COMBINATION METER Troubleshooting

Problem	Possible cause	Remedy	Page	
*Gauges and warning lights do not operate	"GAUGE" fuse faulty Wiring faulty	Replace fuse and check for short	BE-3	
Tachometer– does not operate	Tachometer faulty Wiring or ground faulty	Check tachometer Repair as necessary	BE51	
Fuel gauge does not operate	Receiver gauge faulty Sender gauge faulty Wiring or ground faulty	Check gauge Check gauge Repair as necessary	BE-52 or BE-53 BE-54	
Fuel level warning light does notBulb burned out Fuel level warning switch faulty Wiring or ground faulty		Replace bulb Check switch Repair as necessary	BE-55	
Water temperature gauge does not operate	Receiver gauge faulty Sender gauge faulty Wiring or ground faulty	Check gauge Check gauge Repair as necessary	BE–57 BE–58	
Low oil pressure warning light does not light	Bulb burned out Low oil pressure warning switch faulty Wiring or ground faulty	Replace bulb Check switch Repair as necessary	BE58	
Oil pressure gauge does not operate	Receiver gauge faulty Sender gauge faulty Wiring or ground faulty	Check gauge Check gauge Repair as necessary	BE–59 BE–59	
Brake warning light does not light	Bulb burned out Brake fluid level warning switch faulty Parking brake switch faulty Wiring or ground faulty	Replace bulb Check switch Check switch Repair as necessary	BE-60 BE-60	

*: Tachometer, Fuel Gauge, Water Temperature Gauge, Brake Warning, Low Oil Pressure Warning, Fuel Level Warning and Check Engine Warning.

Meter Circuit Coupe: w/o Tachometer





Coupe: w/ Tachometer



1	No.	Wiring connector side
Right Turn Indicator Bear Undow Defogger Indicator Tachometer OB-4 Fuel Gauge OA-5 OA-4	1 2 3 4 5 6 7 8 9 12	CHARGE Fuse Ground Speed Control Unit Ground Fuel Sender Gauge-terminal 1 Light Control Rheostat-terminal 4 TAIL Fuse (California: 4A-FE Engine) EGR Temperature Sensor (California: 4A-GE Engine) EGR Temperature Sensor and ENGINE ECU (Ex. California: 4A-GE Engine) TCCS ECU Rear Window Defogger Switch-terminal 10 Fuel Sender Gauge-terminal 3
Water Temp. Gauge OC-9 OC-10 Seat Belt Warning OC-4 Fuel Level Warning OA-12 Check Engine Warning	1 4 6 7 8	Combination Switch-terminal A3 (4A-FE Engine) Igniter (4A-GE Engine) Igniter Ground Combination Switch-terminal A8 Combination Switch-terminal A5
Brake Warning Discharge Warning Open Door Warning Oc-7 Open Door Warning OC-3 C Illumination Speed Sensor OA-2	1 2 3 4 5 7 9	ENGINE Fuse (4A–GE Engine) DOME Fuse (4A–GE Engine) Door Courtesy Switch Integration Relay–terminal 2 GAUGE Fuse Brake Fluid Level Warning Switch–terminal 1 and Parking Brake Switch Ground Water Temperature Sender Gauge



Coupe: Indicator light (4A–FE Engine)

No.	Wiring connector side	
1 2 3 4	GAUGE Fuse Low Oil Pressure Warning Switch DOME Fuse Door Courtesy Switch	

Coupe: Combination Gauge (4A–GE Engine)



No.	Wiring connector side			
1	Ground			
3	GAUGE Fuse			
4	Oil Pressure Sender Gauge			
5	Light Control Rheostat-terminal 4			
6	TAIL Fuse			



