









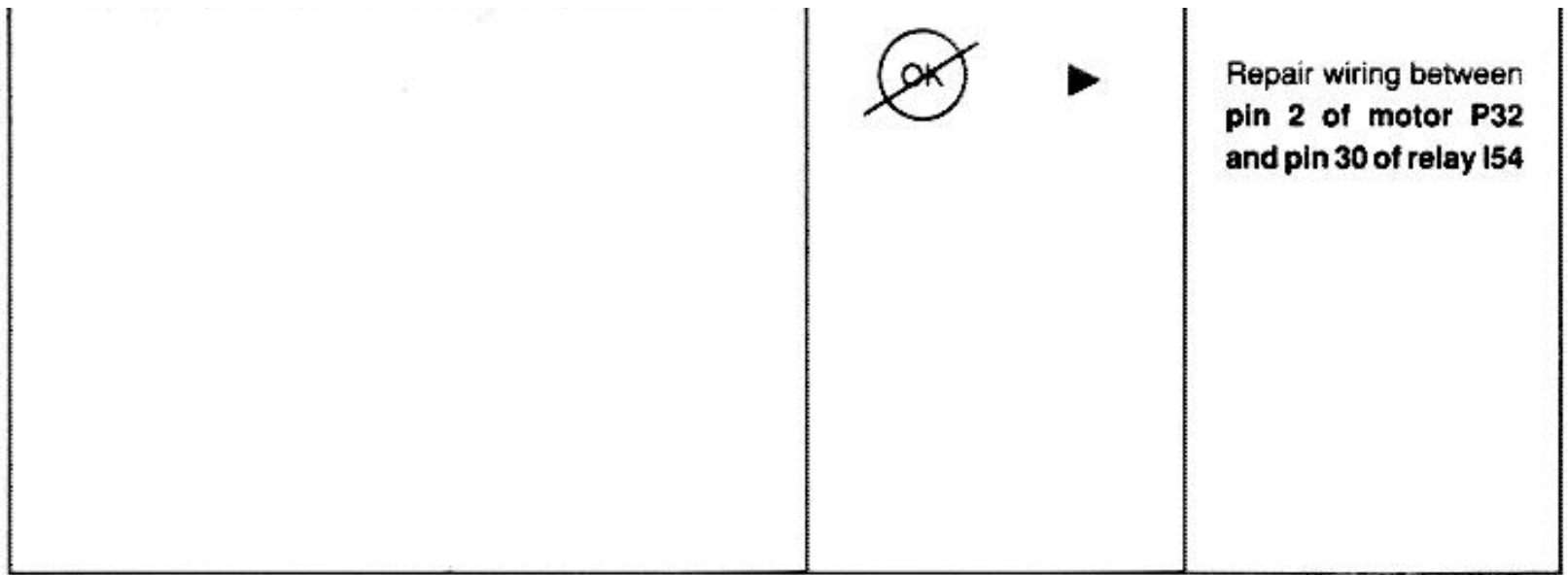


RIGHT REAR SEAT AUTOMATIC RETRACTION INOPERATIVE	TEST L
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TEST STEPS		RESULTS	REMEDY
L4	LEFT REAR SEAT AUTOM. RETRACTION CHECK		
	- Open left rear door and check that right rear seat automatically retracts	 	Replace relay I54
		 	Carry-out step L5
L5	VOLTAGE CHECK		
	- Check for presence of 12V between pin 2 of connector G190 and ground	 	Repair wiring between pin 2 of connector G190 and pins 86 and 87 of relay I54
		 	Failure of the power distribution circuit , refer to the relevant circuit of sheet 1 of 2
L6	MOTOR CHECK		
	- Open right rear door, then check for presence of 12V between pins 2 and 1 of motor P32 (positive at pin 2)	 	Replace motor P32

- [Page 503](#)
- [Page 504](#)
- [Page 505](#)
- [Page 506](#)
- [Page 507](#)
- [Page 508](#)
- [Page 509](#)
- [Page 510](#)
- [Page 511](#)
- [Page 512](#)
- [Page 513](#)
- [Page 514](#)
- [Page 515](#)
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- [Page 522](#)



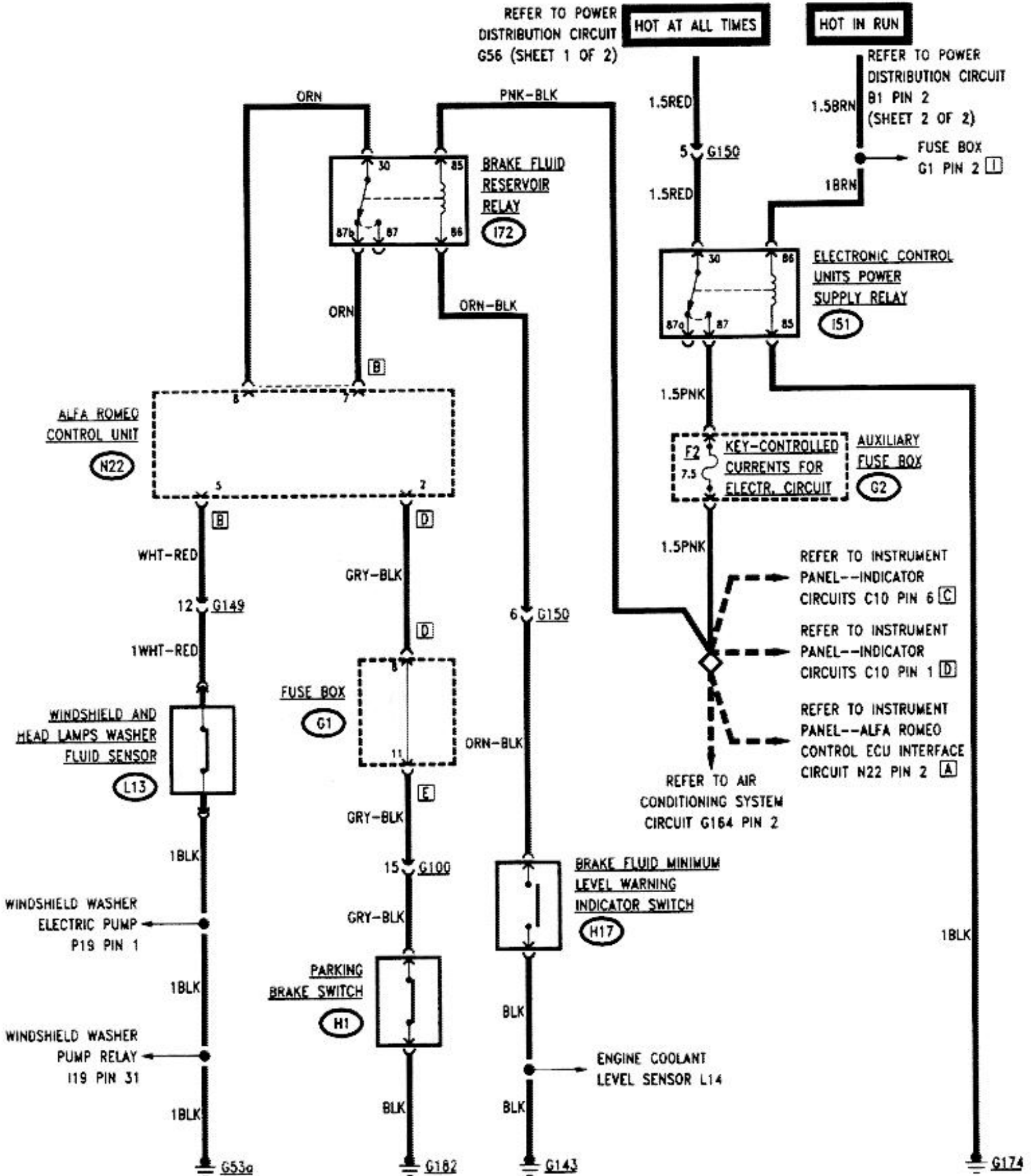
End of test L

RIGHT REAR SEAT AUTOMATIC RETRACTION INOPERATIVE	TEST L
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TEST STEPS		RESULTS	REMEDY
L4	LEFT REAR SEAT AUTOM. RETRACTION CHECK		
	- Open left rear door and check that right rear seat automatically retracts	 ►  ►	Replace relay I54 Carry-out step L5
L5	VOLTAGE CHECK		
	- Check for presence of 12V between pin 2 of connector G190 and ground	 ►  ►	Repair wiring between pin 2 of connector G190 and pins 86 and 87 of relay I54 Failure of the power distribution circuit , refer to the relevant circuit of sheet 1 of 2
L6	MOTOR CHECK		
	- Open right rear door, then check for presence of 12V between pins 2 and 1 of motor P32 (positive at pin 2)	 ►  ►	Replace motor P32 Repair wiring between pin 2 of motor P32 and pin 30 of relay I54

SENSORS - - BRAKE AND
WINDSHIELD WASHER FLUID
LEVELS, PARKING BRAKE
WARNING LAMPS

SENSORS - - BRAKE AND WINDS. WASHER FLUID LEVELS, PARK. BRAKE WARN. LAMPS



GENERAL

The brake fluid level, windshield washer fluid level and parking brake engagement are monitored by an electronic control unit which, in case of a malfunction, alerts the user by switching on the related warning lamps on the instrument panel. The power supply line is protected by the fuse **F2** (7.5A) KEY-CONTROLLED CURRENTS FOR ELECTR. CIRCUIT in the auxiliary fuse box **G2**. For further information refer to the instrument panel circuits chapter.

OPERATIONAL DESCRIPTION

When the level of the windshield washer fluid decreases below the minimum, the windshield and headlamps washer fluid sensor **L13** opens, thus disconnecting the Alfa Romeo Control unit **N22** from its ground point. The control unit **N22** alerts the user of the low fluid level by switching on the related warning lamp on the instrument panel (refer to the instrument panel circuits chap-

ter).

When the parking brake is engaged, the parking brake switch **H1** opens, thus disconnecting the control unit **N22** from its ground point. The control unit **N22** alerts the user that parking brake is engaged by switching on the related warning lamp on the instrument panel (refer to the instrument panel circuits chapter).

The brake fluid minimum level warning indicator switch **H17** consists of a contact which is open when the level of brake fluid is sufficient.

