



ELECTRICAL SYSTEM

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MARIZAM B. ABDOL RAHI

EIS DISTRIBUTOR - CEI TYPE

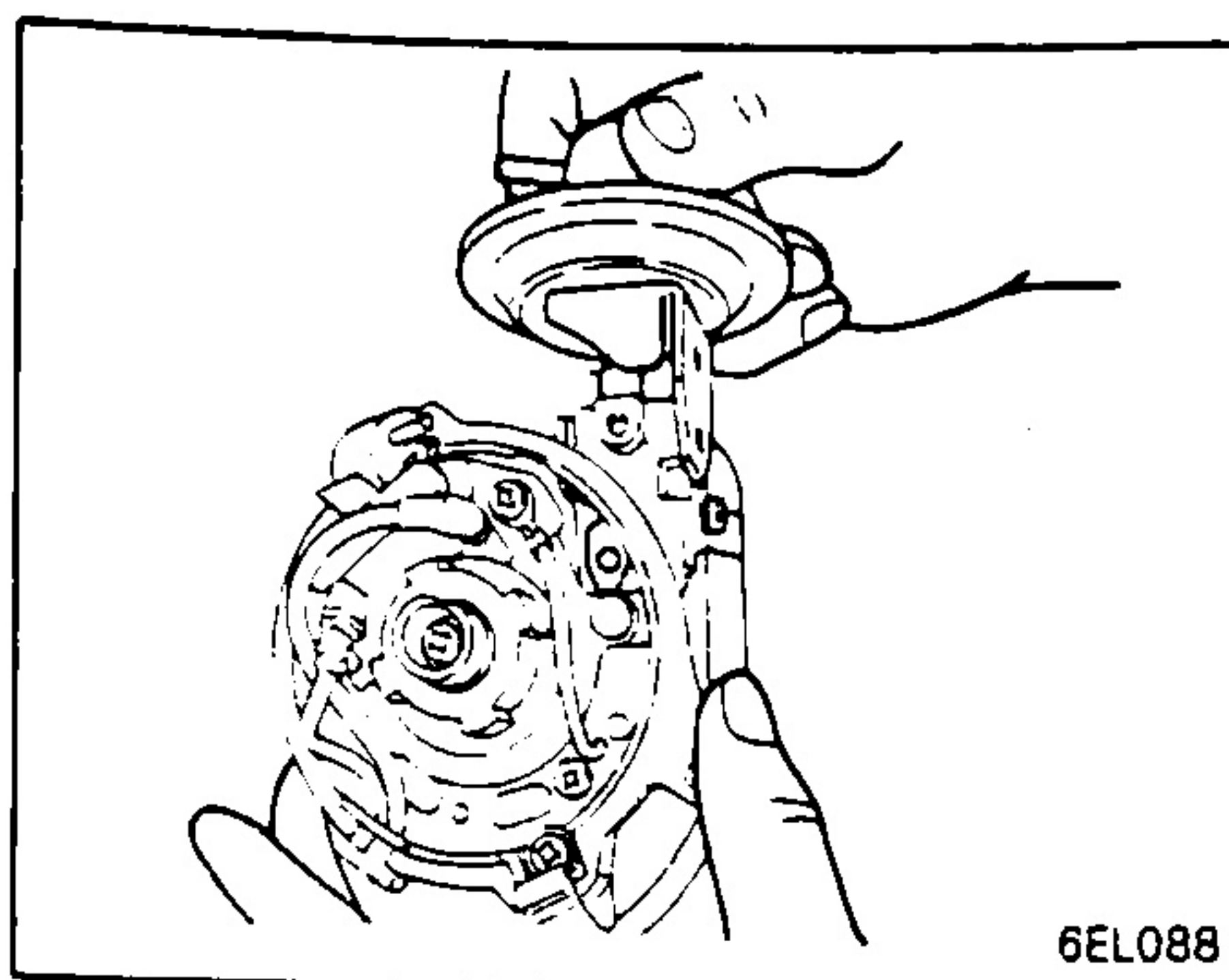


REMOVAL

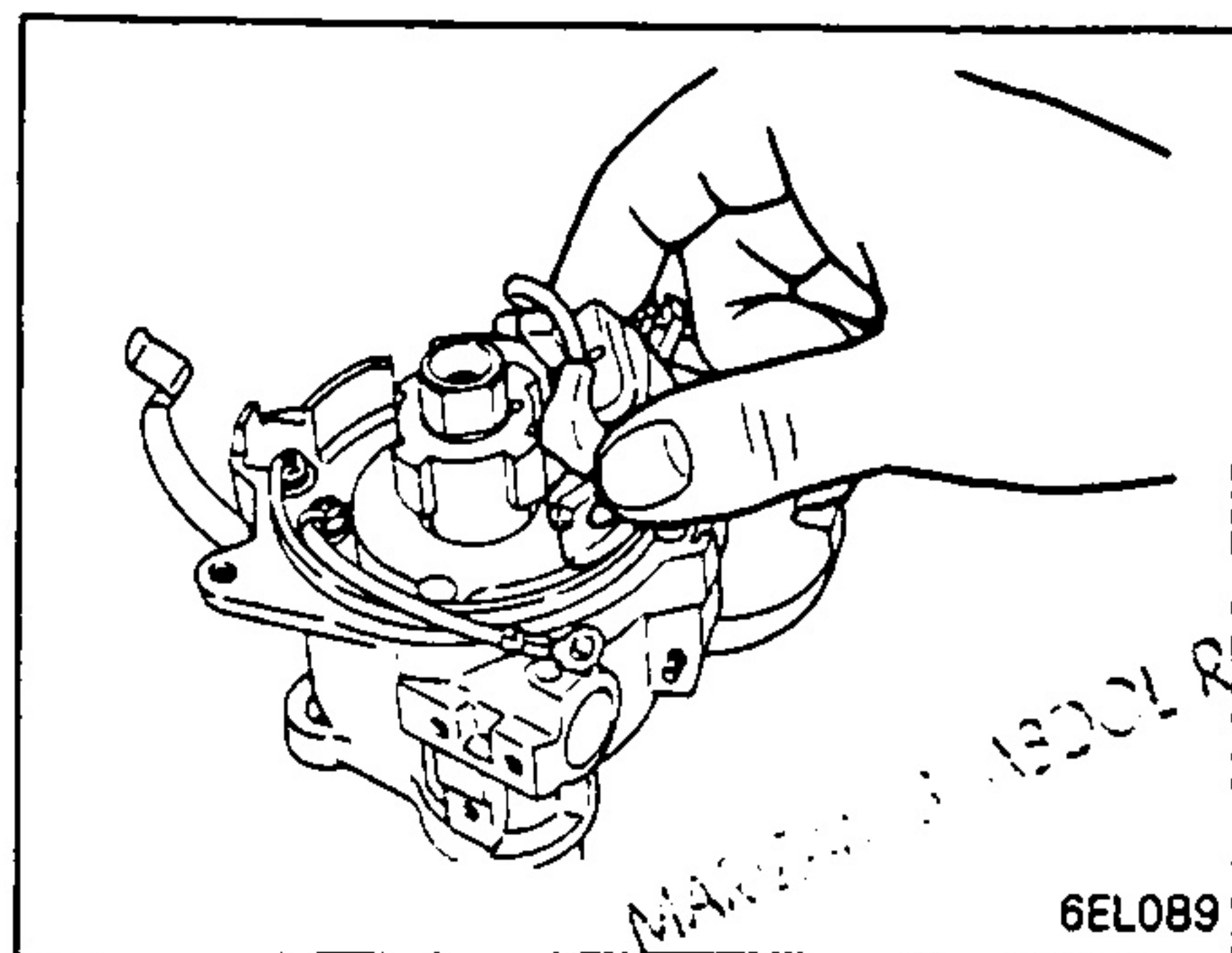
Disconnect battery ground cable.
Disconnect distributor wiring from terminals of ignition coil.
Disconnect spark plug cables and secondary cable from distributor.
Disconnect vacuum hose from vacuum controller.
Remove distributor mounting nut, then remove distributor assembly from cylinder head.

DISASSEMBLY

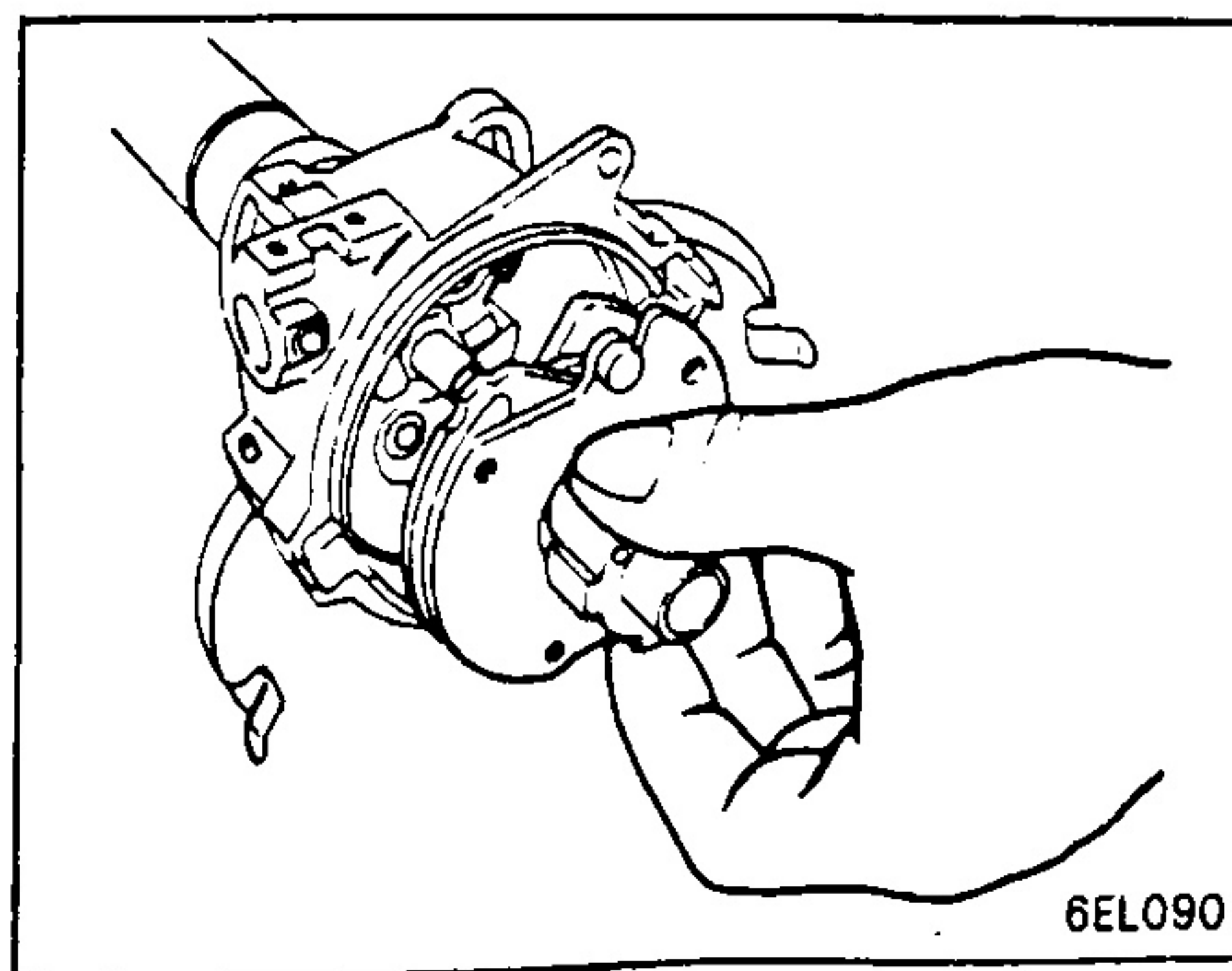
Remove retaining clips, then cap and seal ring.
Pull off rotor from rotor shaft.
Remove two vacuum controller attaching screws.
Remove link of controller from pin on igniter base, then remove vacuum controller.



Remove two screws and remove igniter.
Remove lead wire (black).



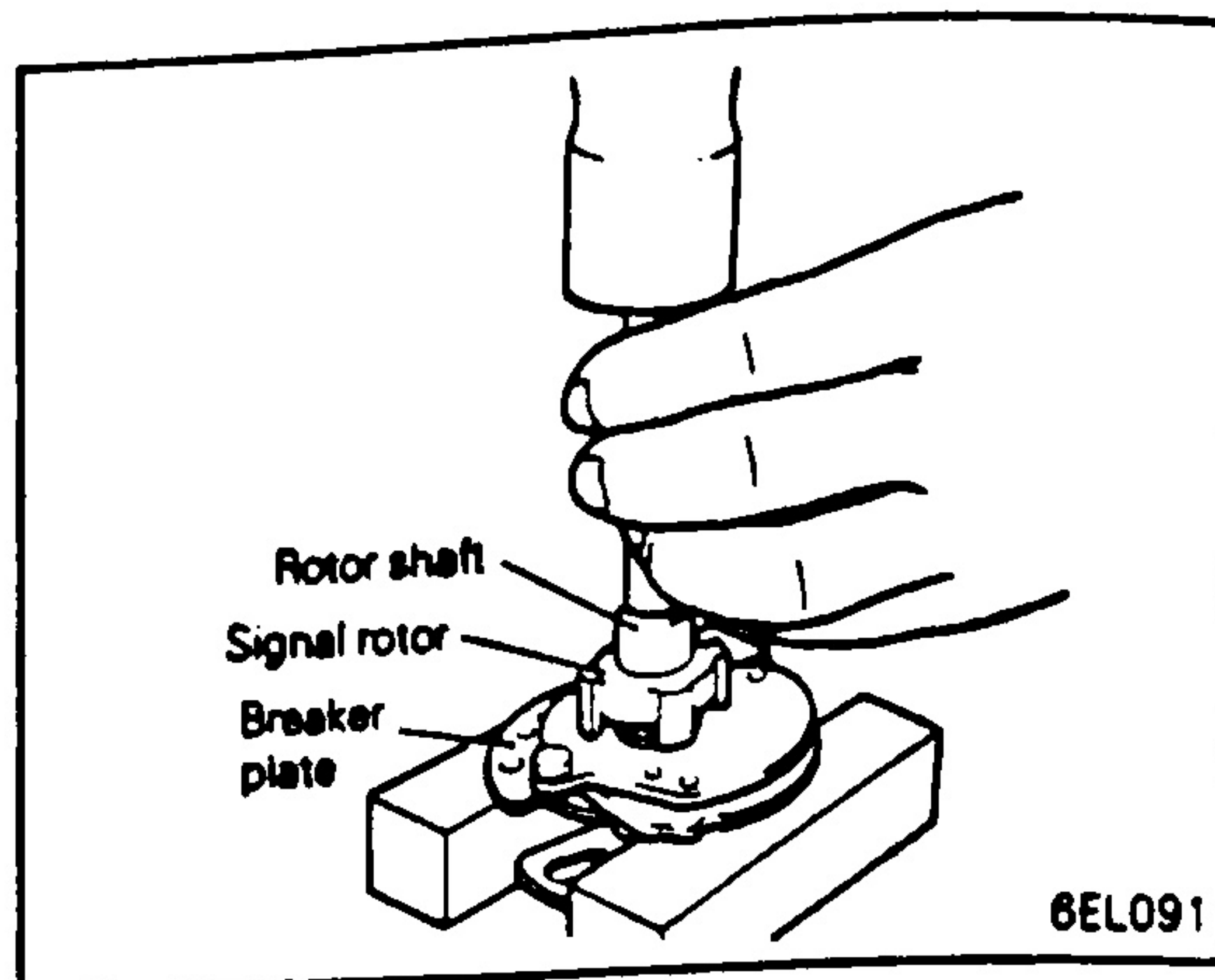
Remove signal rotor shaft tightening screw and two igniter base retaining screws.
Remove signal rotor shaft and igniter base assembly.



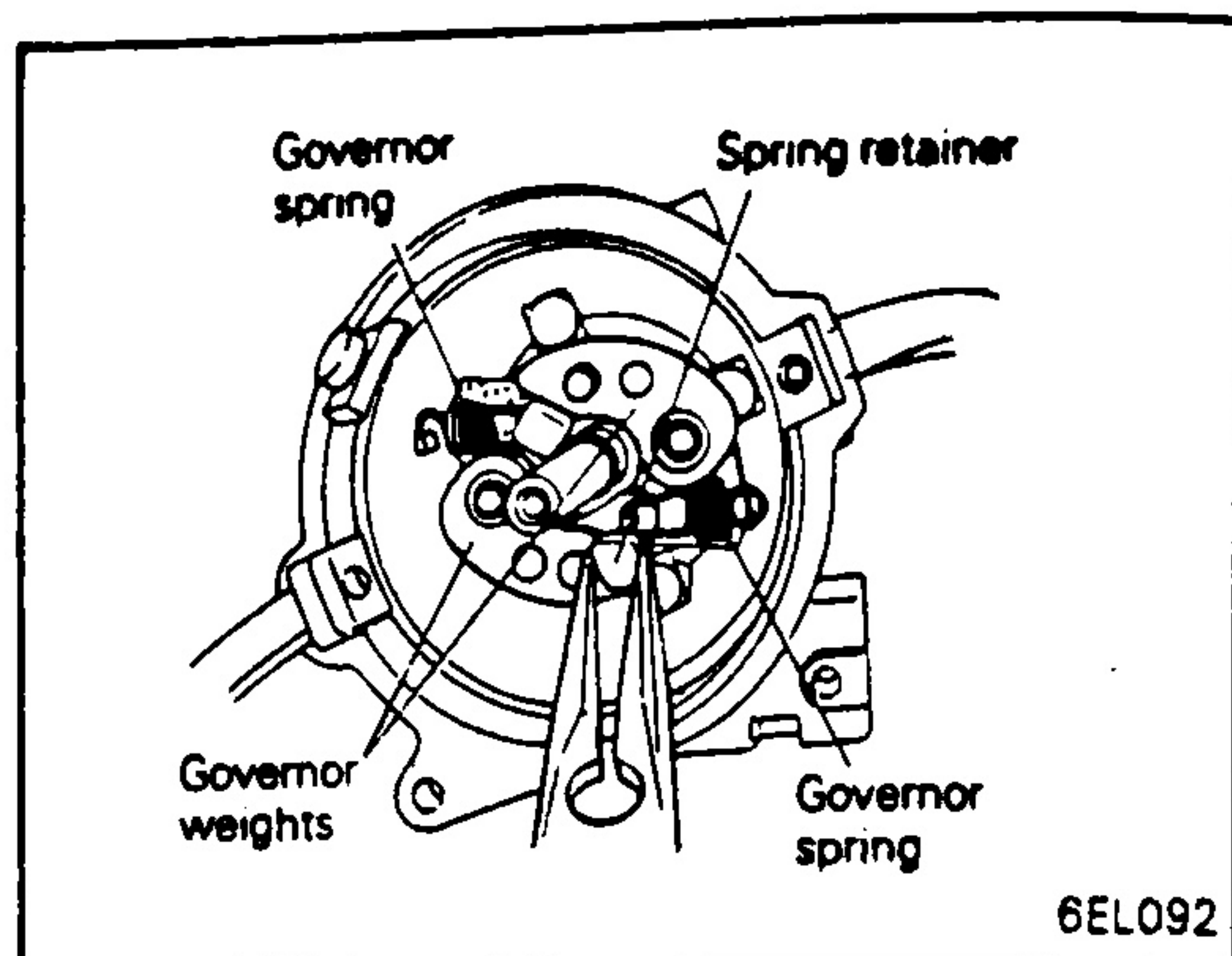


EIS DISTRIBUTOR — CEI TYPE

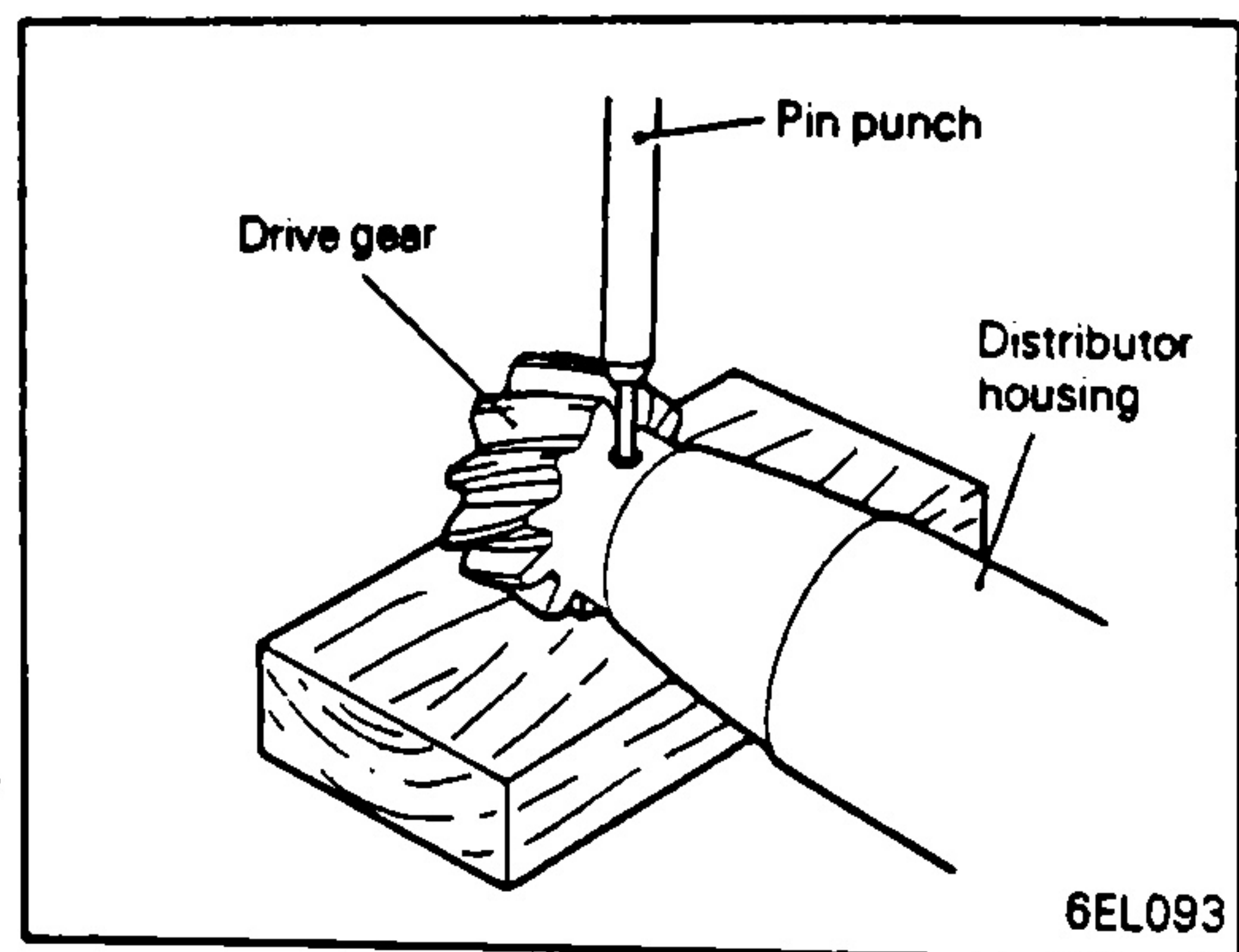
Place igniter base on soft base (wooden block) and lightly tap rotor shaft to remove it from signal rotor.



Remove two spring retainers with pliers and then remove two governor springs. Remove two governor weights.

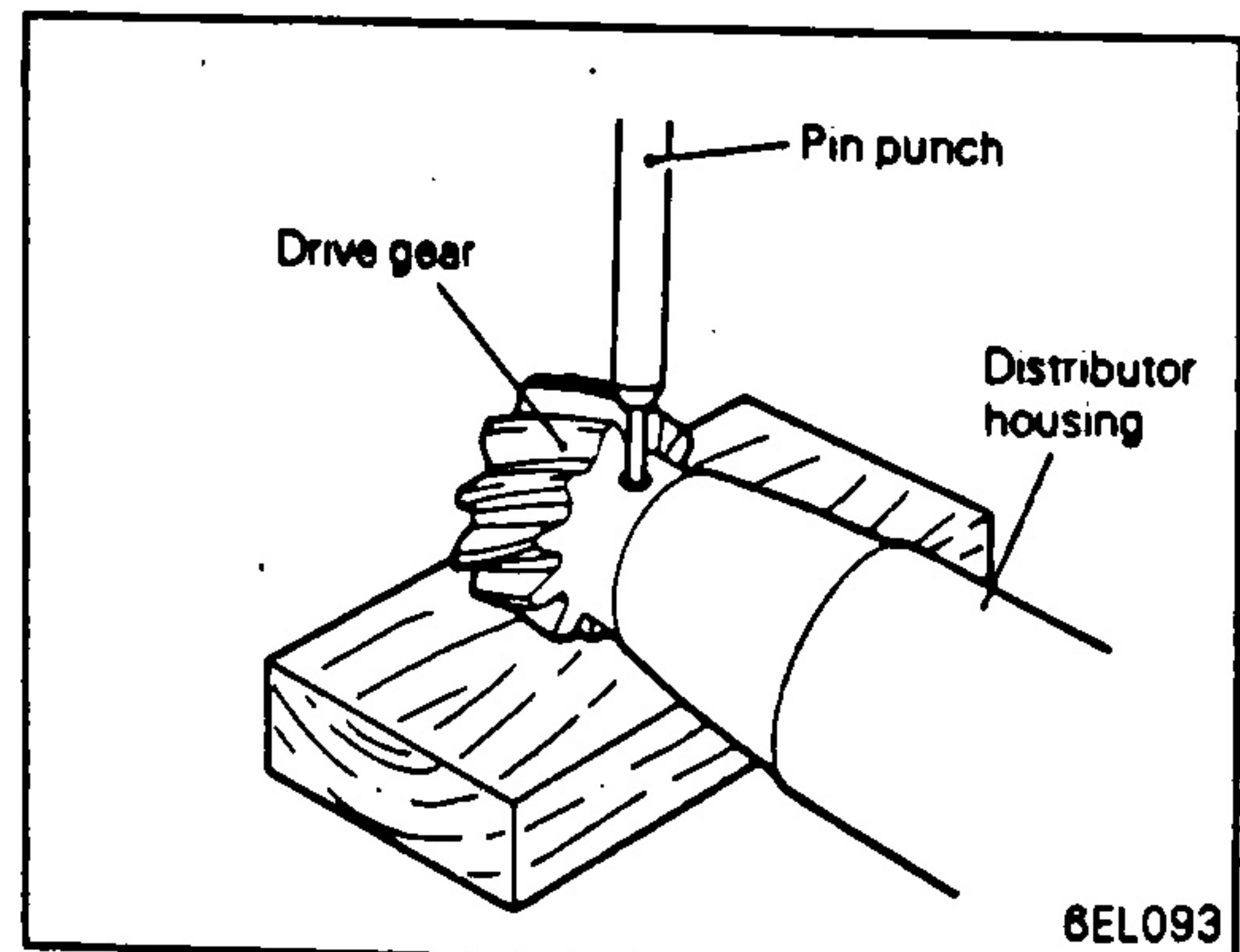


Mark location of drive gear on distributor shaft. Place drive gear on soft base (wooden block) so that roll pin can be removed. Using a pin punch, remove roll pin. Remove drive gear and washer. Remove distributor shaft from housing.



REASSEMBLY

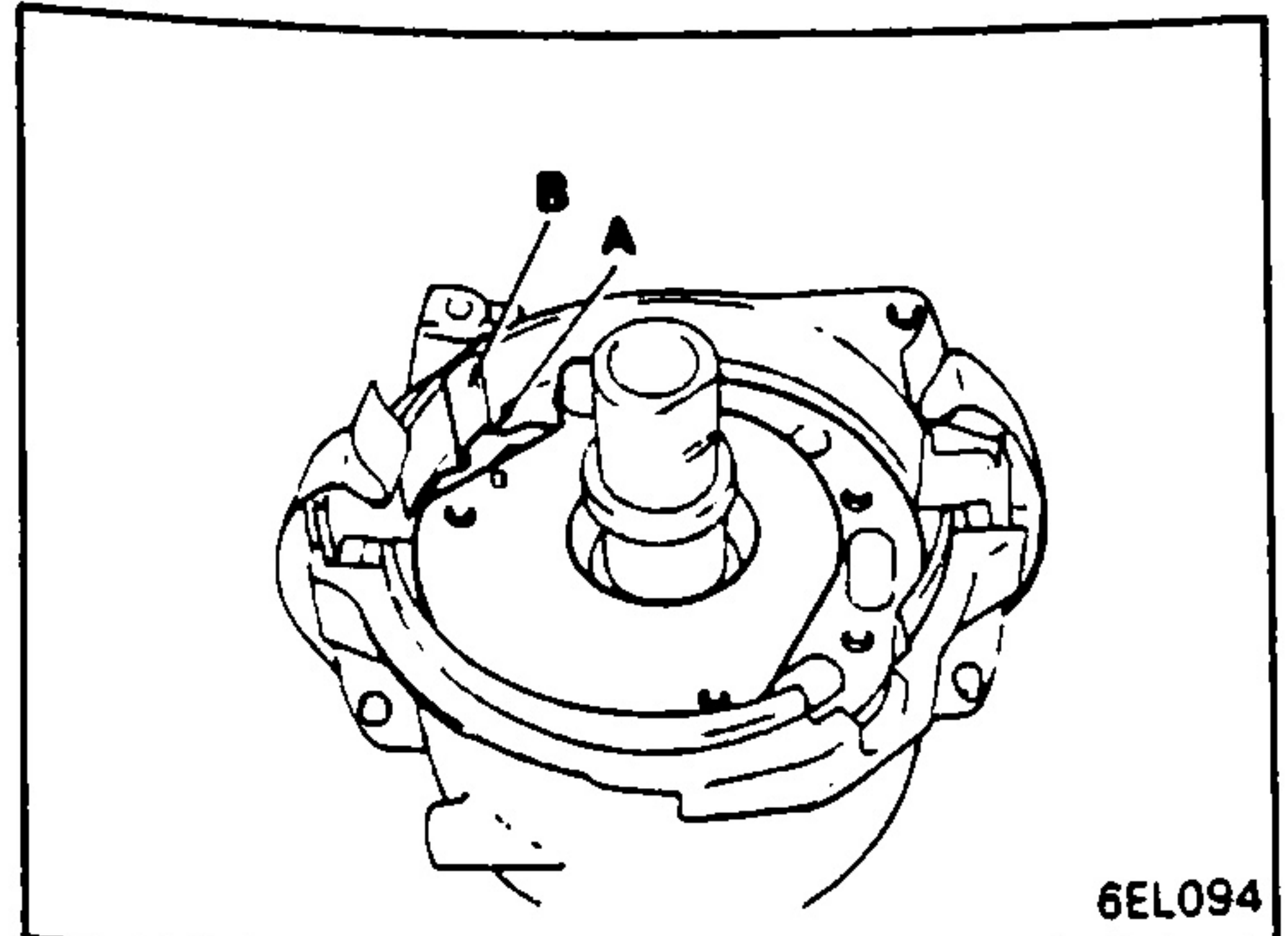
Reassemble distributor in reverse order of disassembly, with following exception. Install drive gear into distributor shaft at previously marked location. Then install new roll pin.



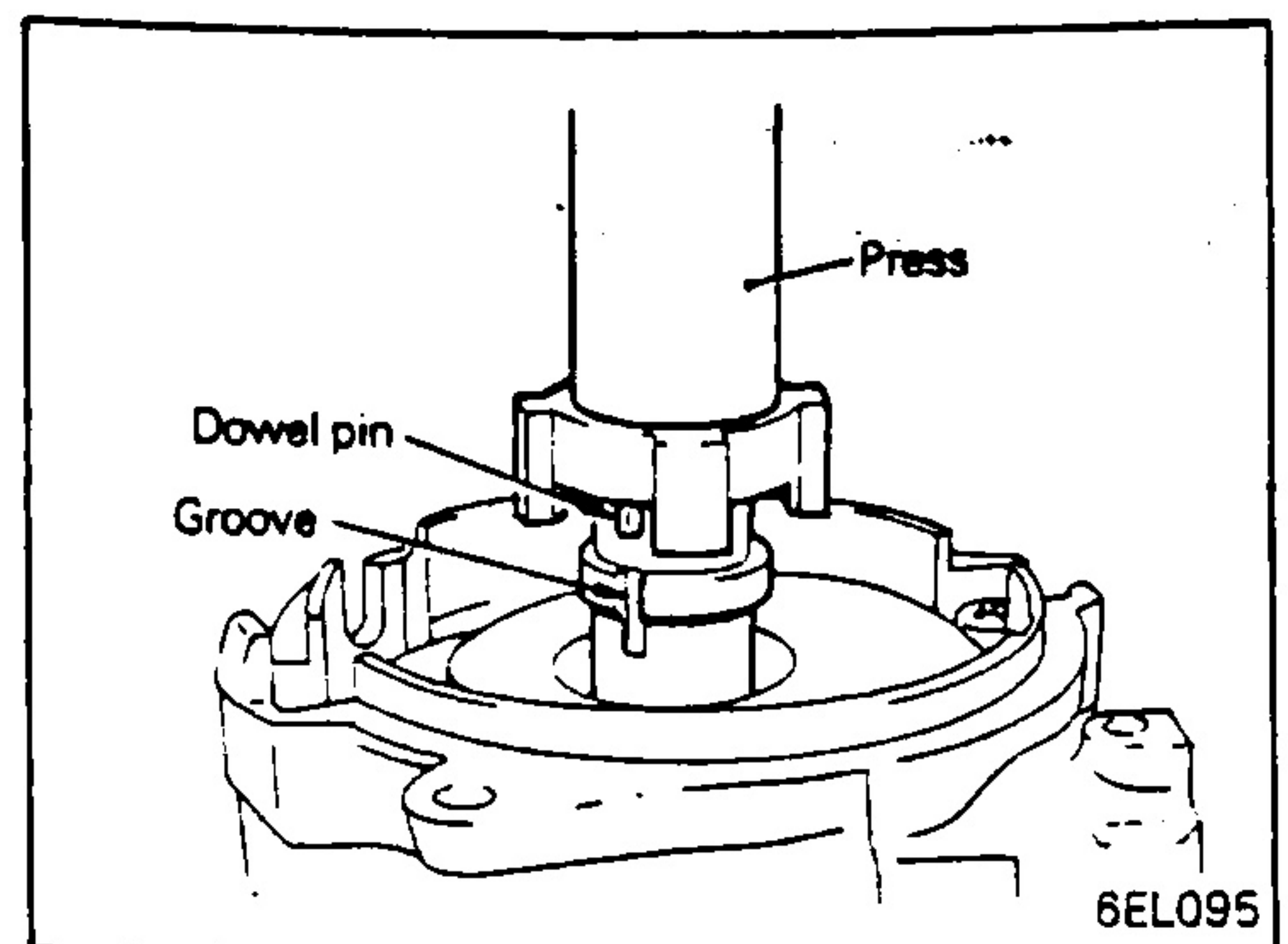
EIS DISTRIBUTOR — CEI TYPE



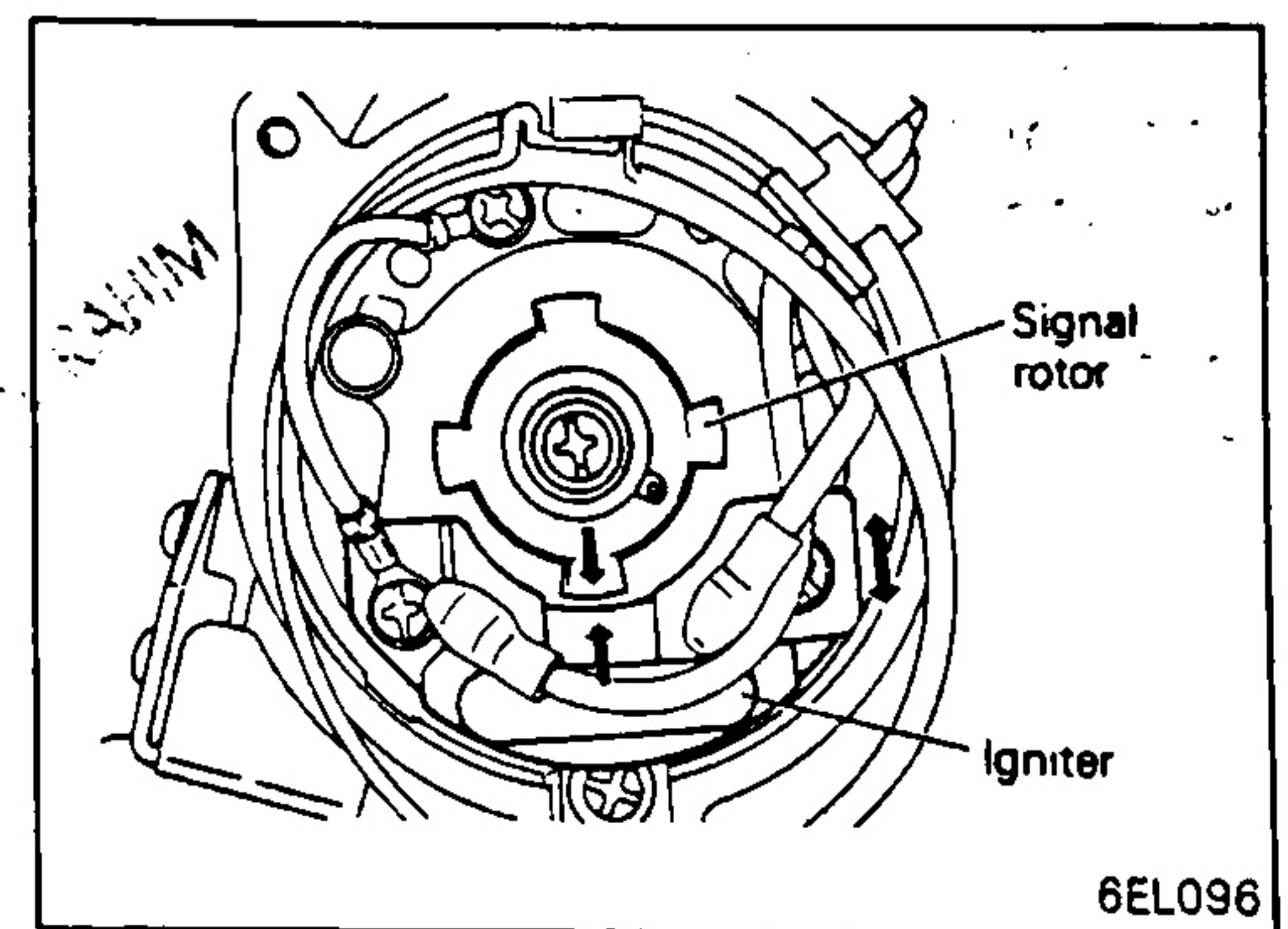
Install igniter base in housing with its projection (A) fitted in groove (B).



Install signal rotor on rotor shaft while fitting dowel pin of signal rotor in groove of shaft.

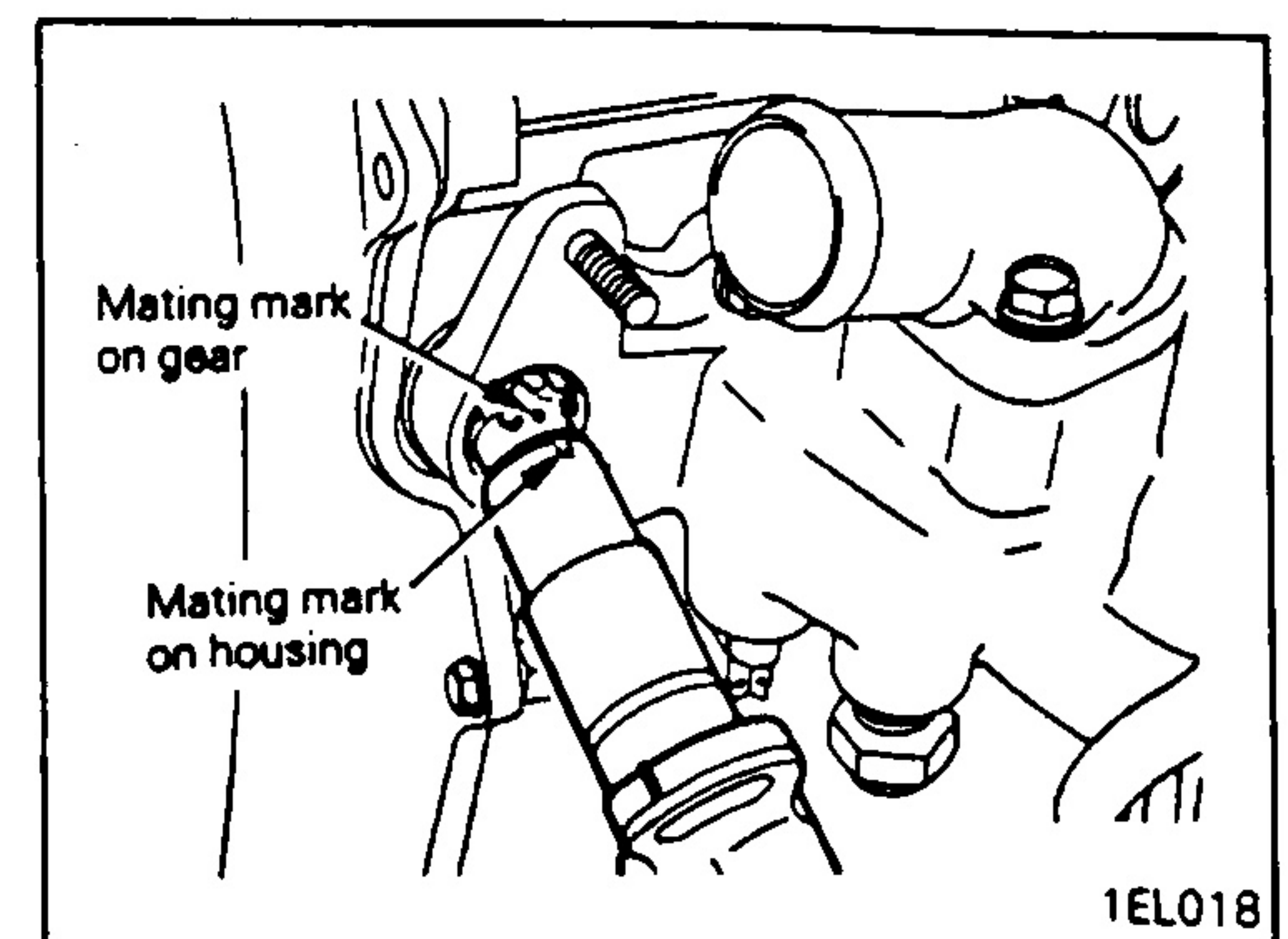


Adjust air gap between signal rotor and pick-up of igniter.



INSTALLATION

Turn crankshaft until piston in No. 1 cylinder is at top dead center on compression stroke.
Align mating mark on distributor housing with that (punch mark) on distributor driven gear.