		N	0.	Wiring connector side
A-10- A-30- A-20- A-100- A-60- B-20-	Bight Turn Indicator C-8 Left Turn Indicator High Beam Indicator Rear Window Defogger Indicator Speed Sensor Fuel Gauge O B-10	A	1 2 3 4 5 6 7 8 9	Combination Switch-terminal A8 Combination Switch-terminal A3 Combination Switch-terminal A5 Light Control Rheostat-terminal 1 TAIL Fuse Speed Control Unit (California) EGR Temperature Sensor (4A-FE) ENGINE ECU Low Oil Pressure Warning Switch (AII-Trac/4WD w/ A/T) O/D Main Switch Rear Window Defogger Switch-terminal 10
	B-8 Water Temp. Gauge C-5 Seat Belt Warning B-3 Fuel Level Warning C-1 Low Oil Pressure Warning A-8 Check Engine Warning	в	2 3 4 5 6 8 10	GAUGE Fuse Integration Relay-terminal 2 Brake Fluid Level Warning Switch-terminal 1 and Parking Brake Switch CHARGE Fuse ENGINE Fuse Fuel Sender Gauge-terminal 3 Ground
B6 0-	A/T Oil Temp, Warning O/D OFF Indicator Brake Warning Brake Warning Open Door Warning Oc.2	c	1 2 3 4 5 8	Fuel Sender Gauge-terminal 2 Door Courtesy Switch DOME Fuse (All-Trac/4WD w/ A/T) A/T Oil Temperature Warning Switch Water Temperature Sender Gauge Ground
6-30-	Illumination O A-4			

Sedan and Wagon: w/o Tachometer (w/o Theft Deterrent System)



Sedan and Wagon: w/o Tachometer (w/ Theft Deterrent System)

A-10-	Right Turn Indicator	-004
A-3 0-	Left Turn Indicator	
A-20-	High Beam Indicator	
A-90-	Defogger Indicator	
A-50-	Speed Sensor	
A-10 O	Theft Deterrent Indicator Circuit	
B-20	Fuel Gauge	-OB-1
		-08-8
	Water Temp. Gauge	-00-5
	Seat Belt Warning	-08-3
	Fuel Level Warning	-004
	Low Oil Pressure Warning	-047
	Check Engine Warnin	-046
	Brake Warning	
8.60	Discharge Warning	-084
	0	-08-5
010	Open Door Warning	-002

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No. Wiring connector side		Wiring connector side
	1	Combination Switch-terminal A8
	2	Combination Switch-terminal A3
	3	Combination Switch-terminal A5
	4	Light Control Rheostat-terminal 1
Α	5	Speed Control Unit
	6	(California) EGR Temperature Sensor
	7	Low Oil Pressure Warning Switch
	9	Rear Window Defogger Switch-terminal 10
	10	Theft Deterrent ECU
	1	TAIL Fuse
	2	GAUGE Fuse
	3	Integration Relay-terminal 2
	4	Brake Fluid Level Warning Switch-terminal 1 and
	1000	Parking Brake Switch
в	5	CHARGE Fuse
	6	ENGINE Fuse
	8	Fuel Sender Gauge-terminal 3
	10	Ground
	1	Fuel Sender Gauge-terminal 2
	2	Door Courtesy Switch
С	3	DOME Fuse
	5	Water Temperature Sender Gauge
	8	Ground

Sedan: w/ Tachometer (w/o Theft Deterrent System)



	1	Combination Switch-terminal A8
A	2 3 4 5 6 7 8 9 10	Combination Switch-terminal A3 Combination Switch-terminal A3 Combination Switch-terminal A5 Light Control Rheostat-terminal 1 TAIL Fuse Speed Control Unit (California) EGR Temperature Sensor (4A-FE) ENGINE ECU Low Oil Pressure Warning Switch (A/T) O/D Main Switch Rear Window Defogger Switch-terminal 10
в	2 3 4 5 6 8 10	GAUGE Fuse Integration Relay-terminal 2 Brake Fluid Level Warning Switch-terminal 1 and Parking Brake Switch CHARGE Fuse ENGINE Fuse Fuse Sender Gauge-terminal 3 Ground
с	1 2 3 5 6 7 8	Fuel Sender Gauge-terminal 2 Door Courtesy Switch DOME Fuse Water Temperature Sender Gauge Ground Igniter Ground
	A B	A 6 7 8 9 10 2 3 4 5 6 8 10 1 2 3 4 5 6 8 10 1 2 3 4 10 1 2 3 5 6 7 8

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Sedan: w/ Tachometer (w/ Theft Deterrent System)