When the level of brake fluid becomes insufficient, the switch **H17** closes, and energizes the brake fluid and reservoir relay **I73**

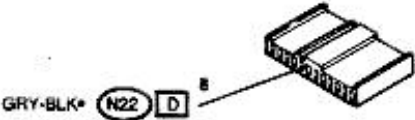
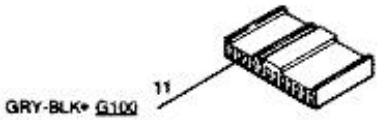
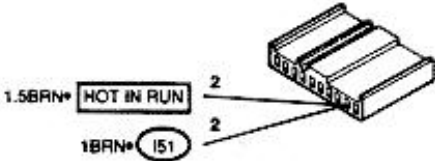
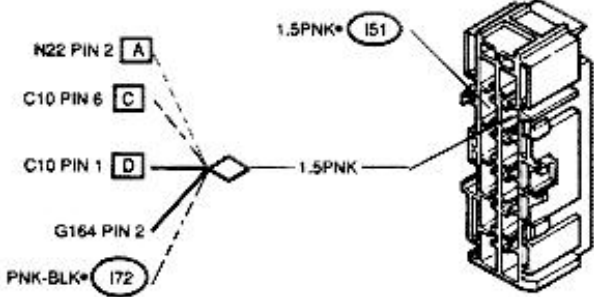

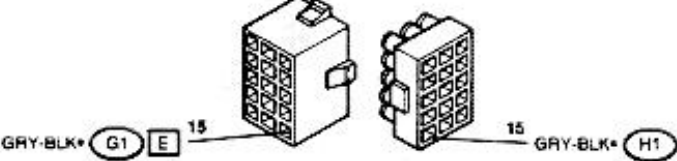
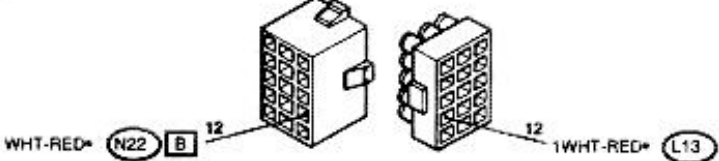

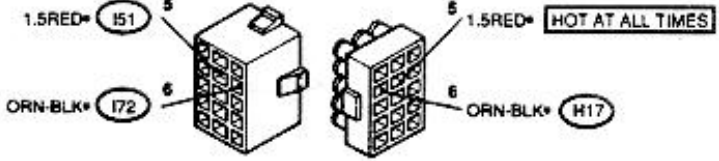


Energization of relay **I36** disconnects the 12V power supply from pin 7A of control unit **N22**, which in turn alerts the user of the malfunction by switching on the related warning lamp on the instrument panel (refer to the instrument panel circuits chapter).

The 12V power for the energization of relay **I36** is supplied by the electronic control units power supply relay **I51**, provided the ignition key is set to "run" position.

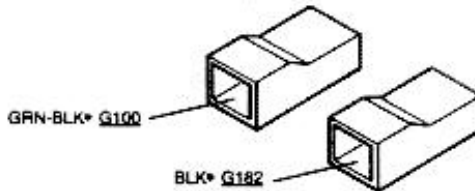
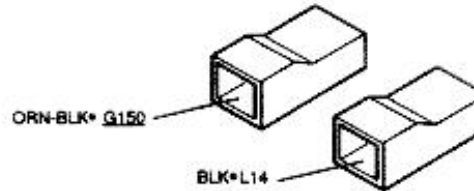
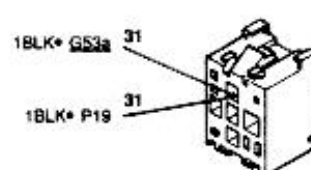
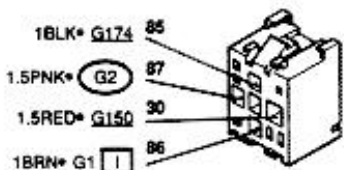
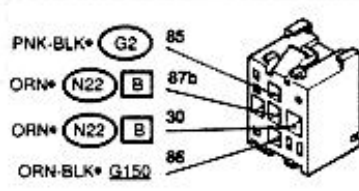
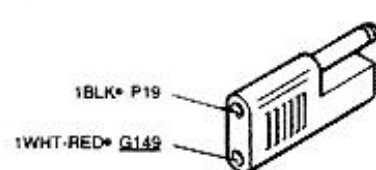
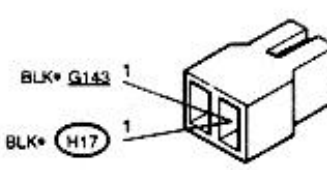
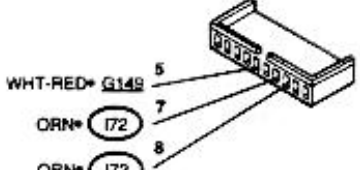
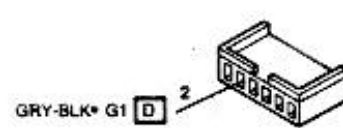
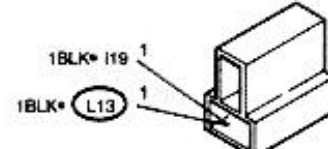
TROUBLESHOOTING TABLE

FAULT TYPE	FAILED COMPONENT						
	E2	H1	H17	L13	I51	I72	N22
	FUSE	SWITCH	SWITCH	SENSOR	RELAY	RELAY	CONTROL UNIT
BRAKE FLUID LEVEL WARNING LAMP INOPERATIVE	●		●		●	●	●
BRAKE FLUID LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED			●			●	●
MINIMUM WINDSHIELD WASHER FLUID LEVEL WARNING LAMP INOPERATIVE				●			●
MINIMUM FLUID LEVEL/WINDSHIELD WASHER FLUID LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED				●			●
PARKING BRAKE ENGAGED WARNING LAMP INOPERATIVE		●					●
PARKING BRAKE ENGAGED WARNING LAMP CONTINUOUSLY ILLUMINATED		●					●

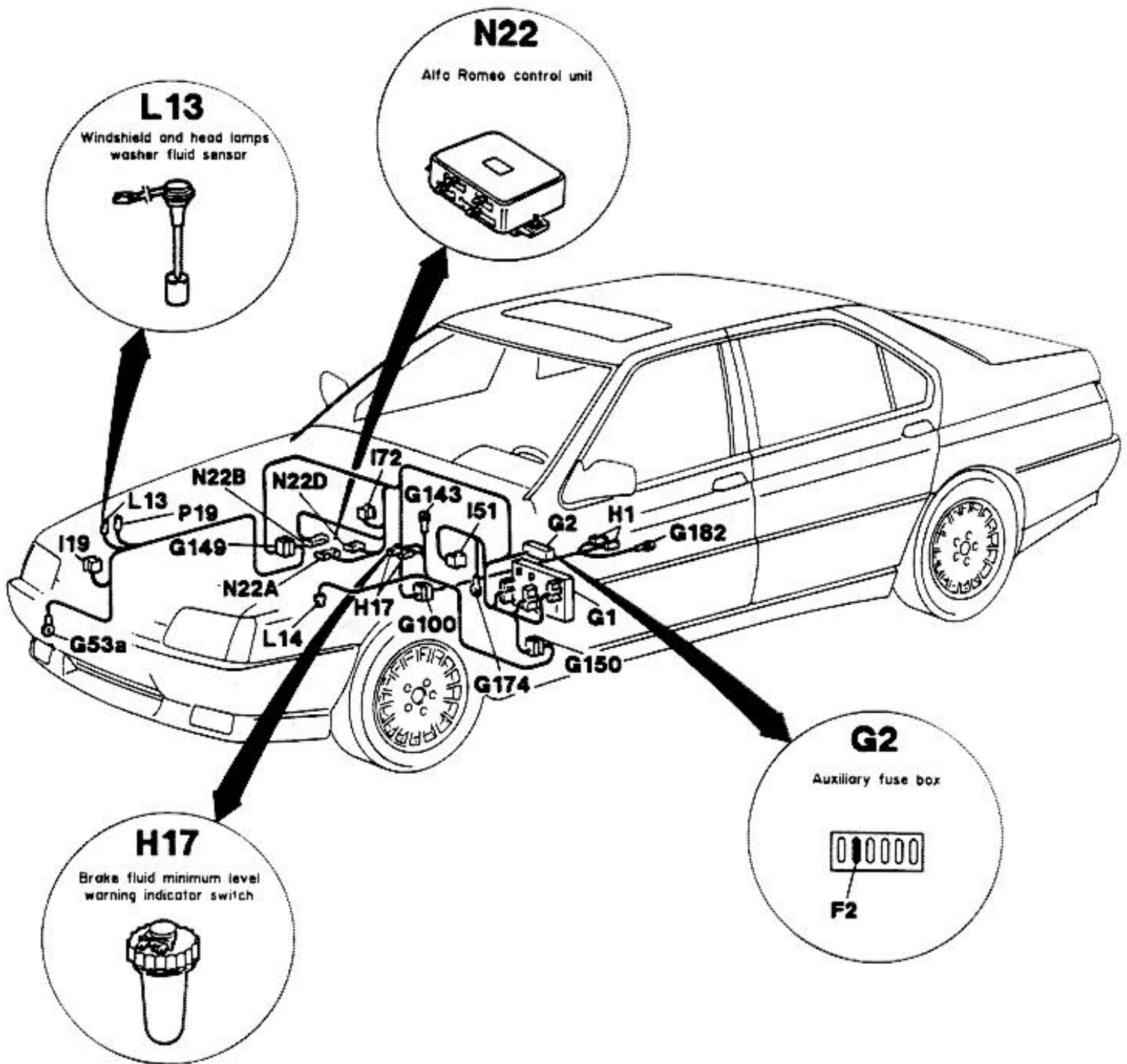
NOTE: Before attempting any troubleshooting, ascertain the integrity of the affected warning lamp on the instrument panel by pressing the test button.