EIS DISTRIBUTOR — CEI TYPE / IGNITION COIL

Install distributor to cylinder head while aligning mating mark on distributor attaching flange with center of distributor installing stud and tighten nuts

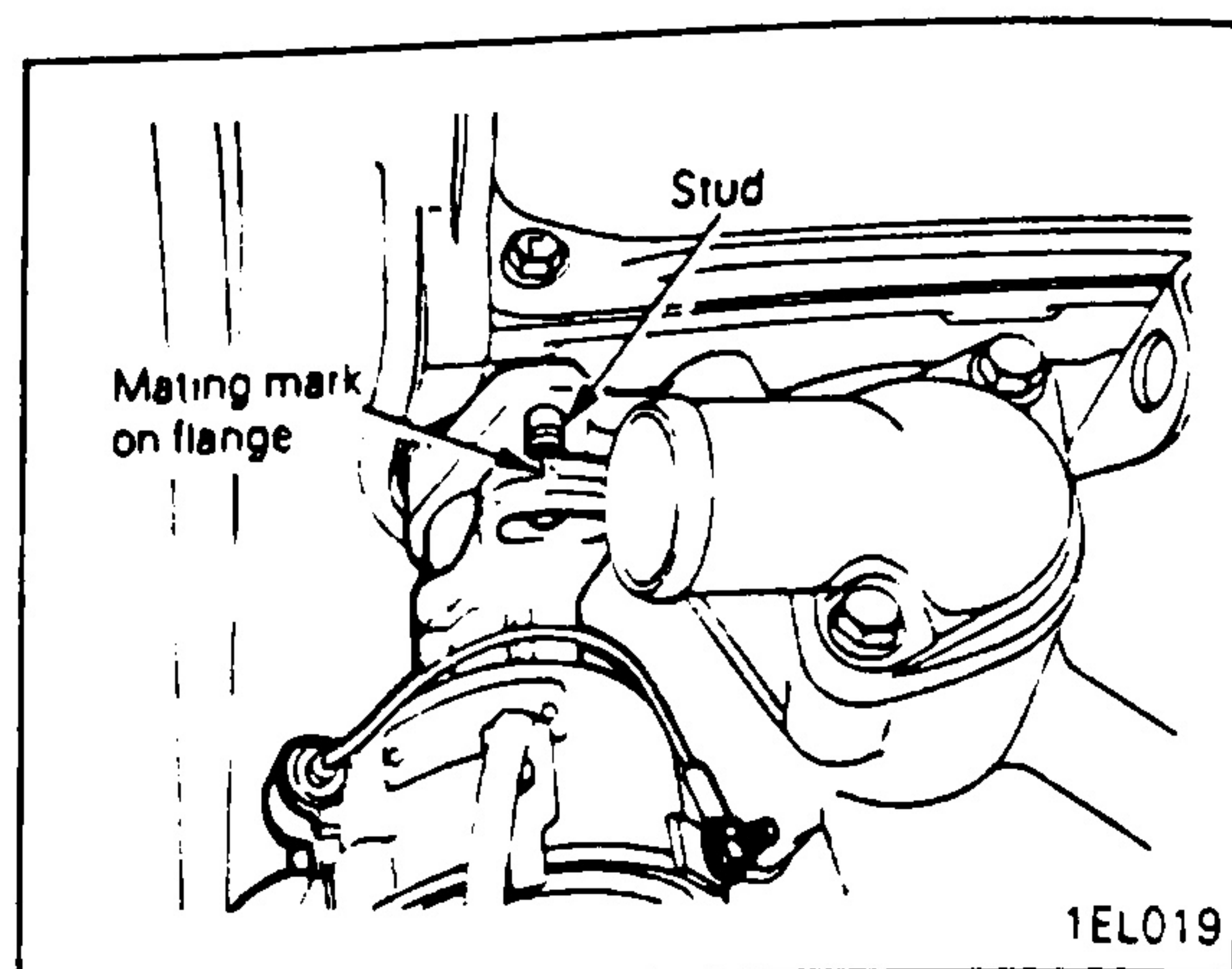
Connect spark plug cables and secondary cable to distributor.

Connect distributor wiring to ignition coil.

Connect battery ground cable

Connect vacuum hose to vacuum controller nipple.

Adjust ignition timing



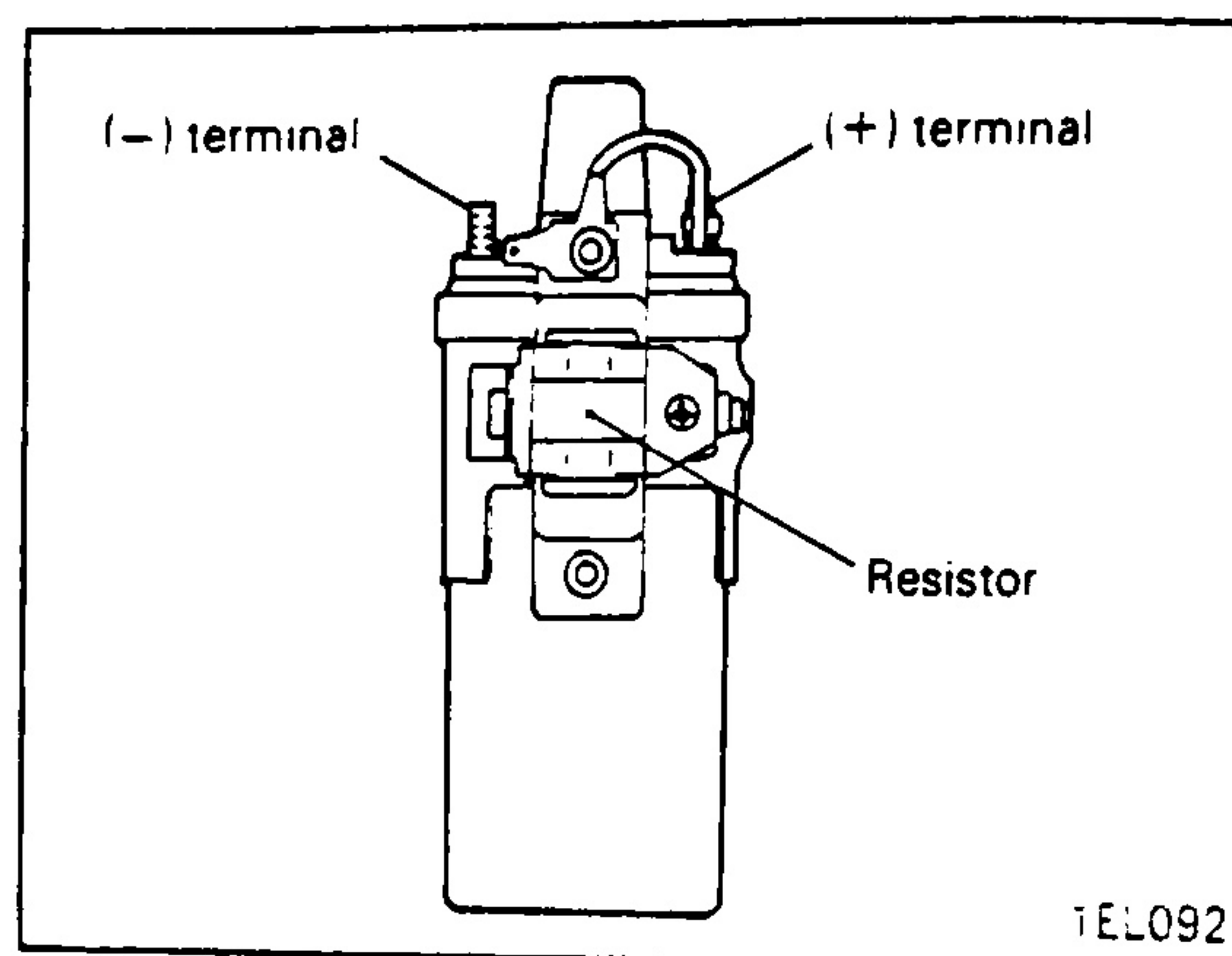
IGNITION COIL

INSPECTION

Using a circuit tester, measure resistance. A resistor with open- or short-circuited coil should be replaced.

Check resin portion for cracks. If there are cracks, replace.

Check for fluid (oil) leaks. If there are leaks, replace.

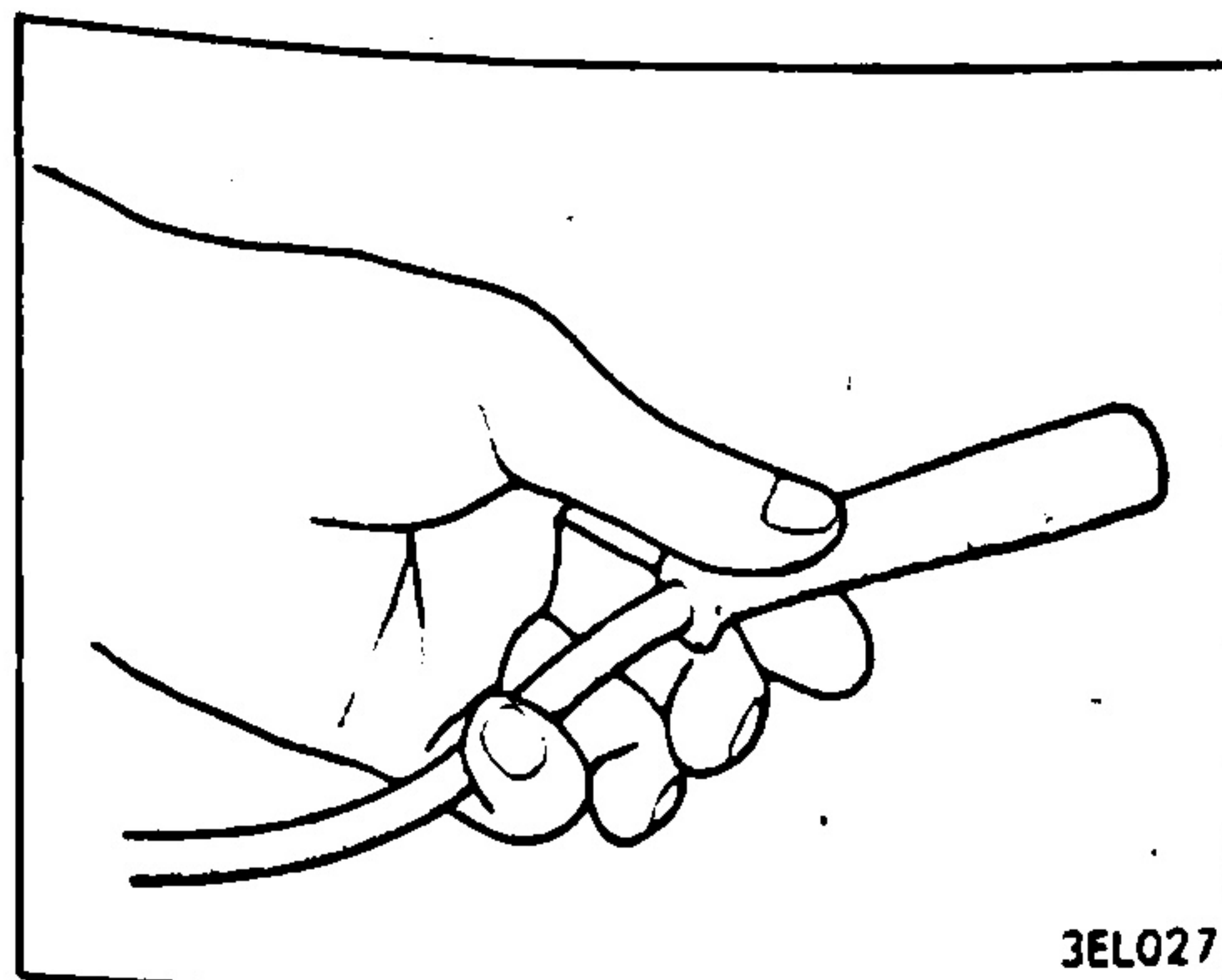


SPARK PLUG



REMOVAL

When spark plug cable is pulled out, be sure to hold cable cap. If spark plug is removed by holding cable alone, open circuit might result.



INSPECTION

Perform following checks on spark plugs and replace if defective.

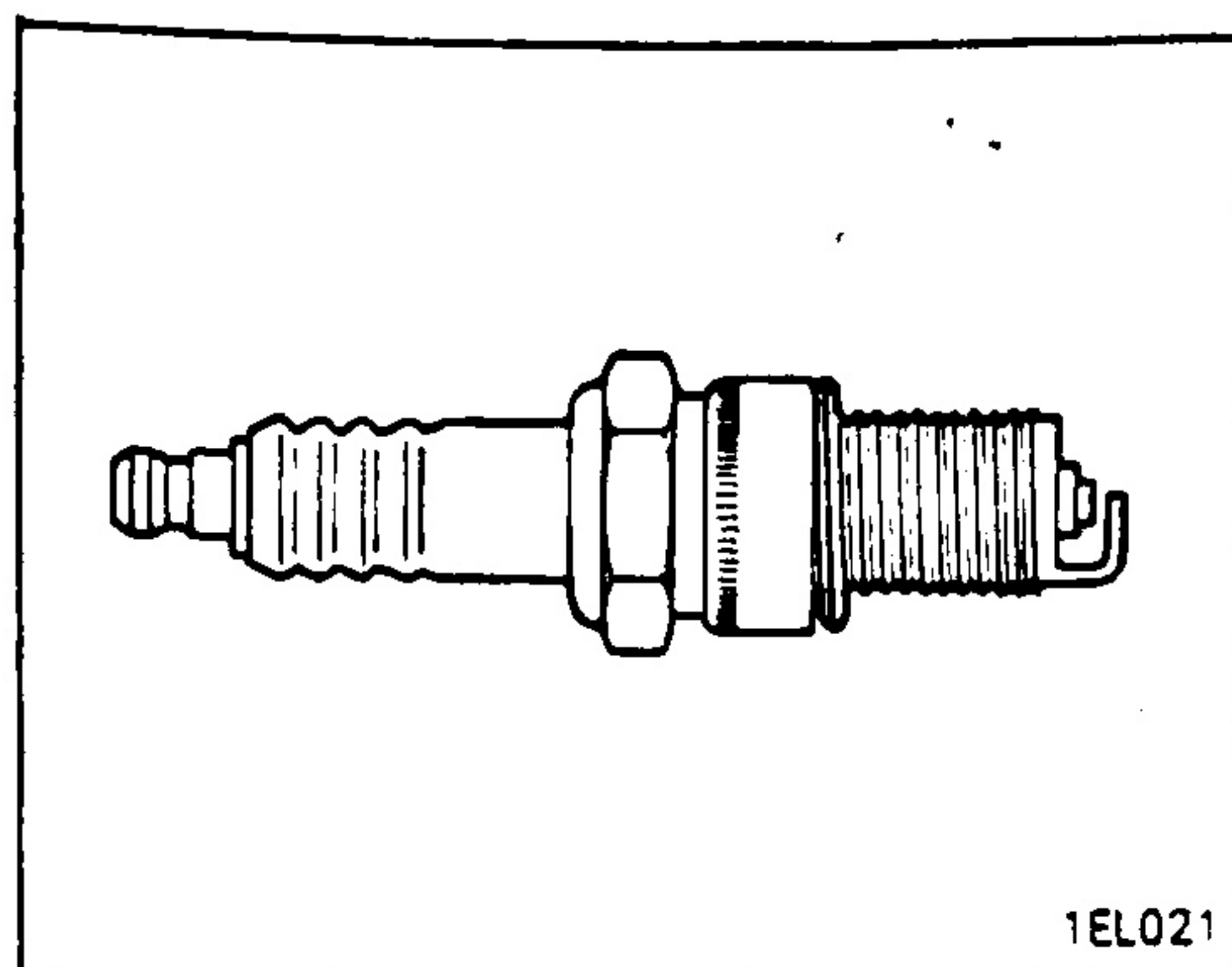
- (1) Broken insulator
- (2) Worn electrode
- (3) Deposited carbon

Use a plug cleaner or wire brush for cleaning. Clean porcelain insulator above shell as well.

- (4) Damaged or broken gasket
- (5) Burnt condition of porcelain insulator at spark gap

○ If black carbon deposit is evident, probable cause is too rich a fuel mixture or extremely low air intake. Misfiring due to excessive spark gap is also suspected.

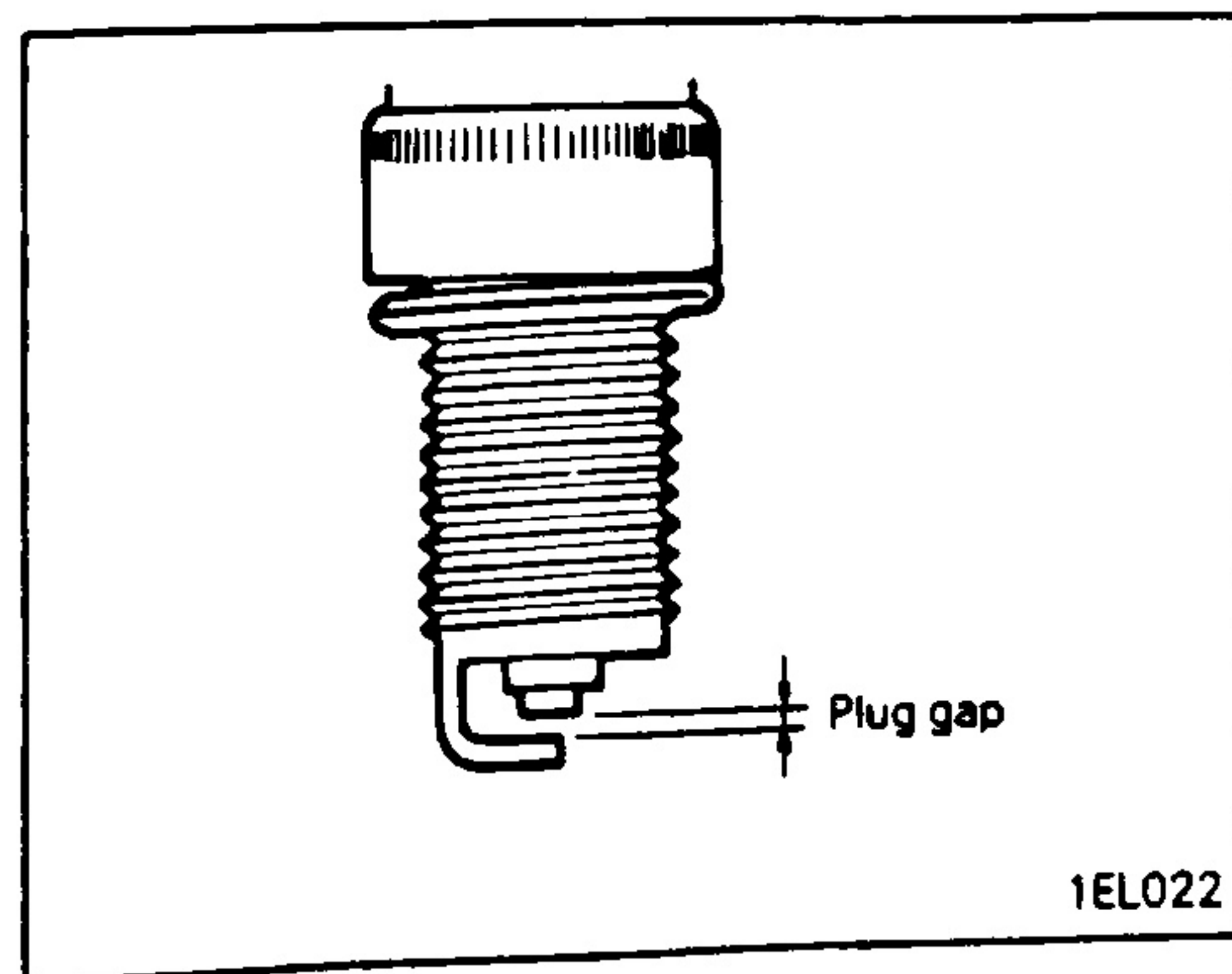
○ If insulator is burnt white, too lean a fuel mixture, excessively advanced ignition timing, improperly tightened plug, etc. are suspected.



INSTALLATION

Check plug gap. If necessary, adjust to specification.

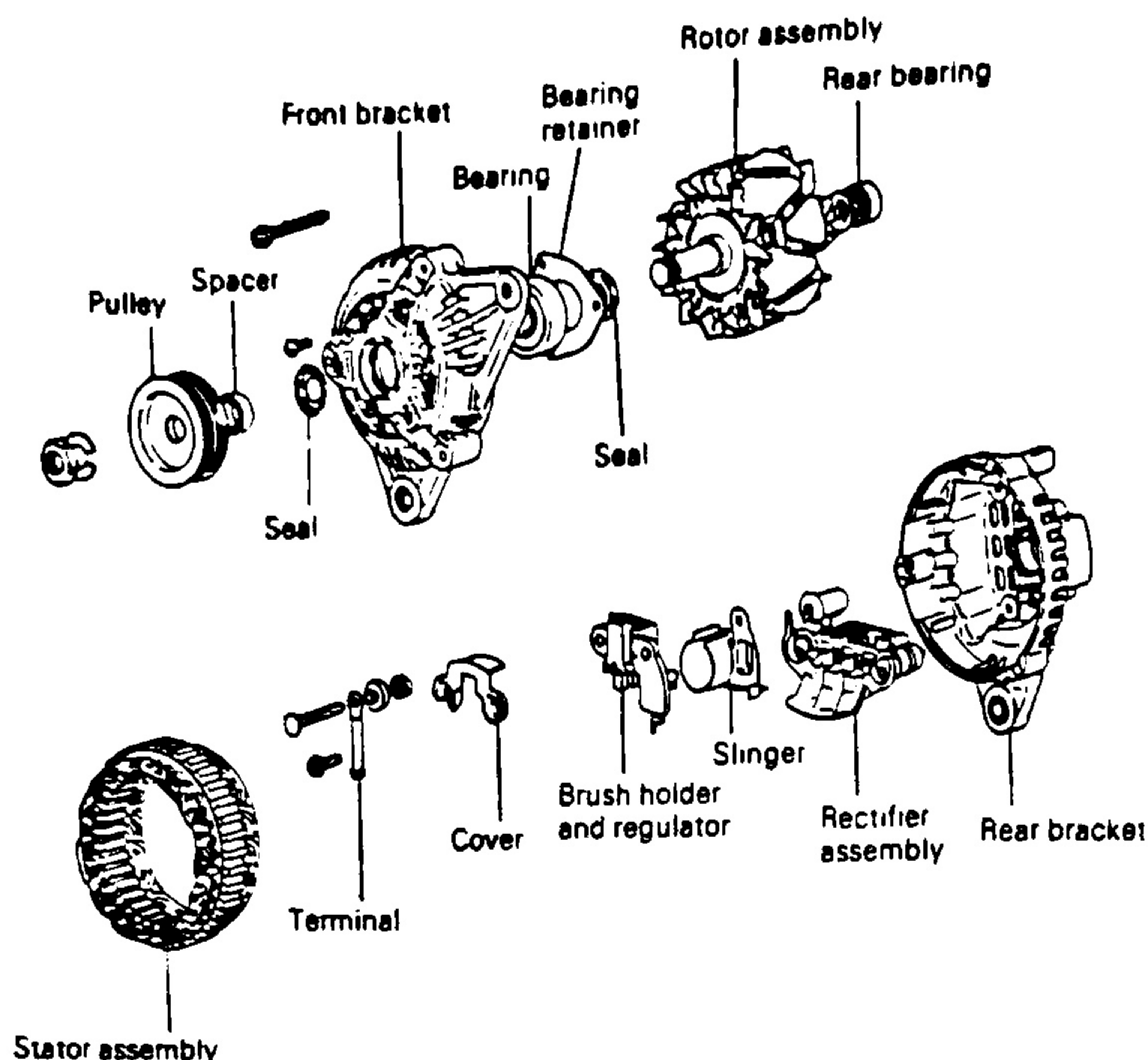
Tighten spark plug to specified torque. If it is over-torqued, damage to threaded portion of cylinder head might result.





ALTERNATOR

COMPONENTS



1EL093

REMOVAL

Set ignition switch to "OFF" and disconnect ground cable from battery.

Disconnect wire from "B" terminal.

Disconnect wiring connector from alternator.

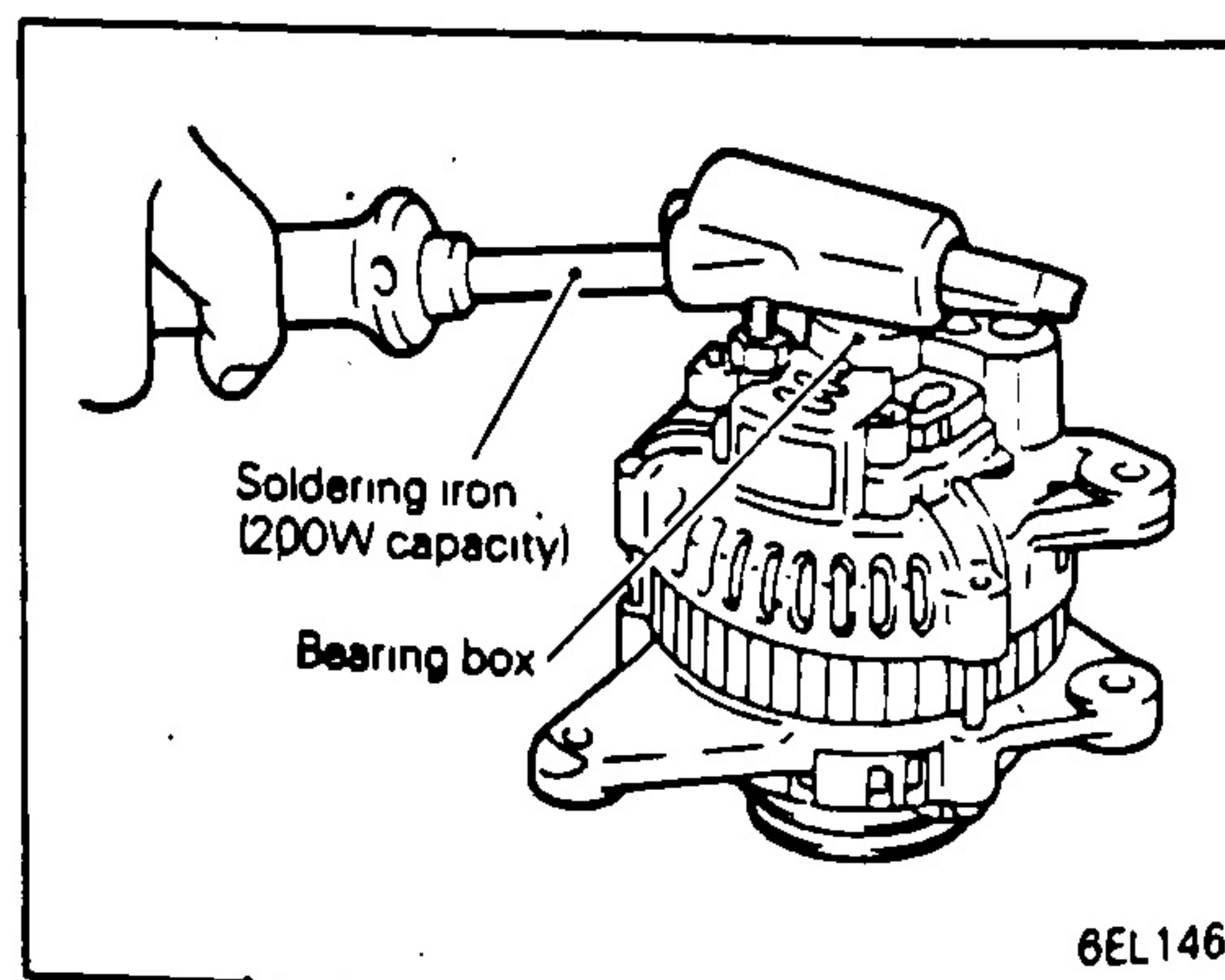
Loosen drive belt.

Remove alternator brace bolt and support bolt, then remove alternator.

DISASSEMBLY

Remove three through bolts.

Rear bracket may be hard to remove because a ring is used to lock outer race of rear bearing. To facilitate removal of rear bracket, heat just bearing box section with a 200 watt soldering iron. Do not use a heat gun, as it can damage diode assembly.



6EL146

ALTERNATOR



Insert a flat-tip screwdriver between front bracket and stator core, and pry downward.

Caution

Do not insert screwdriver too deep as there is danger of damage to stator coil.

Clamp rotor in a vise with pulley side up (to protect rotor from vise jaws).

Remove pulley nut, then spring washer, pulley, fan and collar.

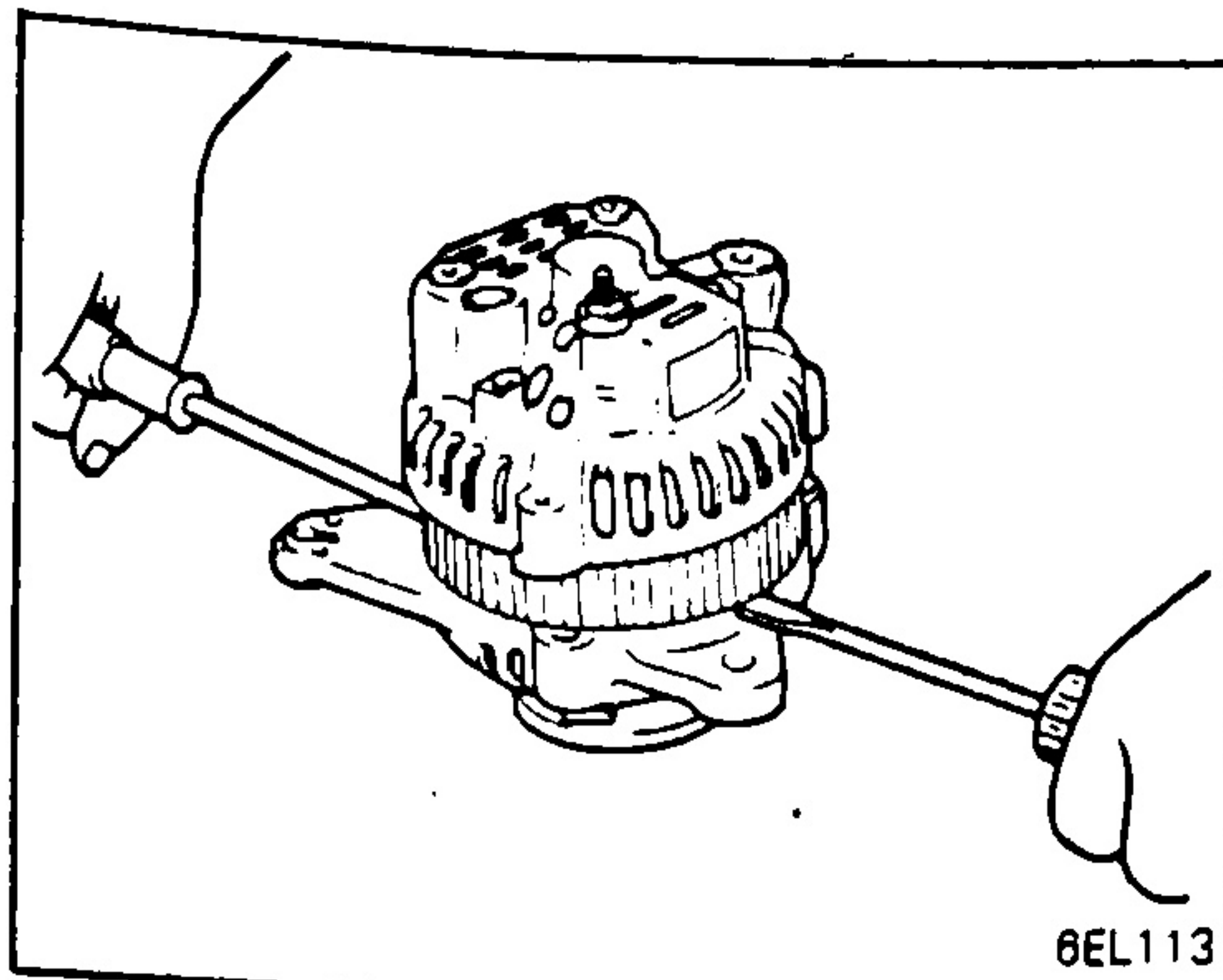
Remove front bracket and two seals.

Remove rotor from vise.

Remove nut from "B" terminal and remove washer and condenser.

Remove brush holder screw and rectifier screws.

Remove stator assembly from rear bracket.



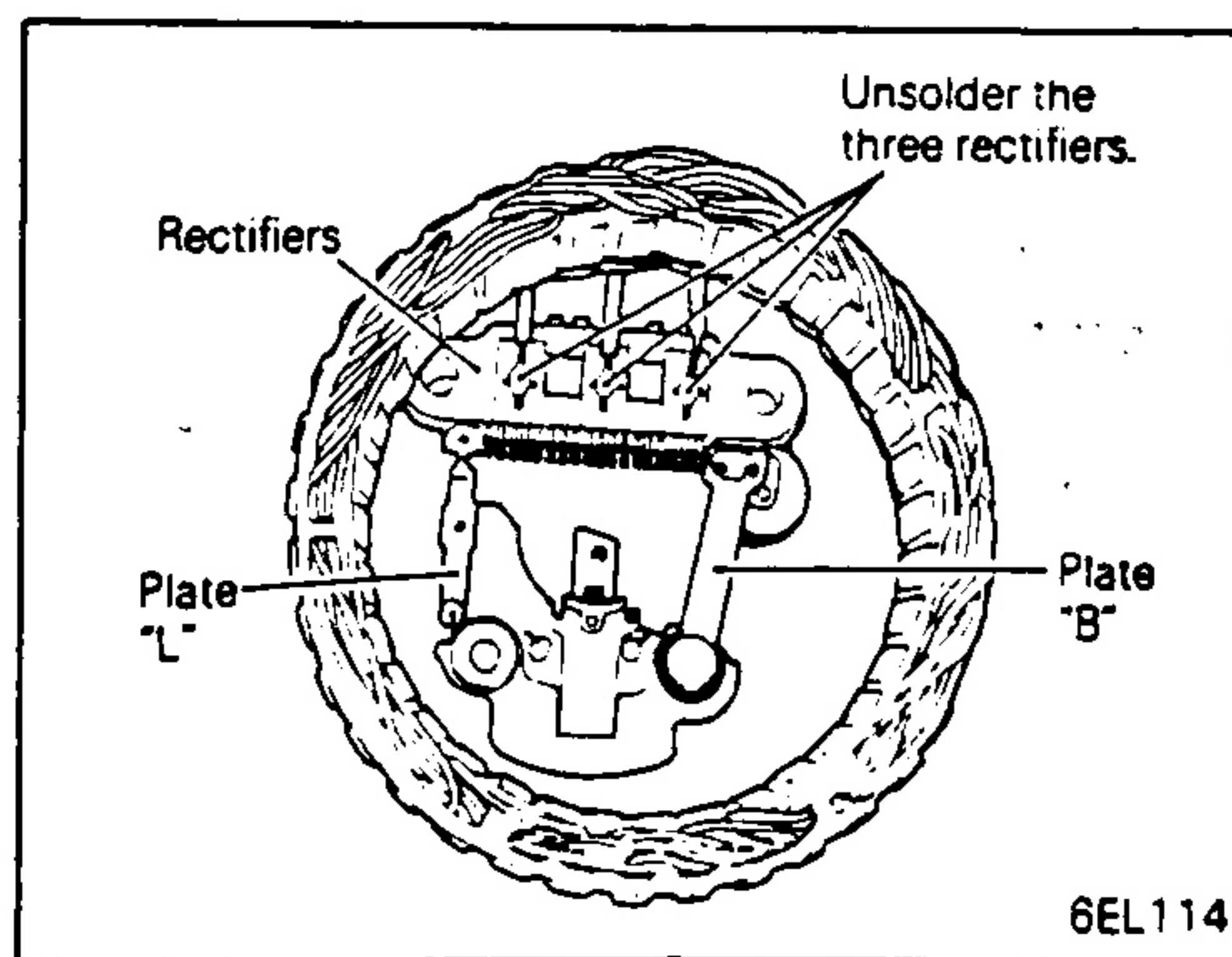
If stator is to be removed, unsolder three stator leads to disconnect them from main diodes on rectifier.

Caution

Finish soldering or unsoldering in as short a time as possible. Diode will be damaged if heat of soldering iron is transmitted to diode for long time.

Use care not to exert undue force to leads of diodes.

When separating rectifier from brush holder, unsolder two plates to separate them from rectifier.

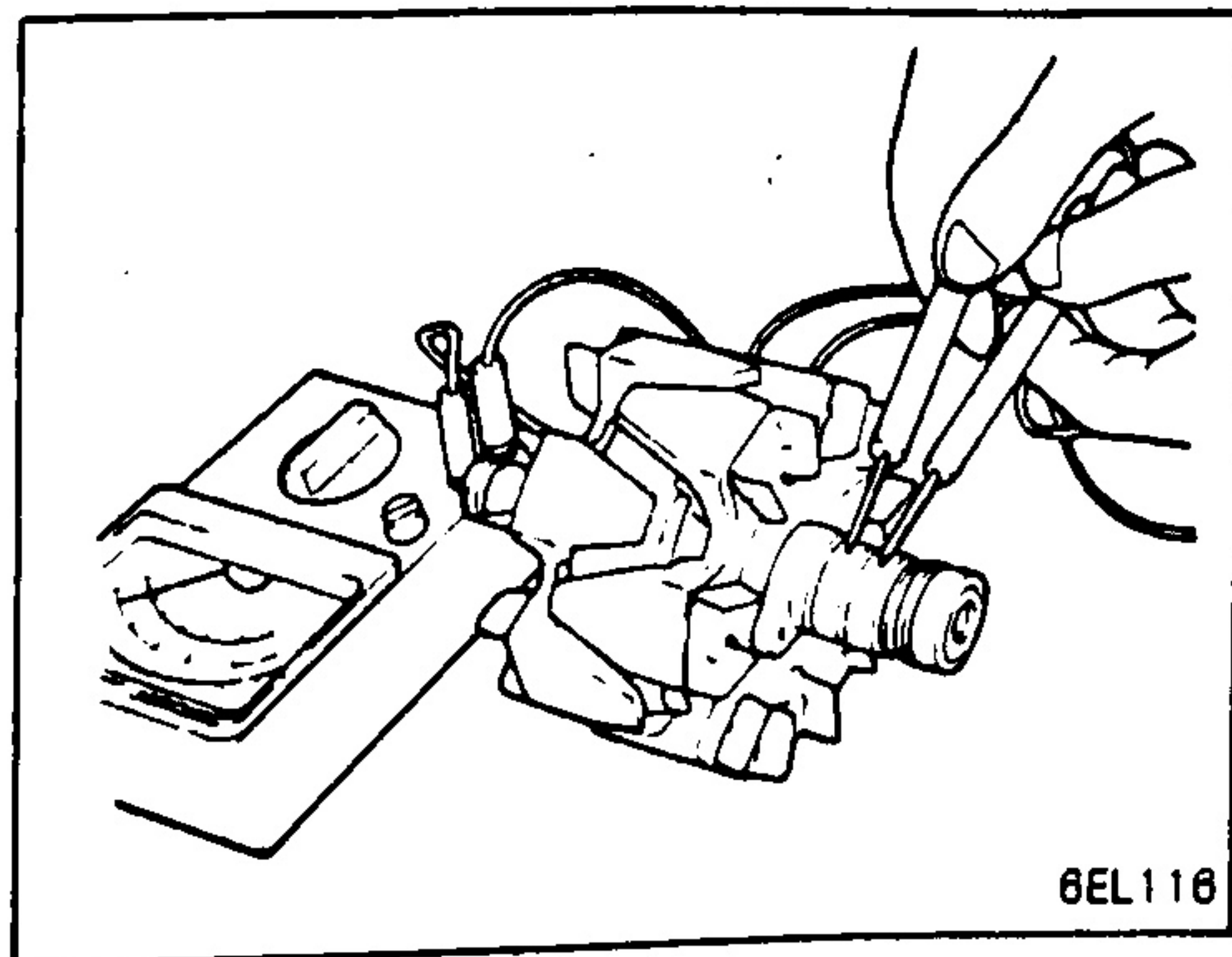


INSPECTION

Rotor

Check rotor coil for continuity. Check to ensure that there is continuity between slip rings. Resistance of rotor should be 3 to 4 ohm/20°C.

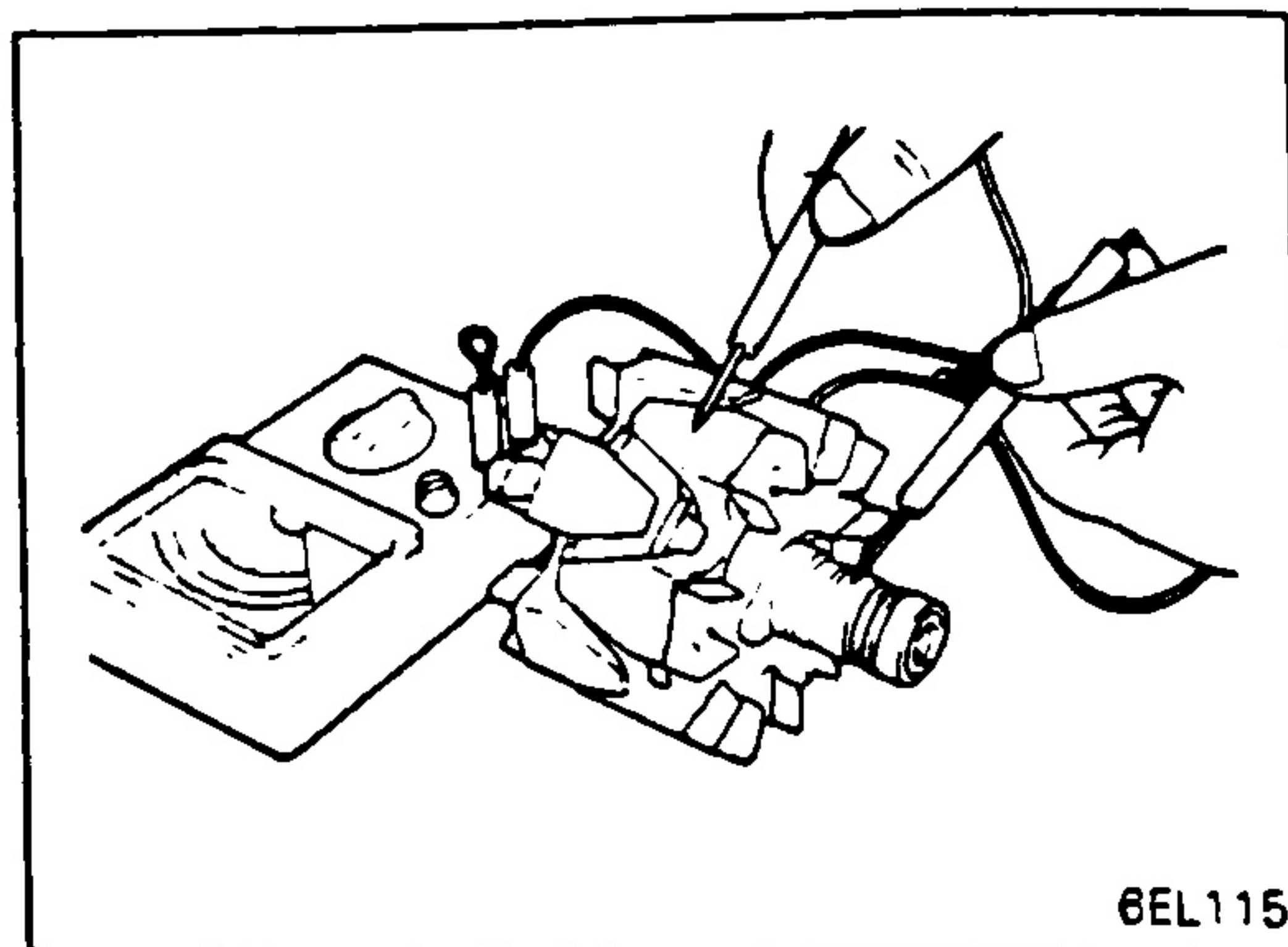
If resistance is too small, it means that there is a short circuit. If there is no continuity or if there is a short circuit, replace rotor assembly.





ALTERNATOR

Check rotor coil for grounding. Check to ensure that there is no continuity between slip ring and core. If there is continuity, replace rotor assembly.