A-10	Right Turn Indicator	-0 C-8
A-30	Left Turn Indicator	
	High Beam Indicator	
A-20-0	Rear Window	
A-90-0	Detogger Indicator	
A-50-C	Speed Sensor	
-		
A-100	Indicator System	
	Tachometer	
B-20	1	-00-7
	Fuel Gauge	-0 8-8
		-0 8-10
	Water Temp. Gauge	-O C-5
	ē/	-O C-6
6	Seat Belt Warning	
	Eucl Level Warning	-08-3
+0	Low Oil Pressure	-O C-1
-6	Warning	-0 A-7
	Check Engine Warning	~ * *
19	O/D OFF Indicator	-0 A-6
10	D 0,0011 marcator	-O A-8
4	Brake Warning	0 8-4
	Discharge ¥	0.04
B60 (y	-O B-5
C-30	Open Door Warning	-O C-2
A-50-	Illumination	-0A-4
		8E1857

No. Wiring connector side		Wiring connector side
	1	Combination Switch-terminal A8
	2	Combination Switch-terminal A3
	3	Combination Switch-terminal A5
	4	Light Control Rheostat-terminal 1
Α	5	Speed Control Unit
	6	(California) EGR Temperature Sensor
	7	Low Oil Pressure Warning Switch
	8	(A/T) O/D Main Switch
	9	Rear Window Defogger Switch-terminal 10
_	10	Theft Deterrent ECU
	1	TAIL Fuse
	2	GAUGE Fuse
	3	Integration Relay-terminal 2
	4	Brake Fluid Level Warning Switch-terminal 1 and
		Parking Brake Switch
в	5	CHARGE Fuse
	6	ENGINE Fuse
	8	Fuel Sender Gauge-terminal 3
	10	Ground
	1	Fuel Sender Gauge-terminal 2
	2	Door Courtesy Switch
С	3	DOME Fuse
	5	Water Temperature Sender Gauge
	6	Ground
	7	Igniter
	8	Ground

nph]			
Standard indication	Allowable range		
20	20 - 23		
40	40 - 43.5		
60	60 - 64		
80	80 - 84.5		
100	100 - 105		

[km/h]			
Standard indication	Allowable range		
20	18 - 23		
40	40 - 44		
60	60 - 64.5		
80	80 - 85		
100	100 - 105		
120	120 - 125.5		
140	140 - 146		
160	160 - 167		

Parts Inspection

Speedometer System

7. INSPECT SPEEDOMETER (ON-VEHICLE)

(a) Using a speedometer tester, inspect the speedometer for allowable indication error and check the operation of the odometer.

HINT: Tire wear and tire over or under inflation will increase the indication error.

If error is excessive, replace the speedometer.

(b) Check the speedometer for pointer vibration and abnormal noise.

HINT: Pointer vibration can be caused by a loose speedometer cable.

Speedometer Shaft

2. INSPECT SPEED SENSOR

Check that there is continuity between terminals four times per each revolution of the speedometer shaft.

If operation is not as specified, replace the speedometer.

D	C 13.5V, 25°C (77	F) [rpm]
Standard	Allowable range	
indication	Coupe	Sedan
700	610 - 750	580 - 720
3,000	2,850 - 3,150	2,800 - 3,200
5,000	4,850 - 5,150	4,800 - 5,200
7,000	6,790 - 7,210	6,700 - 7,300

Tachometer System

INSPECT TACHOMETER (ON-VEHICLE)

(a) Connect a tune–up test tachometer, and start the engine. **NOTICE:**

- Reversing the connection of the tachometer will damage the transistors and diodes inside.
- When removing or installing the tachometer, be careful not to drop or subject it to heavy shocks.
- (b) Compare the tester and tachometer indications.

If error is excessive, replace the tachometer.



BE1827

- (a) Connect the positive (+) lead from the battery to terminal A and the negative (–) lead to terminal B.
- (b) Connect the positive (+) lead from the voltmeter to terminal C and the negative (-) lead to terminal B, check that the voltmeter needle vibrates near the 4.5 V position.

If voltage value is not as specified, replace the receiver gauge.



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EWD



- (a) Disconnect the connector from the sender gauge.
- (b) Turn the ignition switch ON, Check that the receiver gauge needle indicates EMPTY.
- (c)–1 (Coupe)

ÐE

Coupe

\$-4-1-C \$-4-2-C BE1206 5-4-1-B Connect terminals 1 and 2 on the wire harness side connector through a 3.4W test bulb.

