1 9 9 6

SERVICE MANUAL

TALON

BACKUP

ELECTRICAL

Volume — 2

Service Manual

TALON

1996

Volume-2
Electrical

FOREWORD

This Service Manual has been prepared with the latest service information available at the time of publication. It is subdivided into various group categories and each section contains diagnostic, disassembly, repair, and installation procedures along with complete specifications and tightening references. Use of this manual will aid in properly performing any servicing necessary to maintain or restore the high levels of performance and reliability designed into these outstanding vehicles.

CHRYSLER CORPORATION

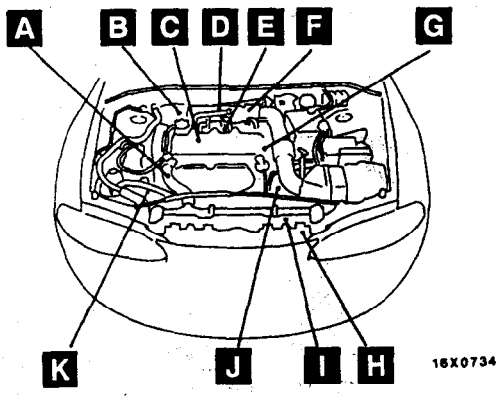
GROUP / SECTION INDEX

NOTE:
For Engine, Chassis & Body, refer to Volume-1 "Engine Chassis & Body".

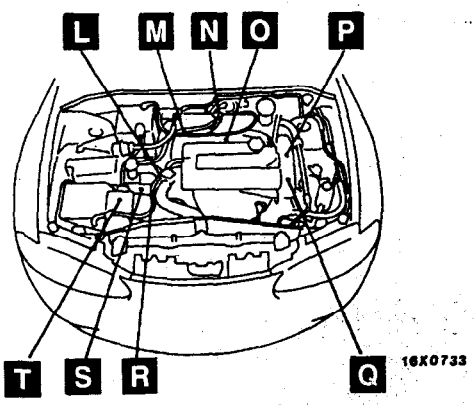
SENSOR LOCATION

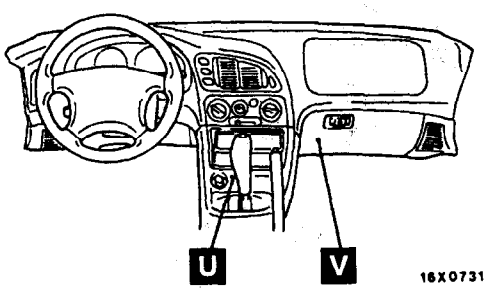
Name		Symbol	Name		Symbol
ABS wheel-speed sensor (front)		W	Intake air temperature sensor <Non-turbo>		D
ABS wheel-speed sensor (rear)		Z	Knock sensor	Non-turbo	E
A/T fluid temperature sensor <Turbo>		S		Turbo	O
Camshaft position sensor	Non-turbo	G	MAP sensor <Non-turbo>		B
	Turbo	P	Manifold differential pressure sensor <Turbo>		N
Crankshaft position sensor	Non-turbo	C	Output speed sensor <Non-turbo>		I
	Turbo	Q	Revolution pick-up sensor <Non-turbo (A/C)>		K
Engine coolant temperature sensor	Non-turbo	A	Throttle position sensor	Non-turbo	F
	Turbo	L		Turbo	M
Fin thermo sensor		V	Transaxle range switch (with built-in transaxle temperature sensor) <Non-turbo>		H
G sensor <ABS (AWD)>		U	Vehicle speed sensor	Non-turbo -M/T	J
Heated oxygen sensor (front)		X		Turbo	R
Heated oxygen sensor (rear)		Y	Volume air flow sensor <Turbo>		T
Input speed sensor <Non-turbo>					