<p>Fuse box (G1) (D)</p>	<p>Fuse box (G1) (E)</p>
 <p>GRY-BLK* (N22) (D)</p>	 <p>GRY-BLK* (G100) 11</p>
<p>Fuse box (G1) (I)</p>	<p>Auxiliary fuse box (G2)</p>
 <p>1.5BRN* (HOT IN RUN) 2 1BRN* (I51) 2</p>	 <p>N22 PIN 2 (A) C10 PIN 6 (C) C10 PIN 1 (D) G164 PIN 2 PNK-BLK* (I72) 1.5PNK* (I51) 1.5PNK*</p>
<p>Engine compartment right side ground connection (G53a)</p>	
 <p>1BLK* (I19)</p>	
<p>Connector, doors to center console wiring (G100)</p>	<p>Connector, circuit board to engine compartment right side wiring (G149)</p>
 <p>GRY-BLK* (G1) (E) 15 GRY-BLK* (H1) 15</p>	 <p>WHT-RED* (N22) (B) 12 1WHT-RED* (L13) 12</p>
<p>Central bulkhead ground (G143)</p>	<p>Connector, circuit board to engine compartment left side wiring (G150)</p>
 <p>BLK* (L14)</p>	 <p>1.5RED* (I51) 5 1.5RED* (HOT AT ALL TIMES) 5 ORN-BLK* (I72) 6 ORN-BLK* (H17) 6</p>
<p>Steering wheel column support ground (G174)</p>	<p>Center console ground (G182)</p>
 <p>1BLK* (I51)</p>	 <p>BLK* (H1)</p>

SENSORS - - BRAKE AND WINDS. WASHER FLUID LEVELS, PARK. BRAKE WARN. LAMPS

<p>Parking brake switch</p>	<p>(H1)</p>	<p>Brake fluid minimum level warning indicator switch</p>	<p>(H17)</p>
 <p>GRN-BLK* G100</p> <p>BLK* G182</p>	 <p>ORN-BLK* G150</p> <p>BLK*L14</p>		
<p>Head lamps washer pump relay</p>	<p>I19</p>	<p>Electronic control units power supply relay</p>	<p>(I51)</p>
 <p>1BLK* G53a 31</p> <p>1BLK* P19 31</p>	 <p>1BLK* G174 85</p> <p>1.5PNK* G2 87</p> <p>1.5RED* G150 30</p> <p>1BRN* G1 86</p>		
<p>Brake fluid reservoir relay</p>	<p>(I72)</p>	<p>Windshield and head lamps washer fluid sensor</p>	<p>(L13)</p>
 <p>PNK-BLK* G2 85</p> <p>ORN* N22 B 87b</p> <p>ORN* N22 B 30</p> <p>ORN-BLK* G150 86</p>	 <p>1BLK* P19</p> <p>1WHT-RED* G149</p>		
<p>Engine coolant level sensor</p>	<p>L14</p>	<p>Alfa Romeo control unit</p>	<p>(N22) B</p>
 <p>BLK* G143 1</p> <p>BLK* H17 1</p>	 <p>WHT-RED* G149 5</p> <p>ORN* I72 7</p> <p>ORN* I72 8</p>		
<p>Alfa Romeo control unit</p>	<p>(N22) D</p>	<p>Windshield washer electric pump</p>	<p>P19</p>
 <p>GRY-BLK* G1 D 2</p>	 <p>1BLK* I19 1</p> <p>1BLK* L13 1</p>		







SENSORS - - BRAKE AND WINDS. WASHER FLUID LEVELS, PARK. BRAKE WARN. LAMPS









BRAKE FLUID LEVEL WARNING LAMP INOPERATIVE	TEST A
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TEST STEPS	RESULTS	REMEDY		
<p>NOTE: Before attempting any troubleshooting, check the related warning lamp on the instrument panel by pressing the test button: replace the affected lamp if it does not illuminate.</p>				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; padding: 5px;">A1</td> <td style="padding: 5px;">FUSE CHECK</td> </tr> </table>	A1	FUSE CHECK	<div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> <div style="display: flex; align-items: center; gap: 10px;"> OK ▶ </div> <div style="display: flex; align-items: center; gap: 10px;"> OK ▶ </div> </div>	<p>Carry-out step A2</p> <p>Replace fuse F2</p>
A1	FUSE CHECK			
<ul style="list-style-type: none"> - Check fuse F2 in auxiliary fuse box G2 for integrity 				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; padding: 5px;">A2</td> <td style="padding: 5px;">VOLTAGE CHECK</td> </tr> </table>	A2	VOLTAGE CHECK	<div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> <div style="display: flex; align-items: center; gap: 10px;"> OK ▶ </div> <div style="display: flex; align-items: center; gap: 10px;"> OK ▶ </div> </div>	<p>Carry-out step A7</p> <p>Carry-out step A3</p>
A2	VOLTAGE CHECK			
<ul style="list-style-type: none"> - Check for presence of 12V between pin 87 of electronic control units power supply relay I51 and ground 				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; padding: 5px;">A3</td> <td style="padding: 5px;">VOLTAGE CHECK</td> </tr> </table>	A3	VOLTAGE CHECK	<div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> <div style="display: flex; align-items: center; gap: 10px;"> OK ▶ </div> <div style="display: flex; align-items: center; gap: 10px;"> OK ▶ </div> </div>	<p>Carry-out step A5</p> <p>Carry-out step A4</p>
A3	VOLTAGE CHECK			
<ul style="list-style-type: none"> - Check for presence of 12V between pin 30 of relay I51 and ground 				







BRAKE FLUID LEVEL WARNING LAMP INOPERATIVE	TEST A
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TEST STEPS		RESULTS	REMEDY
A4	VOLTAGE CHECK		
	- Check for presence of 12V between pin 5 of connector G150 and ground		Repair wiring between pin 5 of connector G150 and pin 30 of relay I51
			Failure of the power distribution circuit , refer to the relevant circuit of sheet 1 of 2
A5	GROUNDING CHECK		
	- Check for presence of 0V (zero) between pin 85 of relay I51 and ground		Carry-out step A6
			Repair wiring between pin 85 of relay I51 and ground point G174
A6	VOLTAGE CHECK		
	- With the ignition key set to "run", check for presence of 12V between pin 86 of relay I51 and ground		Replace relay I51
			Failure of the power distribution circuit , refer to the relevant circuit of sheet 2 of 2

BRAKE FLUID LEVEL WARNING LAMP INOPERATIVE	TEST A
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TEST STEPS		RESULTS	REMEDY
A7	VOLTAGE CHECK		
	- Check for presence of 12V between auxiliary fuse box G2 (PNK wire) and ground	<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Carry-out step A8
		<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Repair wiring between auxiliary fuse box G2 pin (PNK wire) and pin 87 of relay I51
A8	VOLTAGE CHECK		
	- Check for presence of 12V between pin 85 of brake fluid level reservoir relay I72 and ground	<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Carry-out step A9
		<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Repair wiring between pin 85 of relay I72 and auxiliary fuse box G2 (PNK-BLK wire)
A9	GROUNDING CHECK		
	- With brake fluid level below minimum, check for presence of 0V (zero) at pin 86 of relay I72	<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Carry-out step A10
		<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Carry-out step A11







BRAKE FLUID LEVEL WARNING LAMP INOPERATIVE	TEST A
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TEST STEPS		RESULTS	REMEDY
A10	CONTINUITY CHECK		
	- With brake fluid level below minimum, check that circuit is open between pins 7B and 8B of Alfa Romeo Control unit N22	<div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div>	<p>Failure of the Instrument panel - - Alfa Romeo Control ECU interface circuit; refer to the applicable troubleshooting procedure</p> <p>Replace relay I72</p>
A11	GROUNDING CHECK		
	- Check for presence of 0V (zero) at pin 6 of connector G150 with brake fluid level below minimum	<div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div>	<p>Repair wiring between pin 6 of connector G150 and pin 86 of relay I36</p> <p>Carry-out step A12</p>
A12	GROUNDING CHECK		
	- Check for presence of 0V at terminal of brake fluid minimum level warning indicator switch H17 (ORN-BLK wire) under conditions stated at test step A8	<div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div>	<p>Repair wiring between pin 6 of connector G150 and terminal of switch H17 (ORN-BLK wire)</p> <p>Carry-out step A13</p>



BRAKE FLUID LEVEL WARNING LAMP INOPERATIVE	TEST A
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TEST STEPS		RESULTS	REMEDY
A13	GROUNDING CHECK		
	<ul style="list-style-type: none"> - Check for presence of 0V (zero) at pin of switch H17 (BLK wire) 	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px; margin-right: 10px;">▶</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px; margin-right: 10px;">▶</div> </div> </div>	<p>Replace switch H17</p> <p>Repair wiring between terminal of switch H17 (BLK wire) and ground point G143</p>

BRAKE FLUID LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST B
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TEST STEPS		RESULTS	REMEDY
B1	BRAKE FLUID LEVEL CHECK		
	- Check level of brake fluid	 ►	Carry-out step B2
		 ►	Top-up brake fluid
B2	CONTROL UNIT CHECK		
	- Check that circuit is closed between pins 7B and 8B of Alfa Romeo Control unit N22	 ►	Failure of the Instrument panel -- Alfa Romeo Control ECU Interface circuit ; refer to the applicable trouble-shooting procedure
		 ►	Carry-out step B3
B3	OPEN CIRCUIT CHECK		
	- Check that circuit is open at pin 86 of relay I72	 ►	Replace relay I72
		 ►	Replace switch H17







MINIMUM WINDSHIELD WASHER FLUID LEVEL WARNING LAMP INOPERATIVE	TEST C
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TEST STEPS	RESULTS	REMEDY
<p>NOTE: Before attempting any troubleshooting, check the related warning lamp on the instrument panel by pressing the test button: replace the affected lamp if it does not illuminate.</p>		
<p>C1 CONTROL UNIT CHECK</p> <p>- With windshield washer fluid level below minimum, check that circuit is open at pin 5B of Alfa Romeo Control unit N22</p>	<p> ►</p> <p> ►</p>	<p>Failure of the instrument panel-- Alfa Romeo Control ECU interface circuit; refer to the applicable trouble-shooting procedure</p> <p>Replace windshield and head lamps washer fluid sensor L13</p>





End of test C

484







MINIMUM FLUID LEVEL/WINDSHIELD WASHER FLUID LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST D
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TEST STEPS		RESULTS	REMEDY
D1	FLUID LEVEL CHECK		
	- Check level of windshield washer fluid	<div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div>	<p>Carry-out step D2</p> <p>Top-up windshield washer fluid</p>
D2	SENSOR CHECK		
	- With sufficient windshield washer fluid, check that circuit is closed between terminals of windshield and head lamps washer fluid sensor L13	<div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div>	<p>Carry-out step D3</p> <p>Replace sensor L13</p>
D3	GROUNDING CHECK		
	- Check for presence of 0V (zero) between terminal of sensor L13 (BLK wire) and ground	<div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">▶</div> </div>	<p>Carry-out step D4</p> <p>Repair wiring between terminal of sensor L13 (BLK wire) and ground point G53a</p>

MINIMUM FLUID LEVEL/WINDSHIELD WASHER FLUID LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST D
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TEST STEPS		RESULTS	REMEDY
D4	CONTROL UNIT CHECK		
- With sufficient windshield washer fluid, check for presence of 0V (zero) at pin 5B of Alfa Romeo Control unit N22		 ►	Failure of the Instrument panel -- Alfa Romeo Control ECU interface circuit; refer to the applicable trouble-shooting procedure
		 ►	Carry-out step D5
D5	GROUNDING CHECK		
- With sufficient windshield washer fluid, check for presence of 0V (zero) at pin 12 of connector G149		 ►	Repair wiring between pin 12 of connector G149 and pin 5B of control unit N22
		 ►	Repair wiring between pin 12 of connector G149 and terminal of sensor L13 (WHT-RED wire)