(c)-2 (Sedan and Wagon)

Connect terminals 3 and 4 on the wire harness side connector through a 3.4W test bulb.

(d) Turn the ignition switch ON, check that the bulb lights up and receiver gauge needle moves towards the full side.

HINT: Because of the silicon oil in the gauge, it will take a short time for the needle to stabilize.

If operation is not as specified, inspect the receiver gauge resistance.

Between	Resistance (Ω)	
terminals	Coupe	Sedan and Wagon
A - B	Approx. 85	Approx. 100
A-C	Approx. 250	Approx. 200
B-C	Approx. 160	Approx. 100

(Resistance)

Measure the resistance between terminals.

If resistance value is not as specified, replace the receiver gauge.













2–1. (Coupe) INSPECT SENDER GAUGE (Operation)

- (a) Connect a series of three 1.5 V dry cell batteries.
- (b) Connect the positive (+) lead from the dry cell batteries to terminal 1 through a 3.4W test bulb and the negative (–) lead to terminal 2.
- (c) Check that the voltage rises between terminals 1 and 2 as the float is moved from the top to bottom position.

(Resistance)

(d) Measure the resistance between terminals 1 and 2 for each float position.

Float	position mm (in.)	Resistance (Ω)
F	Approx. 72 (2.83)	Approx. 3
E	Approx. 172 (6.77)	Approx. 110

If resistance value is not as specified, replace the sender gauge.

2–2. (Sedan and Wagon)

INSPECT SENDER GAUGE

- (a) Connect a series of three 1.5 V dry cell batteries.
- (b) Connect the positive (+) lead from the dry cell batteries to terminal 3 through a 3.4 W test bulb and the negative (–) lead to terminal 4.
- (c) Check that the voltage rises between terminals 3 and 4 as the float is moved from the top to bottom position.

(Resistance)

(d) Measure the resistance between terminals 3 and 4 for each float position.

Float pos	sition	mm (in.)	Resistance (Ω)
	F	Approx. 42 (1.65)	Approx. 3
FVVD	E	Approx. 138 (5.43)	Approx. 110
All-Trac/4WD	F	Approx. 82 (3.23)	Approx. 3
	E	Approx. 226 (8.90)	Approx. 110

If resistance value is not as specified, replace the receiver gauge.







(Coupe: w/ 4A–FE Engine) 1. INSPECT WARNING LIGHT

- (a) Disconnect the connector from the sender gauge.
- (b) Connect terminals 2 and 3 on the wire harness side connector.
- (c) Turn the ignition switch ON, check that the warning light lights up.
- If the warning light does not light up, test the bulb.

2. INSPECT WARNING SWITCH

(a) Apply battery voltage between terminals 2 and 3 through a 3.4W test bulb, check that the bulb lights.HINT: It will take a short time for the bulb to light up.

(b) Submerge the switch in fuel. Check that the bulb goes out. If operation is not as specified, replace the sender gauge.



Warning Light

Ignition Switch 0

BE1783

BE1217 5-4-1-8

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- (a) Disconnect the connector from the sender gauge.
- (b) Connect terminals 3 and 4 on the wire harness side connector.
- (c) Turn the ignition switch ON, check that the warning light lights up.
- If the warning light does not light up, test the bulb.



2. INSPECT WARNING SWITCH

(a) Apply battery voltage between terminals 3 and 4 through a 3.4W test bulb, check that the bulb lights.HINT: It will take a short time for the bulb to light up.



(b) Submerge the switch in fuel. Check that the bulb goes out.

If operation is not as specified, replace the sender gauge.







(Sedan and Wagon) 1. INSPECT WARNING LIGHT

(a) Disconnect the connector from the sender gauge. (b)–1 (FWD)

Connect terminals 2 and 4 on the wire harness side connector.

(b)-2 (All-Trac/4WD)

Connect terminals 1 and 2 on the wire harness side connector.

(c) Turn the ignition switch ON, check that the warning light lights up.

If the warning light does not light up, test the bulb.

2–1. (FWD)

INSPECT WARNING SWITCH

(a) Apply battery voltage between terminals 2 and 4 through a 3.4W test bulb, check that the bulb lights.