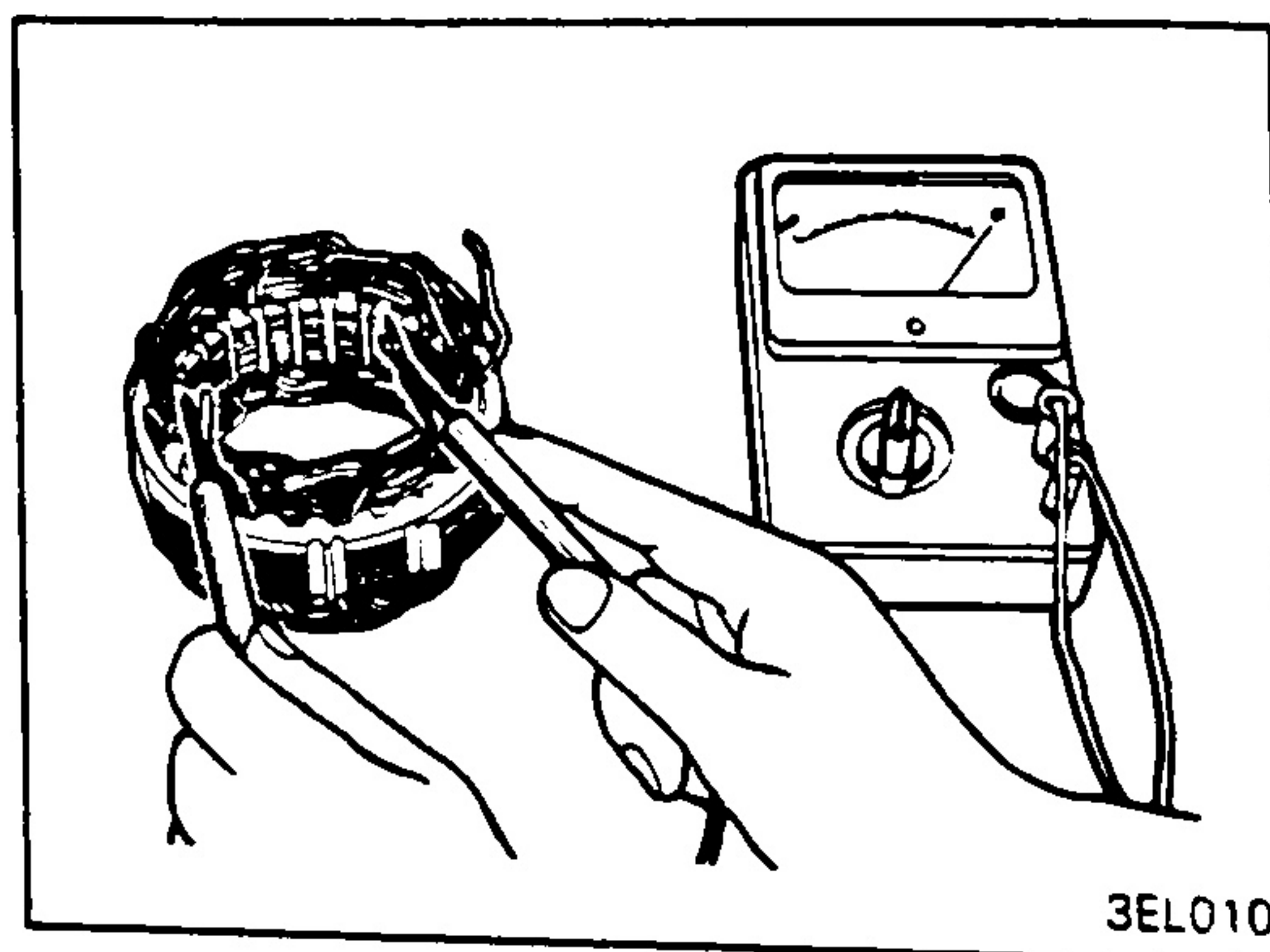


6EL115

Stator

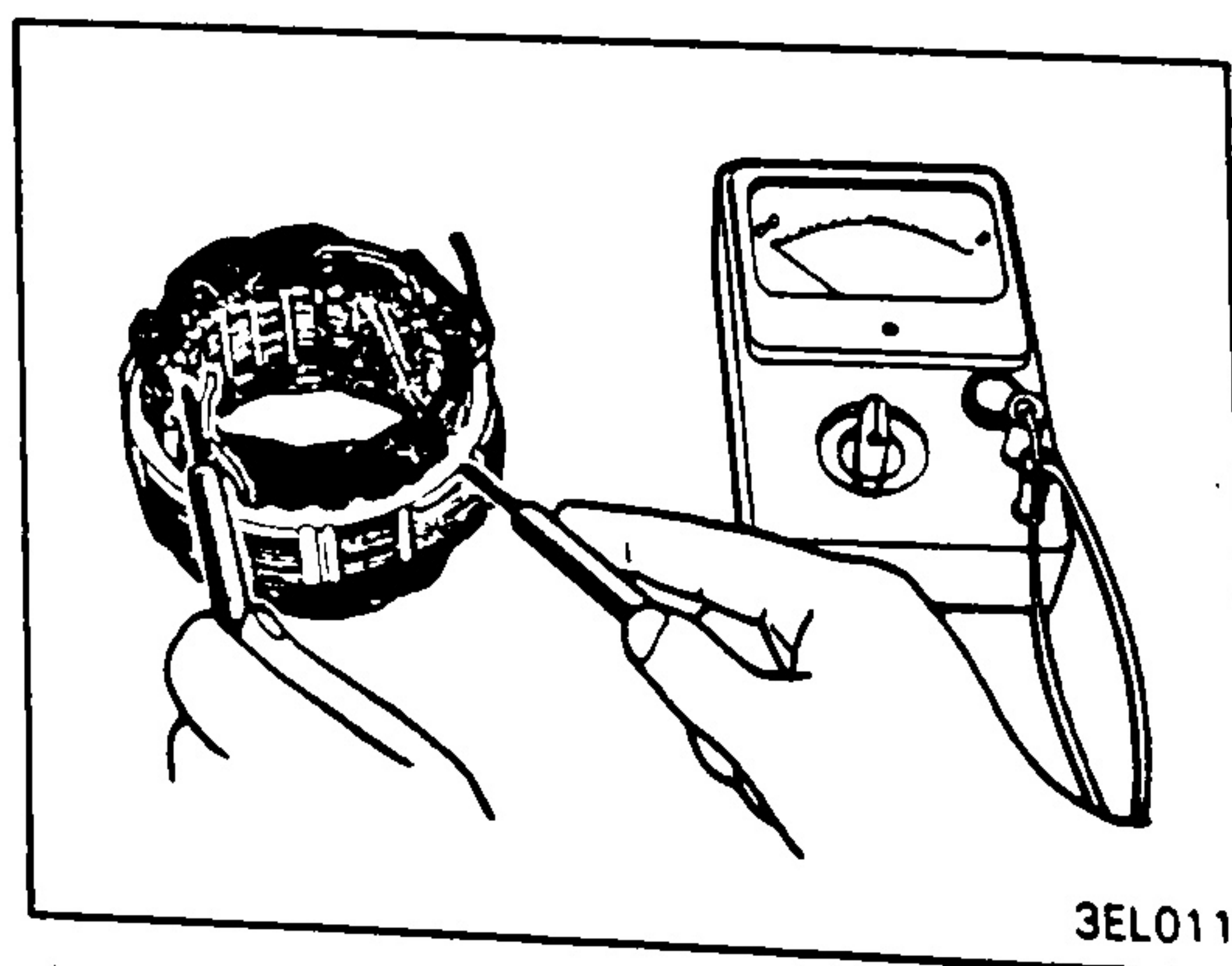
Make continuity test on stator coil. Check to ensure that there is continuity between coil leads

If there is no continuity, replace stator assembly.



3EL010

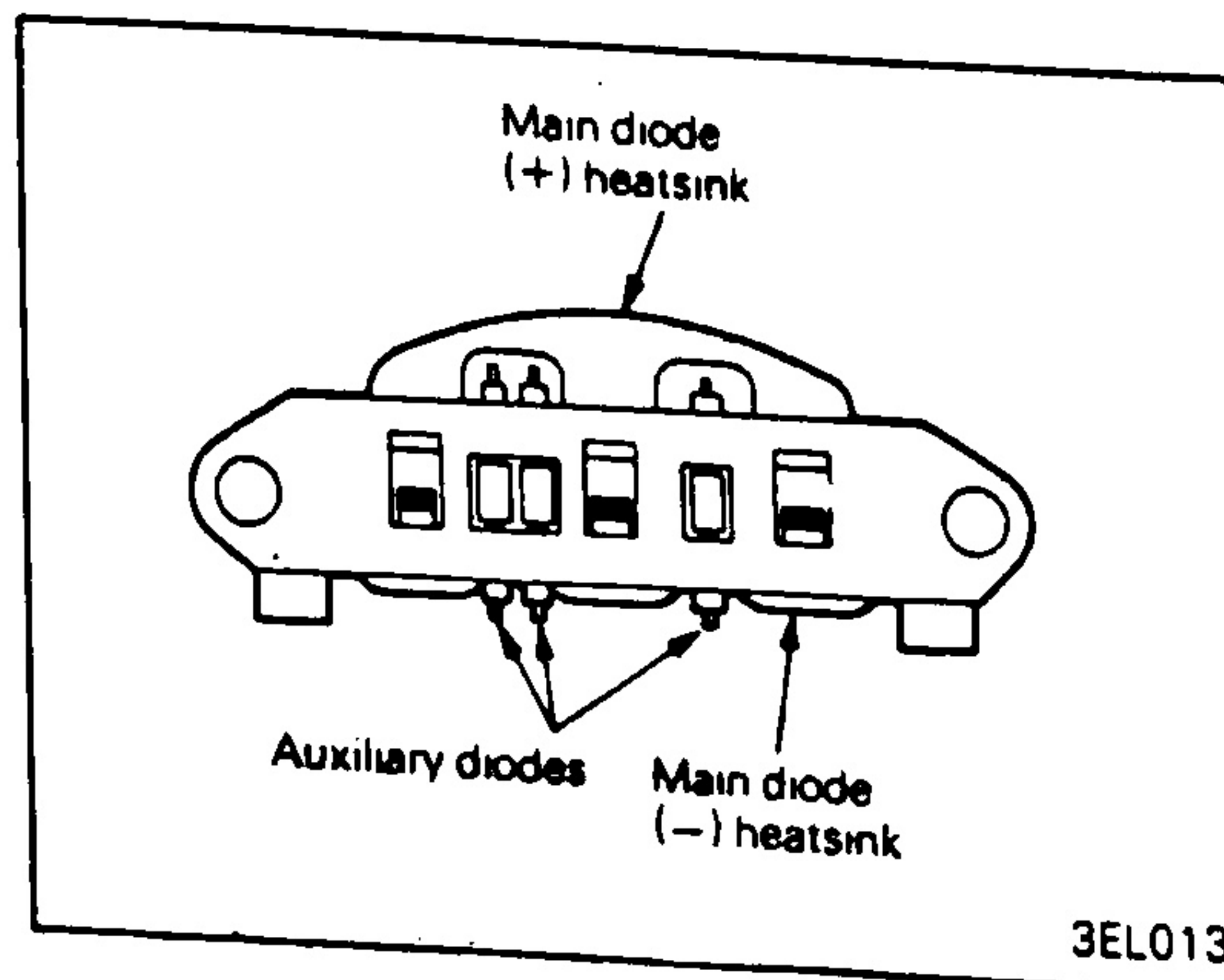
Check coil for grounding. Check to ensure that there is no continuity between coil and core. If there is continuity, replace stator assembly.



3EL011

Rectifier

Check six main diodes and three auxiliary diodes for continuity by connecting a circuit tester to both ends of each diode. If there is continuity or no continuity in both directions, diode is defective and rectifier assembly must be replaced.



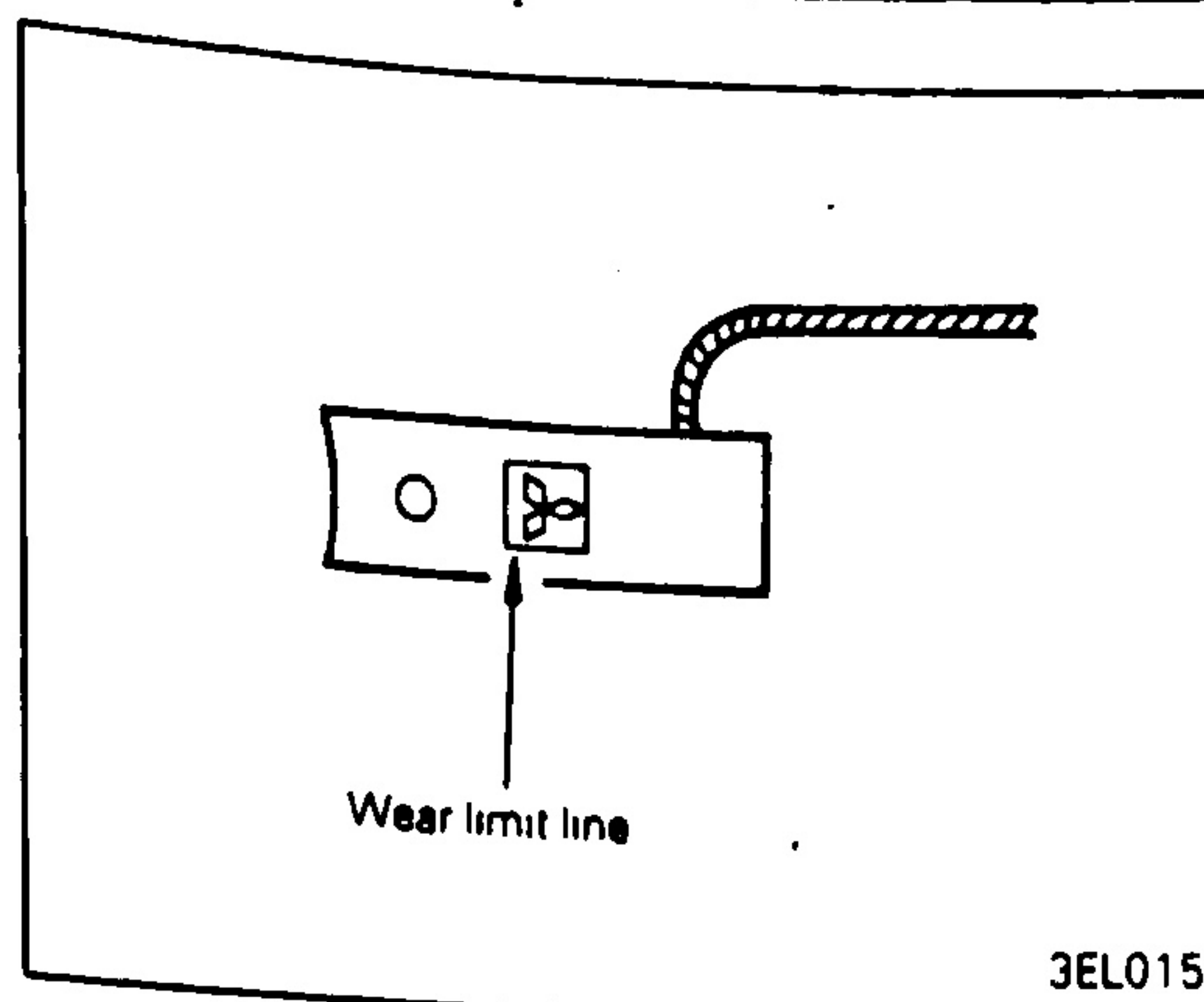
3EL013

ALTERNATOR

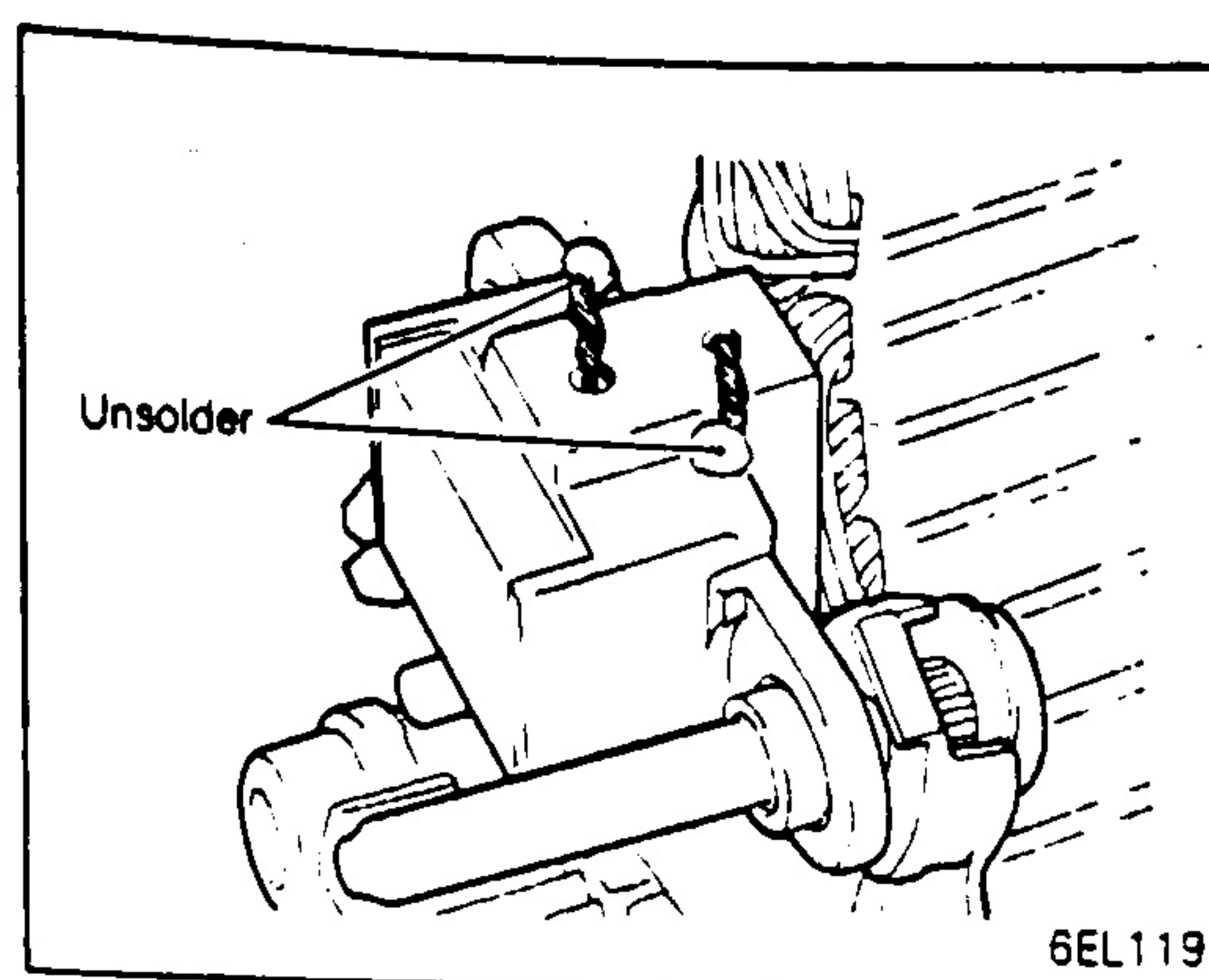


BRUSH REPLACEMENT

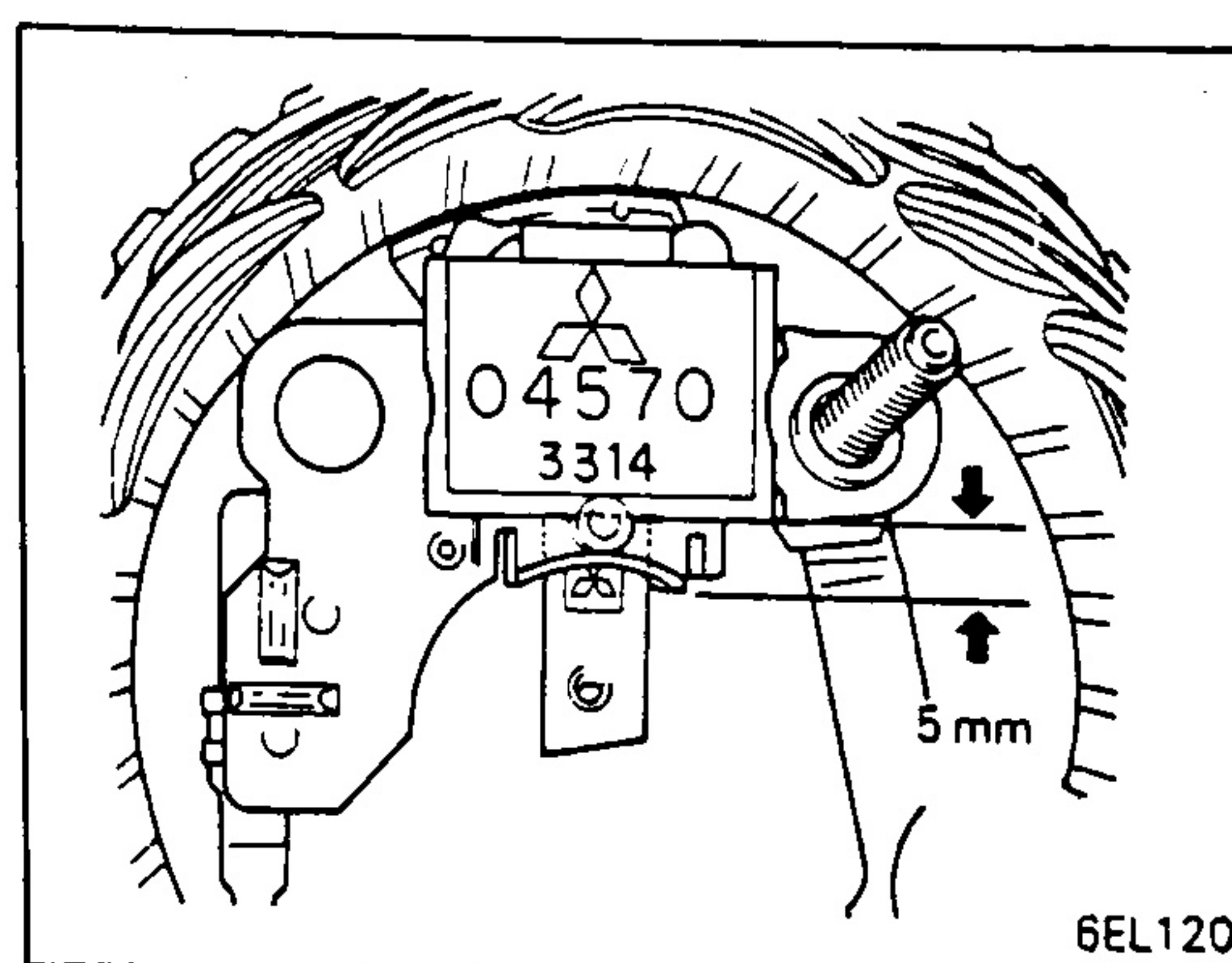
Brush worn down to wear limit line should be replaced.



Unsolder pigtail, then brush and spring will come off



To install a new brush, solder pigtail so that brush will enter holder about 5 mm.



MARZAM B. ABOL RAHIM



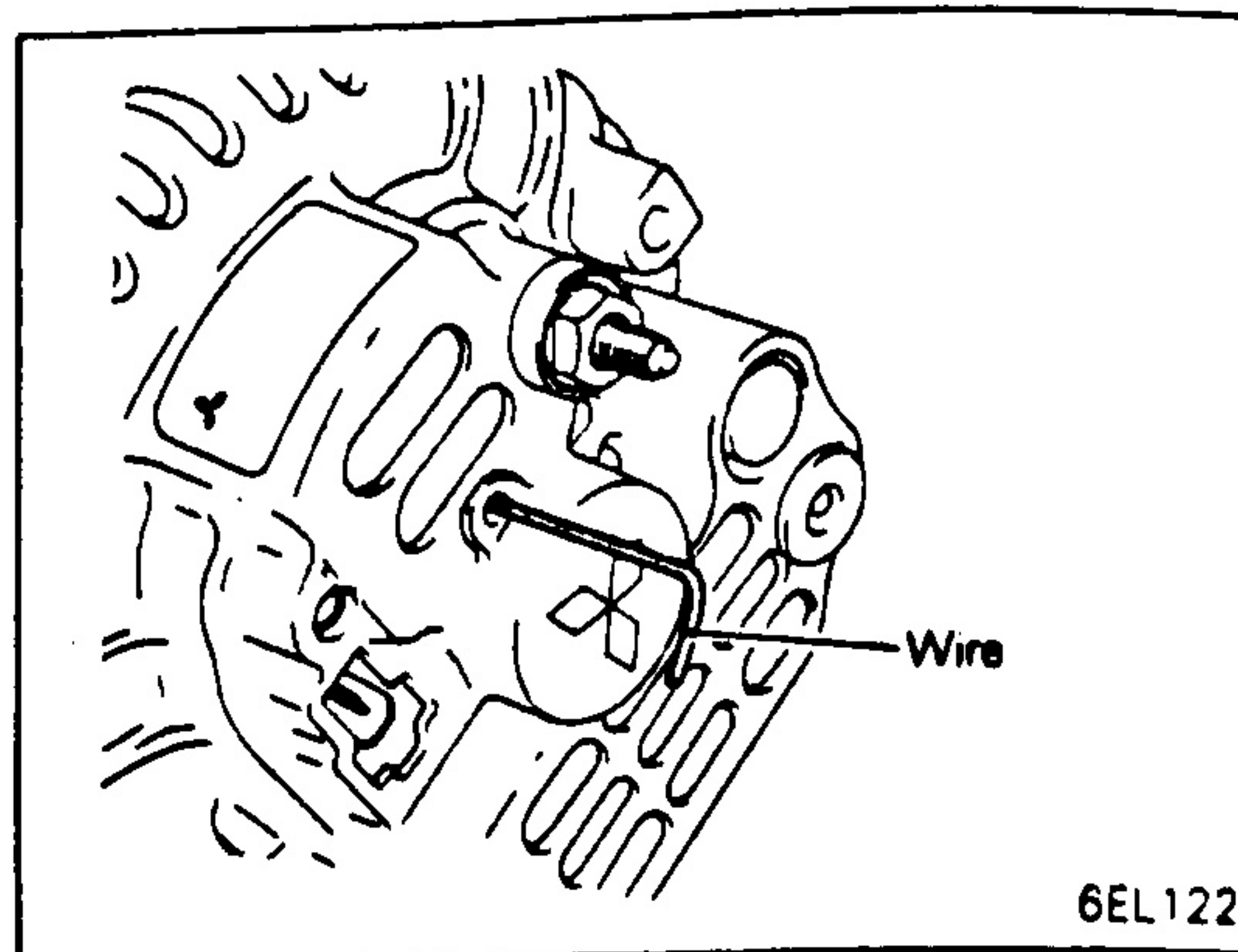
ALTERNATOR

REASSEMBLY

Reassemble alternator in reverse order of disassembly, with following exception.

Before rotor is attached to rear bracket, insert a wire through small hole made in rear bracket to lift a brush.

After rotor has been installed, remove wire.



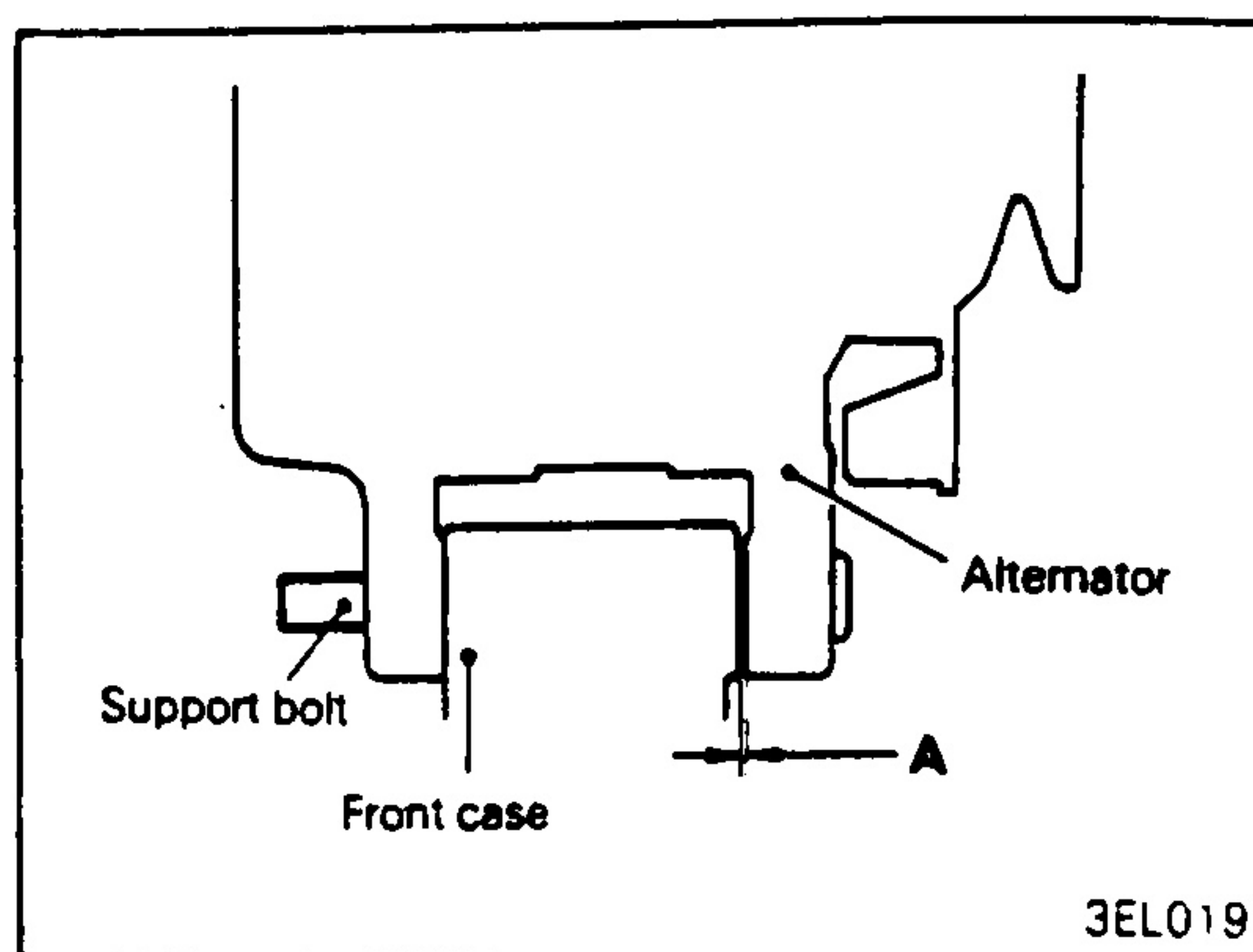
INSTALLATION

Install alternator in reverse order of removal, with following exception.

Push alternator toward front of engine and check for clearance "A" between alternator leg and front case or timing chain case. If clearance is more than 0.2 mm, insert spacers (0.198 mm thick) as required.

If support bolt is tightened without reducing clearance "A", alternator leg might be broken.

Adjust drive belt tension.



BATTERY



SPECIFICATIONS

Type	
Voltage V	
Capacity (20HR) Ah	N40
Electrolyte specific gravity at 20°C	12
	40
NOTE	1.260

If the specific gravity of the battery electrolyte falls 0.06 or more, recharge the battery

TROUBLESHOOTING

Overcharged battery

Symptoms
 The case temperature becomes too high.
 The electrolyte evaporates quickly.
 A strange odor is emitted.

Is the specific gravity of the electrolyte 1.260 at 20°C when the electrolyte level is at the upper position?

No

Add distilled water and adjust the specific gravity of the electrolyte.

Yes

Start the engine and run the alternator at about 5,000 r/min engine speed about 2,500 r/min.

Caution
 Turn off all lights and electrical accessories to take the load off the battery.
 Do not run the engine at high speed, and do not abruptly increase the engine speed.
 Do not disconnect the cables from the battery terminals.
 The specific gravity of the electrolyte will drop 0.0007 for each 1°C that the temperature of electrolyte rises.
 The voltage of the alternator "L" terminal will drop 0.1V for each 10°C that the atmospheric temperature rises.

Is the voltage between the alternator "B" terminal and earth 14.4 ± 0.5V at 20°C?

No

IC regulator malfunction

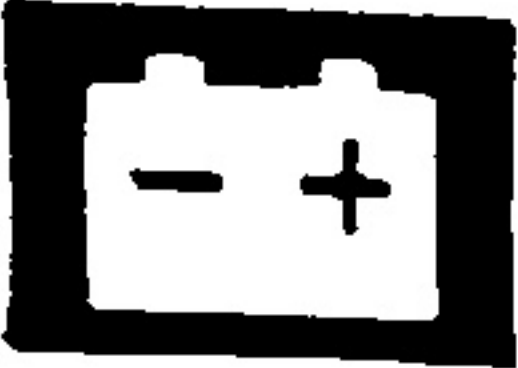
Replace the regulator assembly

Yes

Alternator malfunction
 Field-coil is earthed
 Metallic foreign matter caught on the brush holder terminal.

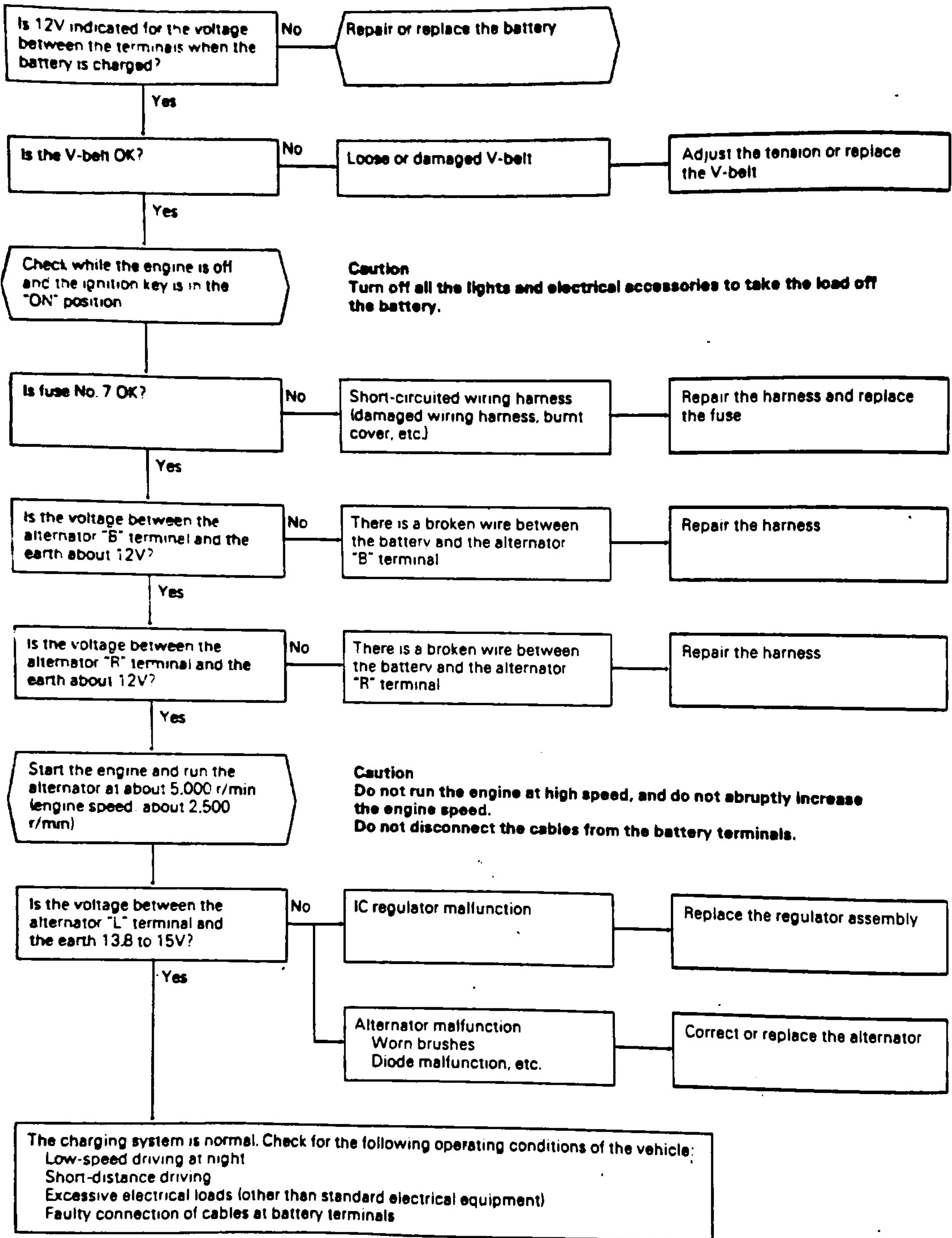
Correct or replace the alternator

Test the battery performance



BATTERY

Undercharged battery (The voltage between the battery terminals is less than 12V)



BATTERY

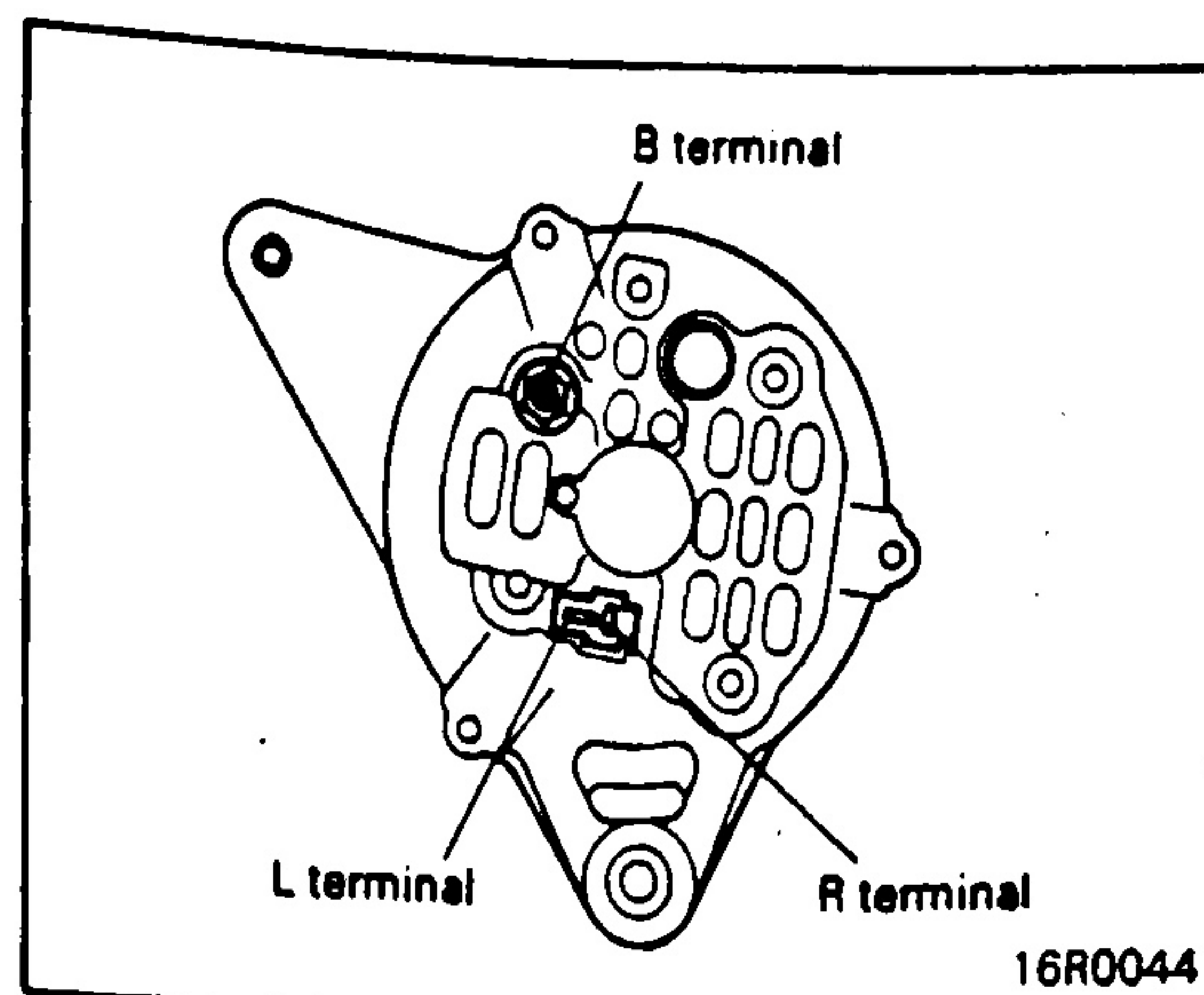


NOTES CONCERNING THE CHARGING SYSTEM

The alternator is equipped with a built-in IC voltage regulator.

Be careful of the following items during inspection or service of the electrical system:

- (1) Do not connect the battery in reverse polarity.
- (2) Do not disconnect the cables from the battery terminals while the engine is running.
- (3) Do not earth the "L" terminal.
- (4) Do not allow either the "L" terminal or "R" terminal to short circuit.
- (5) If using a steam cleaner, do not aim it directly at the alternator.



NOTES CONCERNING CHARGING

For normal charging, charge the battery at a current 1/10 of the battery capacity.

For quick recharging (boosting), the maximum current should be equal to the battery capacity indicated in amperes (A).

Adjust the charging current so that the temperature of the electrolyte during charging does not exceed 45°C.

When connecting the cables to the battery terminals, begin with the positive (+) terminal. When disconnecting the cables, begin with the negative (-) terminal.

SULPHATED BATTERY

Many lightly sulphated batteries can be returned to good condition by slow charging.

The rate of charge for a sulphated battery should be no more than half of the normal slow charge rate and the charging time should be from 60 to 100 hours. This long charging cycle is necessary to reconvert crystalline lead sulphate into active materials.

DRY-CHARGED BATTERY

Generally, a dry-charged battery can be used simply by pouring in electrolyte, without recharging it, provided it is stored for a short period in good condition. In consideration of the storage period and storage condition, however, the battery should be recharged by the method described as follows before use.

MANUAL 3. ABSOL BAHIM



BATTERY / FUSES

Remove the seals.

Caution

Be sure not to open the seal until electrolyte is poured in for use.

Pour in electrolyte of the same specific gravity as the fully charged battery and leave it for an hour.

Recharge the battery for about 10 hours at 10-hour charging rate.

NOTE

A battery stored with its seal in incomplete stored over a long period should be recharged for a longer time.

INSPECTION

- (1) Check for fluid leakage.
- (2) Check the battery casing for deformation or cracks.
- (3) Check the terminals for corrosion.
- (4) Check specific gravity of the electrolyte.
- (5) Check fluid level.
- (6) Check the cap for clogging or looseness.

FUSES

SPECIFICATIONS

Fusible Link

Cable colour	Green
Fusible link size mm ²	0.5
Permissible continuous current A	27
Fusing current A	100

Fuse A	5	10	15	20
Colour	Tan	Red	Light blue	Yellow

FUSIBLE LINKS

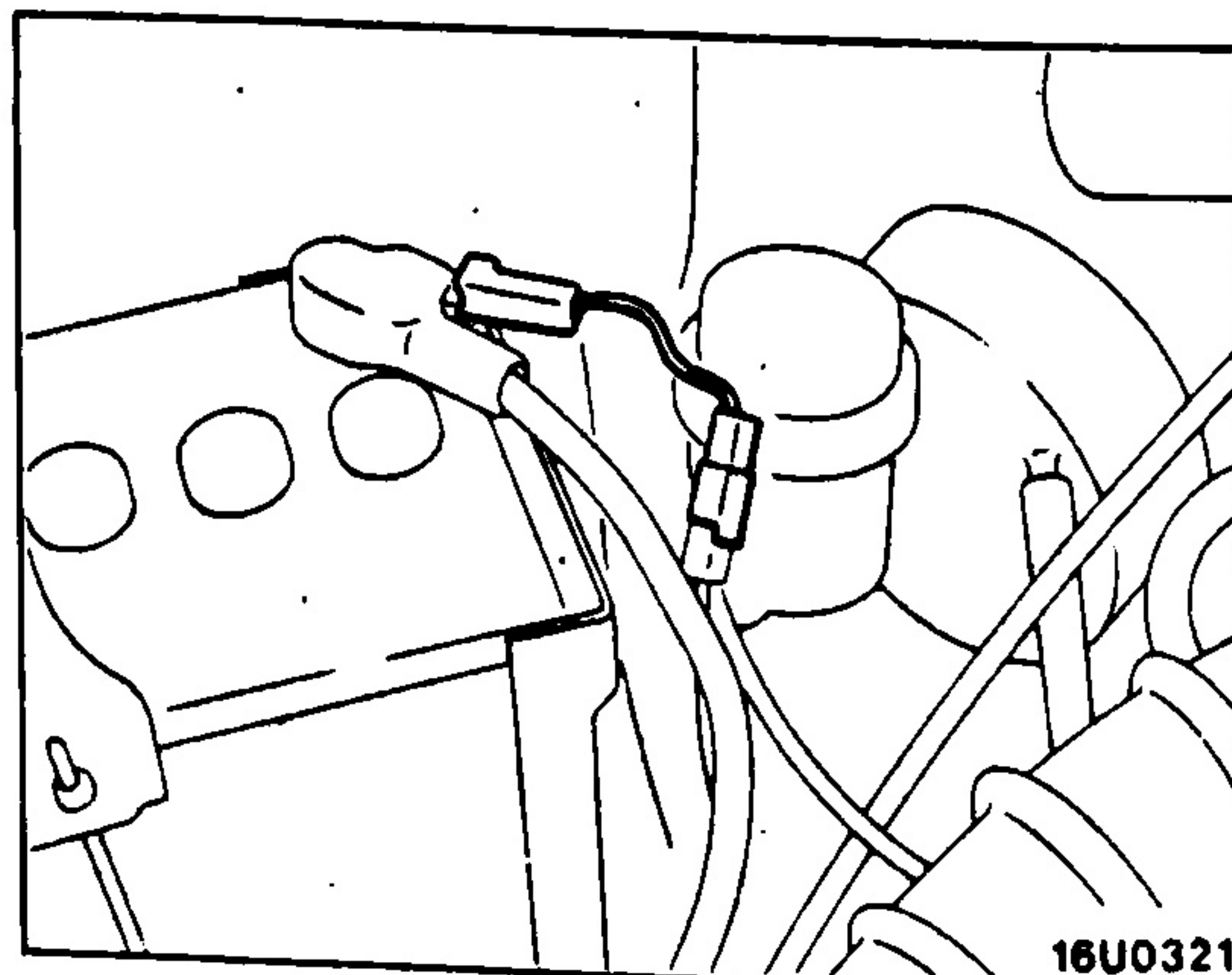
Inspection

Use a circuit tester to check for any blown fusible links.