PARKING BRAKE ENGAGED WARNING LAMP INOPERATIVE	TEST E
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	TEST STEPS	RESULTS	REMEDY
<p>NOTE: Before attempting any troubleshooting, check the related warning lamp on the instrument panel by pressing the test button: replace the affected lamp if it does not illuminate.</p>			
E1	CONTROL UNIT CHECK		
	- With parking brake engaged, check that circuit is open at pin 2D of Alfa Romeo Control unit N22	 ►	Failure of the instrument panel -- Alfa Romeo Control ECU interface circuit; refer to the applicable trouble-shooting procedure
		 ►	Carry-out step E2
E2	CONTINUITY CHECK		
	- With parking brake engaged, check that circuit is open at pin 11E of fuse box G1	 ►	Repair wiring between pin 11E, 8D of fuse box G1 and pin 2D of control unit
		 ►	Carry-out step E3
E3	CONTINUITY CHECK		
	- With parking brake engaged, check that circuit is open at terminal of switch H1 (GRY-BLK)	 ►	Repair wiring between terminal of switch H1 pin 15 of connector G100 and 11E of G1
		 ►	Carry-out step E4

PARKING BRAKE ENGAGED WARNING LAMP INOPERATIVE	TEST E
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TEST STEPS		RESULTS	REMEDY
E4	GRUNDING CHECK		
<ul style="list-style-type: none"> - Check for presence of 0V (zero) between terminal of switch H1 and ground 		<div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px;">▶</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px;">▶</div> </div> </div>	<p>Replace parking brake switch H1</p> <p>Repair wiring between terminal H1 and ground point G182</p>













End of test E

488

PARKING BRAKE ENGAGED WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST F
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TEST STEPS		RESULTS	REMEDY
F1	PARKING BRAKE CHECK		
	- Check that parking brake is disengaged	<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">○ OK</div> <div style="font-size: 2em;">▶</div> </div> <div style="display: flex; align-items: center; gap: 10px; margin-top: 10px;"> <div style="text-align: center;">○ OK</div> <div style="font-size: 2em;">▶</div> </div>	<p>Carry-out step F2</p> <p>Disengage parking brake</p>
F2	PARKING BRAKE SWITCH CHECK		
	- Check that circuit is closed between terminals of parking brake switch H1	<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">○ OK</div> <div style="font-size: 2em;">▶</div> </div> <div style="display: flex; align-items: center; gap: 10px; margin-top: 10px;"> <div style="text-align: center;">○ OK</div> <div style="font-size: 2em;">▶</div> </div>	<p>Carry-out step F3</p> <p>Replace switch H1</p>
F3	GROUNDING CHECK		
	- Check for presence of 0V (zero) at terminal of switch H1 (BLK wire)	<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">○ OK</div> <div style="font-size: 2em;">▶</div> </div> <div style="display: flex; align-items: center; gap: 10px; margin-top: 10px;"> <div style="text-align: center;">○ OK</div> <div style="font-size: 2em;">▶</div> </div>	<p>Carry-out step F4</p> <p>Repair wiring between terminal of switch H1 (BLK wire) and ground point G182</p>

PARKING BRAKE ENGAGED WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST F
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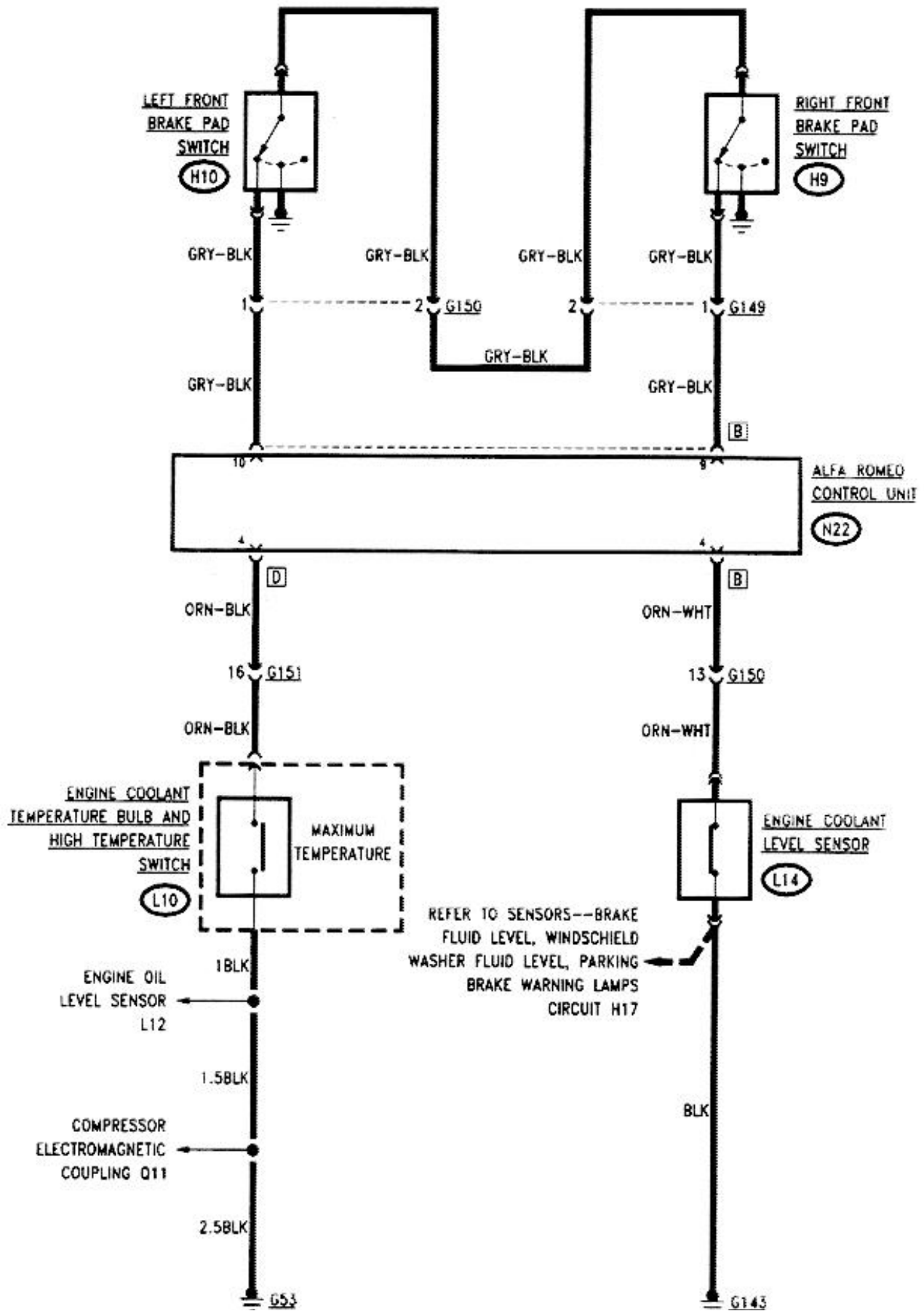
TEST STEPS		RESULTS	REMEDY
F4	CONTROL UNIT CHECK		
	- Check for presence of 0V (zero) at pin 2D of Alfa Romeo Control unit N22	 	Failure of the instrument panel -- Alfa Romeo Control ECU interface circuit; refer to the applicable trouble-shooting procedure Carry-out step F5
		 	
F5	GROUNDING CHECK		
	- Check for presence of 0V (zero) at pin 11E of fuse box G1	 	Repair wiring between pin 8D of fuse box G1 and pin 2D of control unit N22 Carry-out step F6
		 	
F6	GROUNDING CHECK		
	- Check for presence of 0V (zero) at pin 15 of connector G100	 	Repair wiring between pin 11E of fuse box G1 and pin 15 of connector G100 Repair wiring between pin 15 of connector G100 and terminal of switch H1 (GRY-BLK wire)
		 	

End of test F

490

SENSORS - - BRAKE PAD WEAR,
ENGINE COOLANT LEVEL, MAXI-
MUM COOLANT TEMPERATURE

SENSORS - - BRAKE PAD WEAR, ENGINE COOLANT LEVEL, MAX. COOLANT TEMP.



GENERAL

The front brake pads wear and the level and temperature of the engine coolant are continuously monitored by an electronic control unit that, in case of a malfunction, alerts the user by turning on the appropriate warning lamp on the instrument panel.

OPERATIONAL DESCRIPTION

The right and left front brake pads switches **H9** and **H10** connect to ground pins 9B and 10B of the Alfa Romeo control unit **N22** whenever the corresponding brake pads are slightly worn, and the brake pedal is actuated.

Severe wear of the brake pads causes opening of contacts of switches **H9** and/or **H10**, with consequent open-

ing of circuit to pins 9B and 10B of control unit **N22**.

The level of engine coolant is monitored by the control unit **N22** through the level sensor **L14**.

The engine coolant level sensor **L14** contacts open when the engine coolant level decreases below the minimum, and disconnect pin 4B of control unit **N22** from the ground point.

The wiring diagram also shows the engine coolant temperature bulb and high temperature switch **L10**, that opens and disconnect from ground point the pin 4D of the control unit **N22** when the engine coolant temperature reaches the critical value of $115\pm 3^{\circ}\text{C}$ ($239\pm 5.4^{\circ}\text{F}$).

The switch **L10** will close when the engine coolant temperature decreases below 102°C (183.6°F).

The control unit **N22** will turn on the corresponding warning lamp on the instrument panel whenever any of the above mentioned failures occurs.

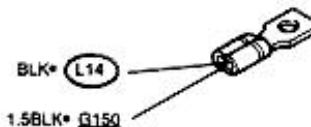
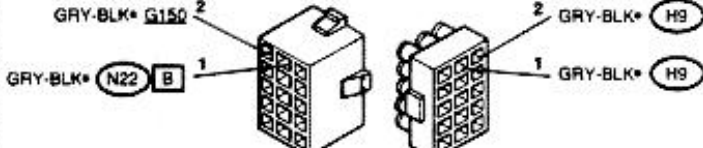
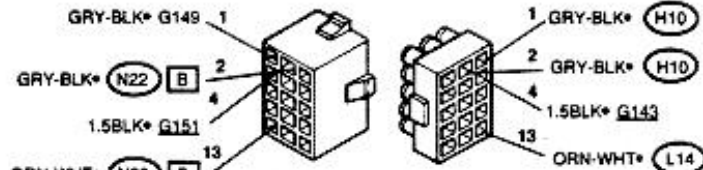