HINT: It will take a short time for the bulb to light up.

(b) Submerge the switch in fuel. Check that the bulb goes out.

If operation is not as specified, replace the sender gauge.



2–2. (AII–Trac/4WD) INSPECT WARNING SWITCH

(a) Apply battery voltage between terminals 1 and 2 through a 3.4W test bulb, check that the bulb lights.HINT: It will take a short time for the bulb to light up.

- (b) Submerge the switch in fuel. Check that the bulb goes out.

If operation is not as specified, replace the sender gauge.



Water Temperature Gauge System INSPECT RECEIVER GAUGE (Operation)

- (a) Disconnect the connector from the sender gauge.
- (b) Turn the ignition switch ON, check that the receiver gauge needle indicates COOL.
- (c) Ground terminal on the wire harness side through a 3.4W test bulb.
- (d) Turn the ignition switch ON, check that the bulb lights and the receiver gauge needle moves to the hot side.



Between	Resistance (Ω)	
terminals	Coupe	Sedan and Wagor
A→B A→C	Approx. 55 Approx. 135	Approx. 55 Approx. 145
B→C	Approx. 210	Approx. 200

(Resistance)

Measure the resistance between terminals. HINT: Connect the test leads so that the current from the ohmmeter can flow according to the chart order. If resistance value is not as specified, replace the receiver gauge.



If operation is as specified, replace the sender gauge. Then, recheck the system.

If operation is not as specified, measure the receiver gauge resistance.





Low Oil Pressure Warning System 1. INSPECT WARNING LIGHT

- (a) Disconnect the connector from the warning switch and ground the connector on the wire harness side.
- (b) Turn the ignition switch ON, check that the warning light lights.
- If the warning light does not light, test the bulb.

2. INSPECT SWITCH

- (a) Disconnect the connector from the switch.
- (b) Check that there is continuity between the terminal and ground with the engine stopped.
- (c) Check that there is no continuity between the terminal and ground with the engine running.

HINT: Oil pressure should be over 0.3 kg/cm (4.3 psi, 29 kPa). If operation is not as specified, replace the switch.







Oil Pressure Gauge System

1. INSPECT RECEIVER GAUGE

(Operation)

- (a) Disconnect the connector from the sender gauge.
- (b) Turn the ignition switch ON, check that the receiver gauge needle indicates LOW.
- (c) Ground terminal on the wire harness side through a 3.4W test bulb.
- (d) Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle moves to the high side.

If operation is not as specified, measure the receiver gauge resistance.

(Resistance)

BE1853

Measure the receiver gauge resistance between terminals. Resistance: Approx. 44 Ω

If resistance value is not as specified, replace the receiver gauge.



2. INSPECT SENDER GAUGE

- (a) Disconnect the connector from the sender gauge.
- (b) Apply battery voltage to the sender gauge terminal through a test LED.
- (c) Check that the bulb does not light when the engine is stopped.
- (d) Check that the LED flashes when the engine is running. The number of flashed should vary with engine speed.

If operation is not as specified, replace the sender gauge.









Brake Warning System

1. INSPECT WARNING LIGHT

- (a) Disconnect the connectors from the level warning switch and parking brake switch.
- (b) Connect terminals on the wire harness side of the level warning switch connector.
- (c) Remove the CHARGE fuse and turn the ignition switch ON, check that the warning light light up.
- If the warning light does not light, test the bulb.

2. INSPECT SWITCHES

(Brake Fluid Level Warning Switch)

- (a) Check that there is no continuity between terminals with the switch OFF (float up).
- (b) Check that there is continuity between terminals with the switch ON (float down).
- If operation is not as specified, replace the switch.

(Parking Brake Switch)

- (a) Check that there is continuity between terminal and the switch set nut with the switch pin released (parking brake lever pulled up).
- (b) Check that there is no continuity between terminal and the switch set nut with the switch pin pushed in (parking brake lever released).
- If operation is not as specified, replace the switch.

Seat Belt Warning System

1. INSPECT WARNING LIGHT

- (a) Ground terminal 2 of the integration relay with the wire harness connected.
- (b) Turn the ignition switch ON, check that the warning light lights up.