If a fusible link is blown, it indicates that there is a short or other problem in the live circuit. Be sure to determine the cause and correct it before replacing the fusible link.

Caution

If a fusible link is to be replaced, be sure to use a new fusible link of the specified capacity.



FUSES



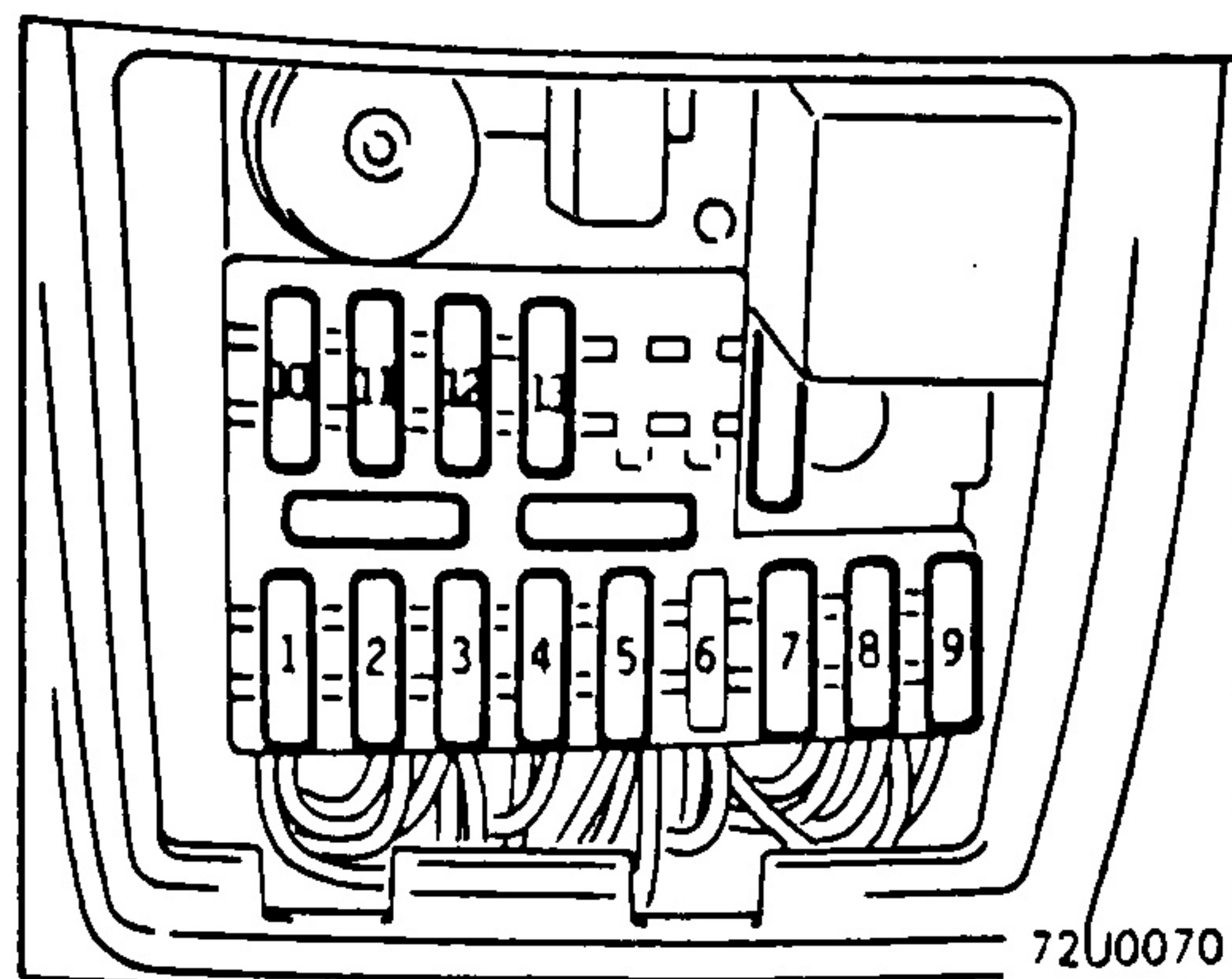
FUSE BLOCK

Inspection

Be sure there is no play in the fuse holders, and that the holders hold the fuses securely.
Are fuse capacities for each circuit correct?
Are there any blown fuses?

Caution

If a fuse is to be replaced, be sure to use a new fuse of the specified capacity.



72U0070

Fuse Capacity Table

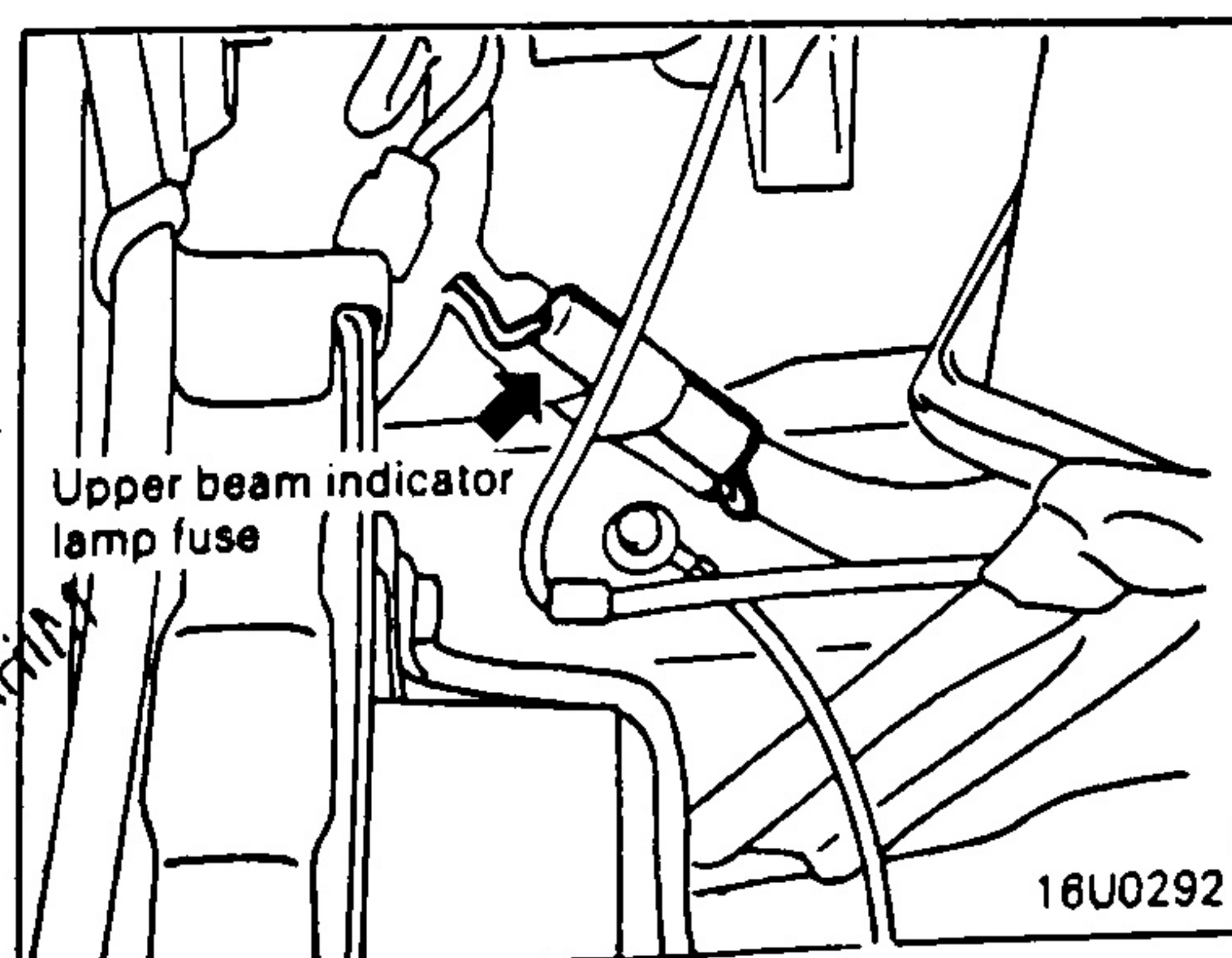
Power supply circuit	Fuse No	Rated capacity A	Load circuit
Battery	1	10	Clock, room lamp, luggage compartment lamp, door warning lamp
	2	10	Stop lamp
	3	10	Hazard
Ignition switch (ACC)	4	15	Wiper motor, washer motor
	5	15	Cigarette lighter, clock, radio
	6	—	—
Ignition switch (IG)	7	10	Turn-signal lamp, alternator, meter and gauge, indicator and warning lamp, hazard
	8	10	Back-up lamp
Battery	9	10	Air-conditioner
Ignition switch (IG)	10	20	Rear window defogger, heater
Battery	11	20	Heater
Battery (through lighting relay)	12	10	Tail lamp, illumination lamp, license plate lamp, position lamp
Battery	13	10	Horn

NOTE All equipment other than that listed above is not connected through the fuses, but directly to the battery through relays, switches, etc.

Independent Fuse

UPPER BEAM INDICATOR LAMP FUSE (5A)

This fuse is installed to the R.H. side of engine compartment near the lighting relay.



16U0292

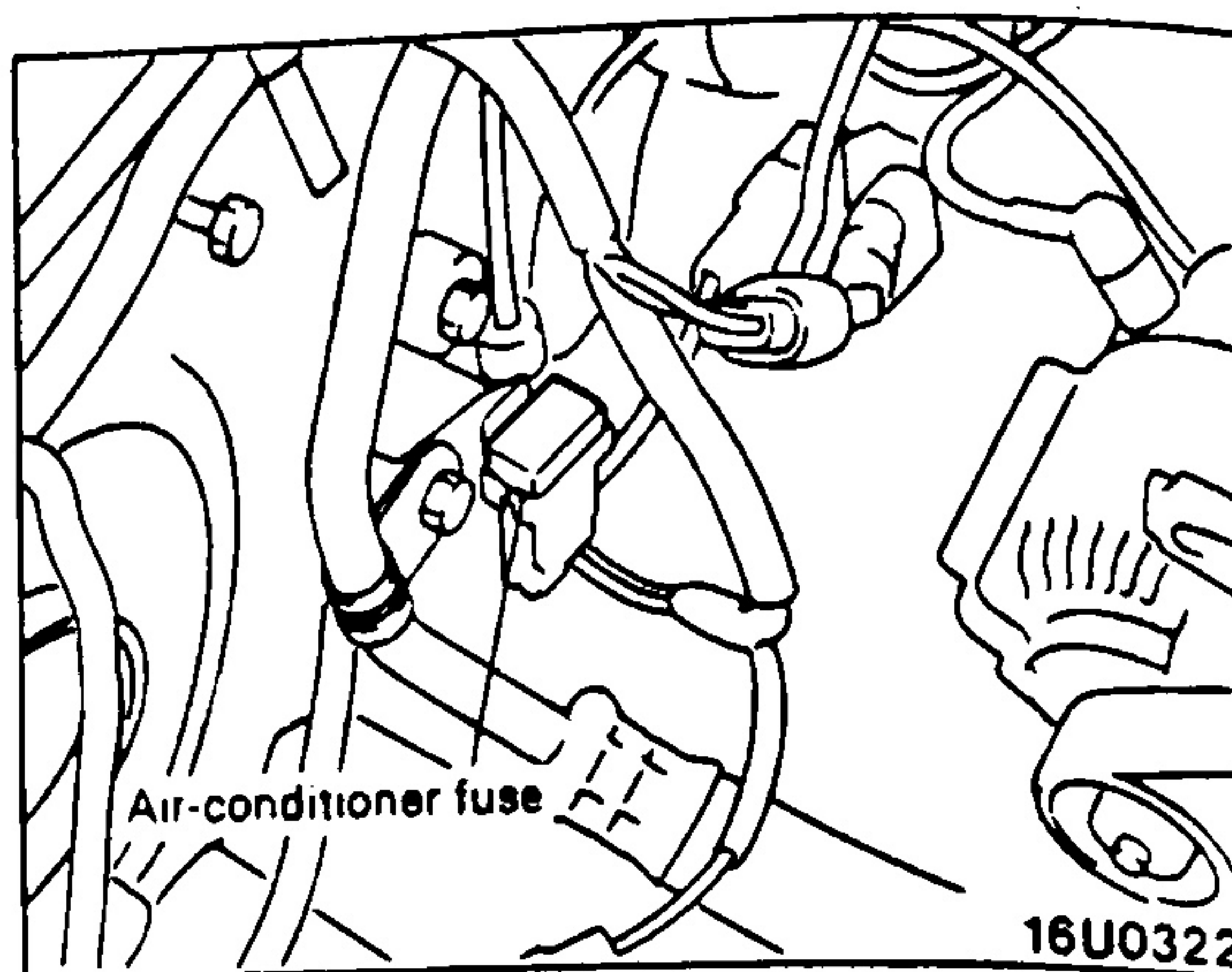
ABDOL RAHMAN 3



FUSES / IGNITION SWITCH

AIR-CONDITIONER (15A)

This fuse is installed to the L.H. side of engine compartment near the headlamp.



16U0322

IGNITION SWITCH SPECIFICATIONS

Ignition switch

Type

Load capacity A

AM - ACC

AM - IG 1

AM - IG 2

AM - ST

AM - R

Voltage drop (under actual load): V

Rotary switch with a steering wheel lock

15

12

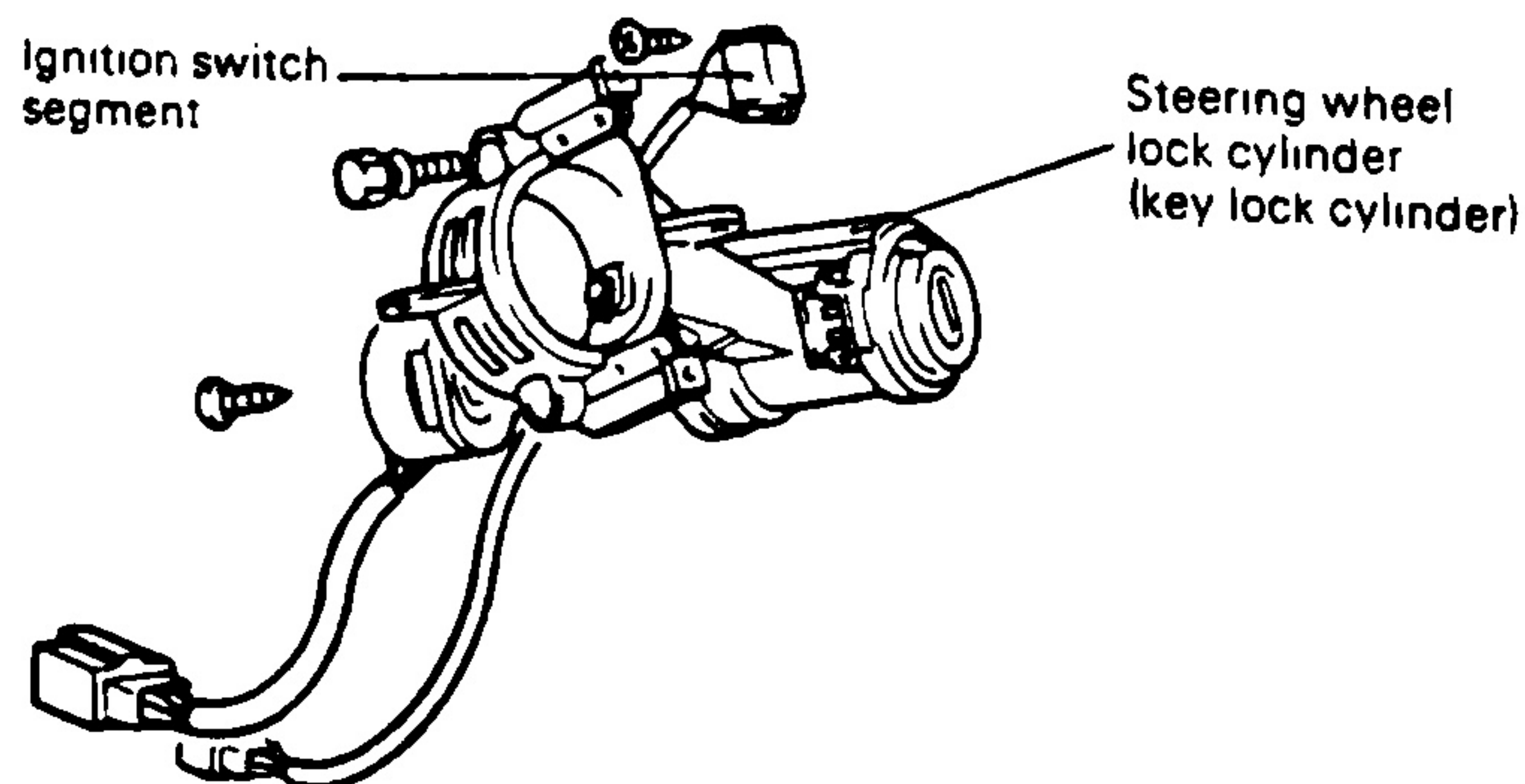
20

15

15

0.1 or less

COMPONENTS

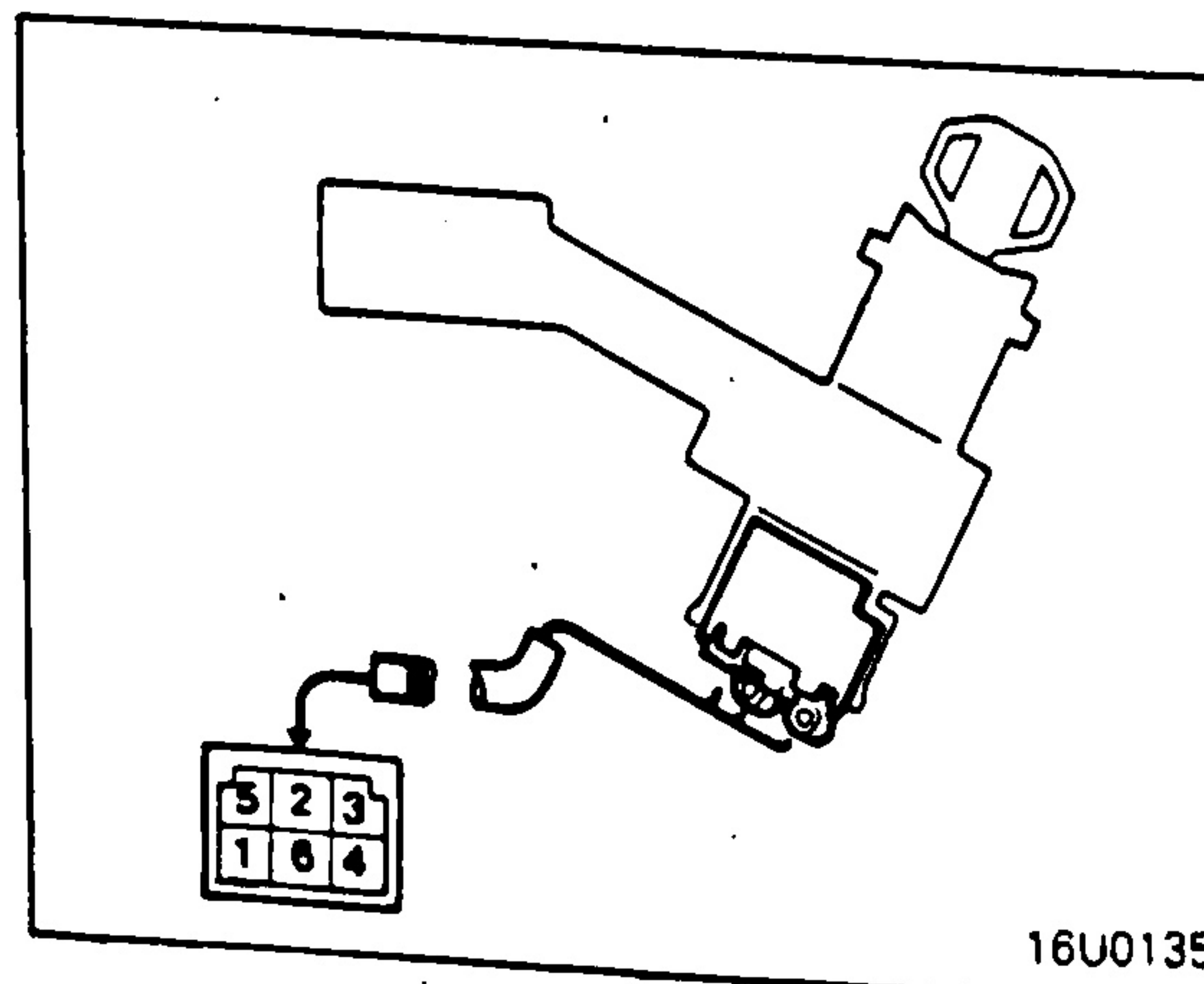


16U0344

INSPECTION

Operate the switch, and check the continuity between the terminals.

Terminal Key position	1	2	3	4	5	6
LOCK						
ACC			○	○		
ON	○	○	○	○		
START	○			○	○	○



16U0135

METERS AND GAUGES



SERVICE STANDARD

Fuel gauge indication test

When resistance is 3 Ω

Water temperature gauge indication test

When resistance is 104 Ω

Water temperature gauge unit operation check

When water temperature is 70°C Ω

Fuel gauge continuity test Ω

Bi-metal type

Water temperature gauge continuity test Ω

Bi-metal type

Scale indication A

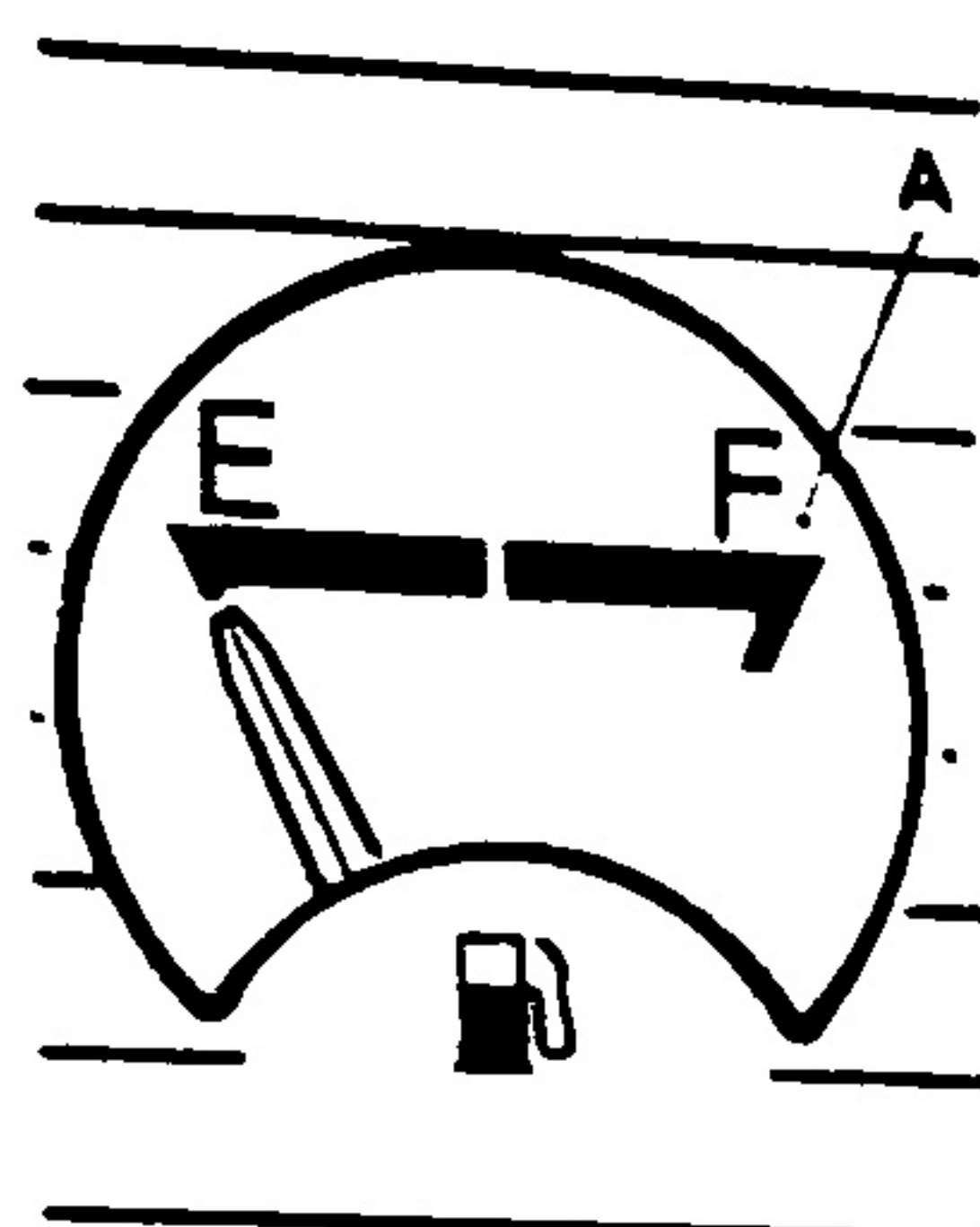
Scale indication B

104

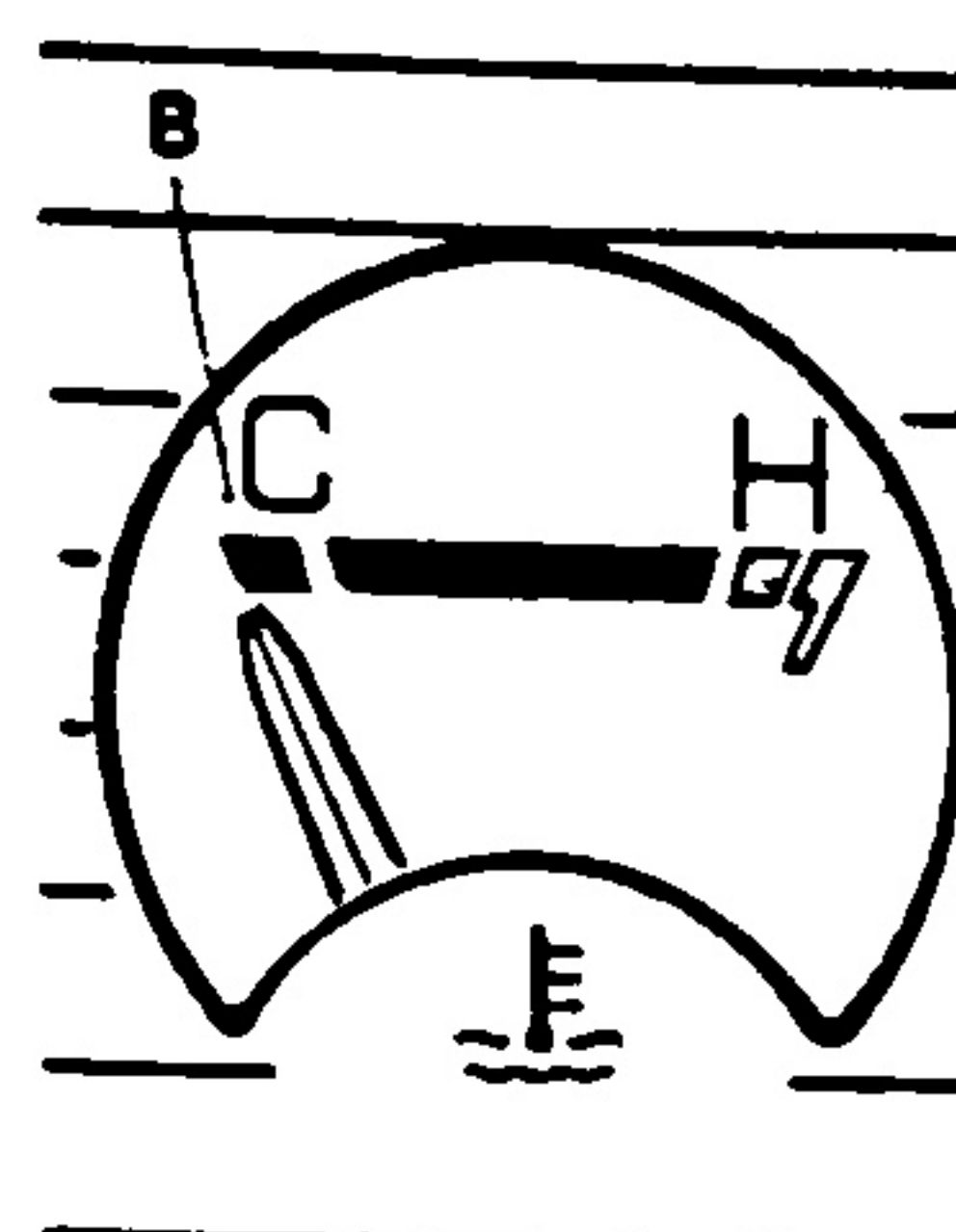
55

55

Fuel gauge



Water temperature gauge



68U0144

SPECIFICATIONS

Speedometer

Speed indication range km/h

0 - 180

Indication ratings (range of allowable error)

20 km/h

+4
0

40 km/h

+4
0

80 km/h

+5.5
+0.5

120 km/h

+7.5
+1.5

Tachometer

Type

Pulse type

Detection source

Ignition coil

Red zone r/min

6,000 - 8,000

Indication ratings (range of allowable error) r/min

1,000 r/min

± 100

2,000 r/min

± 100

3,000 r/min

± 150

4,000 r/min

± 200

5,000 r/min

± 250



METERS AND GAUGES

Fuel gauge

Type

Bi-metal type

Fuel gauge unit

Type

Variable resistance type

Standard resistance value Ω

Float position "F" point

1-5

Float position "E" point

103-117

Float vertical movement range mm

117-121

Water temperature gauge

Type

Bi-metal type

Water temperature gauge unit

Type

Thermistor type

Standard resistance value Ω

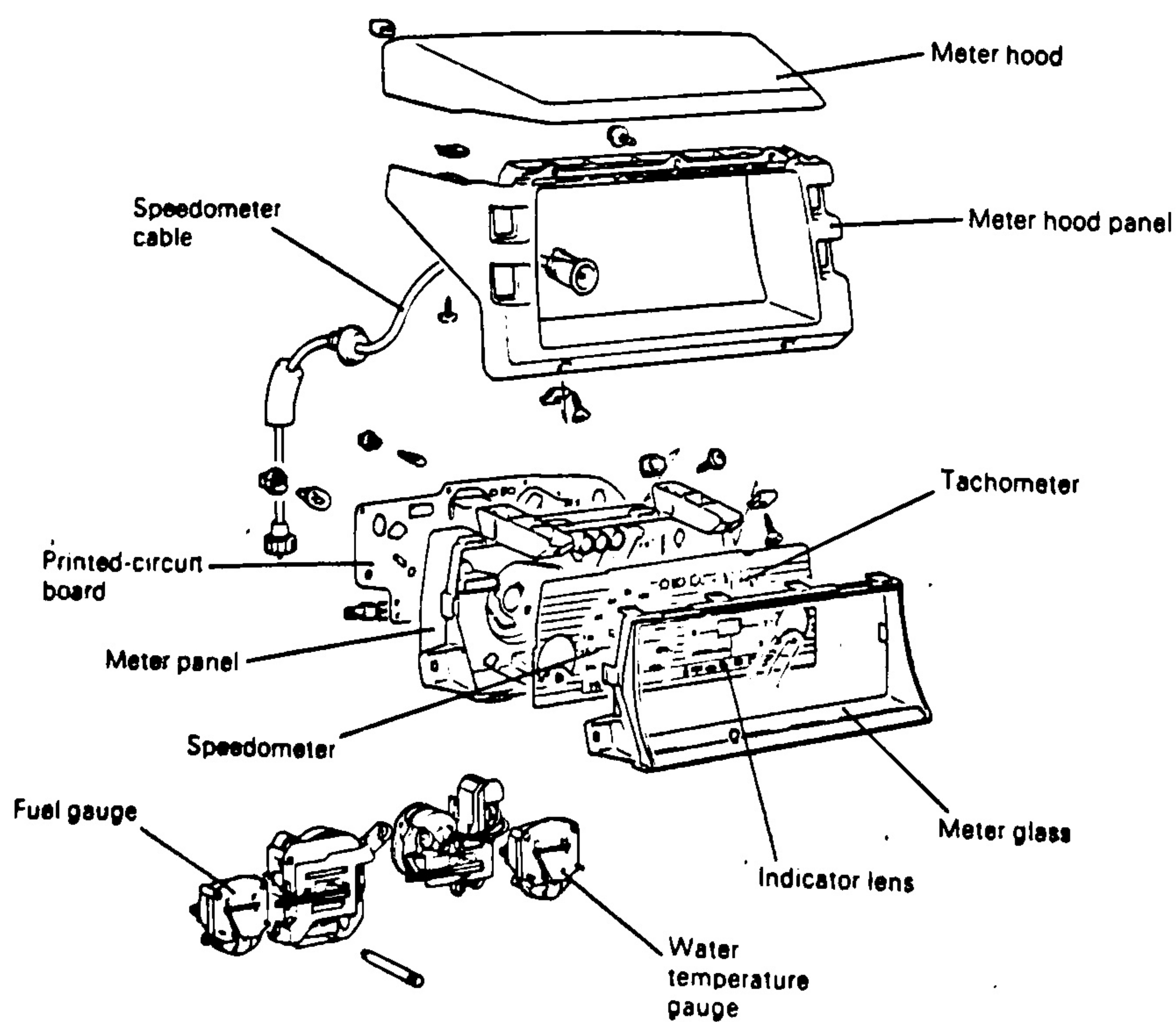
70°C

90.5-117.5

115°C

213-263

COMPONENTS



16U0339

METERS AND GAUGES



REMOVAL

For information regarding the removal of the meter assembly, refer to GROUP 19.

SPEEDOMETER

Troubleshooting

Symptom	Probable cause	Remedy
The speedometer pointer and/or the odometer do not function	Speedometer cable improperly connected Damaged speedometer cable	Correct the routing of the speedometer cable or replace the cable
	Drive gear is broken	Replace the speedometer
The speedometer pointer moves off the scale	Oil inside meter Damaged hair spring	
The speedometer pointer will not return to "0", or will not move above a certain speed	Oil inside meter Deformed hair spring Foreign material on the magnet	
The speedometer pointer moves erratically	Speedometer cable improperly routed	Correct the routing of the speedometer cable or replace the cable
	Worn induction panel end or bearing	Replace the speedometer
The speedometer functions but the odometer does not	Gear malfunction inside the speedometer	

Inspection

Using a speedometer tester, confirm that the needle remains within the range of allowable error.

Caution

If the front wheels of the vehicle are raised in order to check the speedometer, be sure to chock the rear wheels.

Replacement of the Speedometer Cable

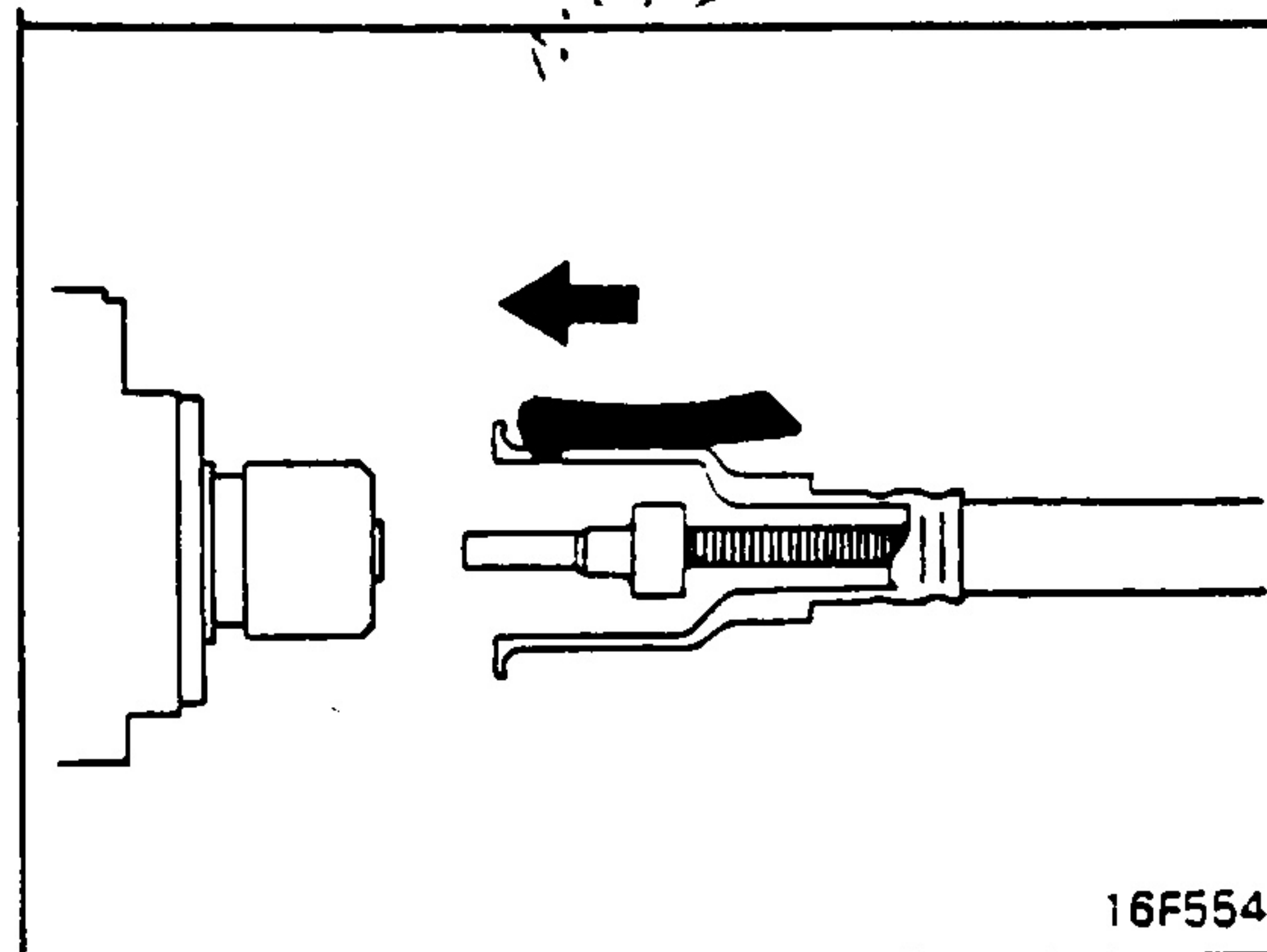
Replace the cable assembly if there is a malfunction.

When connecting the cable to the meter, insert the cable until its stopper properly fits to the meterside groove.

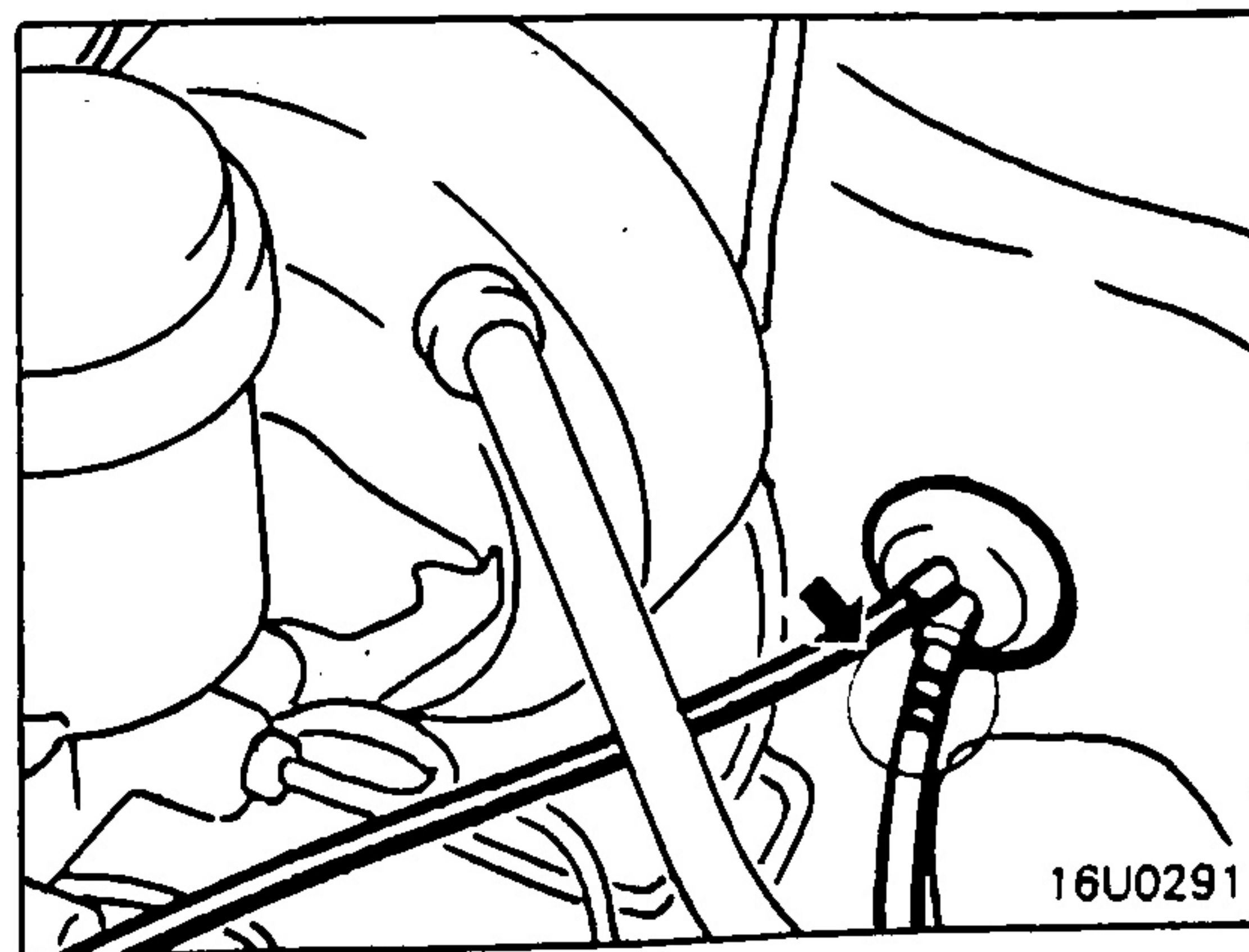
After installing the speedometer, pull the speedometer cable through the grommet in the toe-board until the cable marking is visible from the engine compartment side.

Caution

Poor installation of the cable may cause a fluctuating meter pointer, or noise and a damaged harness inside the instrument panel.



16F554



16U0291



METERS AND GAUGES

TACHOMETER

Inspection

Connect a Tacho-dwell meter, and then compare the meter readings at various engine speeds with the values indicated on the tachometer. If there is a large error, replace the tachometer.