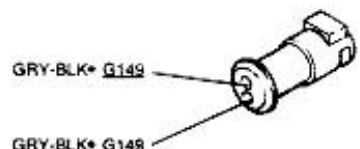
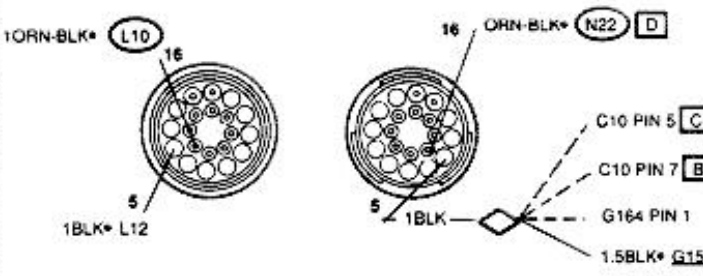
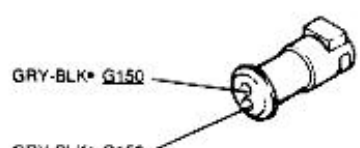
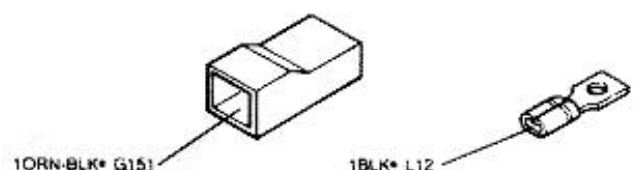
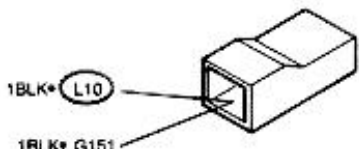
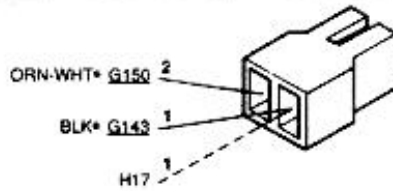
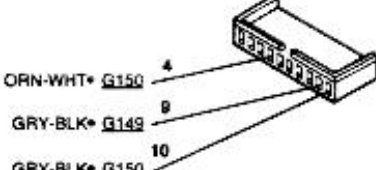

TROUBLESHOOTING TABLE

FAULT TYPE	FAILED COMPONENT				
	H9 SWITCH	H10 SWITCH	L10 SWITCH	L14 SENSOR	N22 CONTROL UNIT
BRAKE PADS WEAR WARNING LAMP INOPERATIVE	●	●			●
BRAKE PADS WEAR WARNING LAMP CONTINUOUSLY ILLUMINATED	●	●			●
ENGINE COOLANT LEVEL WARNING LAMP INOPERATIVE				●	●
ENGINE COOLANT LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED TEST				●	●
ENGINE COOLANT MAXIMUM TEMPERATURE WARNING LAMP INOPERATIVE			●		●
ENGINE COOLANT MAXIMUM TEMPERATURE WARNING LAMP CONTINUOUSLY ILLUMINATED TEST			●		●

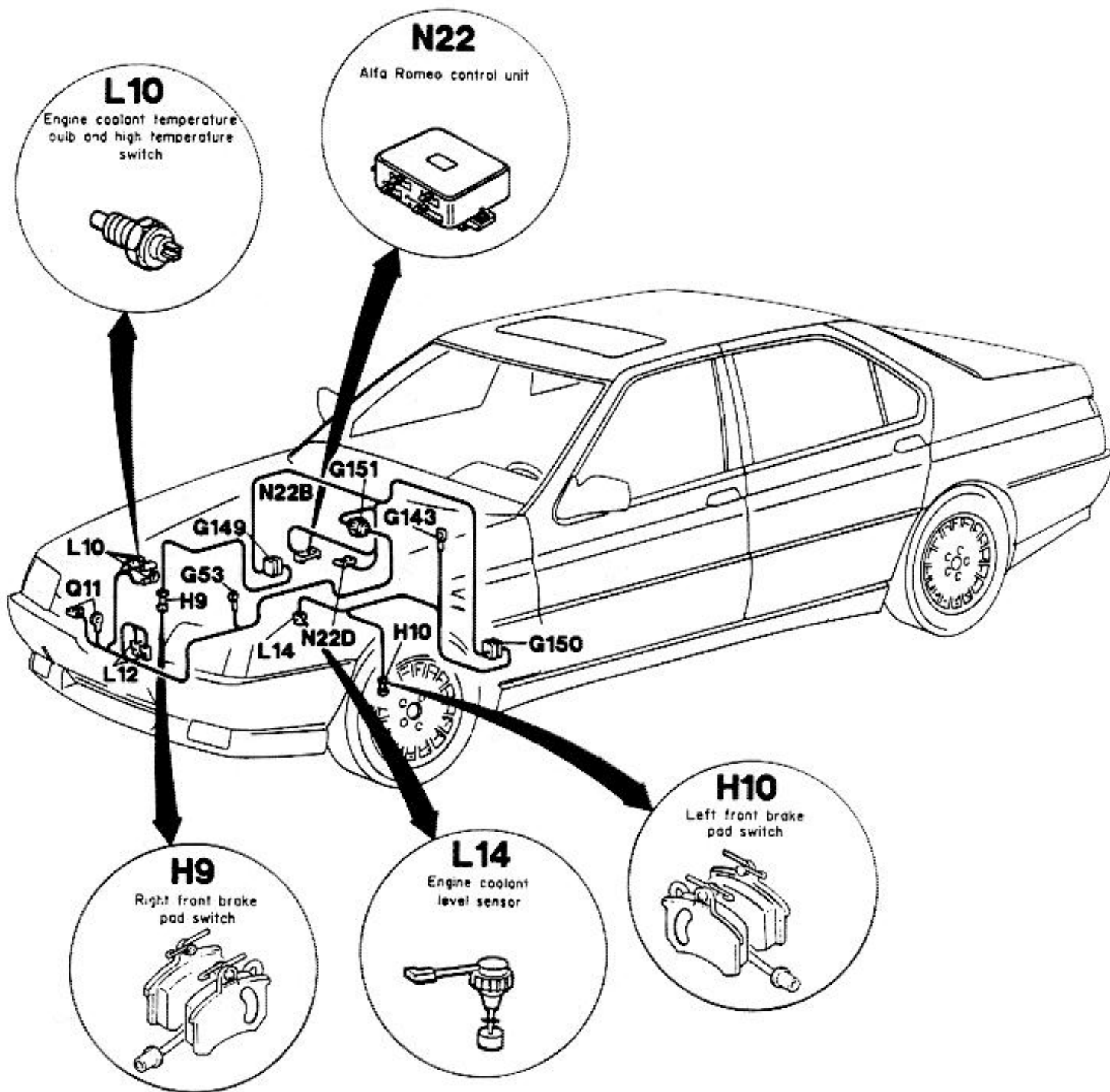
NOTE: Before attempting any trouble shooting, check the related warning lamp on the instrument panel by pressing the test button.

SENSORS - - BRAKE PAD WEAR, ENGINE COOLANT LEVEL, MAX. TEMP.

164







<p>Central bulkhead ground</p>	<p>G143</p>	<p>Connector, circuit board to engine compartment right side wiring</p>	<p>G149</p>
			
<p>Connector, circuit board to engine compartment left side wiring</p>	<p>G150</p>	<p>Connector, circuit board to engine utilities wiring</p>	<p>G151</p>
			
<p>Right front brake pad switch</p>	<p>H9</p>	 	
<p>Left front brake pad switch</p>	<p>H10</p>	<p>Engine coolant temperature bulb and high temperature switch</p>	<p>L10</p>
			
<p>Engine oil level sensor</p>	<p>L12</p>	<p>Engine coolant level sensor</p>	<p>L14</p>
			
<p>Alfa Romeo control unit</p>	<p>N22 (B)</p>	<p>Alfa Romeo control unit</p>	<p>N22 (D)</p>
			

SENSORS - - BRAKE PAD WEAR, ENGINE COOLANT LEVEL, MAX. COOLANT TEMP.







BRAKE PADS WEAR WARNING LAMP INOPERATIVE

TEST A

TEST STEPS		RESULTS	REMEDY
<p>NOTE: Before attempting any troubleshooting check the related warning lamp on the instrument panel by pressing the test button: replace the affected lamp if it does not illuminate.</p>			
A1	BRAKE PADS WEAR CHECK		
	- Check that brake pads (front right or front left) are just slightly worn (severe wear is not acceptable)	 ►	Carry-out step A2
		 ►	Carry-out step A4
A2	GROUNDING CHECK		
	- Check that terminal of brake pad switch H9 and/or H10 is connected to ground (wires connecting to pin 1 of connector G149 and/or pin 1 of connector G150)	 ►	Carry-out step A3
		 ►	Replace brake pad switch H9 (or H10)
A3	CONTROL UNIT CHECK		
	- Press and hold brake pedal and check for presence of 0V (zero) at pins 9B and/or 10B of Alfa Romeo control unit N22	 ►	Failure of Instrument panel - - Alfa Romeo Control ECU interface circuit ; refer to the applicable troubleshooting procedure
		 ►	Repair wiring between switch H9 (or H10), pin 1 of connector G149 (or pin 1 of connector G150) and pin 9B (or pin 10B) of control unit N22









BRAKE PADS WEAR WARNING LAMP INOPERATIVE	TEST A
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TEST STEPS		RESULTS	REMEDY
A4	SWITCH CHECK		
	- With left front brake pad seriously worn, check for open circuit condition between terminals of left front brake pad switch H10	<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Carry-out step A5
		<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Replace brake pads
A5	CONTROL UNIT CHECK		
	- With right front brake pad seriously worn, check for open circuit condition between terminals of right front brake pad switch H9	<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Failure of Instrument panel - - Alfa Romeo Control ECU interface circuit ; refer to the applicable troubleshooting procedure
		<div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	Replace brake pads

End of test A





498

BRAKE PADS WEAR WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST B
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TEST STEPS		RESULTS	REMEDY
B1	BRAKE PADS WEAR CHECK		
	- Check wear of both right and left front brake pads	 ►	Carry-out step B2
		 ►	Replace brake pads
B2	SWITCH CHECK		
	- Check that circuit is closed between terminals of left front brake pad switch H10	 ►	Carry-out step B3
		 ►	Replace switch H10
B3	SWITCH CHECK		
	- Check that circuit is closed between terminals of right front brake pad switch H9	 ►	Carry-out step B4
		 ►	Replace switch H9
B4	CONTROL UNIT CHECK		
	- Check that circuit is closed between pins 9B and 10B of Alfa Romeo control unit N22	 ►	Failure of Instrument panel - - Alfa Romeo Control ECU interface circuit ; refer to the applicable troubleshooting procedure
		 ►	Carry-out step B5

SENSORS - - BRAKE PAD WEAR, ENGINE COOLANT LEVEL, MAX. COOLANT TEMP.