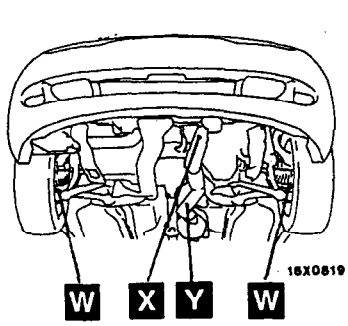
<Non-turbo>

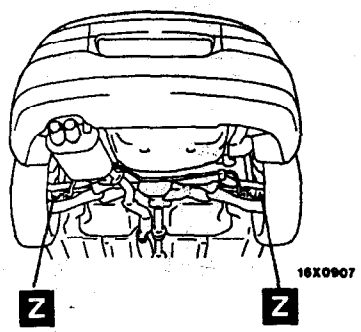


<Turbo>



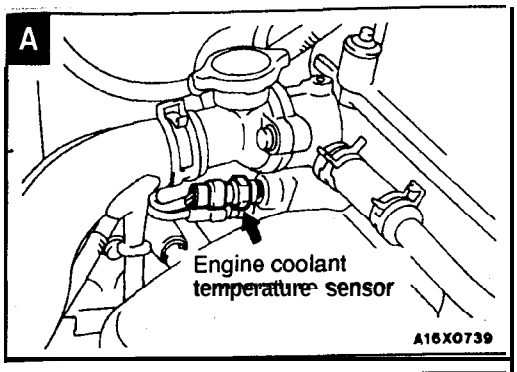




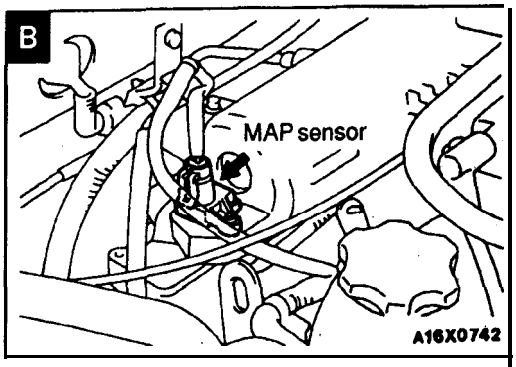


00003776

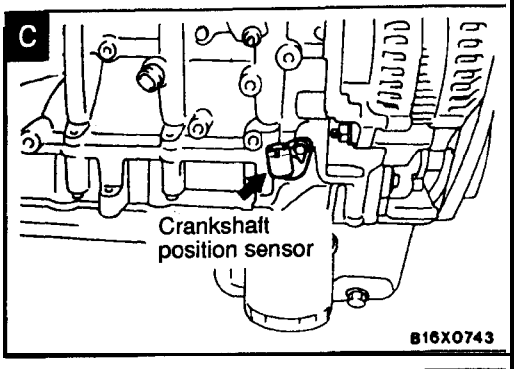
A


Engine coolant
temperature sensor
A16X0739

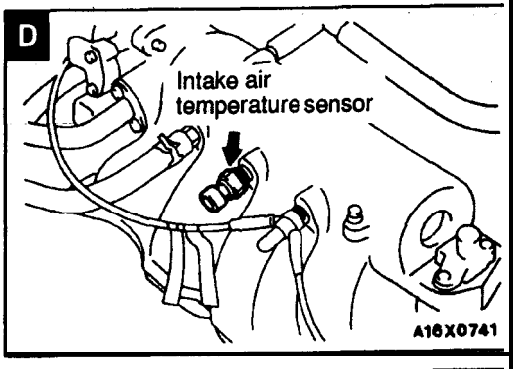
B


MAP sensor
A16X0742

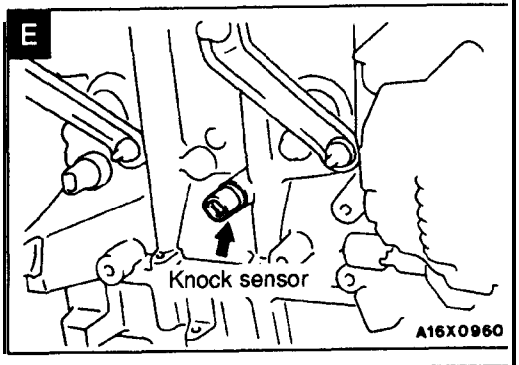
C


Crankshaft
position sensor
B16X0743

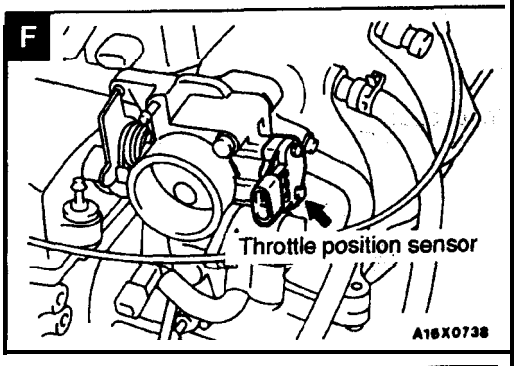
D


Intake air
temperature sensor
A16X0741

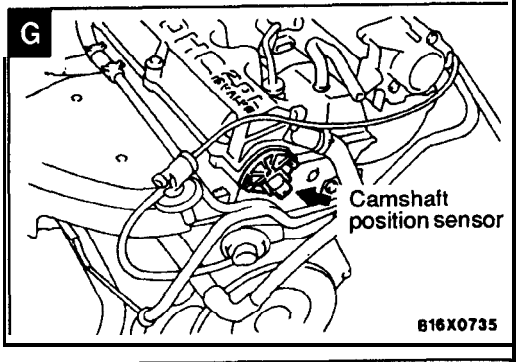
E


Knock sensor
A16X0960

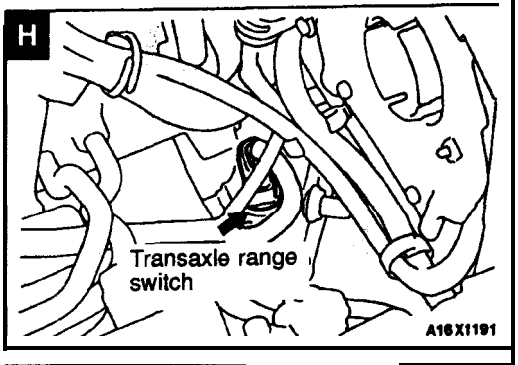
F


Throttle position sensor
A16X0738

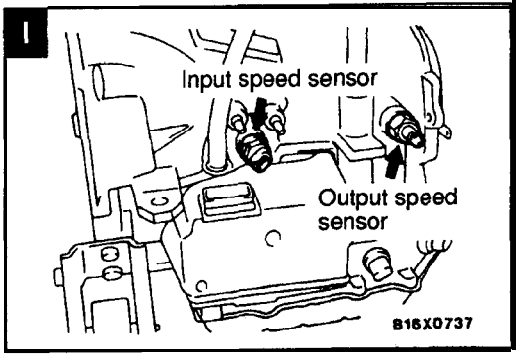
G


Camshaft
position sensor
B16X0735

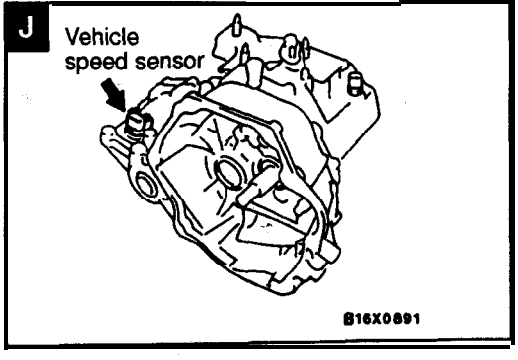
H


Transaxle range
switch
A16X1191

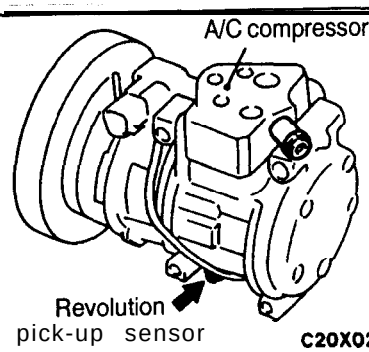
I


Input speed sensor
Output speed
sensor
B16X0737

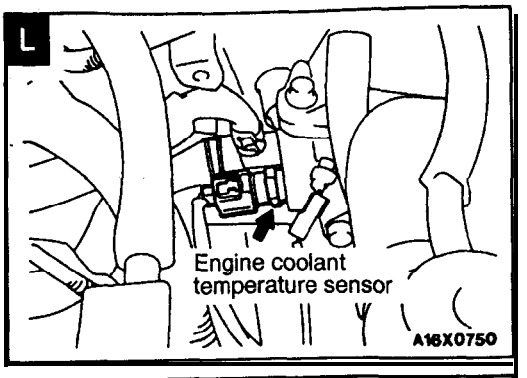
J


Vehicle
speed sensor
B16X0891