If the warning light does not light, test the bulb.



2. INSPECT BUCKLE SWITCH

- (a) Check that there is no continuity between terminals on the switch side connector with the belt fastened.
- (b) Check that there is no continuity between terminals on the switch side connector with the belt unfastened.

If operation is not as specified, replace the seat belt inner.





3. (USA models) INSPECT RETRACTOR SWITCH

(a) Check that there is no continuity between terminals with the seat belt fastened to the shoulder buckle.



(b) Check that there is continuity between terminals after releasing the seat belt.

4. INSPECT KEY UNLOCK WARNING SWITCH See Ignition Switch and Key Unlock Warning Switch on page BE–16.

5. INSPECT COURTESY SWITCH (Drive's Door)
See Open Door Warning System on page BE–63.



6. INSPECT INTEGRATION RELAY

(Continuity)

Check that there is continuity between the same number terminals of the male connector and female connector of the relay. If continuity is not as specified, replace the relay.



(Relay Circuit)

Disconnect the connectors from the relay and inspect the connectors on the wire harness side and J/B side as shown in the chart.

(Junction Block Side)

Check for	Tester connection	Condition		Specified value
Continuity	7 - Ground	Constant		Battery voltage
	8 — Ground	Driver's door position	Closed (Courtesy switch OFF)	No continuity
			Opened (Courtesy switch ON)	Continuity
	12 — Ground	Passenger or rear door	Closed (Courtesy switch OFF)	No continuity
			Opened (Courtesy switch ON)	Continuity
Voltage	1 – Ground	Ignition switch	LOCK	No voltage
		position	Condition Closed (Courtesy switch OFF) Opened (Courtesy switch ON) r or Closed (Courtesy switch OFF) Opened (Courtesy switch OFF) Opened (Courtesy switch ON) ritch LOCK Except LOCK ritch LOCK or ACC ON rol switch OFF or HOLD TAIL or HEAD	Battery voltage
Voltage	3 - Ground	Constant		Battery voltage
	9 — Ground	Ignition switch position	LOCK or ACC	No voltage
			ON	Battery voltage
	11 - Ground Light control switch position	Light control switch	OFF or HOLD	No voltage
		TAIL or HEAD	Battery voltage	

(Wire Harness Side)

Check for	Tester connection		Specified value		
Continuity	2 - 9	Constant		*Continuity	
	3 - 12	Constant		*Continuity	
	4 - Ground	Key unlock warning switch position	OFF (Ignition key removed)	No continuity	
			ON (Ignition key set)	Continuity	
	5 — Ground	Seat belt position	Unfastened (Buckle switch OFF)	No continuity	
			Fastened (Buckle switch ON)	Continuity	
	7 - Ground	Constant		Continuity	
*There is resistance in the circuit due to the bulb.					

If circuit is as specified, replace the relay.







Open Door Warning System

1. INSPECT WARNING LIGHT

- (a) Disconnect the connector from the door courtesy switch and ground it.
- (b) Turn the ignition switch ON, check that the warning light lights up.
- If the warning light does not light up, test the bulb.

2. INSPECT COURTESY SWITCH (Wagon: Back Door)

- (a) Check that there is continuity between terminals with the door lock hook in the unlock position. (door opened)
- (b) Check that there is no continuity between terminals with the door lock hook in the lock position. (door closed)

(Others)

- (a) Check that there is continuity between terminal and switch body when the switch pin is pushed. (door opened)
- (b) Check that there is no continuity between terminal and switch body when the switch pin is pushed. (door closed)

If operation is not as specified, replace the switch.





Meter Illumination Control System INSPECT LIGHT CONTROL RHEOSTAT (Coupe)

- (a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.
- (b) Connect terminals 1 and 4 through a 3.4W test bulb.
- (c) Gradually turn the rheostat knob from dark side to bright side, check that the test bulb brightness changes from dark to bright.

If operation is not as specified, replace the rheostat.

(Sedan and Wagon)

- (a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.
- (b) Connect terminals 1 and 3 through a 3.4 W test bulb.
- (c) Gradually turn the rheostat knob from the bright side to dark side, check that the test bulb brightness changes from bright to dark.
- If operation is not as specified, replace the rheostat.