BRAKE PADS WEAR WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST B
--	---------------

TEST STEPS		RESULTS	REMEDY
B5	CONTINUITY CHECK		
	- Check that circuit is closed between pin 10B of Alfa Romeo control unit N22 , pin 1 of connector G150 and terminal of left front brake pad switch H10 (GRY-BLK wire)	 ►  ►	Carry-out step B6 Repair or replace wires, as necessary
B6	CONTINUITY CHECK		
	- Check that circuit is closed between terminal of left front brake pad switch H10 (GRY-BLK wire), pin 2 of connector G150 , pin 2 of connector G149 and terminal of right front brake pad switch H9 (GRY-BLK wire)	 ►  ►	Repair wiring between terminal of switch H9, pin 1 of connector G149 and pin 9B of control unit N22 Repairs or replace wire, as necessary

End of test B









500

ENGINE COOLANT LEVEL WARNING LAMP INOPERATIVE	TEST C
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TEST STEPS	RESULTS	REMEDY
<p>NOTE: Before attempting any troubleshooting, check the related warning lamp on the instrument panel by pressing the test button: replace the affected lamp if it does not illuminate.</p>		
C1 CONTROL UNIT CHECK		
<ul style="list-style-type: none"> - With the engine coolant level below the minimum, check that circuit is open at pin 4B of Alfa Romeo control unit N22 	 ►	<p>Failure of instrument panel - - Alfa Romeo Control ECU interface circuit; refer to the applicable troubleshooting procedure</p>
	 ►	<p>Carry-out step C2</p>
C2 CONTINUITY CHECK		
<ul style="list-style-type: none"> - With the engine coolant level below the minimum check that circuit is open at terminal of sensor L14 (ORN-WHT wire) 	 ►	<p>Repair wiring between terminal of sensor L14, pin 13 of connector G150 and pin 4B of control unit</p>
	 ►	<p>Carry-out step C3</p>
C3 GROUNDING CHECK		
<ul style="list-style-type: none"> - Check that terminal of sensor L14 (BLK wire) is connect to ground 	 ►	<p>Replace sensor L14</p>
	 ►	<p>Repair wiring between sensor L14 and ground point G143 (BLK wire)</p>

SENSORS - - BRAKE PAD WEAR, ENGINE COOLANT LEVEL, MAX. COOLANT TEMP.



ENGINE COOLANT LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED TEST	TEST D
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TEST STEPS		RESULTS	REMEDY
D1	COOLANT LEVEL CHECK		
	- Check level of engine coolant		Carry-out step D2
			Top-up engine coolant
D2	SENSOR CHECK		
	- With engine coolant level within limits, check that circuit is closed between terminals of engine coolant level sensor L14		Carry-out step D3
			Replace sensor L14
D3	CONTROL UNIT CHECK		
	- With engine coolant level within limits, check for presence of 0V (zero) at pin 4B of Alfa Romeo control unit N22		Failure of Instrument panel - - Alfa Romeo Control ECU interface circuit; refer to the applicable troubleshooting procedure
			Carry-out step D4
D4	GROUNDING CHECK		
	- Check that terminal of sensor L14 is connected to ground (BLK wire)		Carry-out step D5
			Repair wiring between sensor L14 and ground point G143 (BLK wire)





SENSORS - - BRAKE PAD WEAR, ENGINE COOLANT LEVEL, MAX. COOLANT TEMP.

164

ENGINE COOLANT LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED TEST	TEST D
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TEST STEPS		RESULTS	REMEDY
D5	GROUNDING CHECK		
<ul style="list-style-type: none"> - With engine coolant level within limits, check for presence of 0V (zero) at pin 13 of connector G150 		<div style="display: flex; justify-content: space-around; align-items: center; margin-bottom: 20px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	<p>Repair wiring between pin 13 of connector G150 and pin 4B of control unit N22</p> <p>Repair wiring between pin 13 of connector G150 and terminal of sensor L14 (ORN-WHT wire)</p>

ENGINE COOLANT MAX. TEMPERATURE WARNING LAMP INOPERATIVE	TEST E
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TEST STEPS	RESULTS	REMEDY
<p>NOTE: Before attempting any troubleshooting, check the related warning lamp on the instrument panel by pressing the test button: replace the affected lamp if it does not illuminate.</p>		
<p>E1 TRANSMITTER CHECK</p>	<p>     </p>	<p> Failure of Instrument panel - - Alfa Romeo Control ECU interface circuit; refer to the applicable troubleshooting procedure Replace switch L10 </p>
<p>- Check that engine coolant temperature bulb and high temperature switch L10 is operational as follows:</p> <ul style="list-style-type: none"> • Remove switch L10 and dip it into a suitable container filled with water • Bring water to boil, and check that contacts of switch L10 open (open circuit between BLK and ORN-BLK wires) when the water reaches the temperature of 115°C 		







End of test E

504

SENSORS - - BRAKE PAD WEAR, ENGINE COOLANT LEVEL, MAX. COOLANT TEMP.

164

ENGINE COOLANT MAX. TEMPERATURE WARNING LAMP CONTINUOUSLY ILLUMINATED TEST	TEST F
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TEST STEPS		RESULTS	REMEDY
F1	COOLANT TEMPERATURE CHECK		
	- Check engine coolant temperature by reading the engine coolant temperature gauge on instrument panel ~115°C (239°F)	 	Failure of the engine cooling system; refer to the "ENGINE" troubleshooting procedure (Group 01) Carry-out step F2
F2	CONTROL UNIT CHECK		
	- Check for presence of 0V (zero) at pin 4D of Alfa Romeo control unit N22	 	Failure of Instrument panel - - Alfa Romeo Control ECU interface interface system; refer to the applicable troubleshooting procedure Carry-out step F3
F3	VOLTAGE CHECK		
	- Check that circuit is closed between terminals of engine coolant temperature gauge and of engine coolant temperature bulb and high temperature switch L10 (ORN-BLK and BLK wires)	 	Carry-out step F4 Replace switch L10

SENSORS -- BRAKE PAD WEAR, ENGINE COOLANT LEVEL, MAX. COOLANT TEMP.

ENGINE COOLANT MAX. TEMPERATURE WARNING LAMP CONTINUOUSLY ILLUMINATED TEST	TEST F
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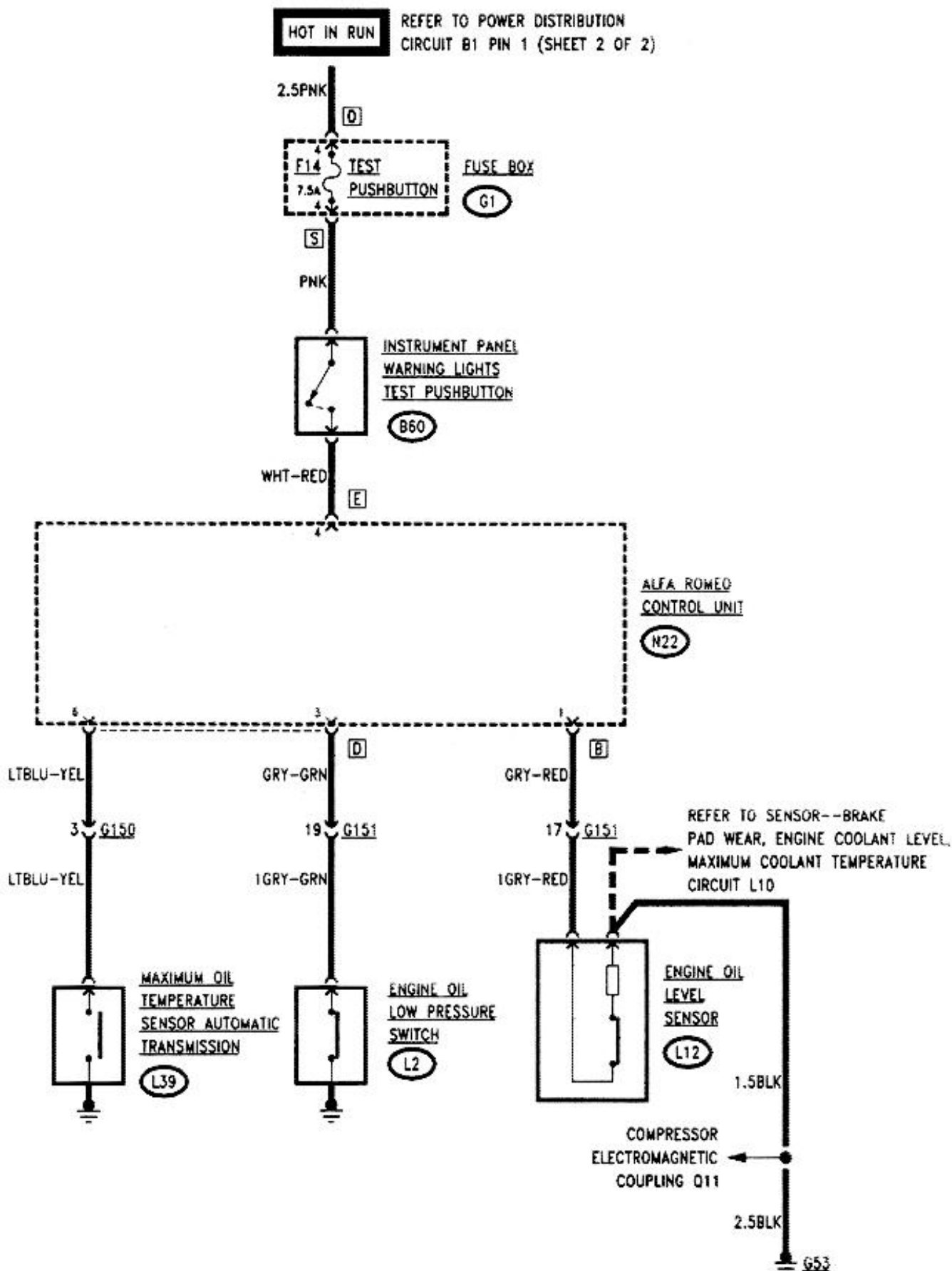
TEST STEPS		RESULTS	REMEDY
F4	GROUNDING CHECK	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; margin-right: 10px;">OK</div> <div style="font-size: 2em; margin-right: 10px;">▶</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-decoration: line-through;">OK</div> <div style="font-size: 2em; margin-right: 10px;">▶</div> </div> </div>	<p>Carry-out step F5</p> <p>Repair wiring between switch L10 and ground point G53 (BLK wire)</p>
	<p>- Check that terminal of switch L10 is connected to ground (BLK wire)</p>		
F5	GROUNDING CHECK	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; margin-right: 10px;">OK</div> <div style="font-size: 2em; margin-right: 10px;">▶</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-decoration: line-through;">OK</div> <div style="font-size: 2em; margin-right: 10px;">▶</div> </div> </div>	<p>Repair wiring between pin 16 of connector G151 and pin 4D of control unit N22</p> <p>Repair wiring between pin 16 of connector G151 and terminal of switch L10 (ORN-BLK wire)</p>
	<p>- Check for presence of 0V (zero) at pin 16 of connector G151</p>		

End of test F

506

SENSORS - - ENGINE OIL MINI-
MUM LEVEL, ENGINE OIL MINI-
MUM PRESSURE, AUTOMATIC
TRANSMISSION MAXIMUM
TEMPERATURE,
TEST PUSHBUTTON

SENSORS - - ENG. OIL MIN. LEVEL AND PRESS., AUTOM. TRANSM. MAX. TEMP., TEST PUSHB.