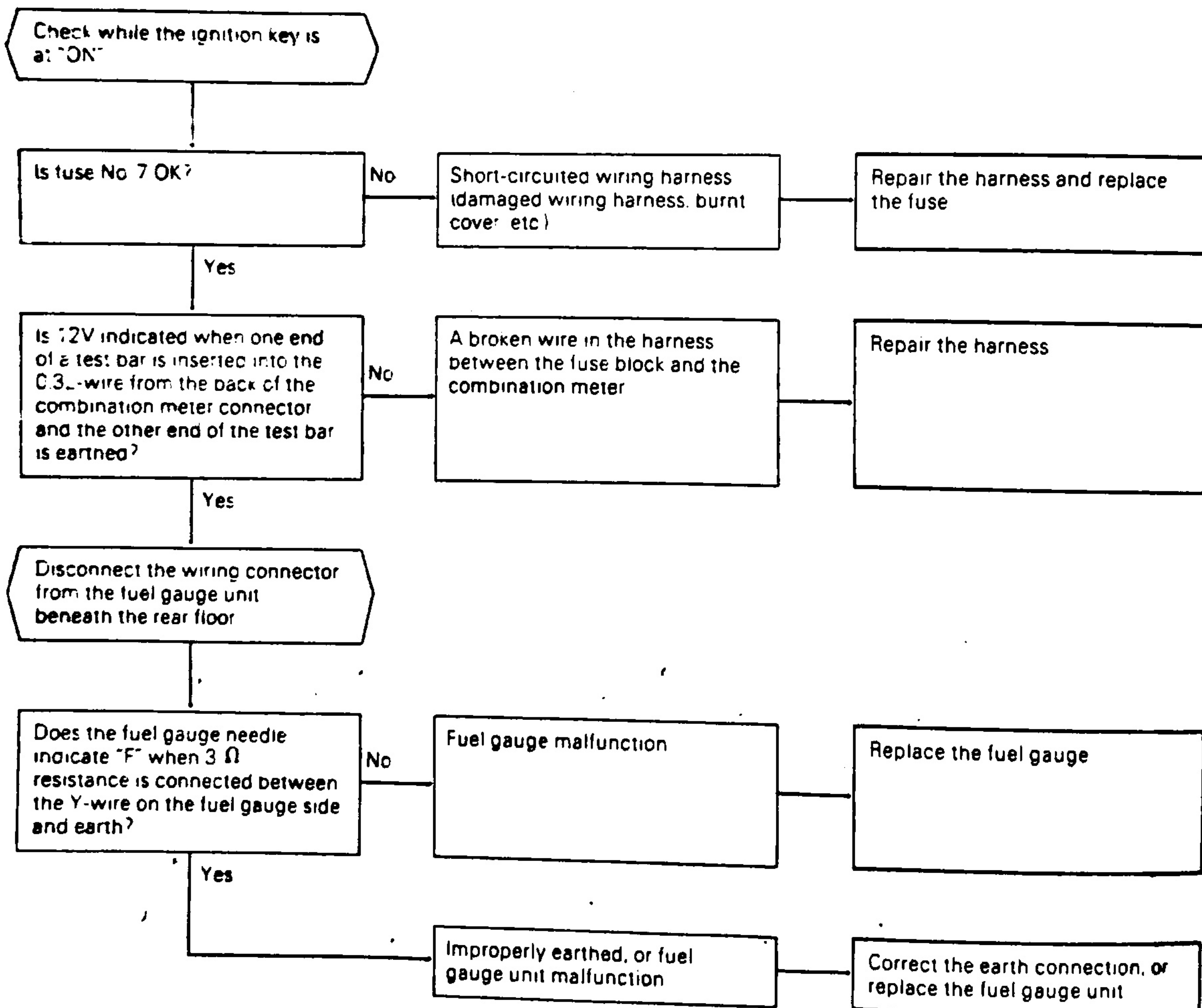
Caution

The tachometer is the negative-earth type, and therefore should not be connected in reverse to the battery. If the tachometer is connected in reverse, transistors and diodes will be damaged.

FUEL GAUGE AND UNIT

Troubleshooting

1. Indication needle does not move
2. Incorrect indication



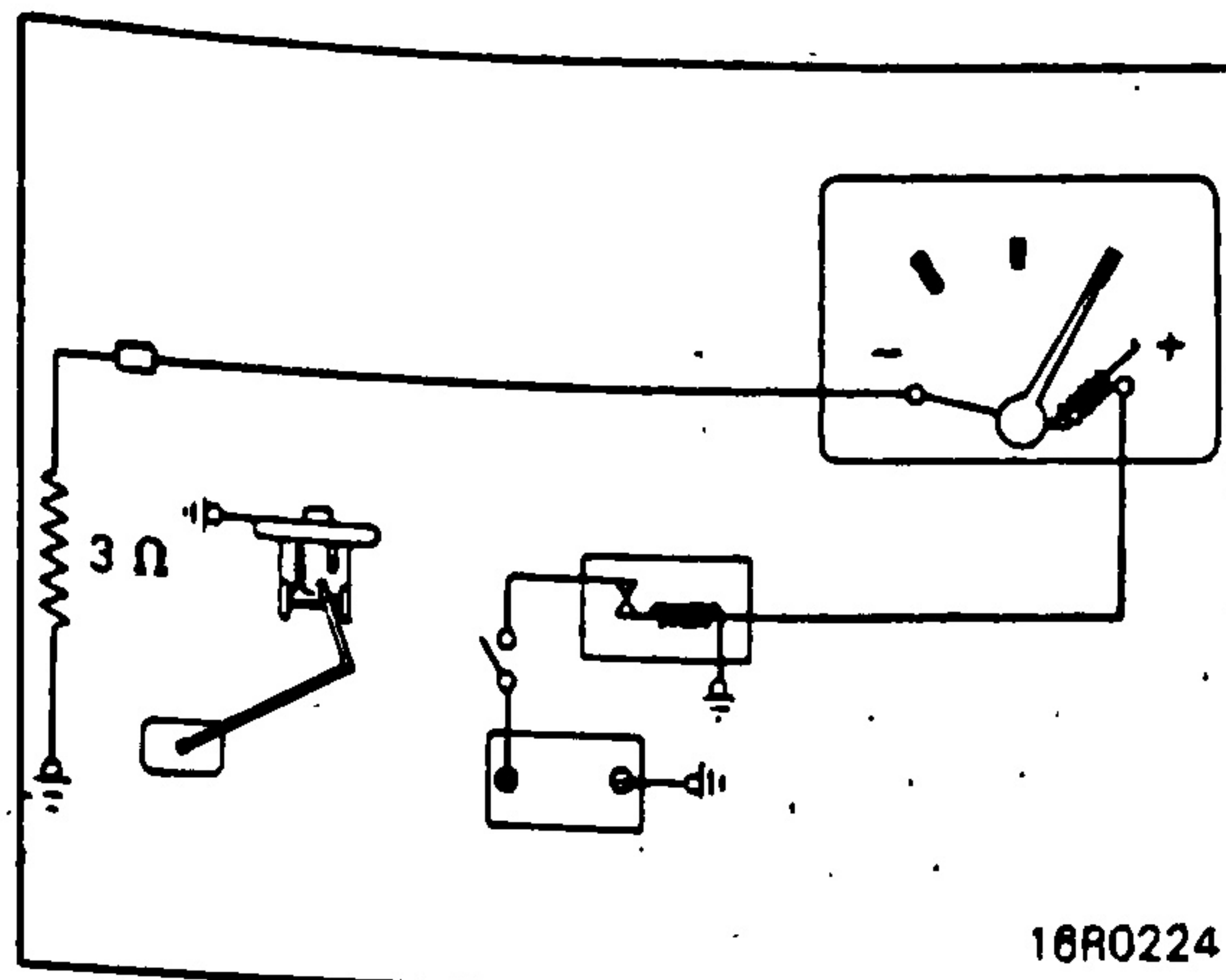
METERS AND GAUGES



Inspection

FUEL GAUGE INDICATION TEST

Disconnect the wiring connector from the fuel gauge unit inside the luggage compartment. Connect a resistance between the terminals and confirm the gauge indications.

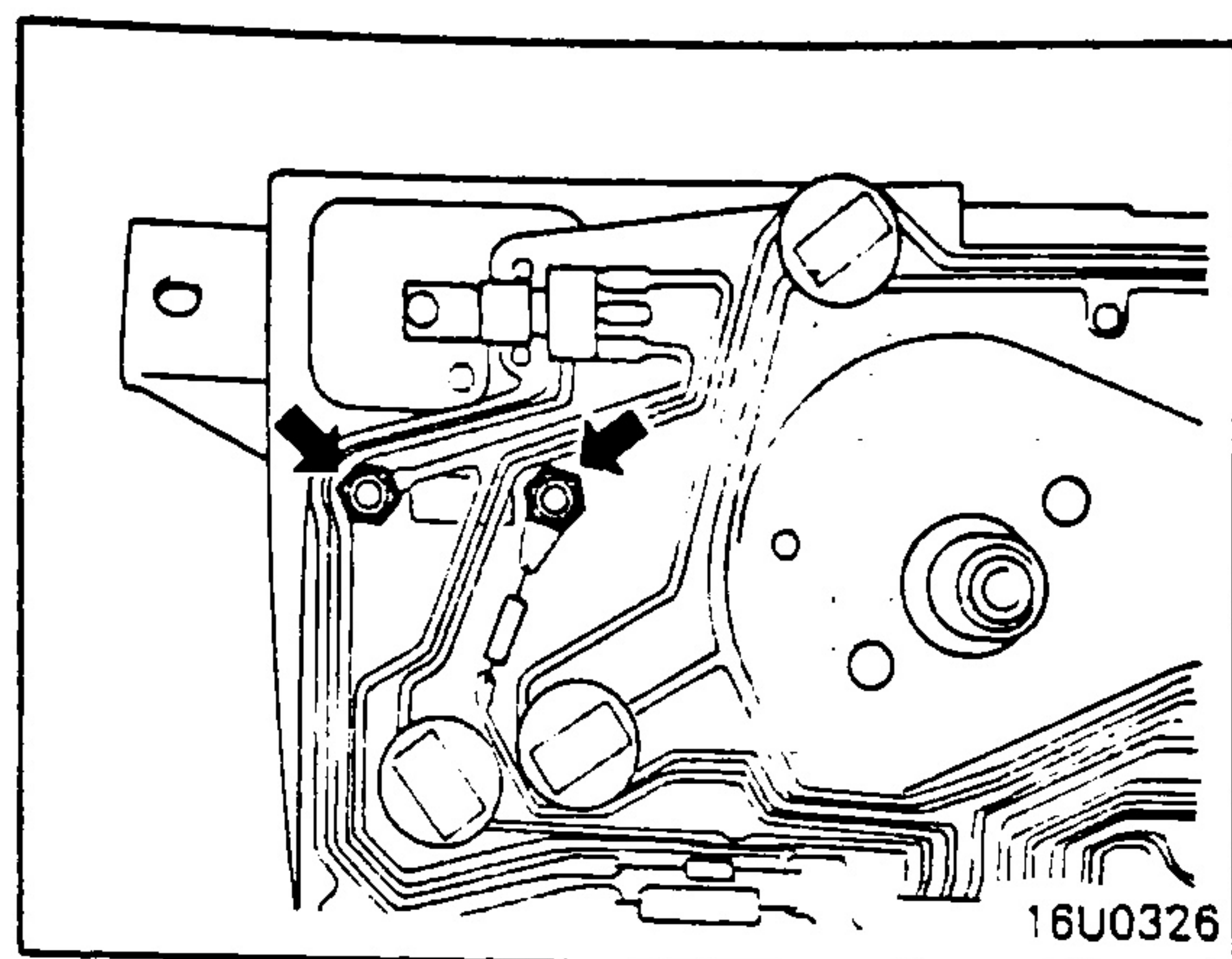


FUEL GAUGE CONTINUITY TEST

Measure the resistance between the terminals by using a circuit tester.

NOTE

If the resistance value is extremely low, there may be a short in the coil; if it is extremely high, there may be a broken wire or some other problem in the coil.



MAINTENANCE MANUAL

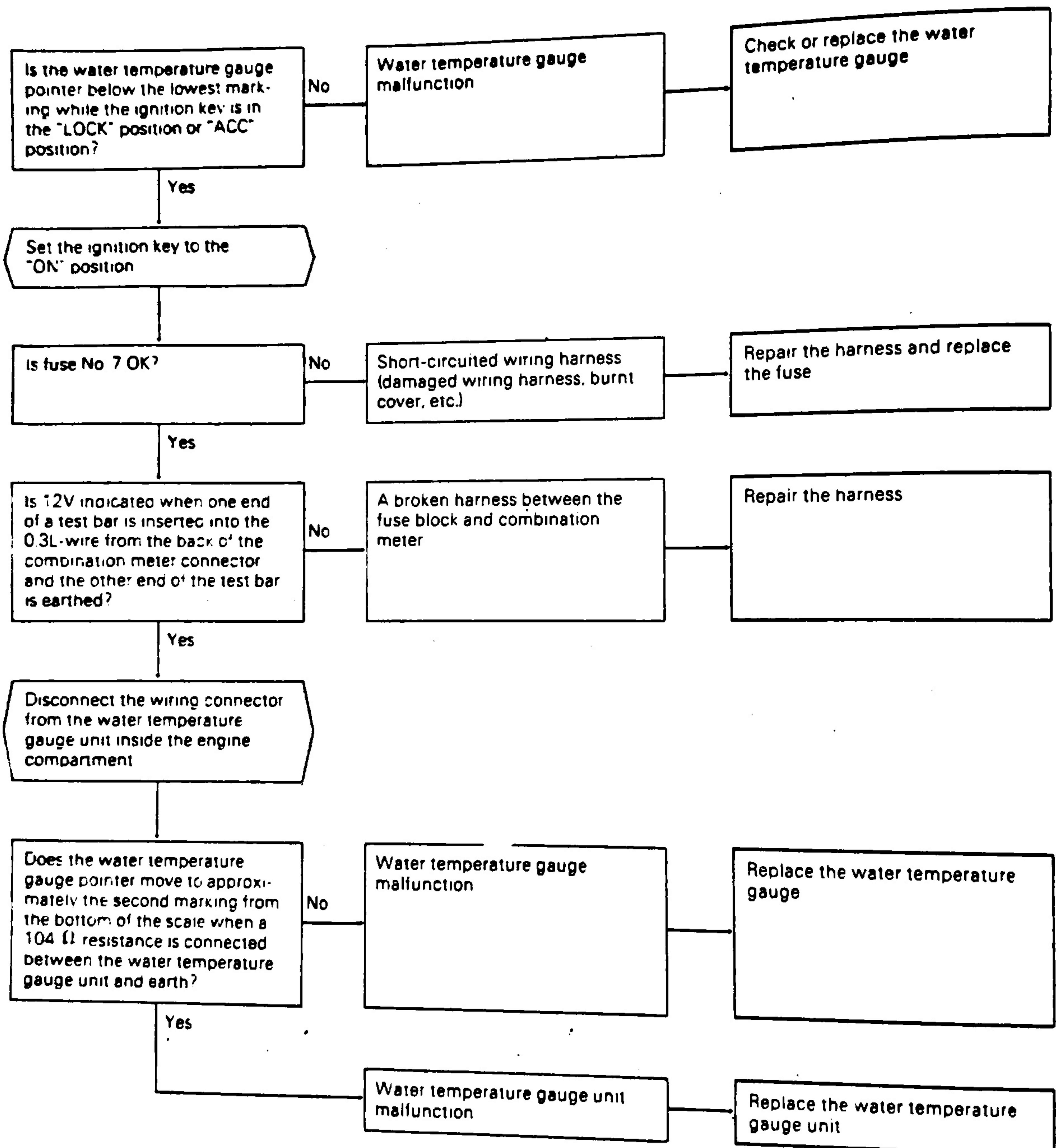


METERS AND GAUGES

WATER TEMPERATURE GAUGE AND UNIT

Troubleshooting

Indication needle does not move
Incorrect indication



METERS AND GAUGES

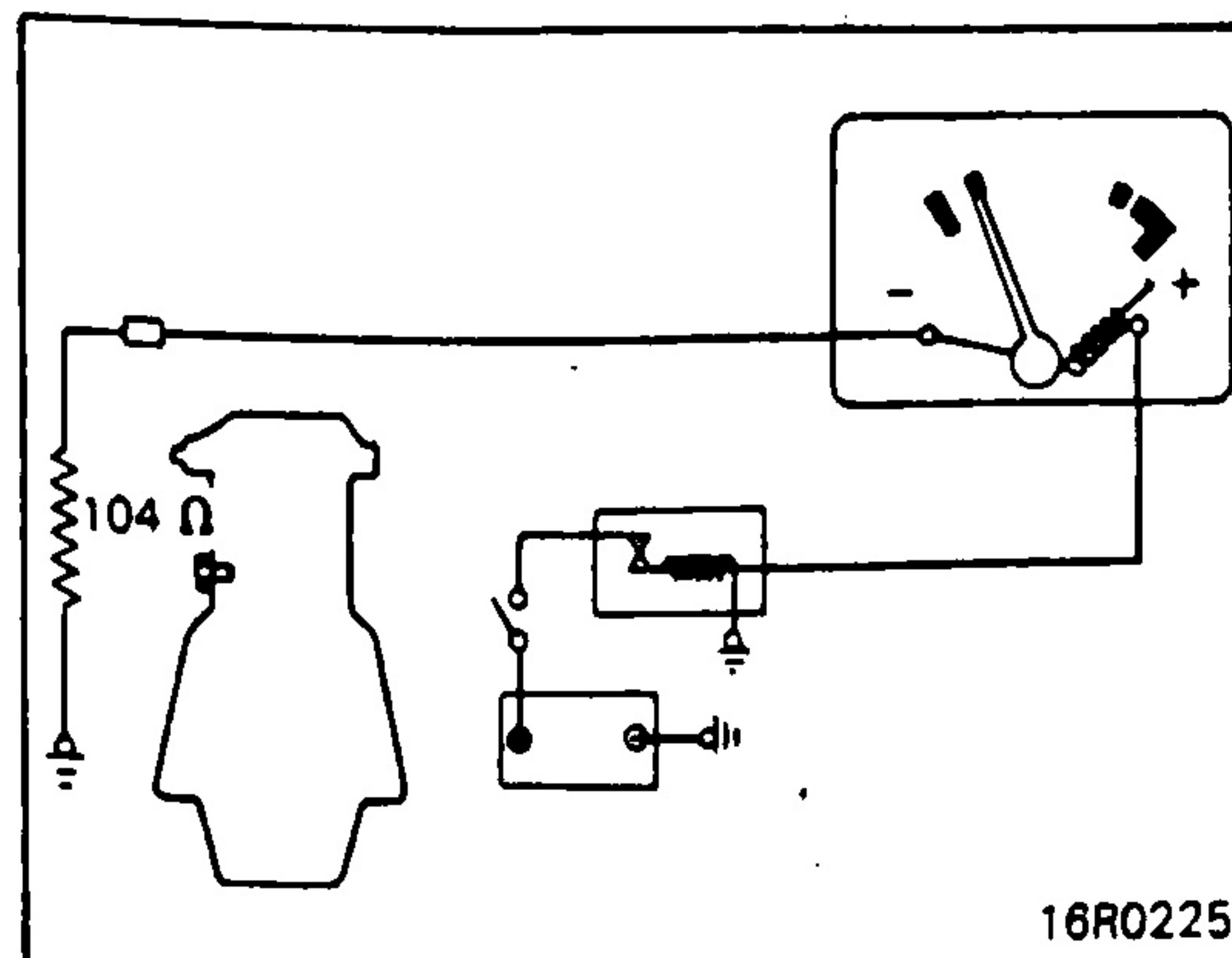


Inspection

WATER TEMPERATURE GAUGE INDICATION TEST

Disconnect the wiring connector from the water temperature gauge unit inside the engine compartment.

Connect a resistance to the connector, and then confirm the gauge indications.

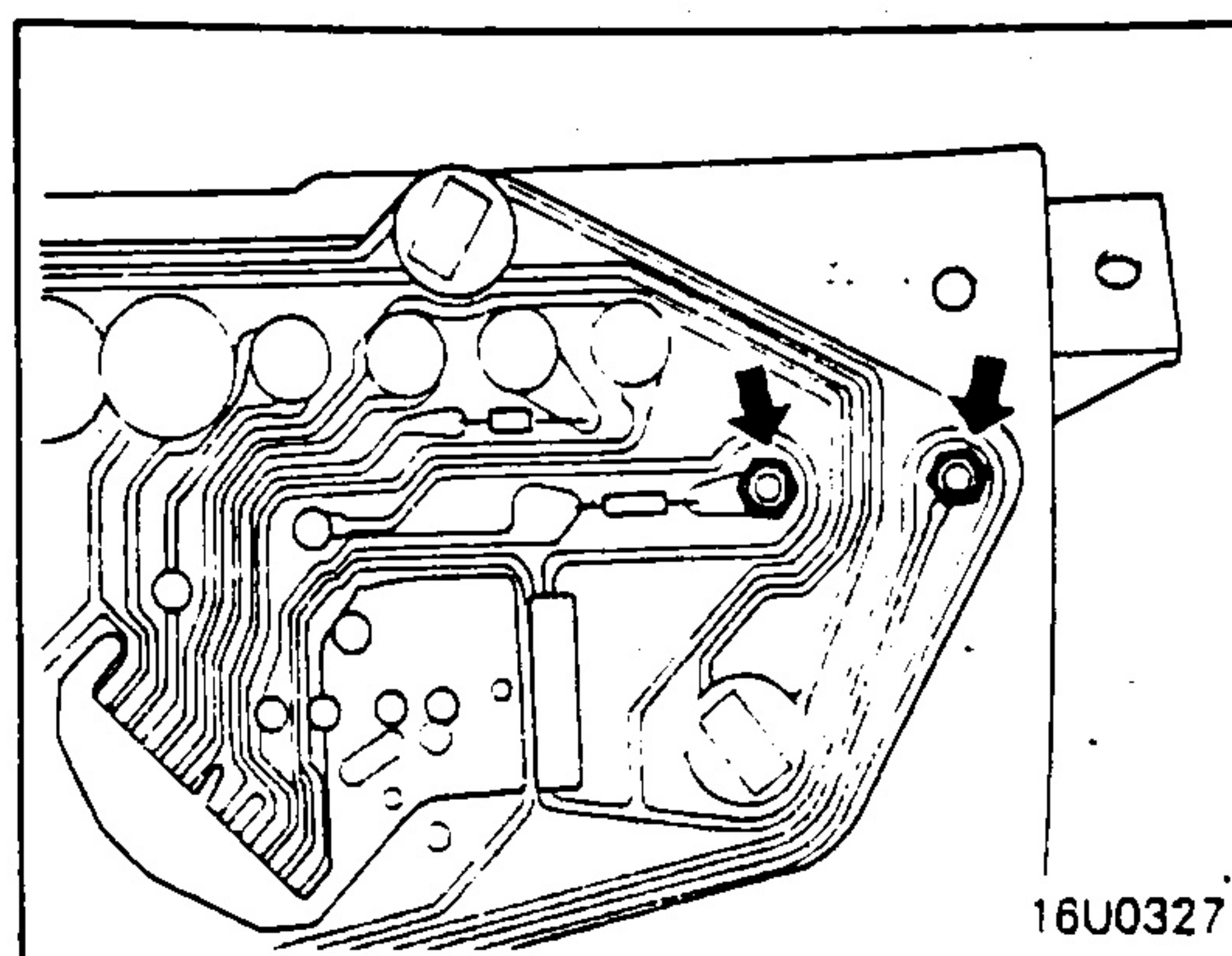


WATER TEMPERATURE GAUGE CONTINUITY TEST

Measure the resistance between the terminals by using a circuit tester.

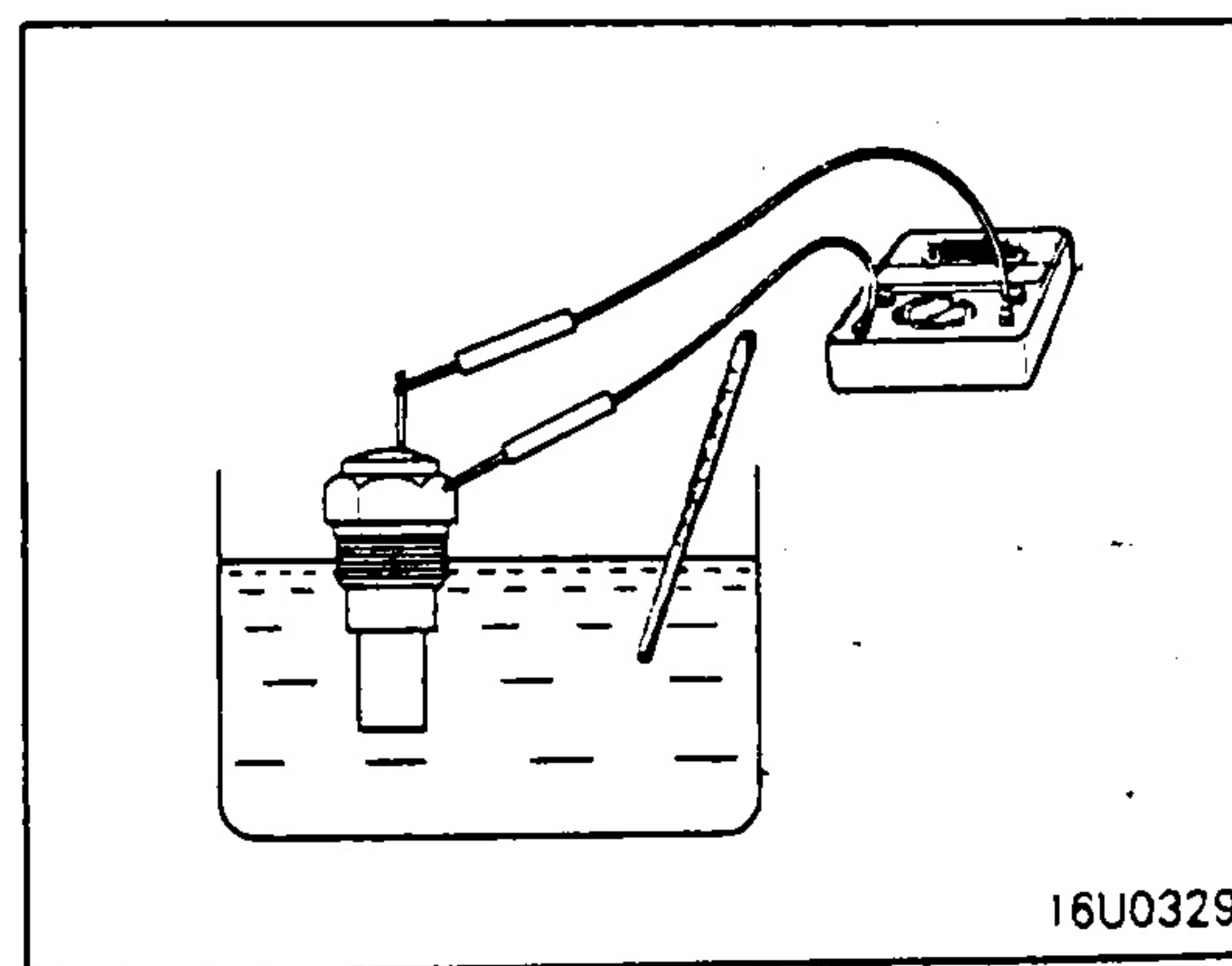
NOTE

If the resistance value is extremely low, there may be a short in the coil; if it is extremely high, there may be a broken wire or some other problem in the coil.



WATER TEMPERATURE GAUGE UNIT OPERATION CHECK

Measure the resistance with the gauge unit in hot water at 70°C.



MARIZAM B. ABDOL RAHIMI

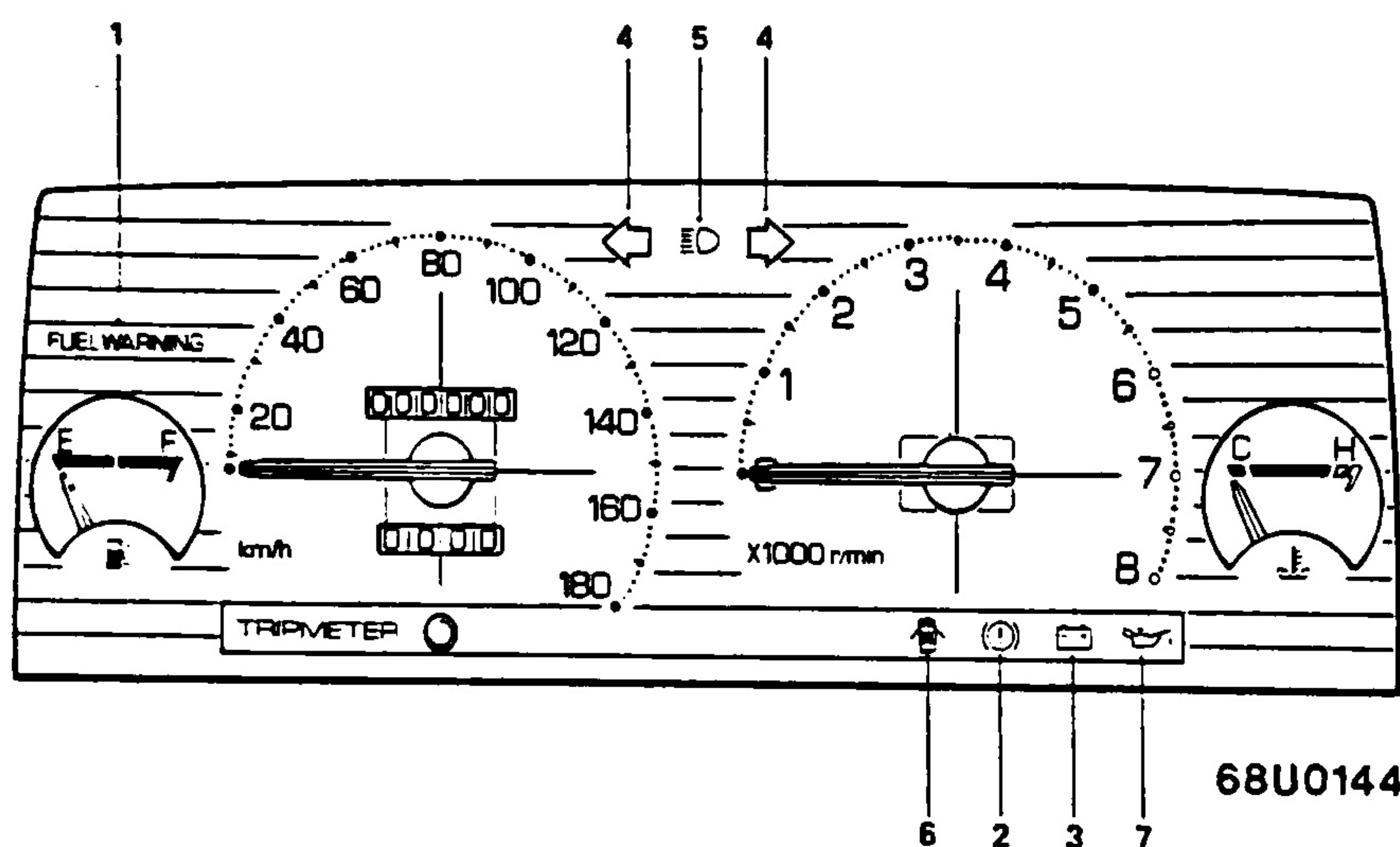


INDICATORS AND WARNING LAMPS

SPECIFICATIONS

Indicator lamp W

1. Fuel warning lamp	3.4
2. Brake warning lamp	1.4
3. Charging warning lamp	1.4
4. Turn-signal indicator lamp	1.4
5. Upper-beam indicator lamp	1.4
6. Door-ajar warning lamp	1.4
7. Oil pressure warning lamp	1.4



Parking brake switch

Rated load W 5

Voltage drop (at 12V and the rated load) V 0.1 or less

Brake fluid level sensor

Rated load W 3.6

Voltage drop (at 12V and the rated load) V 0.1 or less

Door switch

Rated load W 15

Voltage drop (at 12V and the rated load) V 0.2 or less

Fuel warning sensor

Level of remaining fuel at which the fuel warning lamp illuminations lit. 10

INDICATORS AND WARNING LAMPS



TROUBLESHOOTING

Oil Pressure Warning Lamp

Oil pressure warning lamp does not illuminate when engine is started

Check while the ignition key is at the "ON" position

Is fuse No. 7 OK?

No

Short-circuited wiring harness (damaged wiring harness, burnt cover, etc.)

Repair the harness and replace the fuse

Yes

Is 12V indicated when one end of a test bar is inserted into the 0 3L-wire from the back of the connector and the other end of the test bar is earthed?

No

A broken wire in the harness between the fuse block and the combination meter

Repair the harness

Yes

Does the lamp illuminate when the oil pressure switch harness is earthed directly by using the jumper wire?

No

A broken wire in the harness, or a burnt out lamp bulb

Repair the harness, or replace the lamp bulb

Yes

Malfunction in the oil pressure switch

Replace the oil pressure switch

Oil pressure warning lamp remains illuminated

Check while the engine is idling

Does the warning lamp go out when the oil pressure switch harness is disconnected?

No

Short-circuited wiring harness

Repair the harness

Yes

Malfunction in either the oil pressure switch or oil line

Replace the oil pressure switch

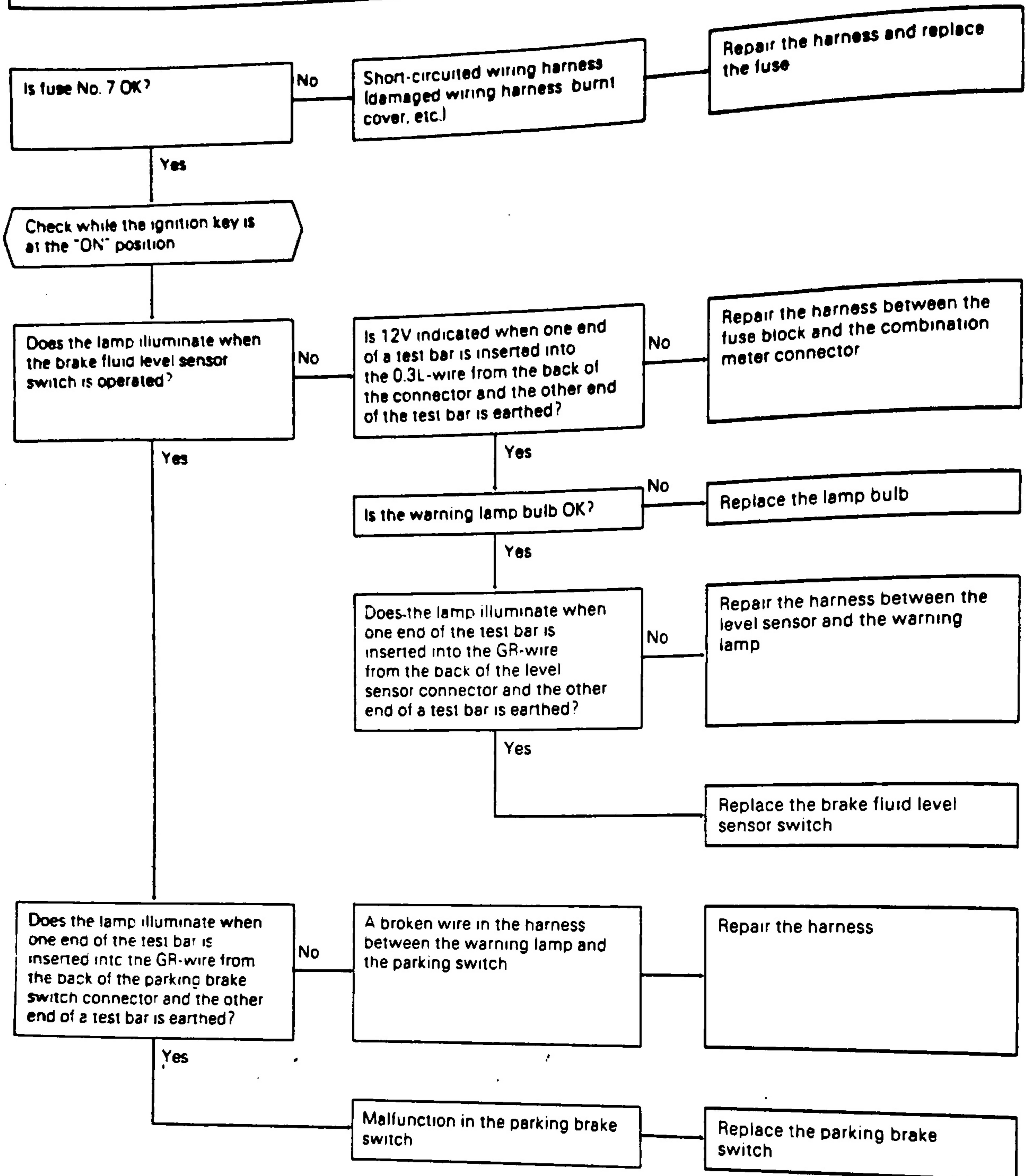
MARIZAM B. ABDOL RAHIM



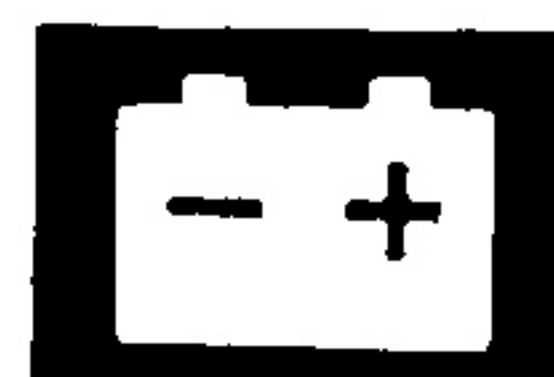
INDICATORS AND WARNING LAMPS

Brake Warning Lamp

Brake warning lamp does not illuminate



INDICATORS AND WARNING LAMPS



The brake warning lamp remains illuminated

Check while the ignition key is at the "ON" position

Does the lamp go out when the parking brake switch connector is disconnected?

Yes

Malfunction in the parking brake switch

Replace the parking brake switch

No

Does the lamp go out when the brake fluid level sensor connector is disconnected?

Yes

Malfunction in the brake fluid level sensor switch

Replace the brake fluid level sensor switch

No

Short-circuited wiring harness between the warning lamp and the switch

Repair the harness between the warning lamp and the switch

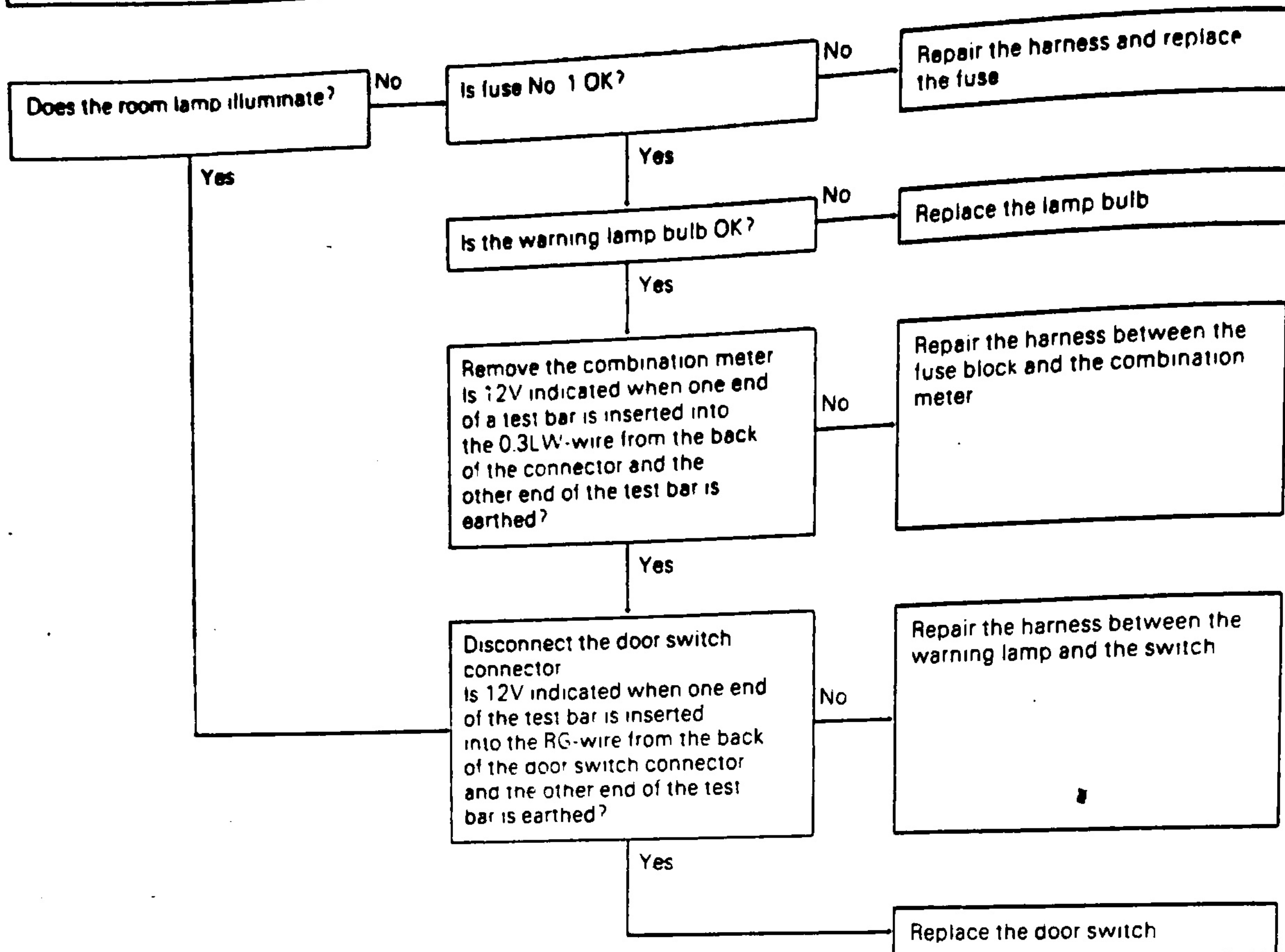
MARIZAM B. ABDOL RAHIM



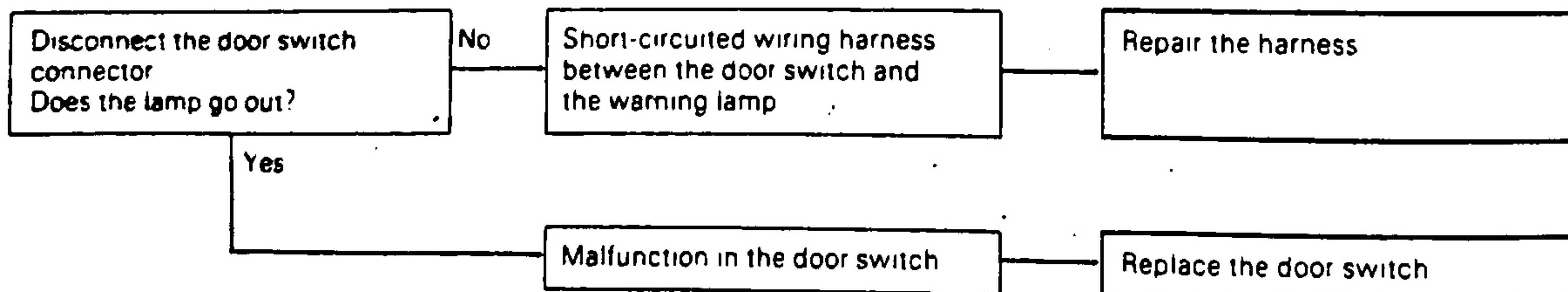
INDICATORS AND WARNING LAMPS

Door-ajar Warning Lamp

The door-ajar warning lamp does not illuminate when the door is opened



The door-ajar warning lamp remains illuminated

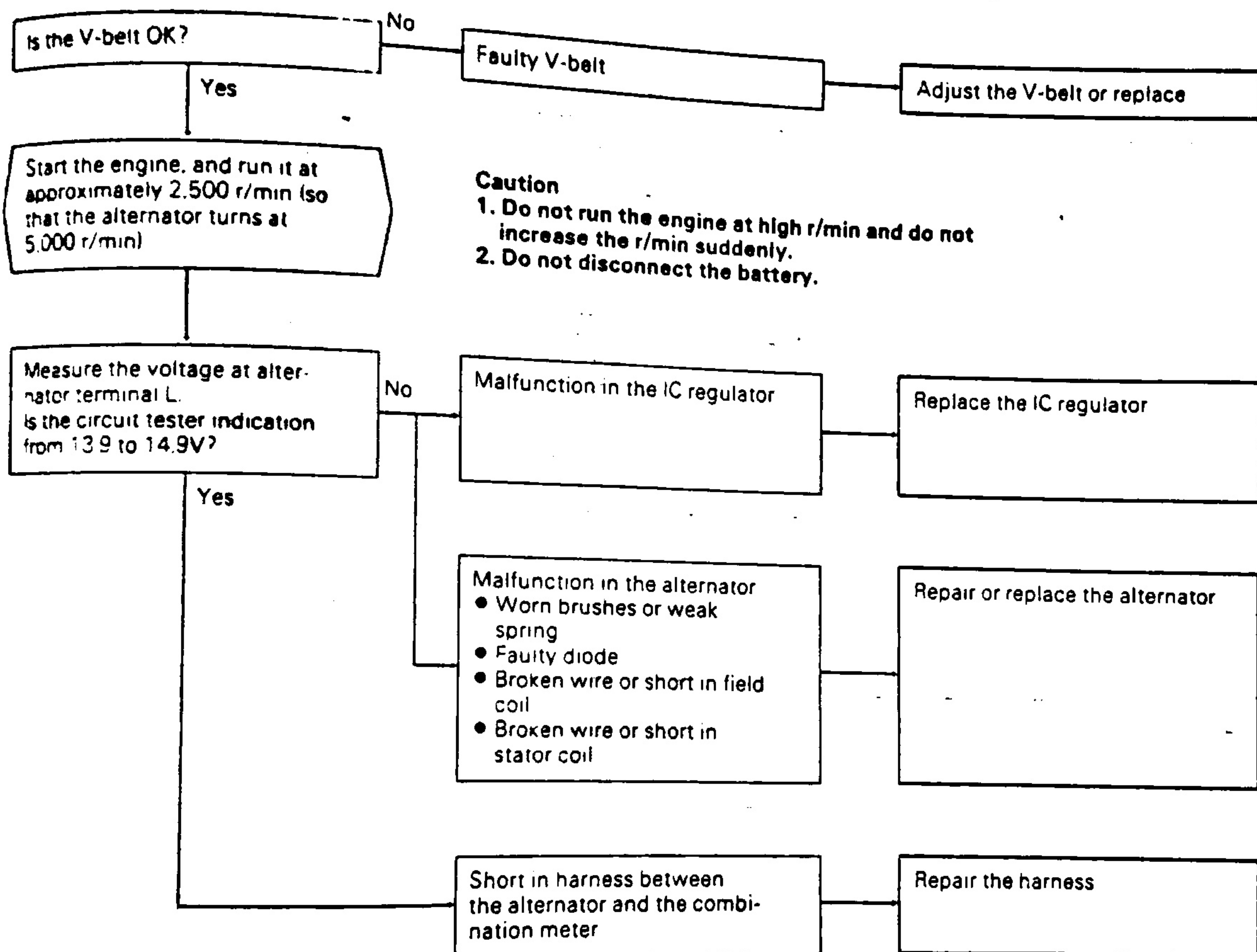


INDICATORS AND WARNING LAMPS



Charging Warning Lamp

The charging warning lamp does not go out



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INDICATORS AND WARNING LAMPS

The charging warning lamp does not illuminate

Check with the ignition key at the "ON" position

Does the oil pressure warning lamp illuminate?