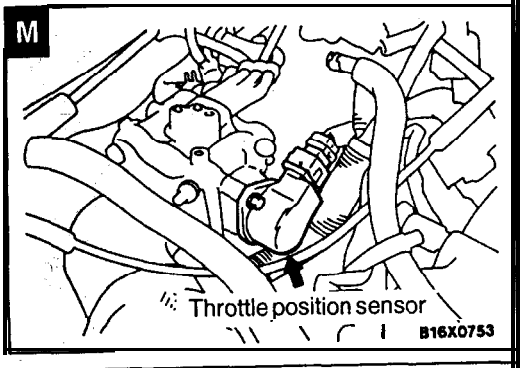
K


A/C compressor
Revolution
pick-up sensor
C20X0238

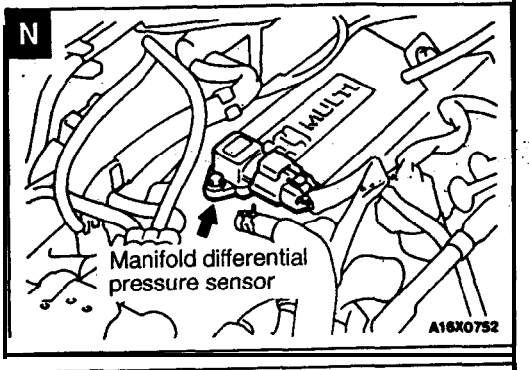
L


Engine coolant
temperature sensor
A16X0750

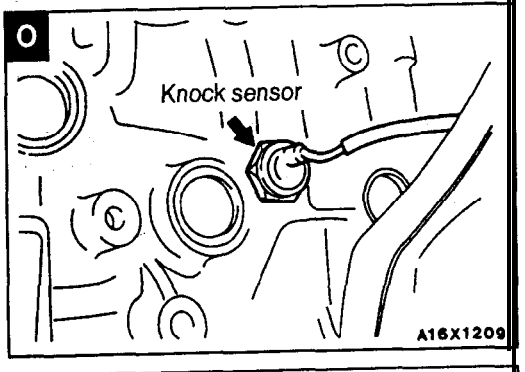
M


Throttle position sensor
B16X0753

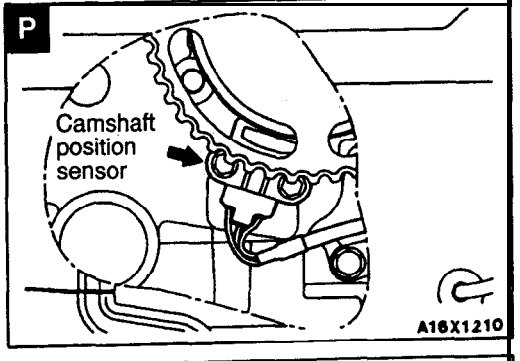
N


Manifold differential
pressure sensor
A16X0752

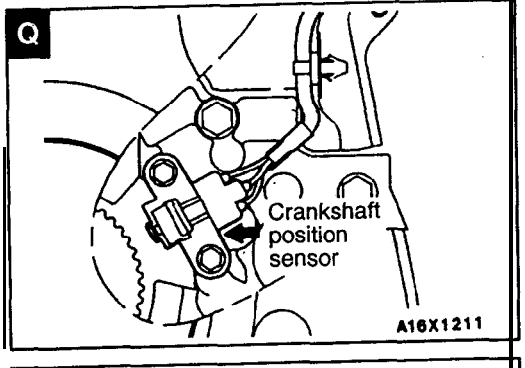
O


Knock sensor
A16X1209

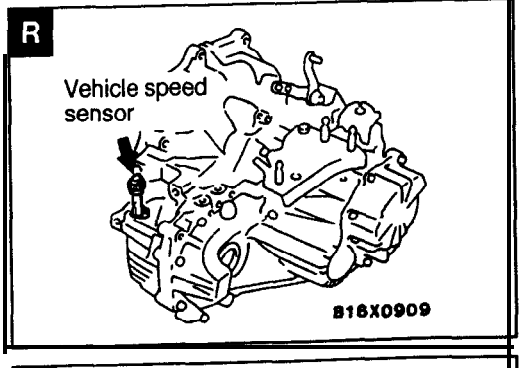
P


Camshaft
position
sensor
A16X1210

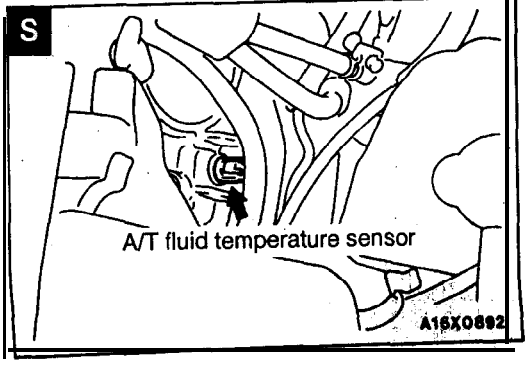
Q


Crankshaft
position
sensor
A16X1211

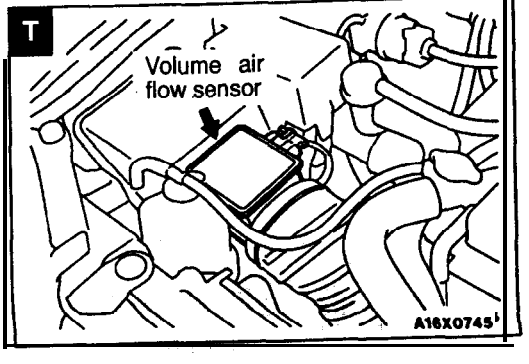
R


Vehicle speed
sensor
B16X0909

S


A/T fluid temperature sensor
A16X0892

T


Volume air
flow sensor
A16X0745

CONFIGURATION DIAGRAMS

CONTENTS

HOW TO READ CONFIGURATION DIAGRAMS

The wiring harness diagrams clearly show the connector locations and harness routings at each site on actual vehicles.

Denotes connector No.
