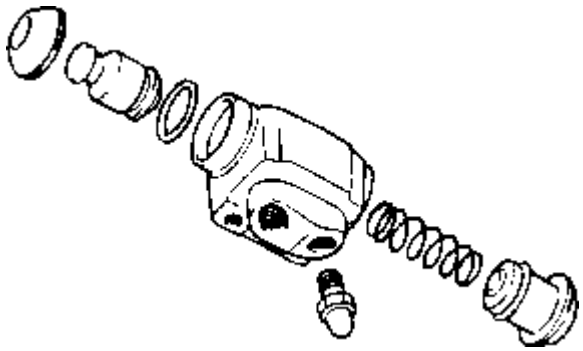
WHEEL CYLINDER REPLACEMENT



Remove the brake shoe.

Disconnect the brake tube.

Remove the wheel cylinder assembly.

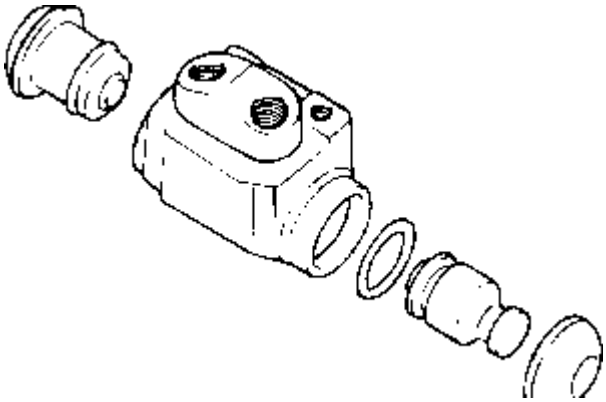


Remove the dust boot.

Remove the piston and piston cup.

Drive out the return spring.

Before assembling the wheel cylinder, inspect the following points.



Check the cylinder and piston for wear, damage and rust.
Check the cylinder body for damage and cracks.
Check the contact surface of the piston and shoes for wear.
Check the piston spring for looseness.
Assembly is the reverse of the removal procedure.

NOTE

1. **Clean the cylinder and inner part with isopropyl alcohol before assembly.**
2. **Apply enough brake fluid to piston cups and cylinder.**
3. **Be sure to use new piston cups and dust boots.**

NOTE

Be careful not to lose the steel ball in the bleeder