No

Is fuse No. 7 OK?

No

Repair the harness and replace the fuse

Yes

Broken wire in the combination meter printed circuit board

Repair the printed board or replace

Insert a test bar into the Y-wire (L terminal) of the alternator harness connector, and then earth the other end of the bar. Does the charging warning lamp illuminate?

No

Faulty lamp bulb

Replace the lamp bulb

Yes

Broken wire or faulty connection in harness between alternator and combination meter

Repair the harness

Set the ignition key to the "OFF" position, and then disconnect the connector of the L and R terminals from the alternator

Measure the voltages of the L and R terminals on the alternator side and the body side. Are the circuit tester indications all 0V?

No

Short in positive (+) side diode

Replace the alternator

Yes

Malfunction in wiring or the ignition switch

Repair the harness or replace the ignition switch

Malfunction in the IC regulator

Replace the IC regulator

INDICATORS AND WARNING LAMPS



Fuel Warning Lamp

The warning lamp does not illuminate when fuel falls below the specified level

Check while the ignition key is in the "ON" position

Is fuse No. 7 OK?

No

Short-circuited wiring harness (damaged wiring harness, burnt cover, etc)

Repair the harness and replace the fuse

Yes

Is 12V indicated between the 03L-wire and earth when the combination meter is removed and a test bar is inserted from the back of the connector?

No

A broken wire in the harness between the fuse block and combination gauge, or a poor connection

Repair the harness or correct the connection

Yes

Does the indicator lamp illuminate when one end of the test bar is inserted into the YL-wire from the back of the combination gauge connector and the other end of the test bar is earthed?

No

Lamp bulb is burnt-out or broken

Replace the lamp

Yes

Does the indicator lamp illuminate when the fuel gauge unit is disconnected and the Y-wire is earthed?

No

A broken wire in the harness between the combination gauge and the fuel gauge unit, or poor connection

Repair the harness or correct the connection

Yes

Poor connection of the fuel gauge unit connector, or malfunction in the fuel warning sensor

Correct the connection, or replace the fuel gauge unit

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INDICATORS AND WARNING LAMPS

INSPECTION

Fuel Warning Sensor

Connect the gauge unit with a test lamp to the battery, and immerse it in the water.

The lamp should be off while thermistor of the gauge unit is beneath the water, and should illuminate when the unit is taken out of the water.

NOTE

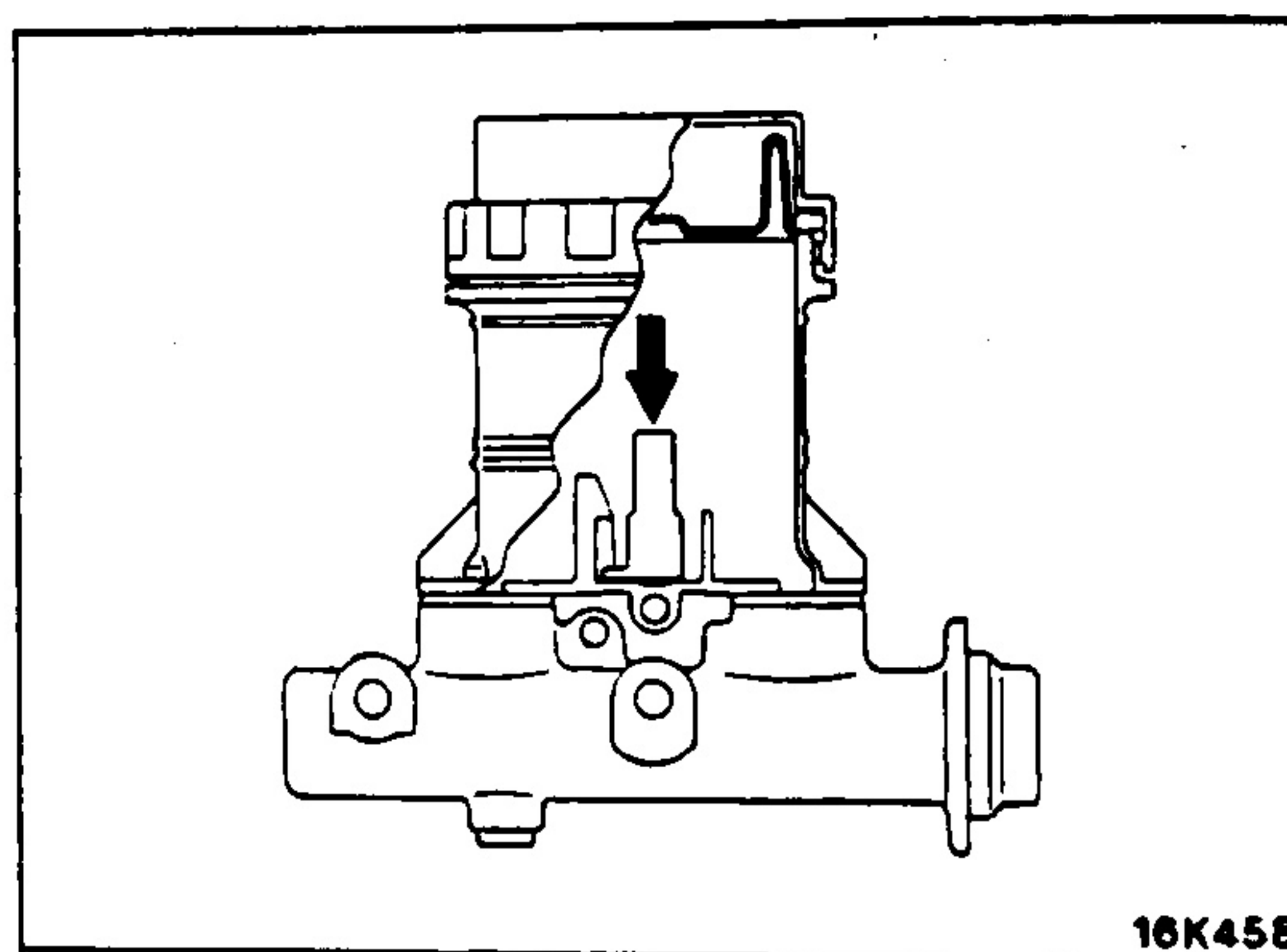
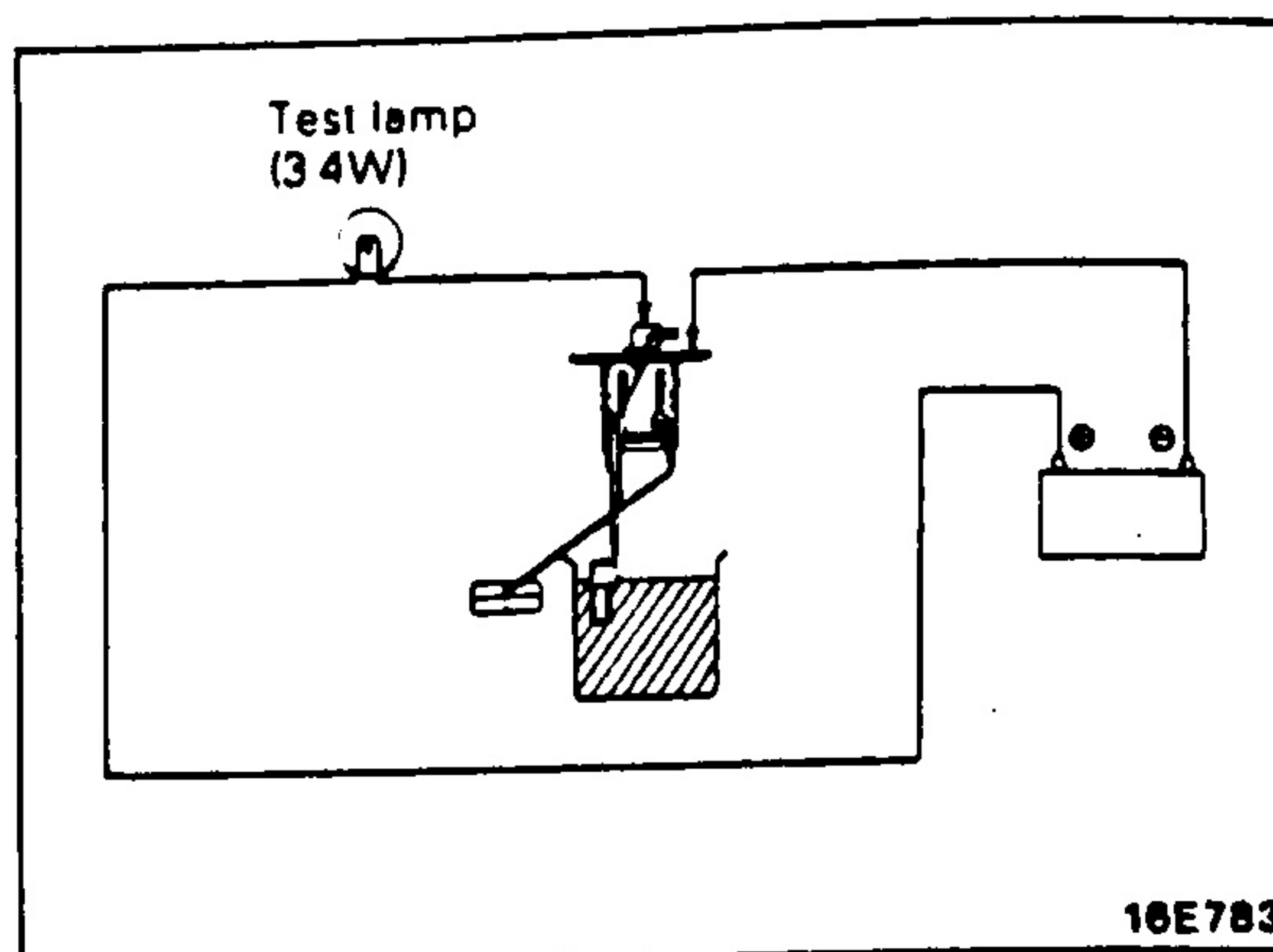
If there is a malfunction, replace the fuel gauge as an assembly.

Caution

After completing this test, wipe the unit dry and install it in the fuel tank.

Brake Fluid Level Sensor

The sensor is considered normal if the warning lamp illuminates when the float is immersed.



LIGHTING SYSTEM



SERVICE STANDARD

Standard Value

cd

Headlamp intensity

20,000 or more

SPECIFICATIONS

Main lamp W

Headlamp

Front turn-signal lamp

Position lamp

Side turn-signal lamp

Rear combination lamp

Turn-signal lamp

Stop and tail lamp

Back-up lamp

License plate lamp

60/55

23

5

5

23

21/5

23

6

Sub lamp W

Room lamp

Luggage compartment lamp

Combination meter illumination lamp

Cigarette lighter illumination lamp

Heater panel illumination lamp

Ashtray illumination lamp

Top mark illumination lamp

10

5

3.4

1.4

1.4

1.4

5

Turn-signal and hazard-warning flasher unit

Type

Transistor type

Blinking frequency cycle/min (12.8V, 20°C)

Turn-signal

85 ± 12

Hazard-warning

90 ± 12

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LIGHTING SYSTEM

Column switch

Lighting switch

Rated load	A	0.17 - 0.27
Position, tail lamp		0.17 - 0.27
Headlamp		0.2 or less
Voltage drop (at 12.8V and the rated load)	V	

Turn-signal switch

Rated load	A	6.1 - 7.1
Voltage drop (at 12V and the rated load)	V	0.2 or less

Dimmer switch

Rated load	A	16.1 - 18.7
Upper beam		9.4 - 10.8
Lower beam		0.2 or less
Voltage drop (at 12V and the rated load)	V	

Passing switch

Rated load	A	16.1 - 18.7
Voltage drop (at 12V and the rated load)	V	0.2 or less

Hazard-warning switch

Type		Push-lock type
Rated load	A	10
Voltage drop (at 12V and the rated load)	V	0.1 or less

Headlamp relay and tail lamp relay

Exciting coil rated current	A	0.074 - 0.106
Maximum contact current capacity	A	20
Range of voltage used	V	10 - 15
Voltage drop between terminals	V	0.2 or less

Rheostat

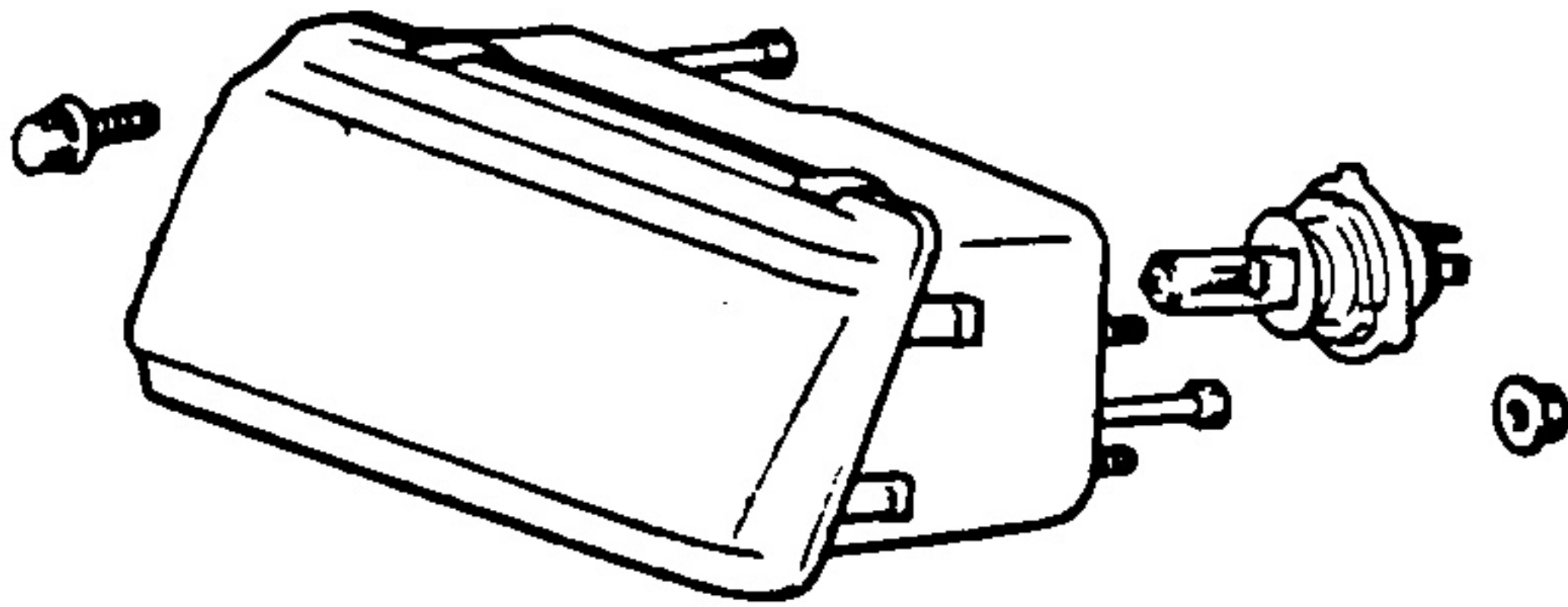
Type		Variable resistance type
Resistance	Ω	0 - 10 ^{+1.0} _{-2.0}
Rated load	W	Max. 28
Voltage drop (at 14V and the rated load)	V	0.15 or less

LIGHTING SYSTEM



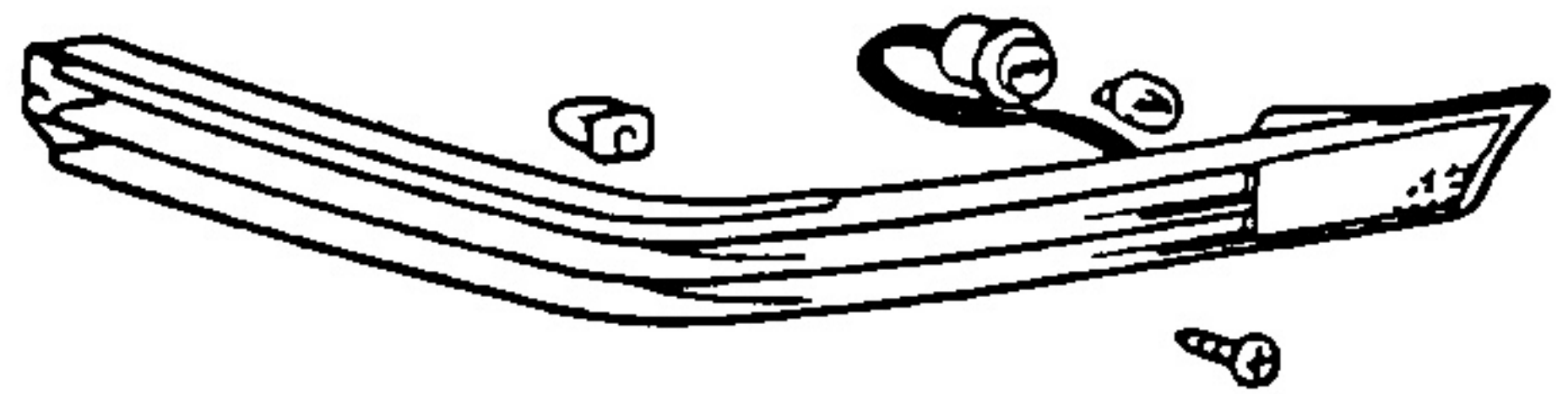
COMPONENTS

Headlamp



16U0336

Side turn-signal lamp

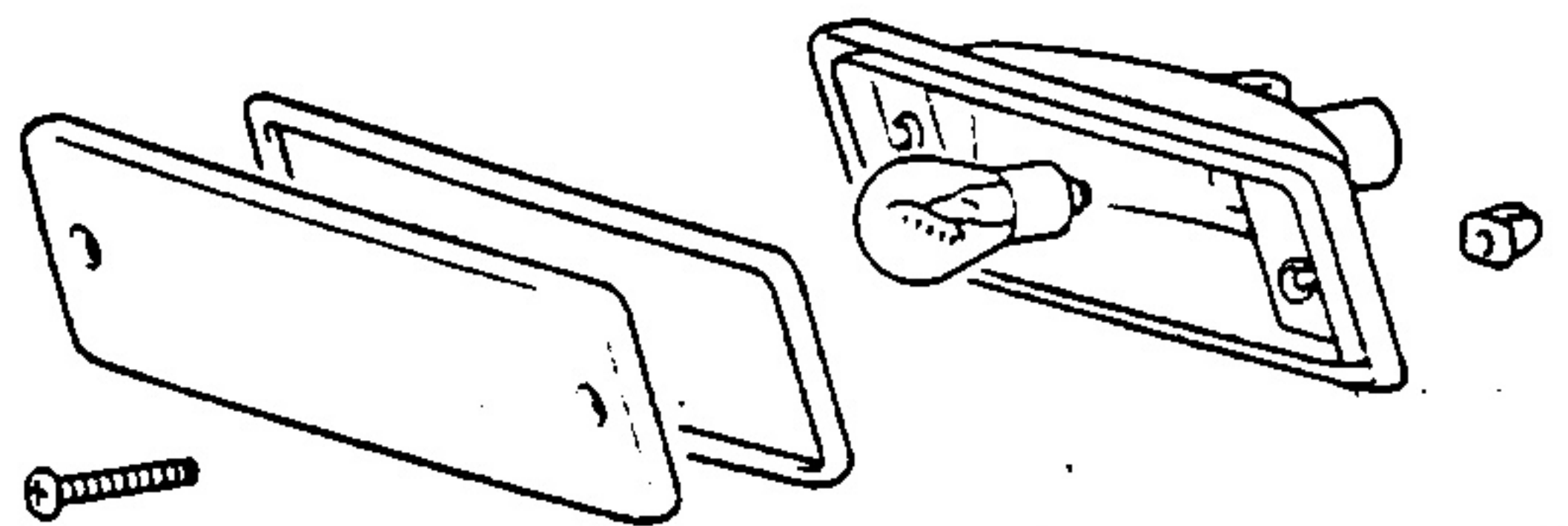


Position lamp



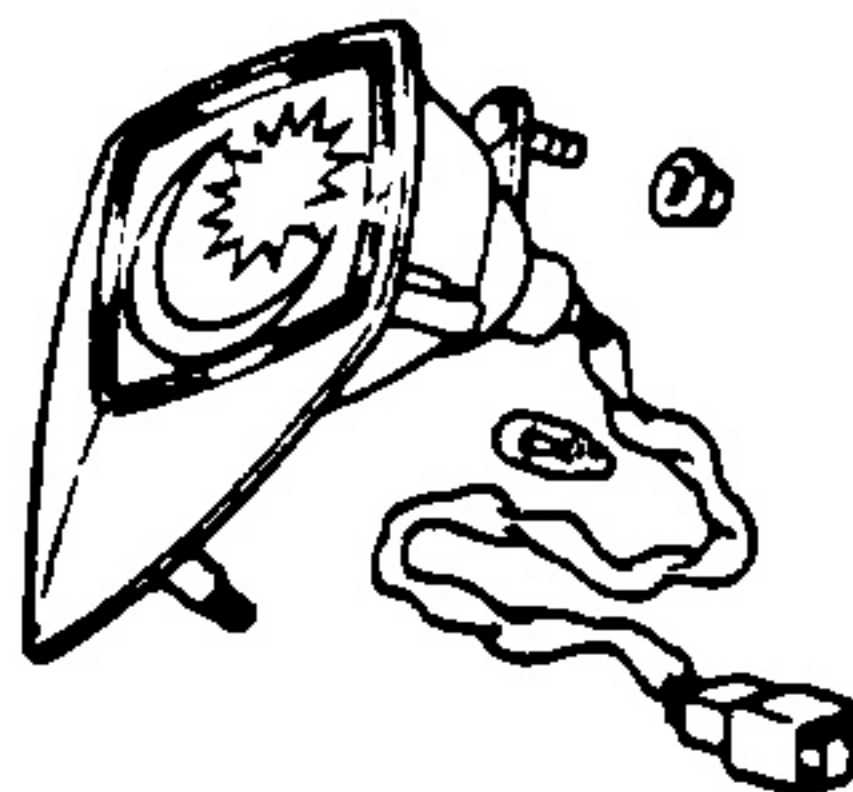
16U0315

Front turn-signal lamp



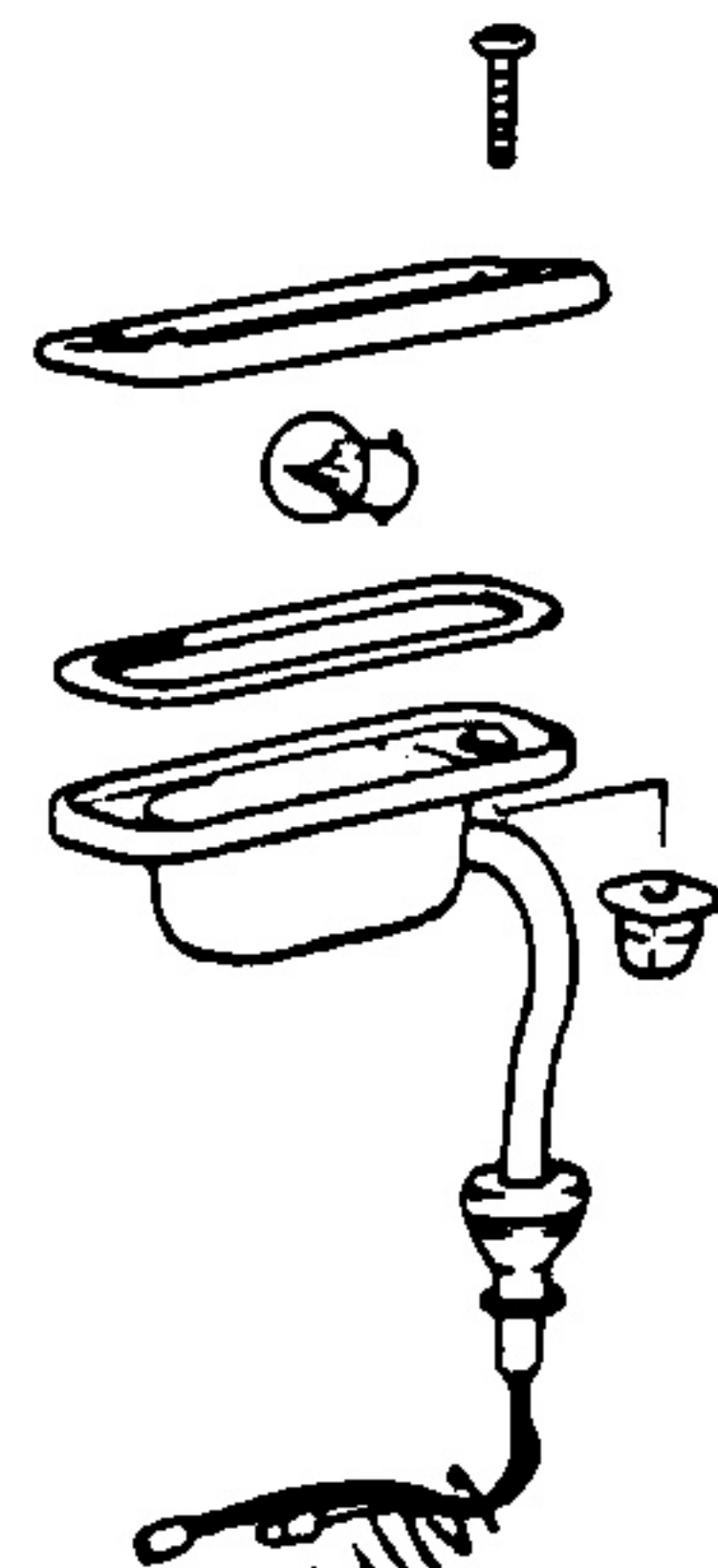
16U0340

Top illumination lamp



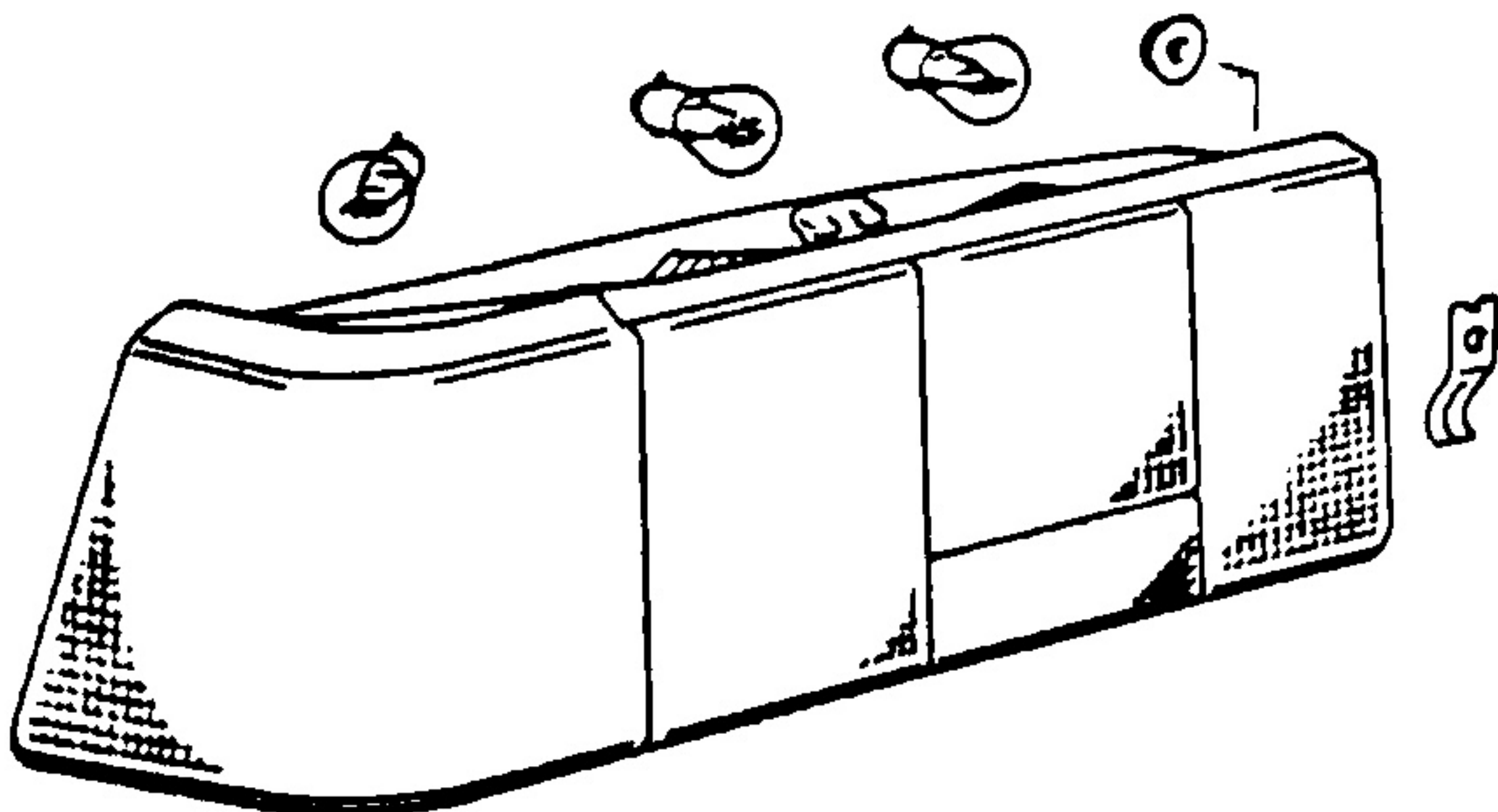
16U0338

License plate lamp

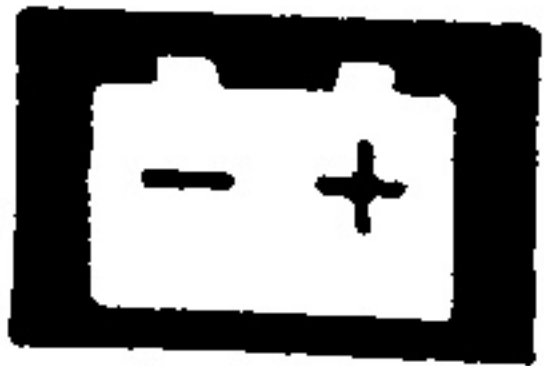


16U0341

Rear combination lamp

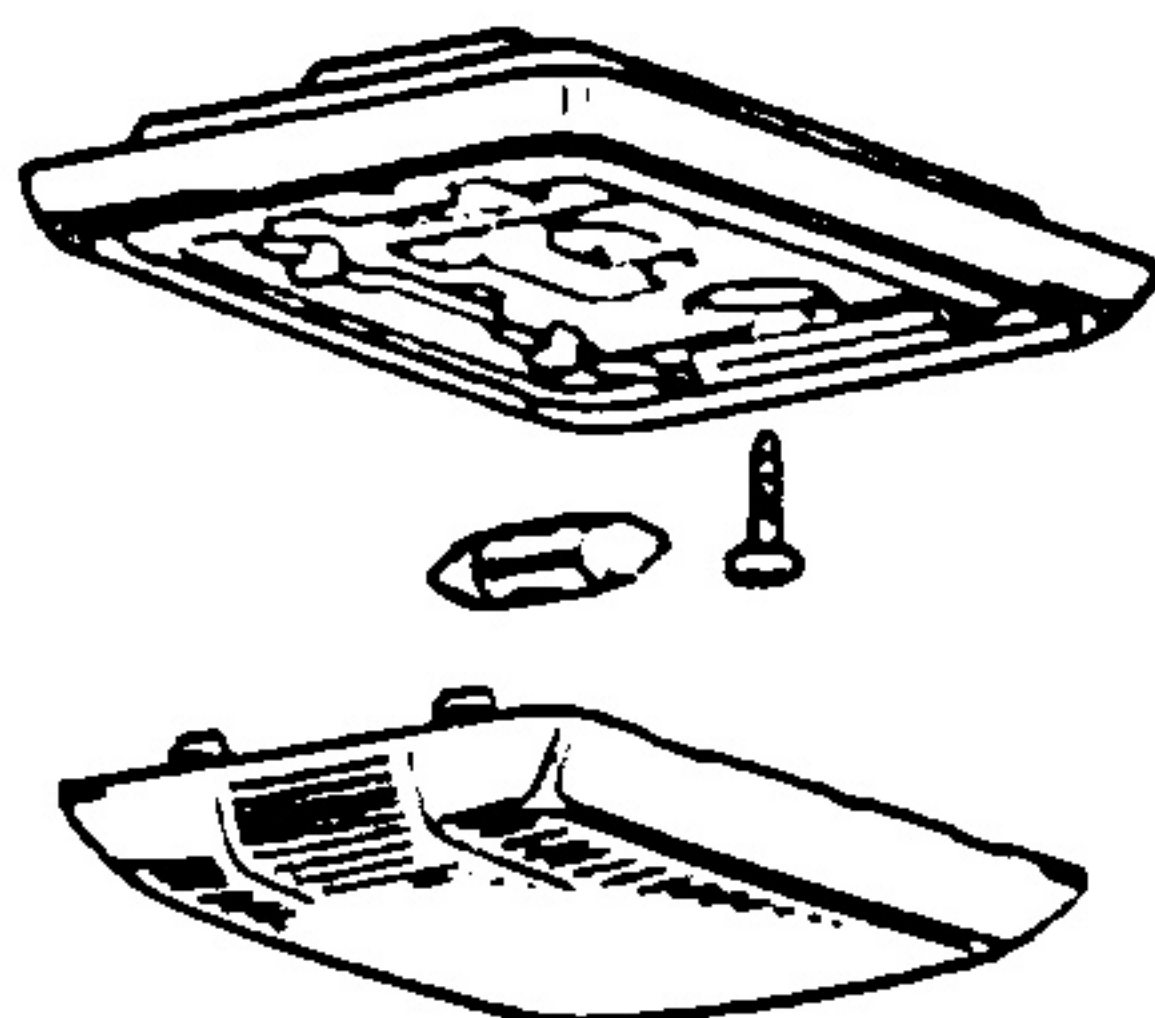


MARIZAM B. ABDOL RAHIM

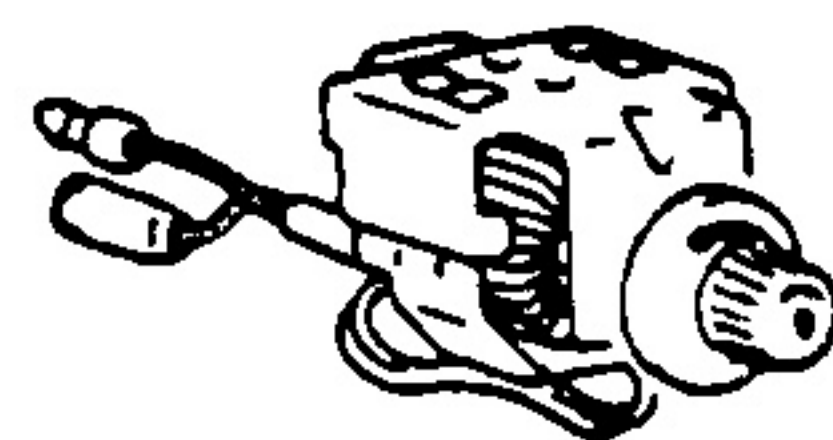


LIGHTING SYSTEM

Room lamp

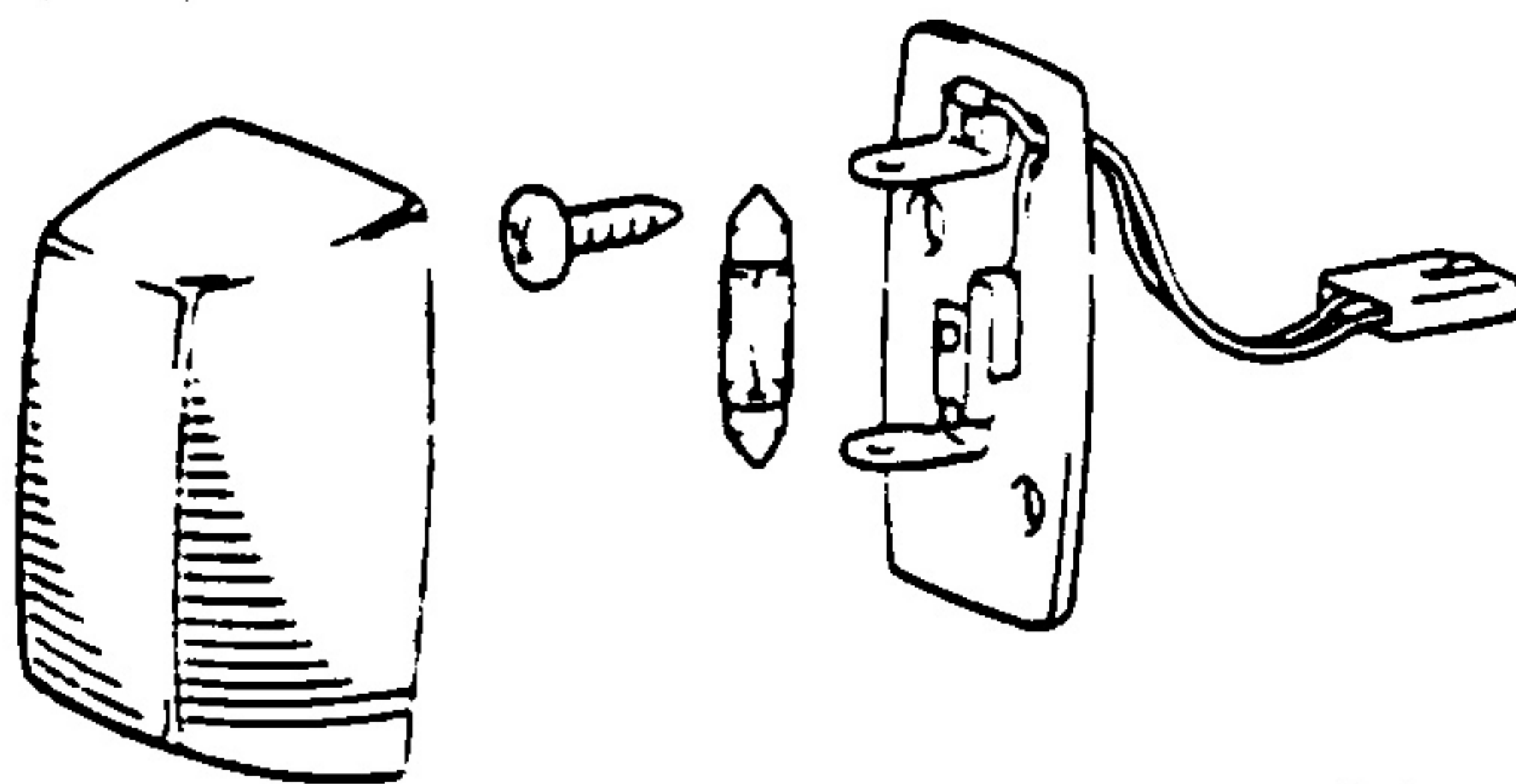


Rheostat



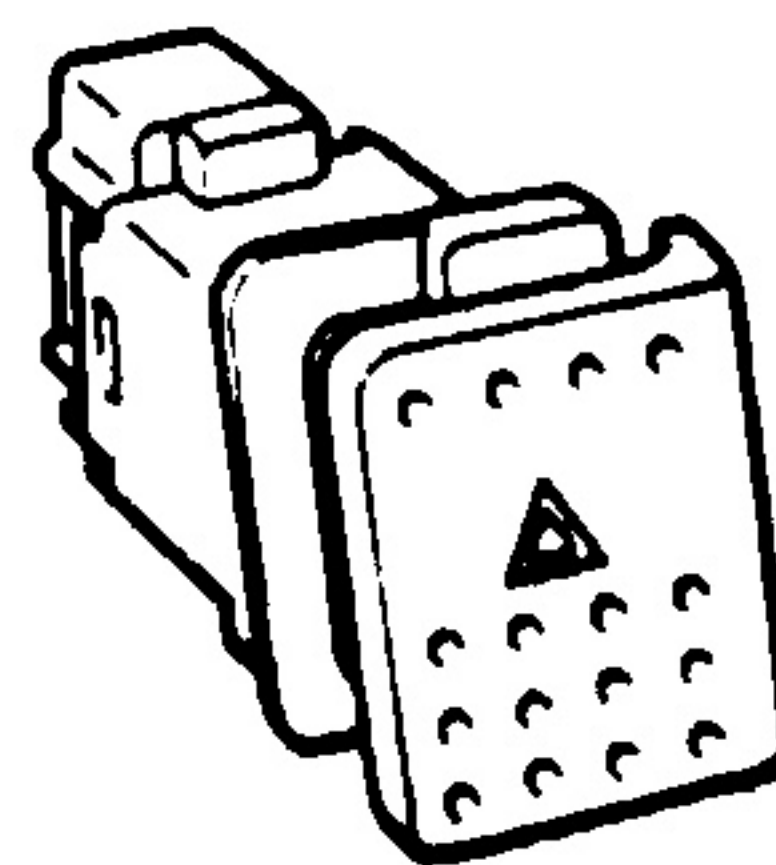
Luggage compartment lamp

16U0337



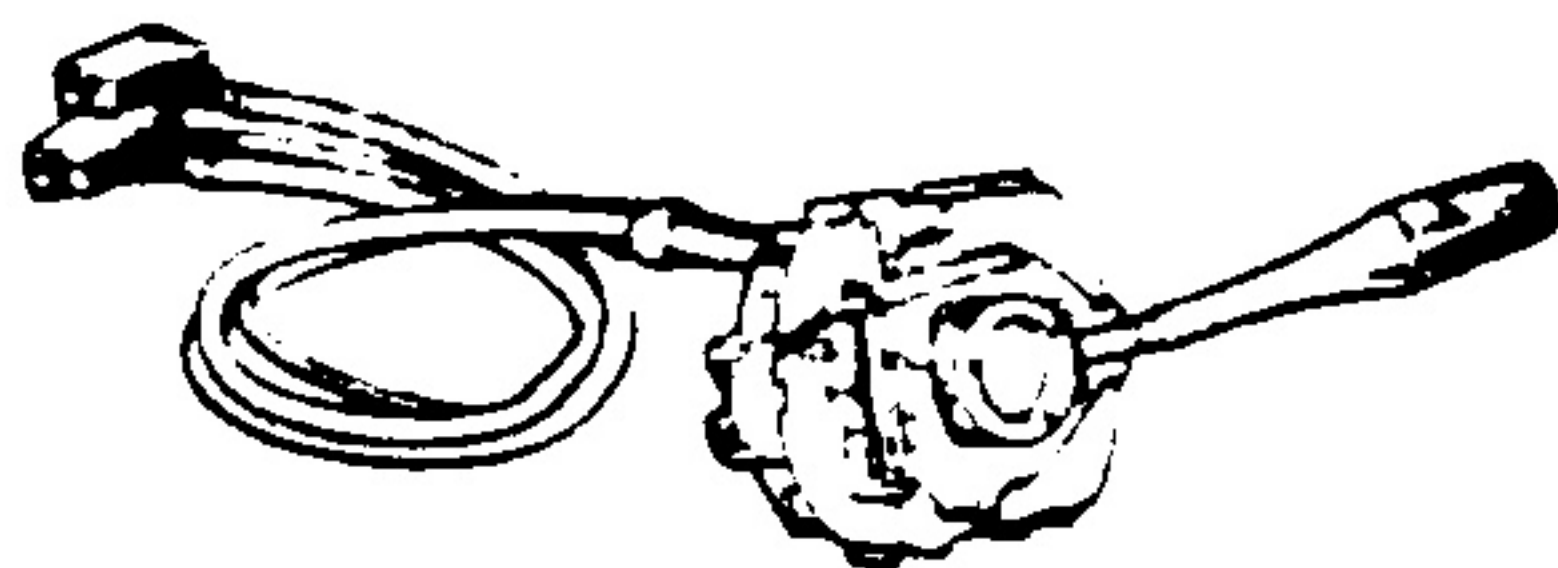
Hazard-warning switch

16U0342



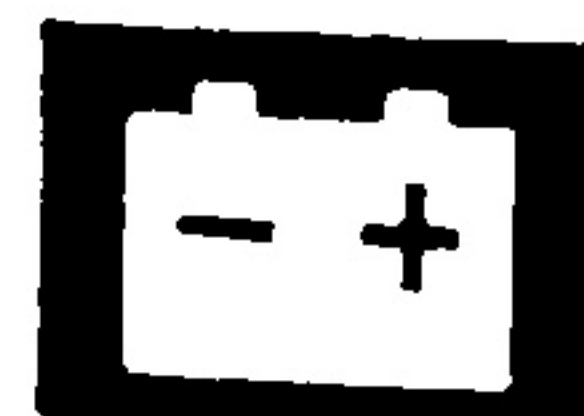
Column switch

16U0307



16U0316

LIGHTING SYSTEM



TROUBLESHOOTING

Check the lamps for illumination to determine the reason for failure and check as applicable for each reason for failure. (For trouble symptom Nos. 3 and 4 refer to the yes/no troubleshooting chart.)