The sameconnector No. is used throughout thecircuit diagrams to facilitate connector location searches.
The first alphabetical symbol indicates the location site of the connector and a number that follows is the unique number. Numbers are assigned to parts in clockwise order on the diagram.
In addition, the number of connector wires and the connector color (except milk white)' are shown for ease of retrieval.

Example: A-12 (2-B)

- Connector color (milk white if no color is indicated)
- Number of connector wires
- Number specific to connector (serial number)
- Connector location site symbol
  - A: Engine compartment
  - B: Dash panel
  - C: Instrument panel and floor console
  - D: Door
  - E: Interior

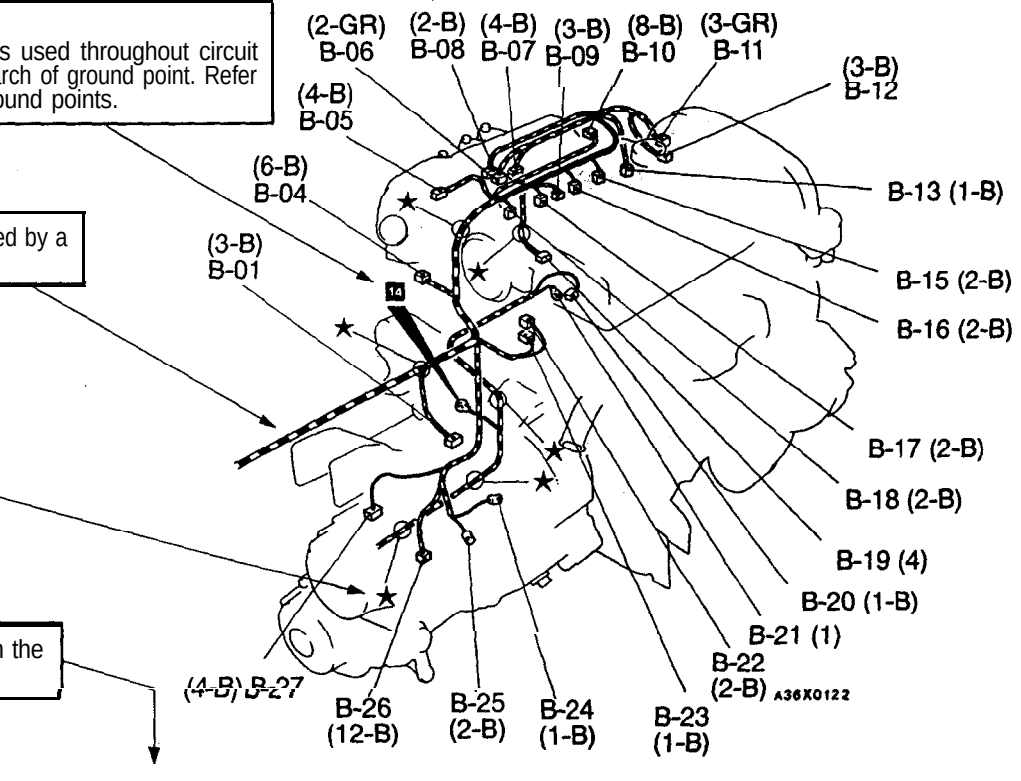
Typical connector colors
- B : Black
- Y : Yellow
- L : Blue
- G : Green
- R : Red
- BR: Brown
- V : Violet
- O : Orange
- GR: Gray

Denotes ground point.
Same ground number is used throughout circuit diagrams to facilitate search of ground point. Refer to P.8-5 for details of ground points.