GENERAL

The engine oil minimum level and minimum pressure and the automatic transmission oil temperature are continuously monitored by the Alfa Romeo control unit.

In the event of a failure, the control unit alerts the user by illumination on the instrument panel of the warning lamp relevant to the affected system.

The Alfa Romeo control unit monitors the warning lamps on the instrument panel, as listed below:

- Minimum level and minimum engine oil pressure.
- Automatic transmission oil temperature.
- Brake pads wear.
- Minimum level and maximum engine coolant temperature.
- Brake fluid level.
- Windshield washer fluid level.
- Parking brake engaged.
- Door open.
- Acoustic warning relevant to seat belt unfastened and/or ignition key inserted.

The integrity of all the warning lamps on the instrument panel is verified by pressing the test pushbutton.

The system is protected by the fuse **F14** (7.5A) TEST PUSHBUTTON in the fuse box **G1**.

OPERATIONAL DESCRIPTION

The engine oil level is detected by the engine oil level sensor **L12**, consisting of a bimetallic plate and a resistor connected in series and wound around the plate.

When the engine oil level is too low, the heat of the bimetallic plate can not be dissipated, the contact opens and pin 1B of the Alfa Romeo control unit **N22** is no longer connected to ground; as a consequence, the control unit turns on the relevant warning lamp on the instrument panel, thus alerting of the abnormal operating condition. The check of the engine oil level is performed only when the ignition key is rotated from position "parking" to position "run", and the eventual abnormal condition warning is then stored.

To clear the warning of this abnormal condition, it is necessary to top-up the engine oil level and repeat the check procedure by returning the ignition key to "parking" position, and then back to "run" position.

In case the engine oil pressure decreases to the minimum limit, the contacts of the engine oil low pressure switch **L2** open, thus opening the circuit to pin 3D of the control unit **N22**.

For the BASE and L version the maximum temperature of the automatic transmission oil is sensed by a sensor **L39** that closes the circuit to pin 6D of the control unit **N22**, thus connecting pin 6D to ground when the automatic transmission oil temperature reaches 130°C (266°F) (the contacts re-open when the oil temperature decreases to about 120°C (248°F)).

The wiring diagram also shows the test pushbutton, used to check the integrity of all the warning lamps on the instrument panel. By pressing the pushbutton **B60**, the 12V power available when the ignition key is set to "run" position, and protected by fuse **F14** in the fuse box **G1**, is applied to pin 4E of the control unit **N22**.

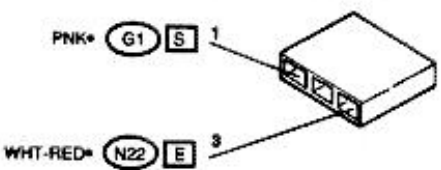
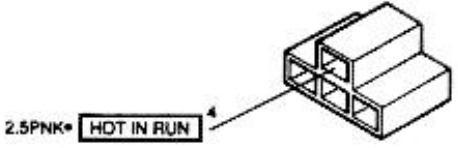
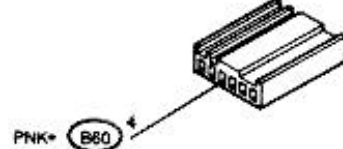

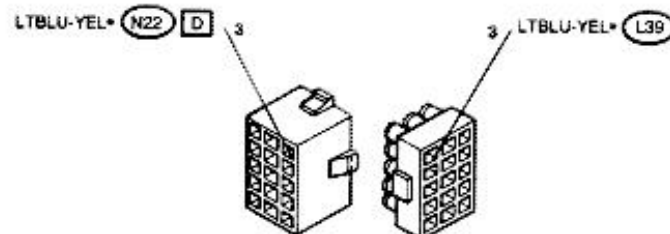
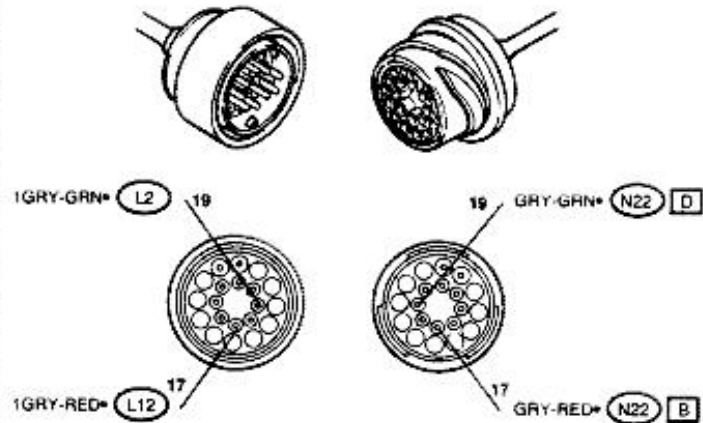
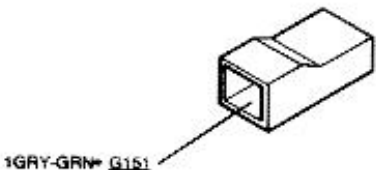
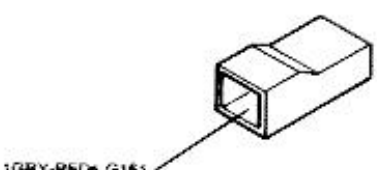
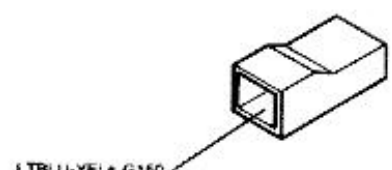
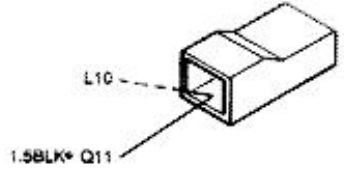
The control unit **N22** will provide for simultaneous illumination of all the warning lamps, and activation of the acoustic warnings of the vehicle.

TROUBLESHOOTING TABLE

FAULT TYPE	FAILED COMPONENT					
	F14 FUSE	B60 TEST BUTTON	L2 SENSOR	L12 SENSOR	L39 SENSOR (BASE AND L ONLY)	N22 CONTROL UNIT
ENGINE OIL LEVEL WARNING LAMP INOPERATIVE						•
ENGINE OIL LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED				•		•
MINIMUM ENGINE OIL PRESSURE WARNING LAMP INOPERATIVE			•			•
MINIMUM ENGINE OIL PRESSURE WARNING LAMP CONTINUOUSLY ILLUMINATED			•			•
AUTOMATIC TRANSMISSION OIL MAXIMUM TEMPERATURE WARNING LAMP INOPERATIVE					•	•
AUTOMATIC TRANSMISSION OIL MAXIMUM TEMPERATURE WARNING LAMP CONTINUOUSLY ILLUMINATED					•	•
ALL WARNING LAMPS INOPERATIVE ON INSTRUMENT PANEL WHEN TEST PUSHBUTTON IS ACTUATED	•	•				•

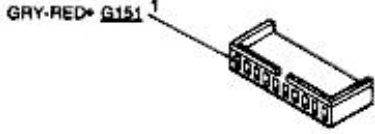
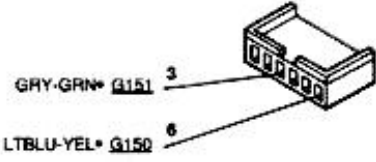
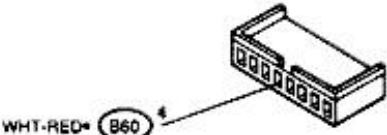
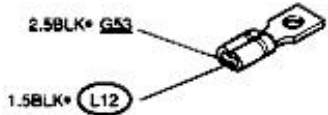
NOTE: Before attempting any troubleshooting ascertain the integrity of the affected warning lamp on the instrument panel by pressing the test button.

SENSORS - - ENG. OIL MIN. LEVEL AND PRESS., AUTOM. TRANSM. MAX. TEMP., TEST PUSHB.

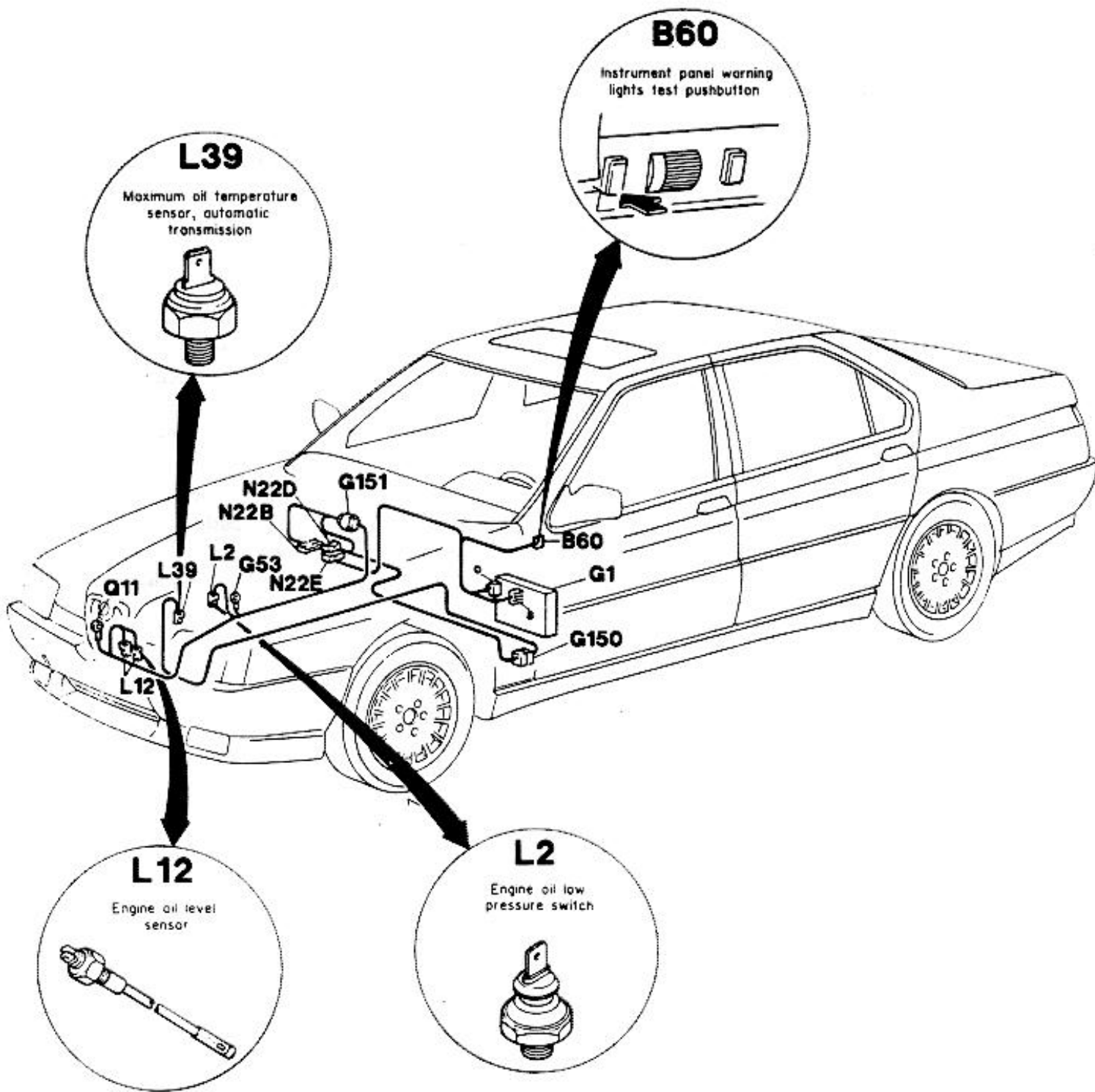
Instrument panel warning lights test pushbutton	B60	Fuse box	G1 O
			
Fuse box	G1 S	Engine compartment ground connection	G53
			
Connector, circuit board to engine compartment left side wiring	G150	Connector, circuit board to engine utilities wiring	G151
			
Engine oil low pressure switch	L2	Engine oil level sensor	L12
			
Maximum oil temperature sensor, automatic transmission	L39		
			

(Cont.d)

SENSORS - - ENG. OIL MIN. LEVEL AND PRESS. , AUTOM. TRANSM. MAX. TEMP., TEST PUSHB.