Location	Trouble-symptoms						
	1	2	3	4	5	6	7
Headlamps [Both left and right lamps illuminate in upper and lower beams]	x	○	x	○	△	○	△
Passing lamps [Both left and right lamps illuminate in upper beams when the passing switch is at ON position]	○	x	x	○	○	△	△
Position, tail and license plate lamps [All lamps illuminate with the lighting switch in the first stage]	○	○	○	x	○	○	○
Probable cause							
Headlamp relay	↓	↓	↓	↓	↓	↓	↓
Tail lamp relay	●	-	●	-	-	-	●
Column switch [Dimmer switch segment]	-	-	-	●	-	-	-
[Passing switch segment]	●	-	●	-	●	-	●
[Lighting switch segment]	-	●	-	-	-	●	●
Body earth point [Headlamp support and cowl side]	●	-	●	●	●	-	●
[Luggage compartment]	-	-	-	●	-	-	-
Fuse block [No. 12 fuse]	-	-	-	●	-	-	-
Lamp bulb	-	-	●	●	●	-	●

Remarks

The symbols used in the table indicate the following:

- Normal illumination
- △ Dim illumination
- x No illumination
- Parts requiring check

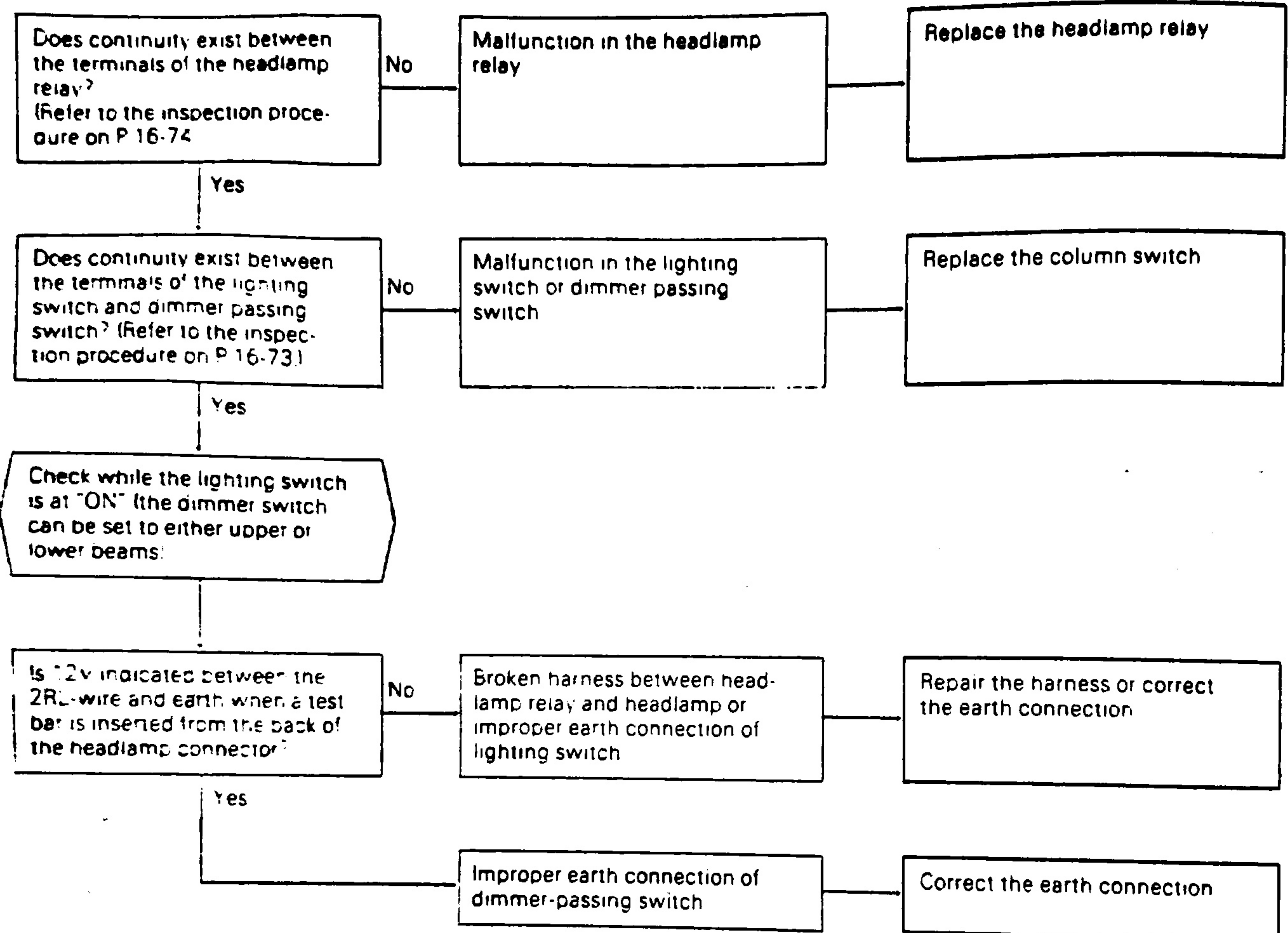
MARIZAM B. ABDOL RAHIM



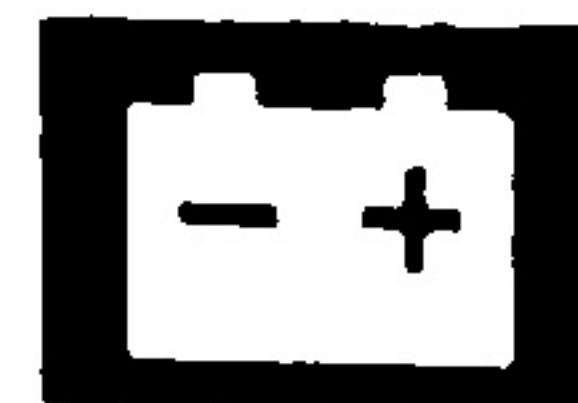
LIGHTING SYSTEM

Trouble Symptom 3

Left and right passing lamps and headlamp upper and lower beams do not illuminate

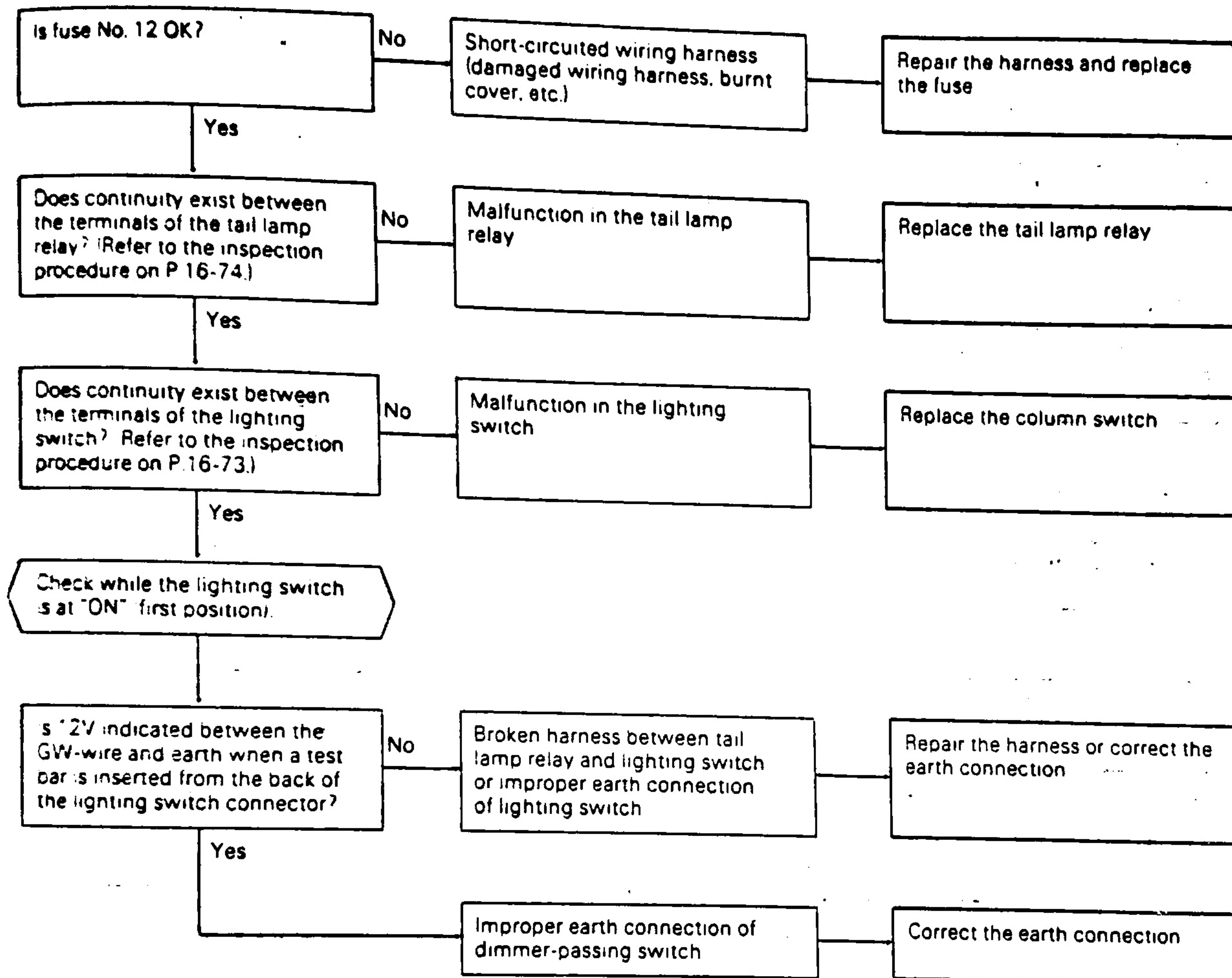


LIGHTING SYSTEM



Trouble Symptom 4

The left and right position, tail, and license plate lamps do not illuminate



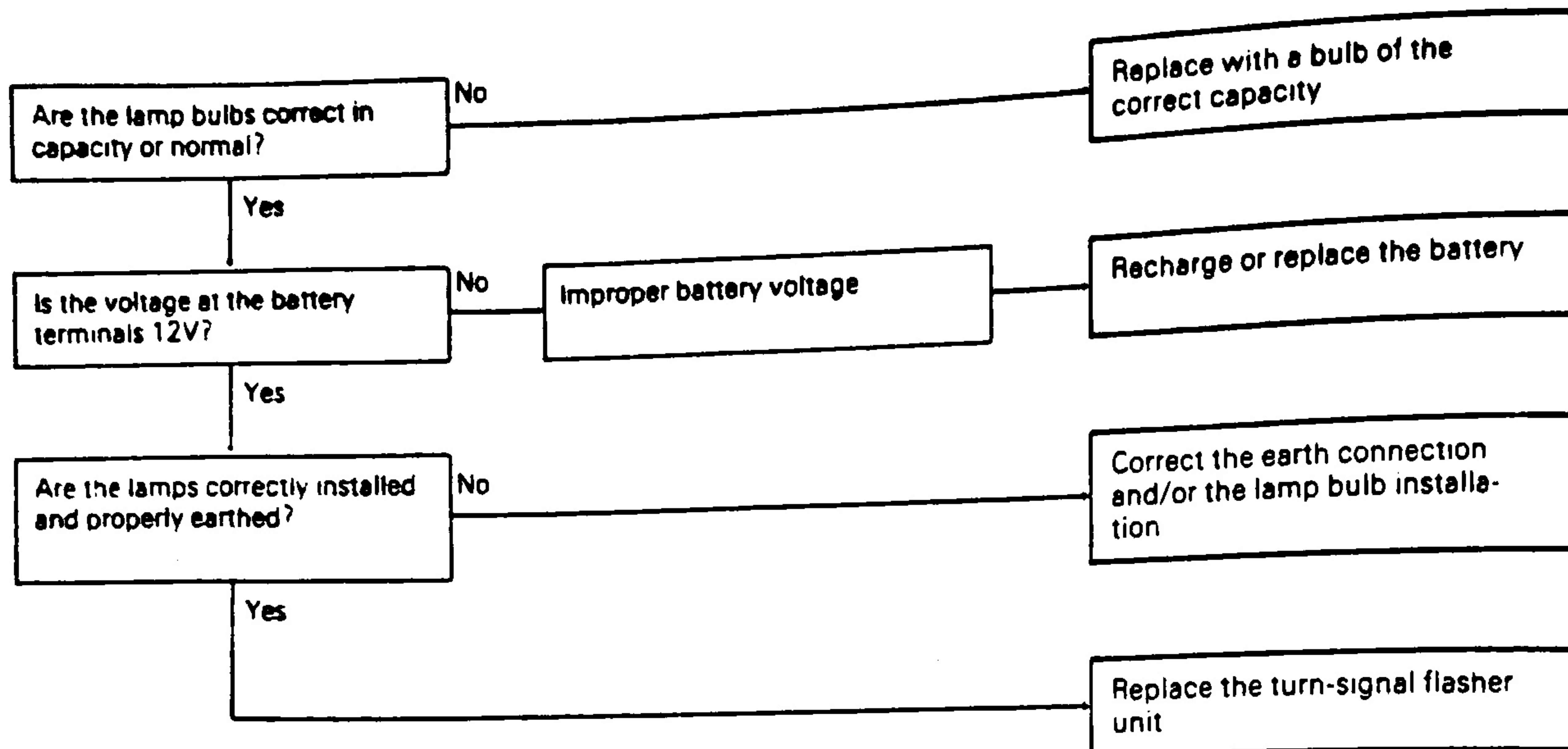
MARZANI B. 130001.24HIM



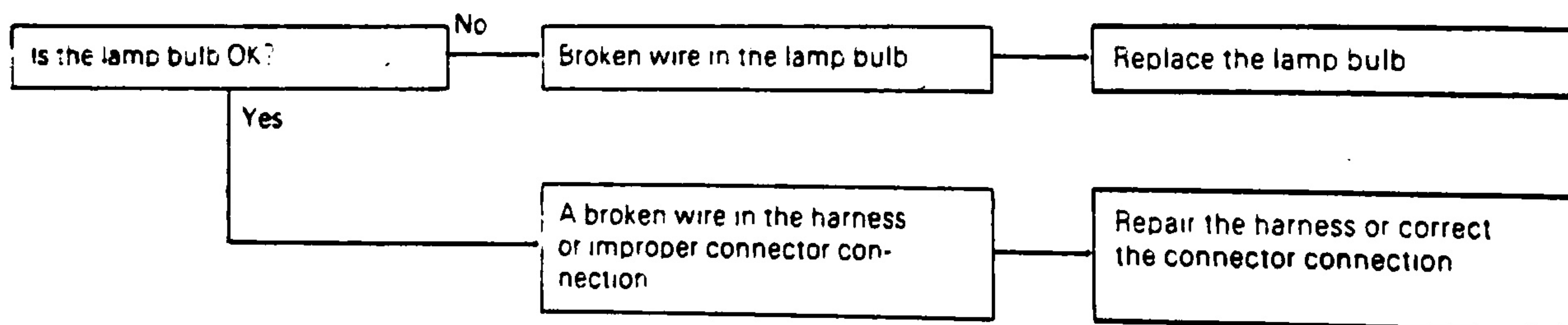
LIGHTING SYSTEM

Turn-signal Lamp

The blinking of the turn-signal lamps is irregular



One of the turn-signal or indicator lamps does not illuminate



LIGHTING SYSTEM



None of the turn-signal and indicator lamps illuminate

Is fuse No. 7 OK?

Yes

No

Short-circuited wiring harness (damaged wiring harness, burnt cover, etc.)

Correct the harness and replace the fuse

Is the hazard switch normal? (Refer to P.16-73)

Yes

No

Malfunction in the hazard switch

Replace the hazard switch

Does normal continuity exist between fuse No. 7 and G-wire of hazard switch connector?

Yes

No

Broken harness between fuse block and hazard switch

Correct the harness

Does normal continuity exist between the socket of flasher unit and the GO-wire of hazard switch connector with the flasher unit disconnected?

Yes

No

Broken harness between hazard switch and flasher unit

Correct the harness

Does normal continuity exist between the socket of flasher unit and the GR-wire of column switch connector?

Yes

No

Broken harness between flasher unit and column switch

Correct the harness

Does normal continuity exist between the GR-wire and GL-wire of column switch connector and between the GR-wire and the GY-wire?

Yes

No

Improper column switch contacts

Correct or replace the column switch

Malfunction in the flasher unit

Replace the flasher unit

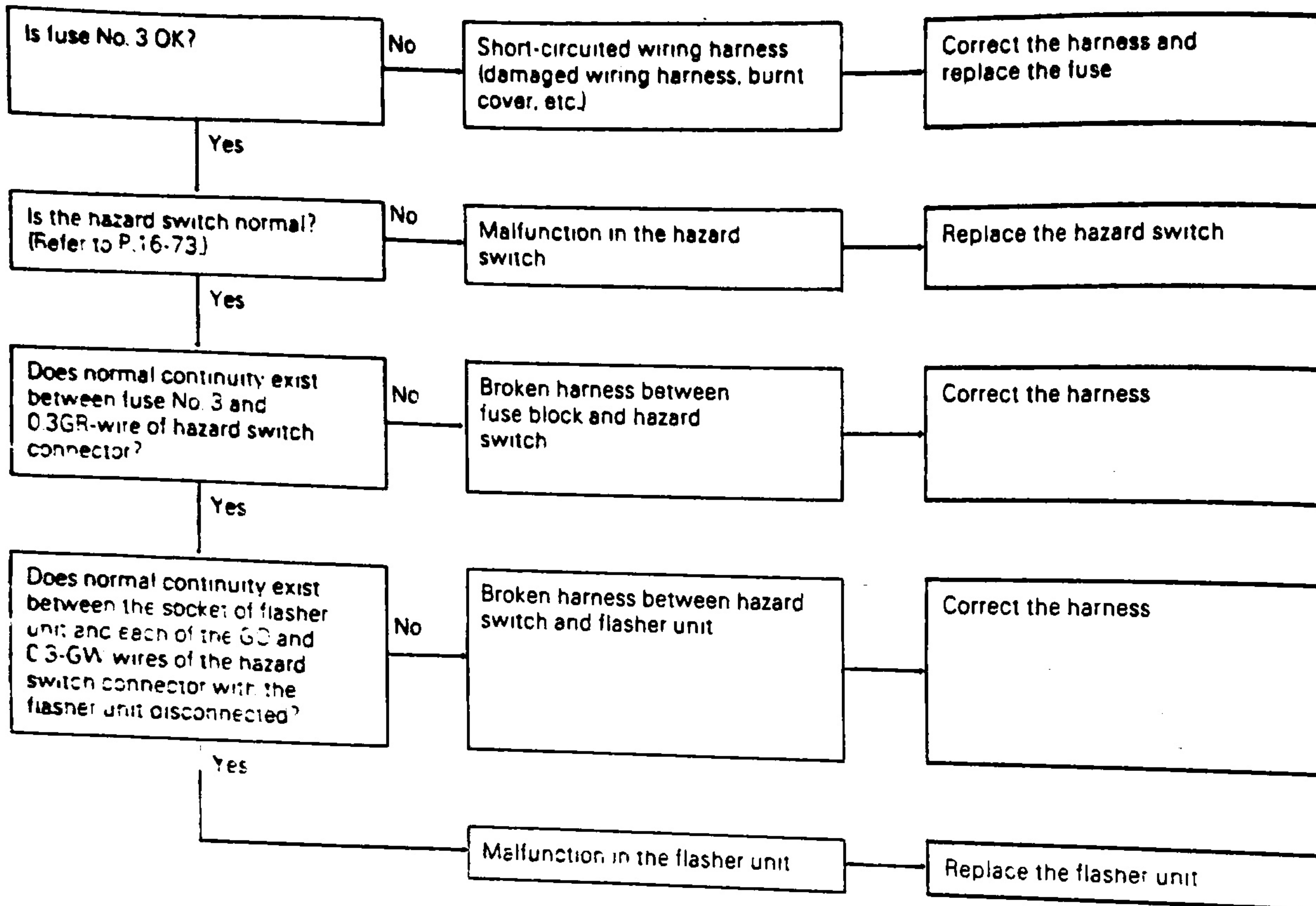
MARIZAM B. ABDOL RAHIM



LIGHTING SYSTEM

Hazard Lamps

None of the hazard lamps and indicator lamps illuminate.



LIGHTING SYSTEM



HEADLAMPS

Aiming

The headlamps should be aimed with the proper beam-setting equipment, and in accordance with the equipment manufacturer's instructions.

NOTE

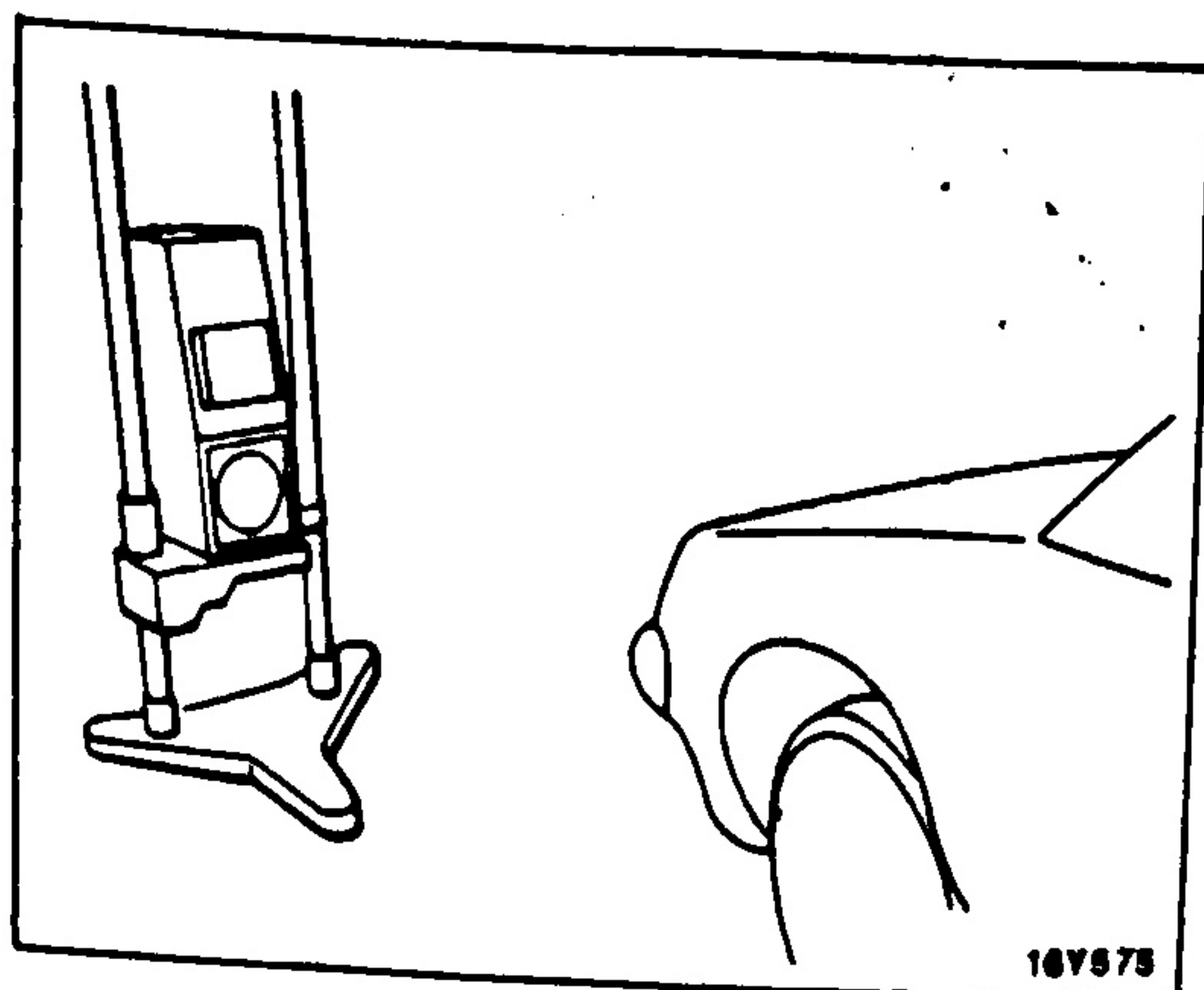
If there are any regulations pertinent to the aiming of headlamps in the area where the vehicle is to be used, adjust so as to meet those requirements.

Alternately turn the adjusting bolts to adjust the headlamp aiming.

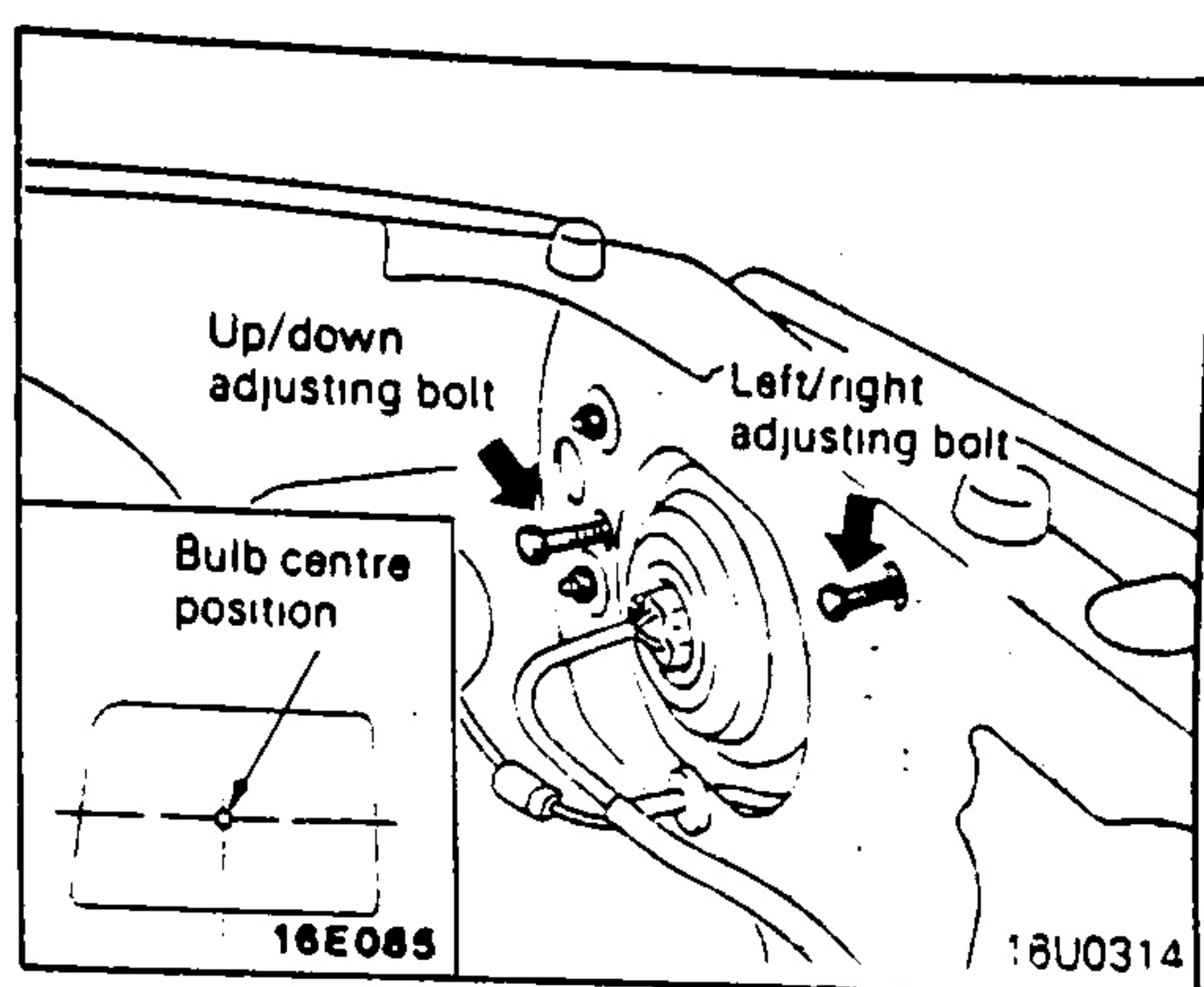
If beam-setting equipment is not available, proceed as follows:

- (1) Inflate the tires to the specified pressures and remove the load from the vehicle (except a driver).
- (2) Draw vertical lines (vertical lines passing through respective headlamp centres) and a horizontal line (horizontal line passing through centre of headlamps) on the screen.
- (3) With the engine running at 2,000 r/min, aim the headlamps.

Make the vertical and horizontal adjustment of the upper beam to the standard values by using the adjusting bolts.



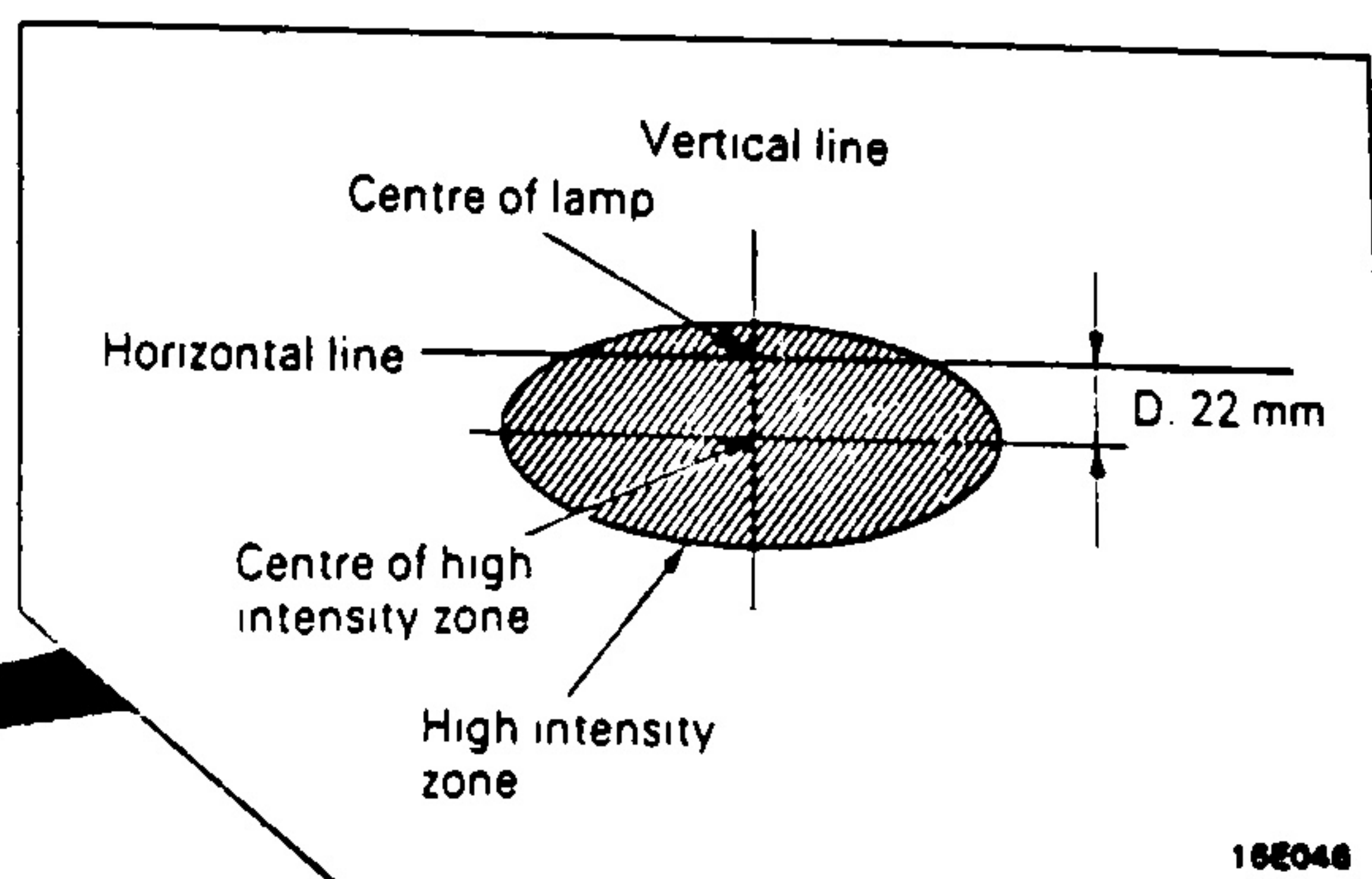
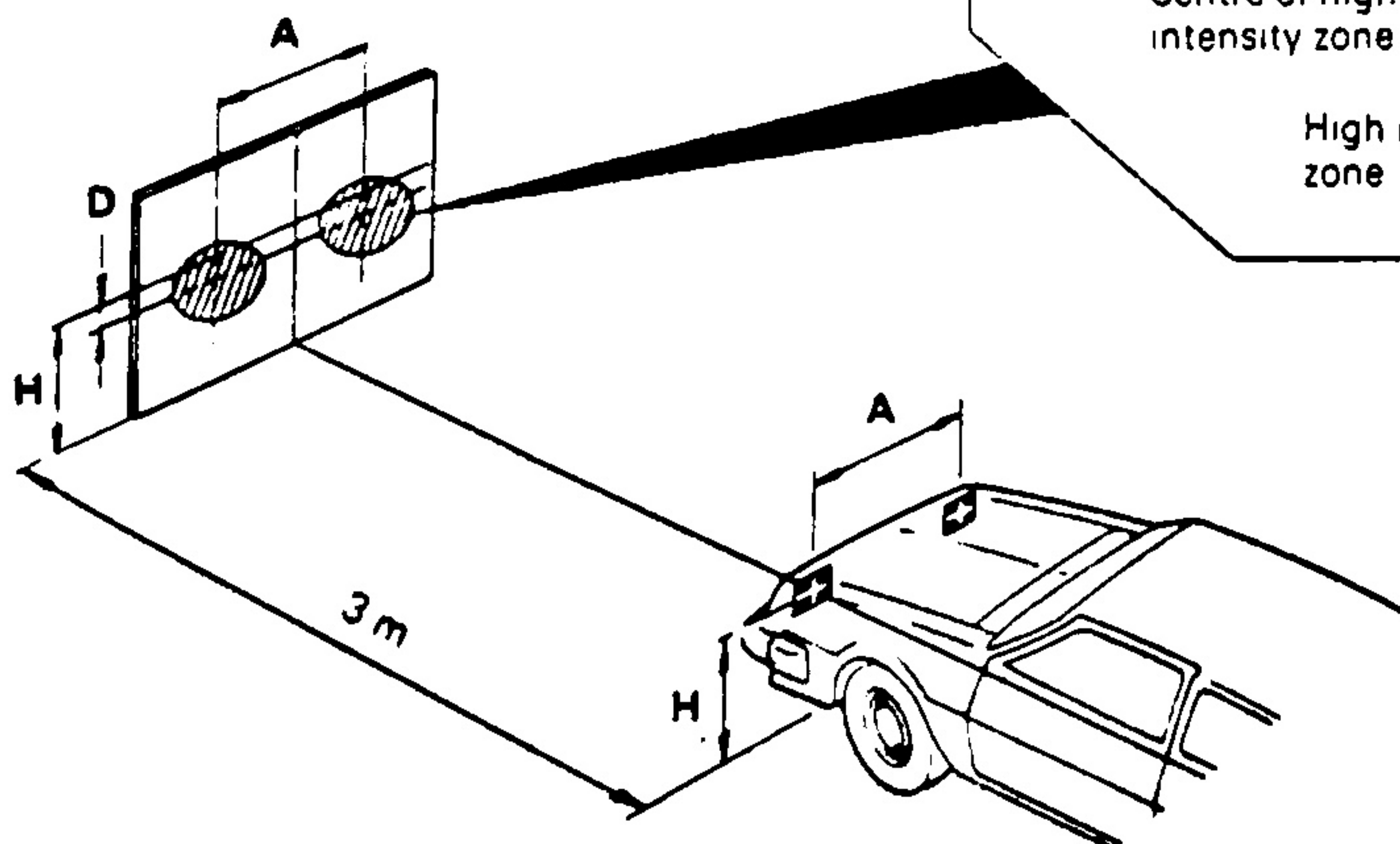
16V575



16E085

16U0314

[Upper beam adjustment]



16E048

MARIZAM B. ABDOL RAHM

16F589



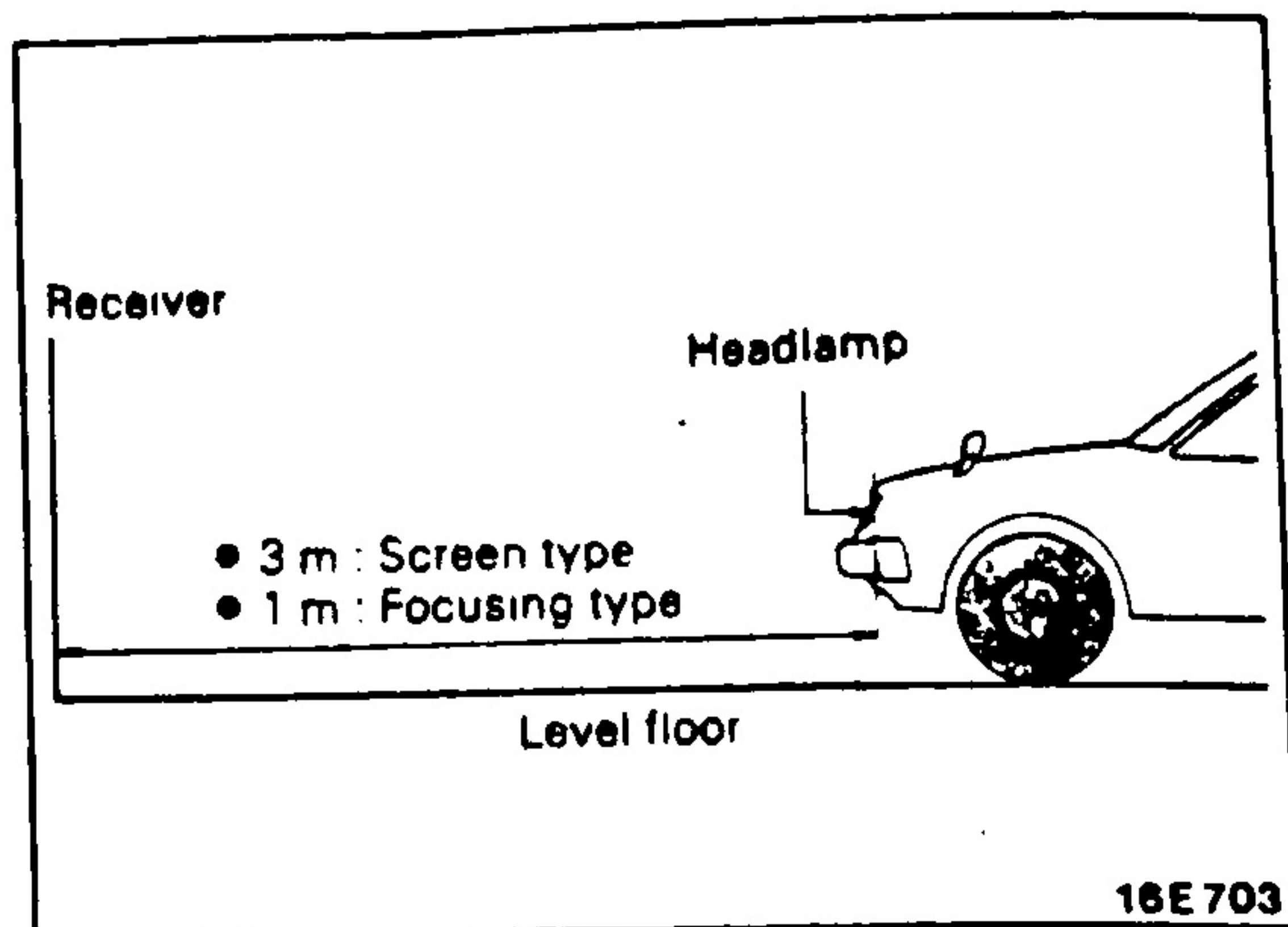
LIGHTING SYSTEM

Intensity Measurement

The headlamp intensity should be tested with the engine running at 2,000 r/min and while the battery is charging.

For a screen-type test, place the screen 3 m away from the headlamps.

For a focusing type test, the distance from the headlamps to the light receiving area should be 1 m.