Denotes a section covered by a corrugated tube.

The mark ★ shows the standard mounting position of wiring harness.

Indicates the device to which the connector is connected.

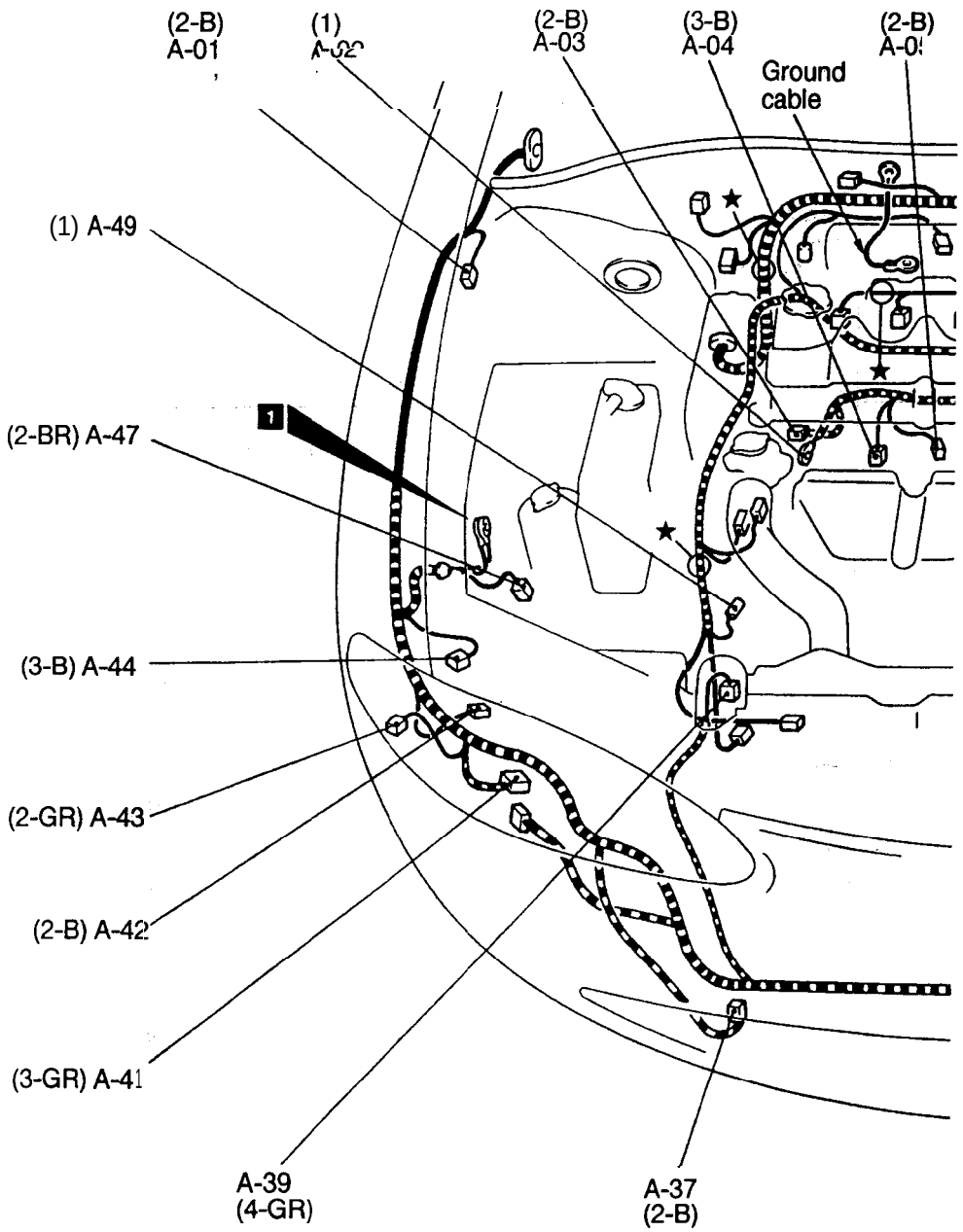


- B-01 Vehicle speed sensor
- B-02 Distributor assembly
- B-03 Distributor assembly
- B-04 Idle air control motor
- B-05 Throttle position sensor
- B-16 Injector No. 2
- B-17 Injector No. 3
- B-18 Injector No. 4
- B-19 Heated oxygen sensor (front)
- B-20 Starter motor