Alfa Romeo control unit	N22 B	Alfa Romeo control unit	N22 D
			
Alfa Romeo control unit	N22 E	Compressor electromagnetic coupling	Q11
			



SENSORS - - ENG. OIL MIN. LEVEL AND PRESS., AUTOM. TRANSM. MAX. TEMP., TEST PUSHB.



ENGINE OIL LEVEL WARNING LAMP INOPERATIVE	TEST A
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TEST STEPS	RESULTS	REMEDY
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NOTE: Before attempting any troubleshooting ascertain the integrity of the warning lamp on the instrument panel by pressing the test button: replace the affected lamp if it does not illuminate.

A1	CONTROL UNIT CHECK		
	- With the engine oil level below the minimum, check for presence of open circuit at pin 1B of Alfa Romeo Control unit N22		<p>Failure of the Instrument panel - - Alfa Romeo Control ECU Interface circuit; refer to the applicable troubleshooting procedure</p>
			<p>Replace sensor L12</p>

ENGINE OIL LEVEL WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST B
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TEST STEPS		RESULTS	REMEDY
B1	CONTROL UNIT CHECK		
<ul style="list-style-type: none"> - With the engine oil level above the minimum, check for presence of 0V (zero) at pin 1B of Alfa Romeo Control unit N22 		<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px; margin-right: 10px;">▶</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px; margin-right: 10px;">▶</div> </div>	<p>Failure of the Instrument panel - - Alfa Romeo Control ECU Interface circuit; refer to the applicable troubleshooting procedure</p> <p>Carry-out step B2</p>
B2	GROUNDING CHECK		
<ul style="list-style-type: none"> - Check for presence of 0V (zero) at terminal of engine oil level sensor L12 (BLK wire) 		<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px; margin-right: 10px;">▶</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px; margin-right: 10px;">▶</div> </div>	<p>Carry-out step B3</p> <p>Repair wiring between terminal of sensor L12 and ground point G53 (BLK wire)</p>
B3	CONTINUITY CHECK		
<ul style="list-style-type: none"> - Check for continuity between: <ul style="list-style-type: none"> • Terminal of engine oil level sensor L12 and pin 17 of connector G151 (GRY-RED wire) • Pin 17 of connector G151 and pin 1B of control unit N22 		<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px; margin-right: 10px;">▶</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">OK</div> <div style="font-size: 24px; margin-right: 10px;">▶</div> </div>	<p>Replace sensor L12</p> <p>Repair or replace wires, as necessary</p>







MINIMUM ENGINE OIL PRESSURE WARNING LAMP INOPERATIVE	TEST C
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TEST STEPS		RESULTS	REMEDY
<p>NOTE: Before attempting any troubleshooting ascertain the integrity of the warning lamp on the instrument panel by pressing the test button: replace the affected lamp if it does not illuminate.</p>			
C1	CONTROL UNIT CHECK		
<ul style="list-style-type: none"> - With the engine oil pressure to minimum, check for presence of open circuit at pin 3D of Alfa Romeo Control unit N22 		 	<p>Failure of the Instrument panel - - Alfa Romeo Control ECU interface circuit; refer to the applicable troubleshooting procedure</p> <p>Replace switch L2</p>









End of test C

516

MINIMUM ENGINE OIL PRESSURE WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST D
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TEST STEPS		RESULTS	REMEDY
D1	OIL PRESSURE CHECK		
<ul style="list-style-type: none"> - Start the engine, wait a few seconds and check that the engine oil pressure gauge does not indicate insufficient pressure 		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	<p>Carry-out step D2 and top-up oil, if necessary</p> <p>Check engine oil level and for presence of leaks from the engine; refer to SERVICE MANUAL-ENGINE-TROUBLESHOOTING PROCEDURE (Group 01)</p>
D2	CONTROL UNIT CHECK		
<ul style="list-style-type: none"> - Check for presence of 0V (zero) at pin 3D of Alfa Romeo Control unit N22 		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	<p>Failure of the Instrument panel - - Alfa Romeo Control ECU interface circuit; refer to the applicable troubleshooting procedure</p> <p>Carry-out step D3</p>
D3	SENSOR CHECK		
<ul style="list-style-type: none"> - Check for presence of closed circuit condition between terminals of engine oil low pressure switch L2 contacts 		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="font-size: 2em;">▶</div> </div>	<p>Carry-out step D4</p> <p>Replace switch L2</p>





MINIMUM ENGINE OIL PRESSURE WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST D
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TEST STEPS		RESULTS	REMEDY
D4	GROUNDING CHECK		
- Check for presence of 0V (zero) at pin 19 of connector G151		 	Repair wiring between pin 19 of connector G151 and pin 3D of control unit N22
		 	Carry-out step D5
D5	GROUNDING CHECK		
- Check for presence of 0V (zero) at terminal of switch L2 (GRY-GRN wire)		 	Repair wiring between pin 19 of connector G151 and terminal of switch L2 (GRY-GRN wire)
		 	Repair wiring between terminal of switch L2 and ground point



End of test D

518

AUTOMATIC TRANSMISSION OIL MAXIMUM TEMPERATURE WARNING LAMP INOPERATIVE	TEST E
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TEST STEPS	RESULTS	REMEDY
<p>NOTE: Before attempting any troubleshooting ascertain the integrity of the warning lamp on the instrument panel by pressing the test button: replace the affected lamp if it does not illuminate.</p>		
E1 SENSOR CHECK		
<ul style="list-style-type: none"> - Check integrity of maximum oil temperature sensor automatic transmission L39 verifying the presence of short circuit between sensor terminals when temperature is above 118°C (≅ 244°F) 	 ►  ►	<p>Carry-out step E2</p> <p>Replace sensor L39</p>
E2 CONTINUITY CHECK		
<ul style="list-style-type: none"> - Check for continuity between: <ul style="list-style-type: none"> • Sensor L39 (LT BLU-YEL wire) and pin 3 of connector G150 • Pin 3 of connector G150 and pin 6D of Alfa Romeo Control unit N22 • Sensor L39 and ground point 	 ►  ►	<p>Failure of the Instrument panel - - Alfa Romeo Control ECU interface circuit; refer to the applicable troubleshooting procedure</p> <p>Repair or replace wires, as necessary</p>

AUTOMATIC TRANSMISSION OIL MAXIMUM TEMPERATURE WARNING LAMP CONTINUOUSLY ILLUMINATED	TEST F
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TEST STEPS		RESULTS	REMEDY
F1	SENSOR CHECK		
<ul style="list-style-type: none"> - Park the vehicle, wait until the automatic transmission oil has cooled off, then check for presence of open circuit condition at pin 6D of Alfa Romeo Control unit N22 		<div style="display: flex; align-items: center; margin-bottom: 20px;"> <div style="text-align: center; margin-right: 10px;">  </div> <div style="font-size: 2em; margin-right: 10px;">▶</div> </div> <div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div style="font-size: 2em; margin-right: 10px;">▶</div> </div>	<p>Failure of the Instrument panel - - Alfa Romeo Control ECU interface circuit; refer to the applicable troubleshooting procedure</p> <p>Replace max. oil temperature sensor automatic transmission L39</p>









End of test F

520





SENSORS - - ENG. OIL MIN. LEVEL AND PRESS., AUTOM. TRANSM. MAX. TEMP., TEST PUSHB.

164

ALL WARNING LAMPS INOPERATIVE ON INSTRUMENT PANEL WHEN TEST PUSHBUTTON IS ACTUATED	TEST G
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TEST STEPS		RESULTS	REMEDY
G1	FUZE CHECK		
	- Check fuse F14 in fuse box G1 for integrity	 ►	Carry-out step G2
		 ►	Replace fuse F14
G2	WARNING LAMPS ILLUMINATION CHECK		
	- Check that failure affects all the warning lamps simultaneously	 ►	Carry-out step G3
		 ►	Replace the affected warning lamp
G3	VOLTAGE CHECK		
	- With the ignition key set to "run", check for presence of 12V between terminal of instrument panel warning lights test pushbutton B60 (PNK wire) and ground	 ►	Carry-out step G5
		 ►	Carry-out step G4
G4	VOLTAGE CHECK		
	- With the ignition key set to "run", check for presence of 12V between pin 4O of fuse box G1 and ground	 ►	Repair wiring between pin 4S of fuse box G1 and test pushbutton B60 (PNK wire)
		 ►	Failure of the power distribution circuit, refer to the relevant circuit of sheet 2 of 2

ALL WARNING LAMPS INOPERATIVE ON INSTRUMENT PANEL WHEN TEST PUSHBUTTON IS ACTUATED	TEST G
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TEST STEPS		RESULTS	REMEDY
G5	TEST PUSHBUTTON CHECK		
	- With the ignition key set to "run" and press test push button B60 , check for presence of 12V between push button terminal (WHT-RED wire) and ground	 ►	Carry-out step G6
		 ►	Replace pushbutton B60
G6	CONTROL UNIT CHECK		
	- With the ignition key set to "run" and press test pushbutton B60 , check for presence of 12V between pin 4E of Alfa Romeo Control unit N22 and ground	 ►	Failure of the Instrument panel - - Alfa Romeo Control ECU interface circuit; refer to the applicable troubleshooting procedure
		 ►	Repair wiring between pin 4E of control unit N22 and test pushbutton B60 (WHT-RED wire)