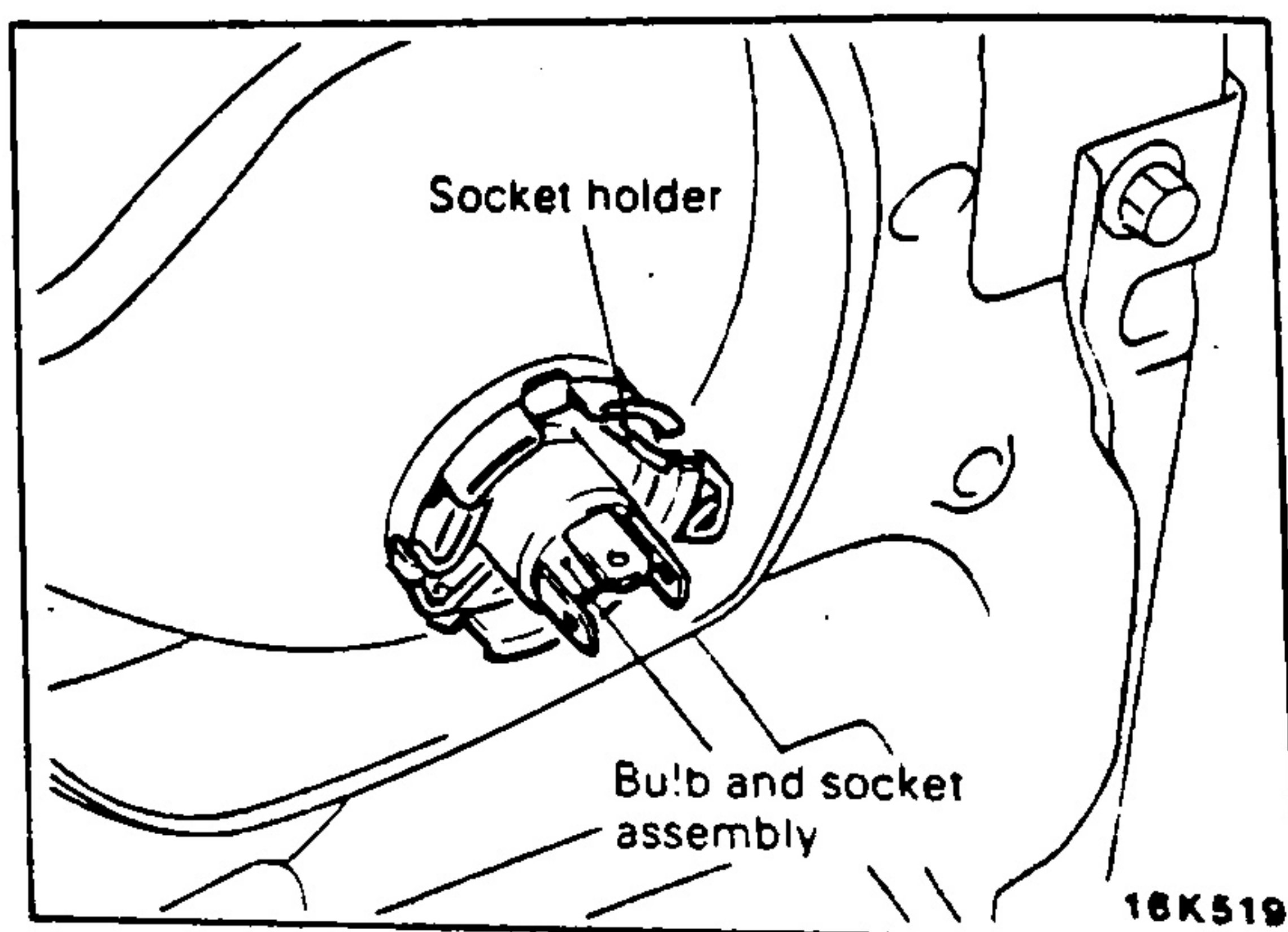
Replacement of Replaceable Bulb

- (1) Disconnect the negative (—) cable from the battery.
- (2) Disconnect the headlamp harness connector.
- (3) Detach the socket cover from the back of the headlamp.
- (4) Detach the socket holder, and then take out the bulb and socket assembly.

Caution

Never touch the glass surface of the headlamp bulb with a bare hand or with dirty gloves.

If the glass surface is dirty, be sure to clean it with alcohol, paint thinner, etc., and install it after drying it thoroughly.



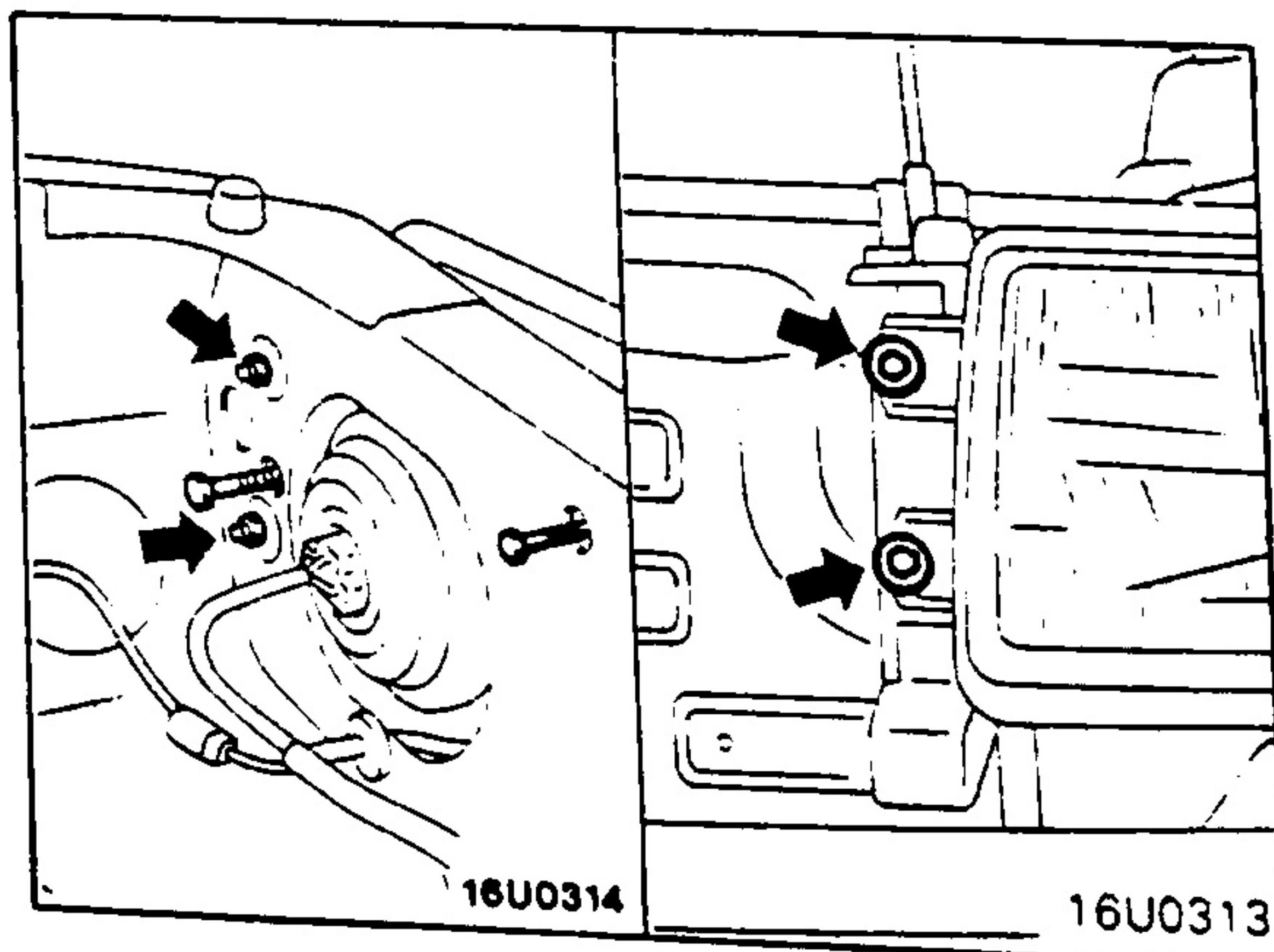
Removal

Remove the radiator grille. (Refer to GROUP 18.)

Remove the position lamp.

Remove the headlamp unit attaching nuts and bolts and connector from inside the engine compartment.

Remove the headlamp unit.



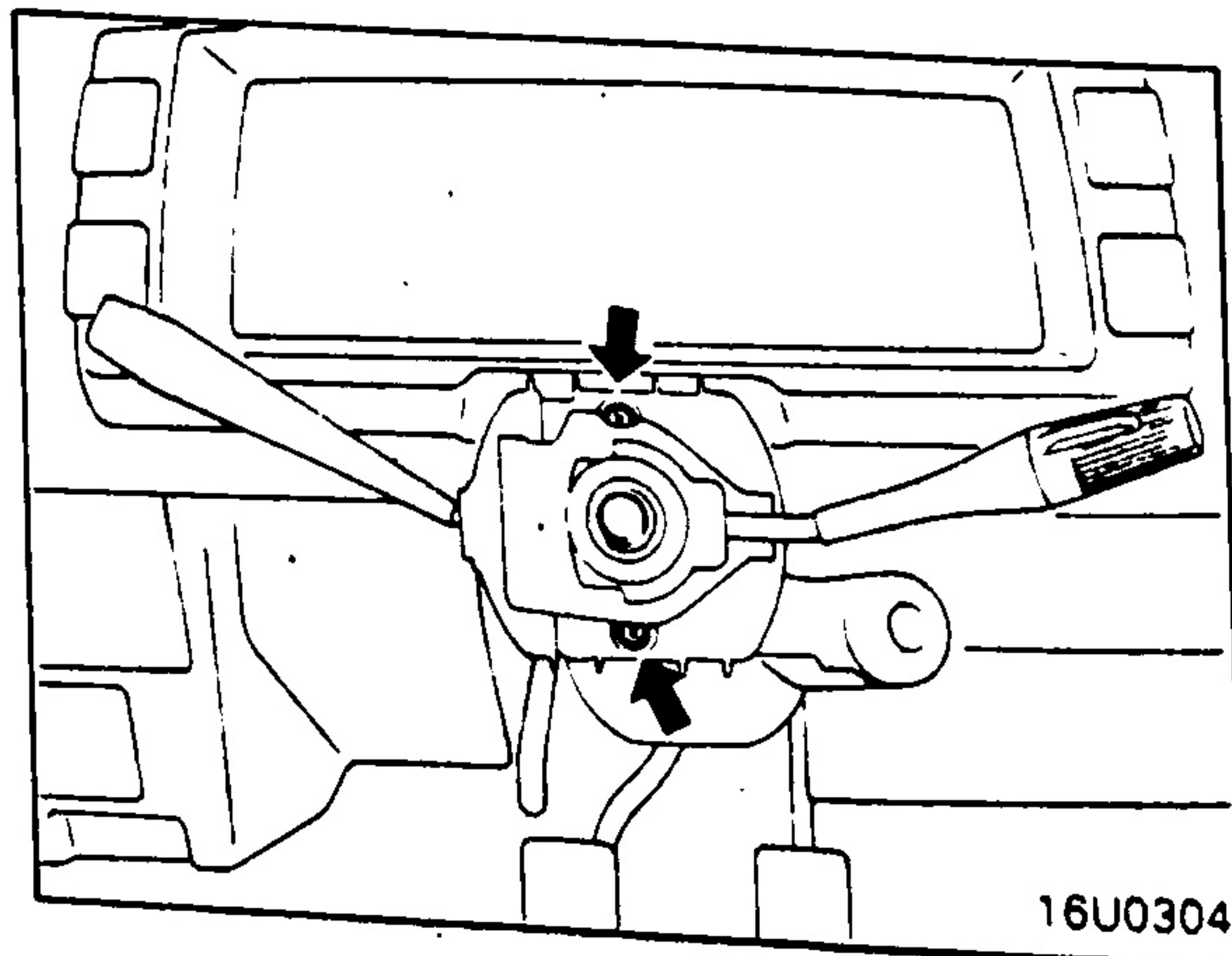
COLUMN SWITCH

Removal

Remove the steering wheel. (Refer to GROUP 13A.)

Remove the column cover. (Refer to GROUP 19.)

Remove the connector of the column switch and remove the column switch attaching screws.



LIGHTING SYSTEM



Inspection

Operate the switch, and check the continuity between the terminals.

LIGHTING SWITCH

Terminal	1	2	8
Switch position			
OFF			
1	○		○
2	○	○	○

TURN-SIGNAL SWITCH

Terminal	3	5	4
Switch position			
L	○		○
N			
R	○	○	

DIMMER-PASSING SWITCH

Terminal	9	7	6	2
Switch position				
D1	○	○		
D2	○		○	
P	○		○	○

Installation

With the canceling cam projection directed to the right, install the steering wheel.

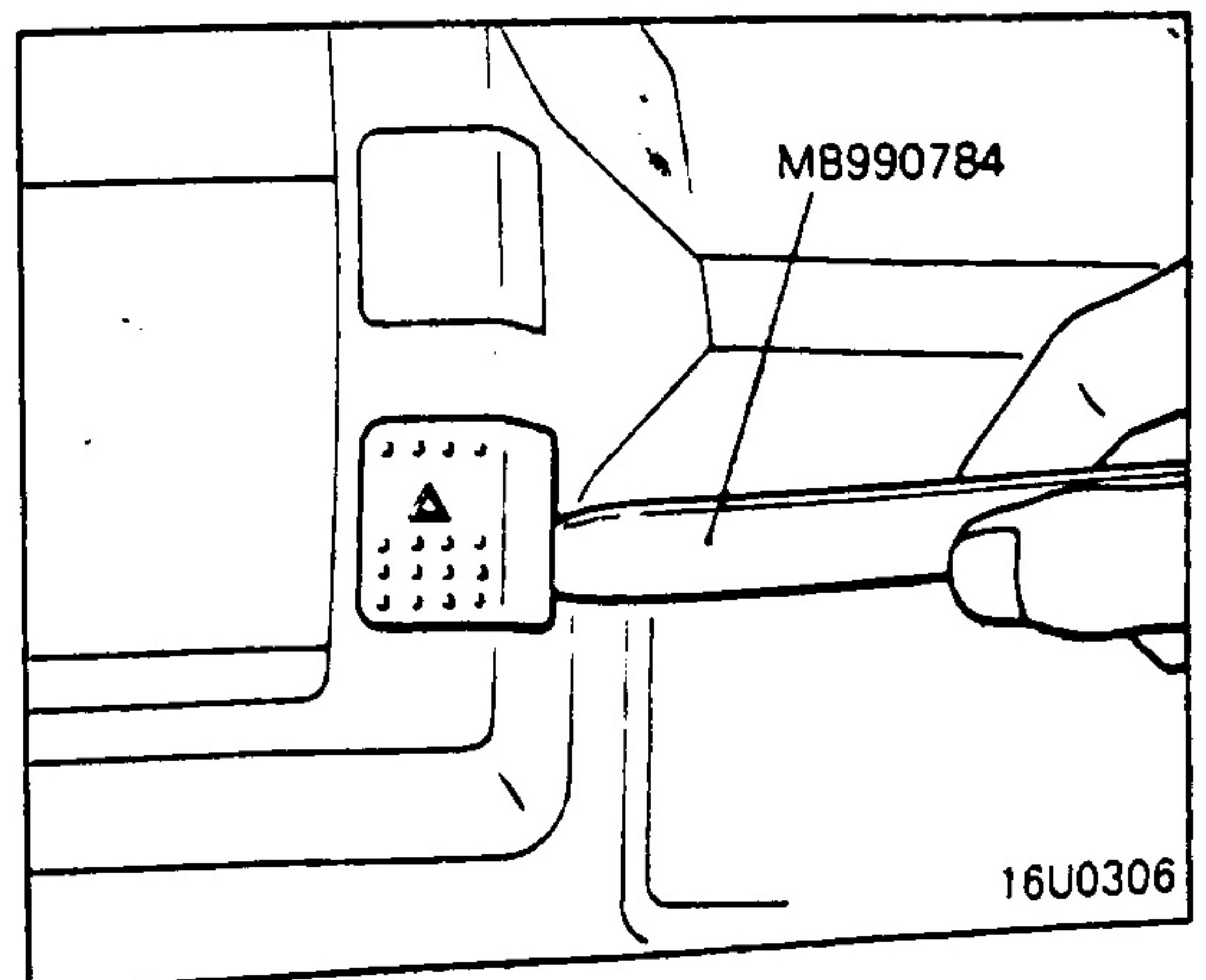
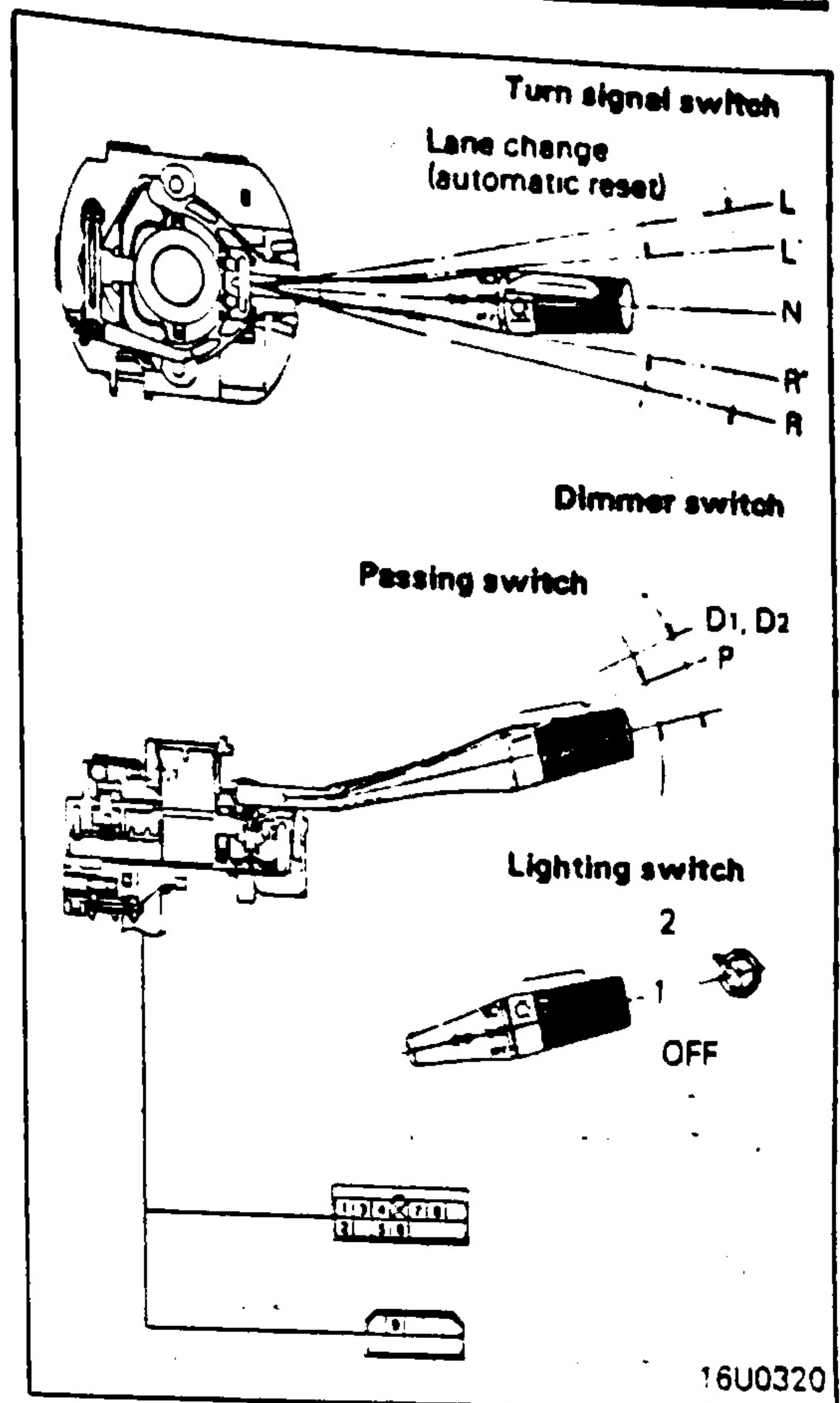
HAZARD-WARNING SWITCH

Removal

Use a special tool to remove the switch.

Caution

Use care not to damage the meter hood.



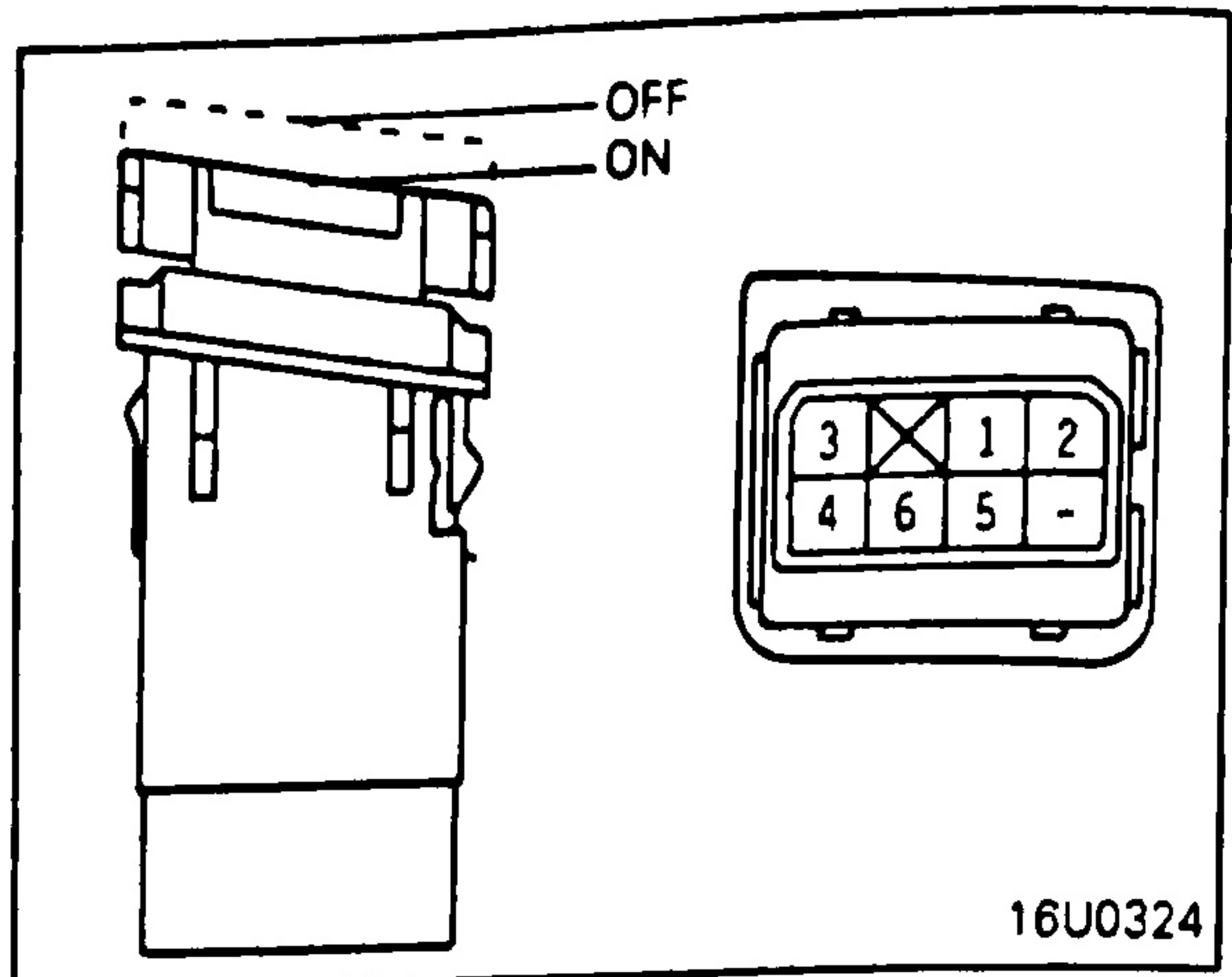


LIGHTING SYSTEM

Inspection

Operate the switch, and check the continuity between the terminals.

Terminal	1	2	3	4	5	6
Switch position						
OFF		○	○			
ON	○		○	○	○	○



HEADLAMP RELAY AND TAIL LAMP RELAY

Inspection

Check for continuity between the terminals while power is being supplied and while it is not.

While power is not supplied:

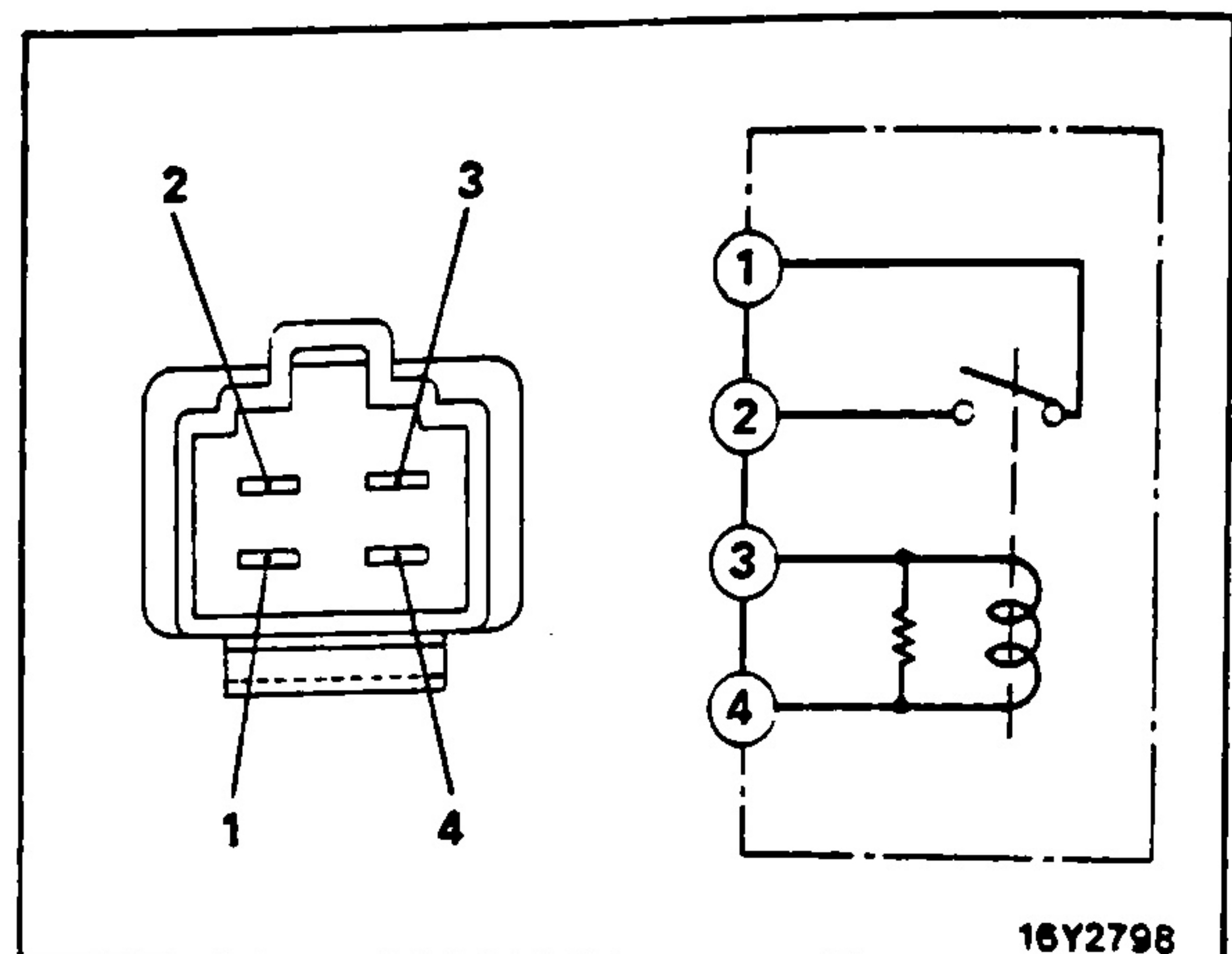
Between terminals 1 – 2:

no continuity

Between terminals 3 – 4: continuity

While power is supplied:

Between terminals 1 – 2: continuity

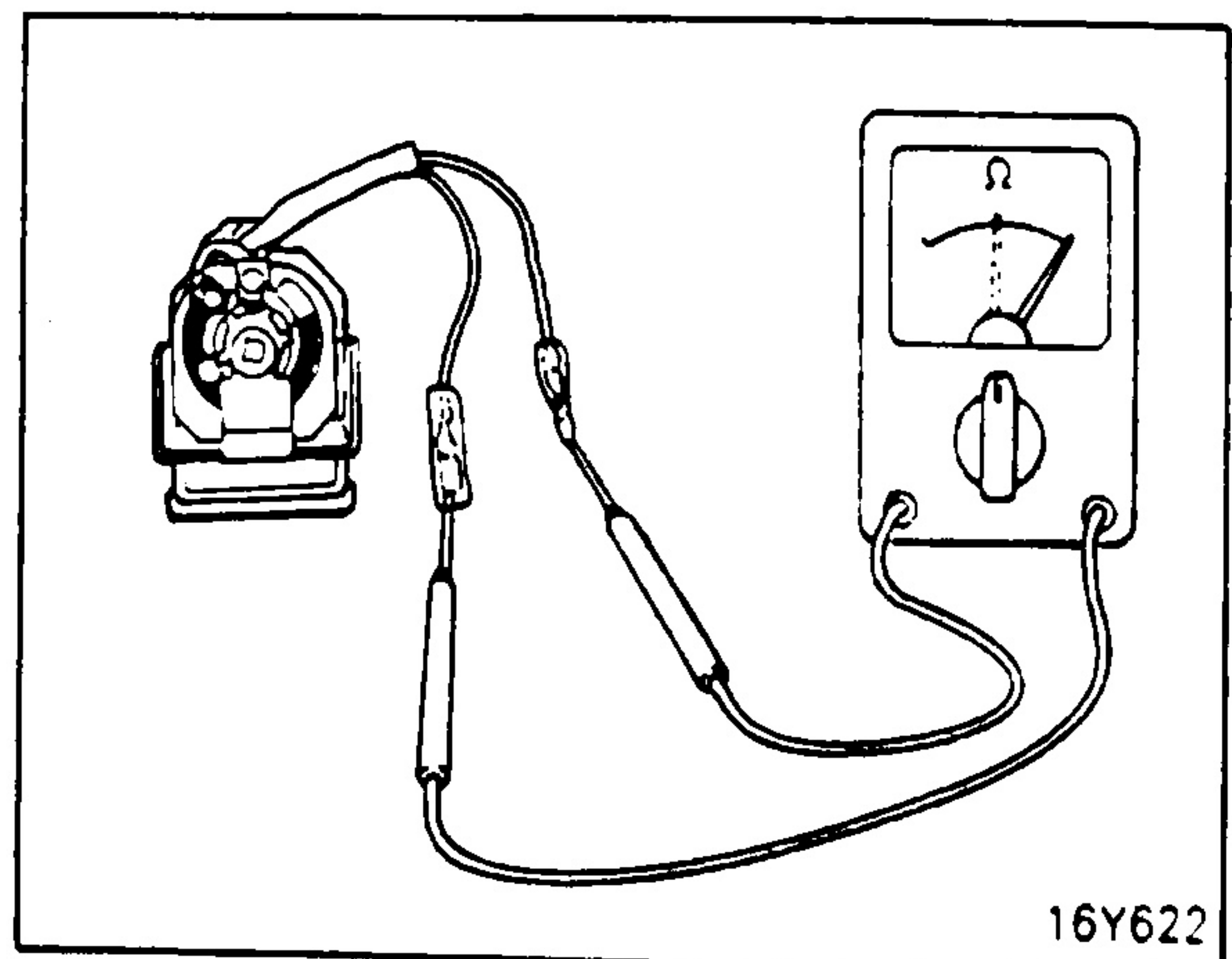


RHEOSTAT

Inspection

With the connector disconnected, measure the continuity between the rheostat terminals with an ohmmeter or a circuit tester.

If the resistance value varies smoothly between 0 and 10 ohms throughout the entire operation range, the rheostat is normal.



WINDSHIELD WIPERS AND WASHER



SERVICE STANDARD

Standard Value

Wiper blade stopping position (distance between blade tip and front deck center garnish)

Driver's side

Front passenger's side

mm

15

20

TIGHTENING TORQUE

Wiper pivot shaft installing nut

Wiper arm locking nut

kgm

0.6 - 0.8

1.0 - 1.6

SPECIFICATIONS

Wiper motor

Type

Speed control system

Braking system

r/min at load of 0.1 kgm r/min

Low speed

High speed

Nominal torque kgm

Permanent-magnet type

Third brush system

Dynamic brake system

44 - 52

63 - 77

1.8

Wiper blade

Wiping angle

Driver's side

Passenger's side

Wiper blade length mm

Driver's side

Passenger's side

$79.5^\circ \pm 2^\circ$

$93^\circ \pm 2^\circ$

480

450

Window washer motor and pump

Motor type

Pump type

Power consumption A

Time of continuous use sec.

With washer fluid

Empty operation

Nozzle jet pressure kg/cm²

Tank capacity lit.

Direct current ferrite magnet type

Centrifugal type

3.5 or less

Max. 60

Max. 20

0.8 or more

2.3 or more

Wiper and washer switch

Rated load W

Wiper switch

Washer switch

Voltage drop (at 12V and the rated load) V

60

40

0.2 or less

Intermittent wiper control unit

Intermittent cycle sec.

Delay time during washer operation sec.

Operating load W

3 - 8

0.4 - 1.2

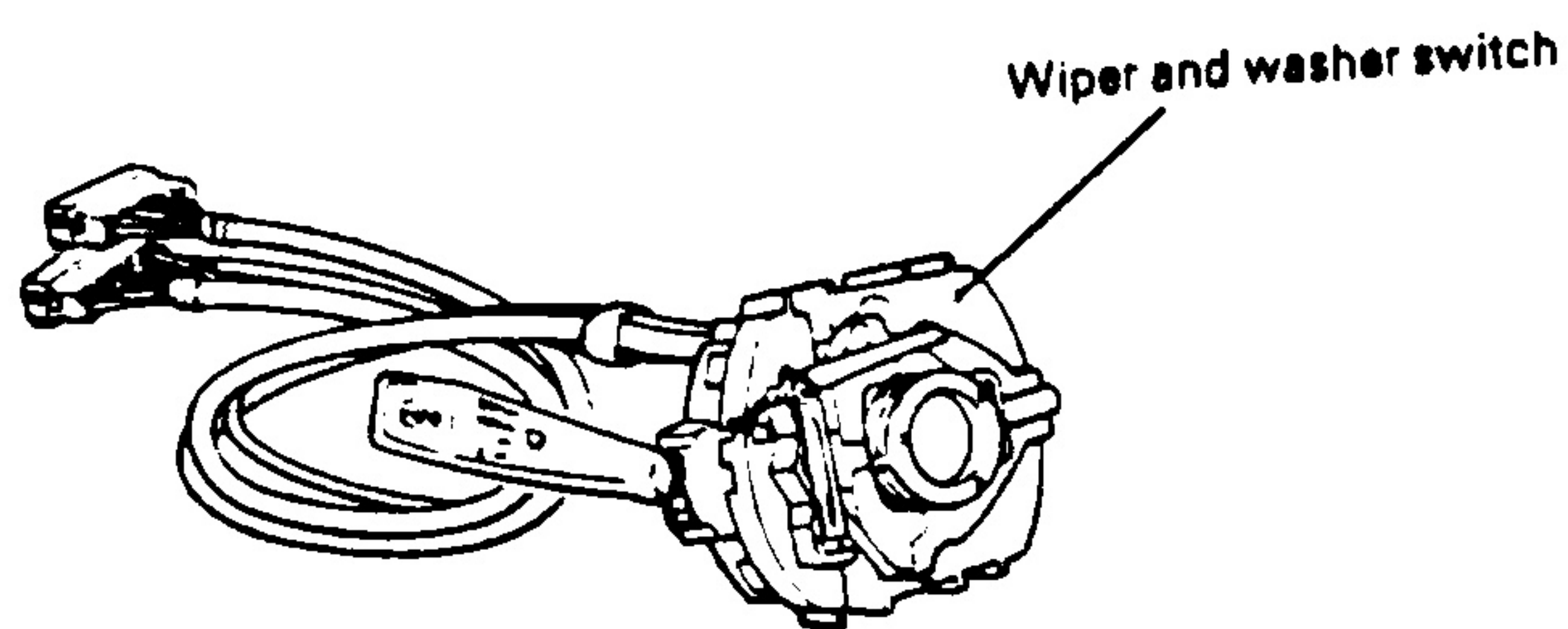
60

MARIZMA 4800 24HIM

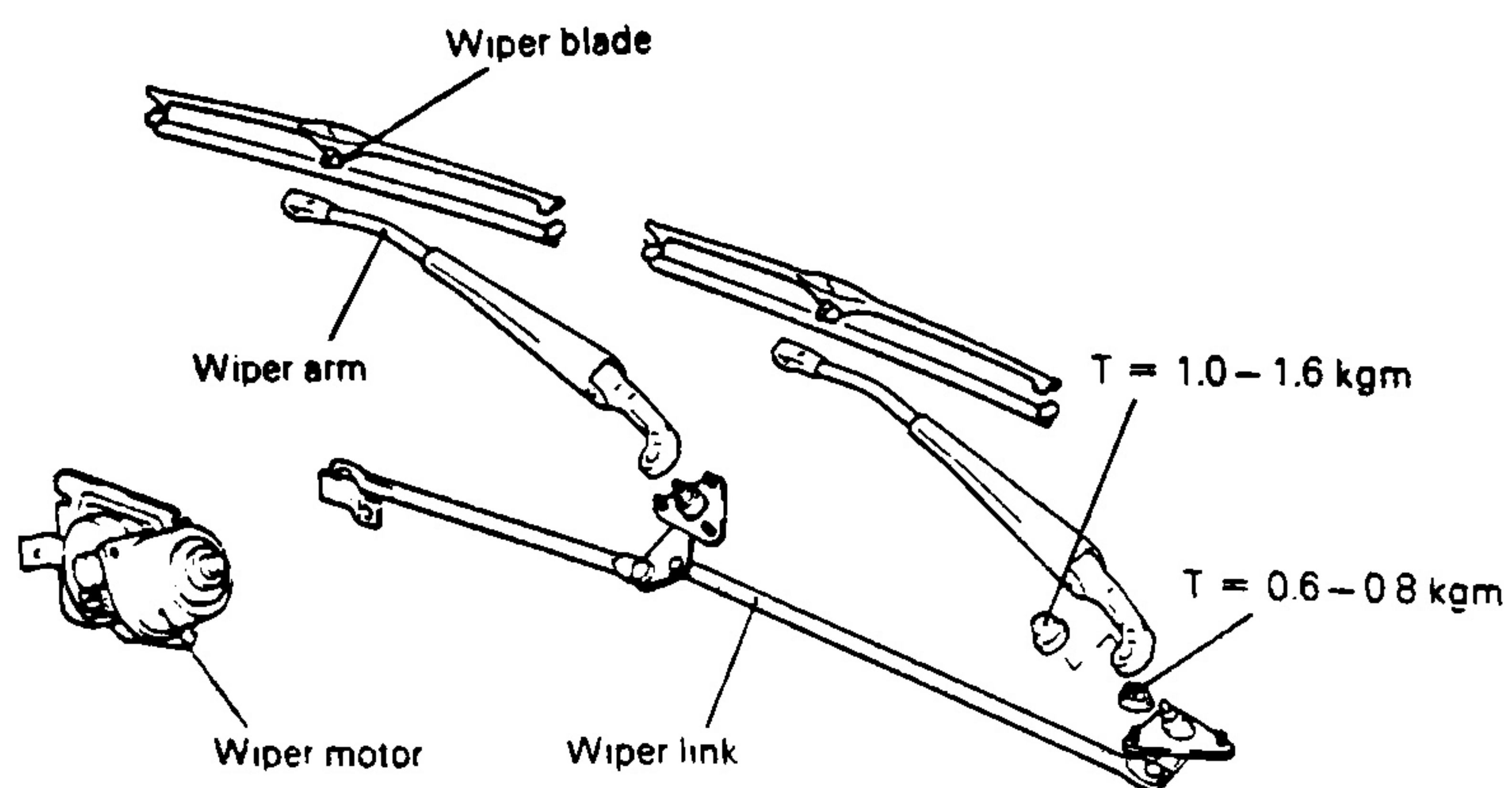


WINDSHIELD WIPERS AND WASHER

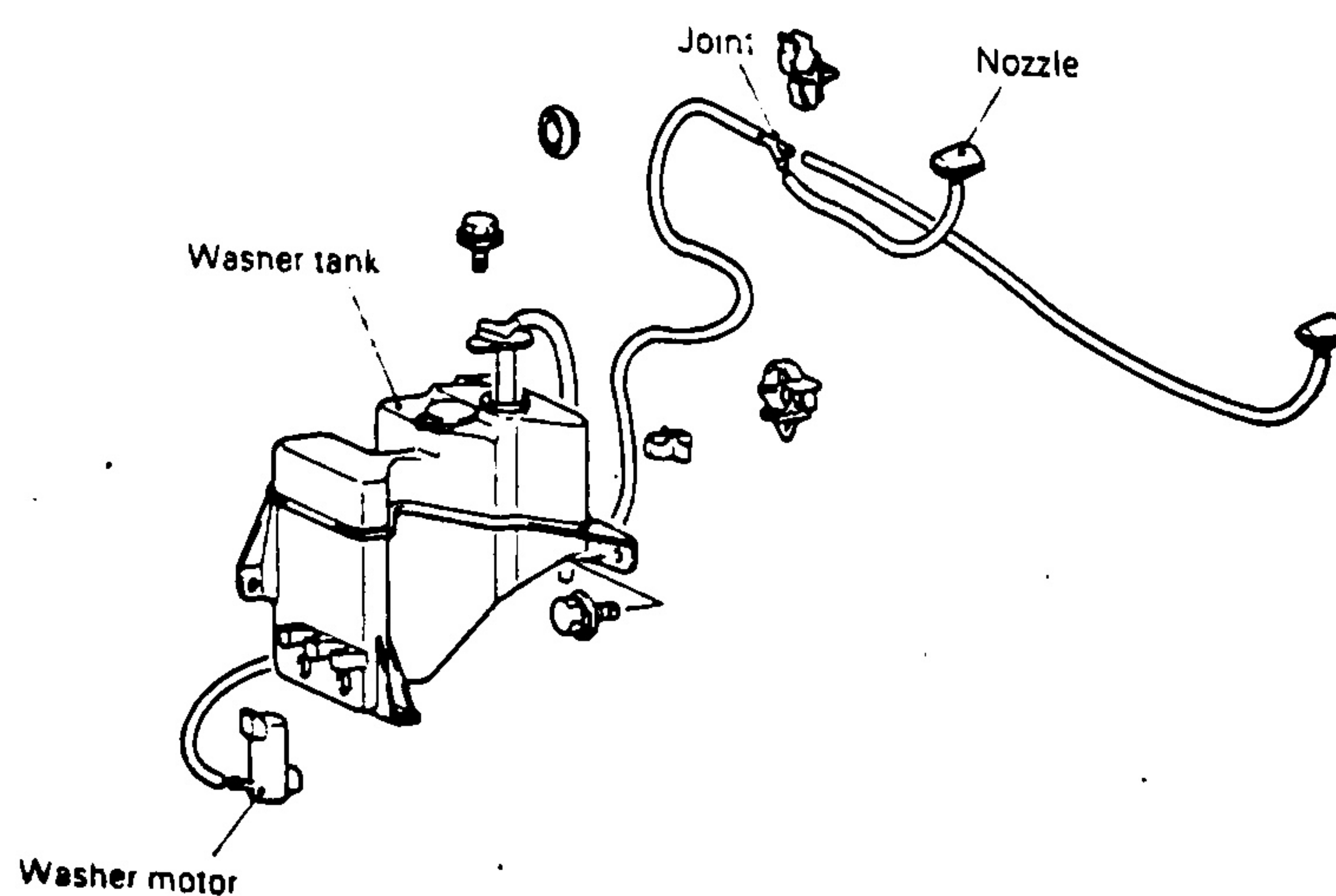
COMPONENTS



16U0316



16U0189



16U0160

Remarks For the installed position of intermittent wiper relay, refer to P 16-18