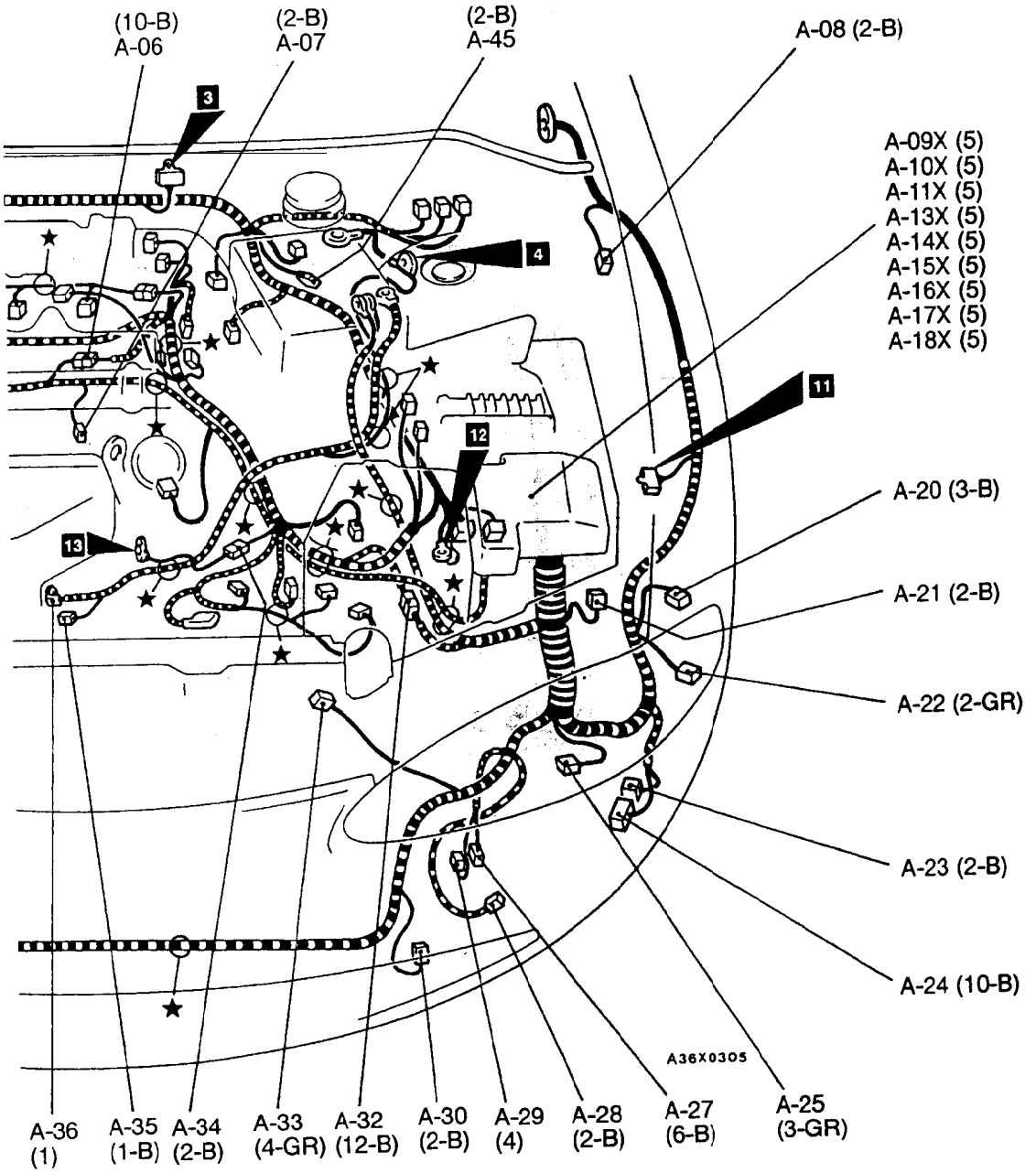
ENGINE COMPARTMENT <NON-TURBO>

Connector symbol

A –01 thru –49



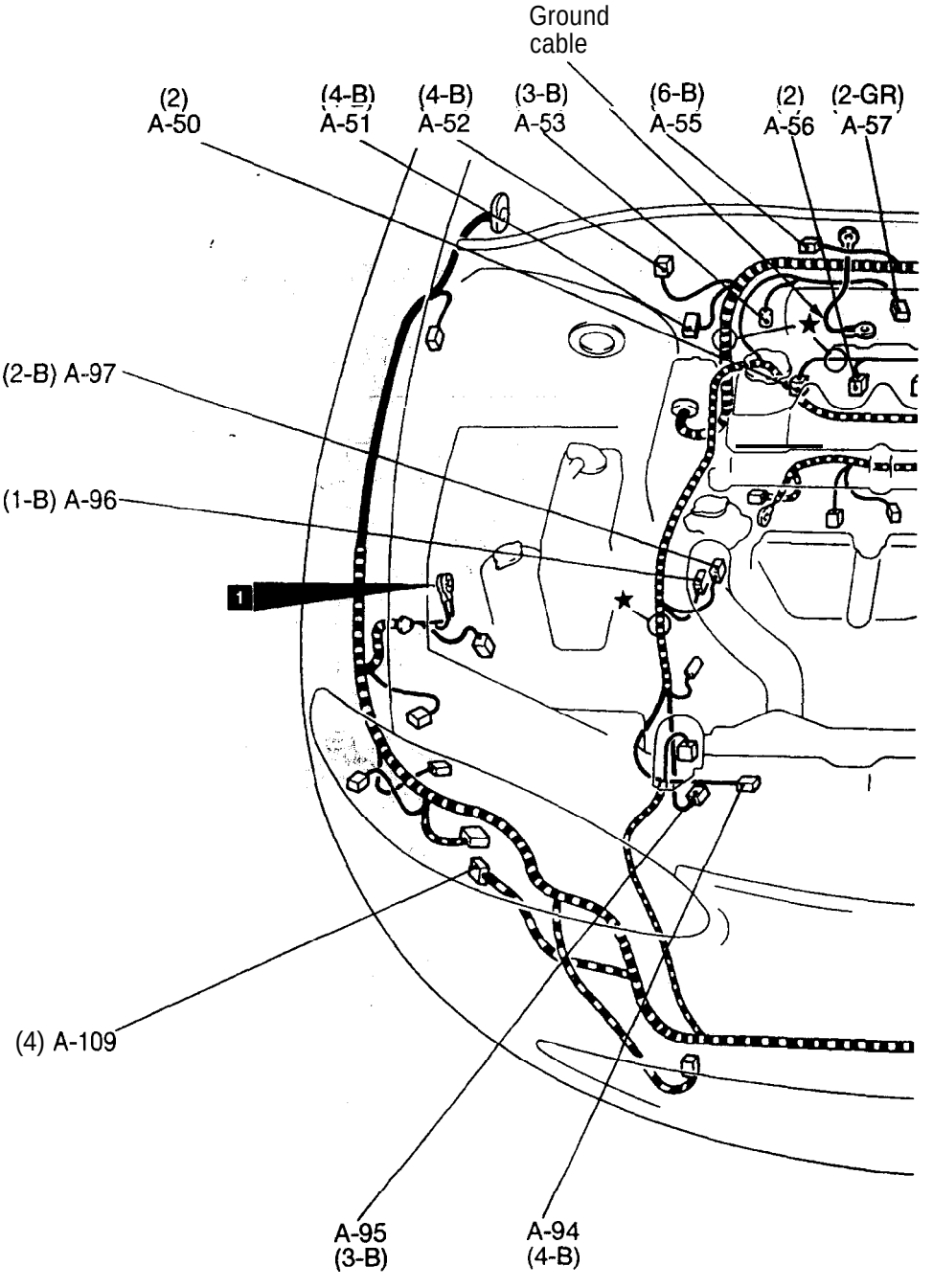
A-01 ABS wheel-speed sensor (right side)
A-02 Generator
A-03 Generator
A-04 Crankshaft position sensor
A-05 Knock sensor
A-06 Control wiring harness and generator wiring harness combination
A-07 Oil pressure switch and gauge unit
A-08 ABS wheel-speed sensor (left side)
A-09X Condenser fan relay (LO)
A-I OX Condenser fan relay (HI)
A-11X Radiator fan relay (LO1)
A-I 3X Radiator fan relay (HI)
A-I 4X Headlight relay
A-I 5X Taillight relay
A-I 6X Foglight relay
A-I 7X Horn relay
A-I 8X NC compressor clutch relay
A-20 Front combination light (left side)
A-21 Hood switch <with theft-alarm system>
A-22 Front side marker light (left side)
A-23 Hydraulic unit <ABS>
A-24 Hydraulic unit <ABS>
A-25 Headlight (left side)



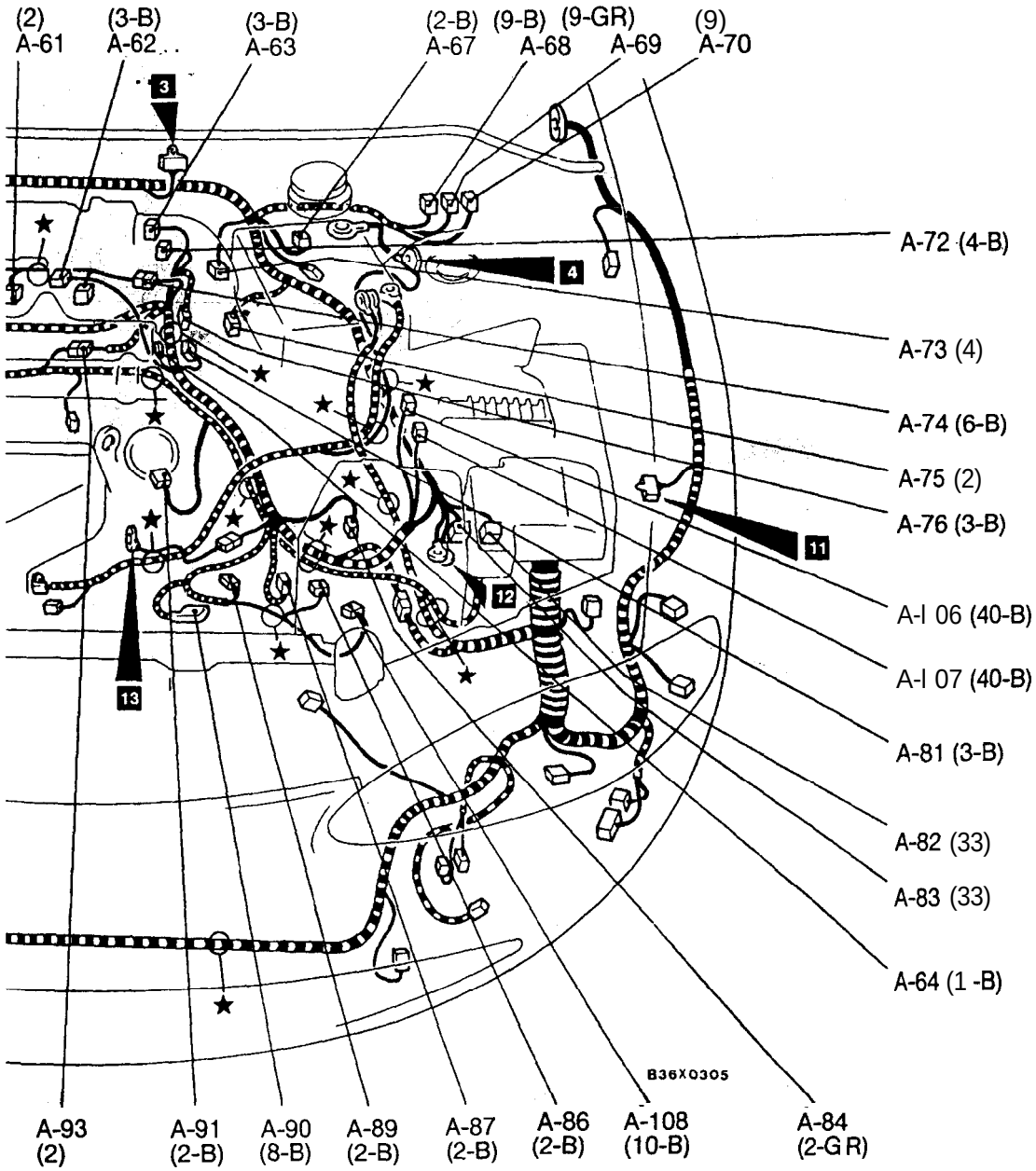
A-27 DRL-ECU
A-28 Horn
A-29 High beam relay <DRL>
A-30 Fog light (left side)
A-32 Front wiring harness and control wiring harness comibnation
A-33 Radiator fan motor
A-34 Control wiring harness and battery cable combination
A-35 Starter motor
A-36 Starter motor
A-37 Fog light (right side)
A-39 Condenser fan motor
A-41 Headlight (right side)
A-42 Duty cycle purge solenoid
A-43 Front side marker light (right side)
A-44 Front combination light (right side)
A-45 Theft-alarm horn
A-47 Dual pressure switch
A-49 Power steering pressure switch

Connector symbol

A –50 thru -109

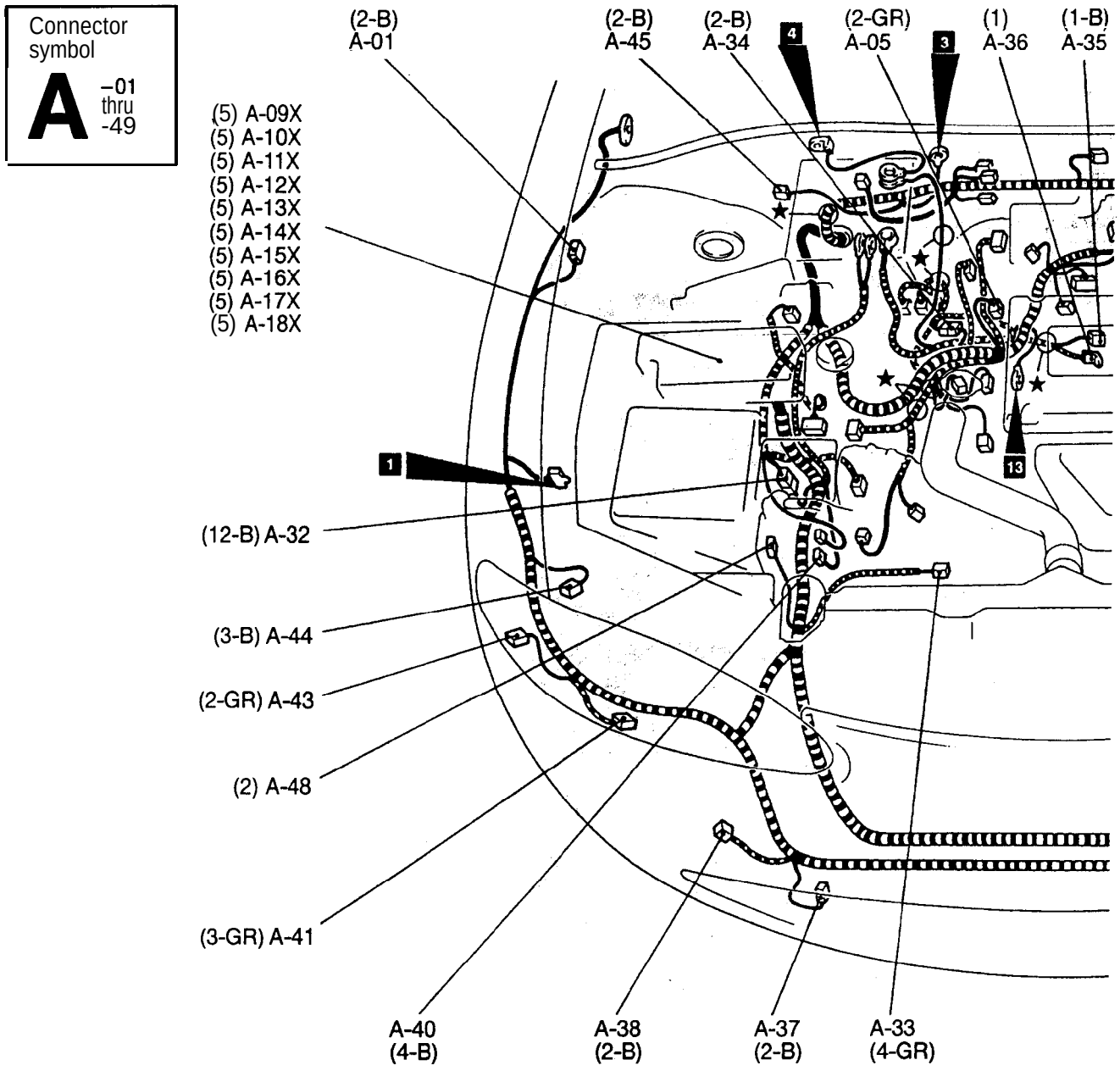


A-50 Injector No.1
A-51 Auto-cruise speed control assembly
A-52 Auto-cruise control relay
A-53 MAP sensor
A-55 Windshield wiper motor
A-56 Injector No.2
A-57 Intake air temperature sensor
A-61 Injector No.3
A-62 Ignition coil
A-63 Throttle position sensor
A-64 Capacitor
A-67 Brake fluid level switch
A-68 Fuel pump relay
A-69 ASD relay
A-70 EATX relay <A/T>
A-72 Auto idle speed motor
A-73 Windshield washer fluid level switch
A-74 Control wiring harness and injector wiring harness combination
A-75 Windshield washer motor
A-76 Vehicle speed sensor <M/T>
A-81 Camshaft position sensor

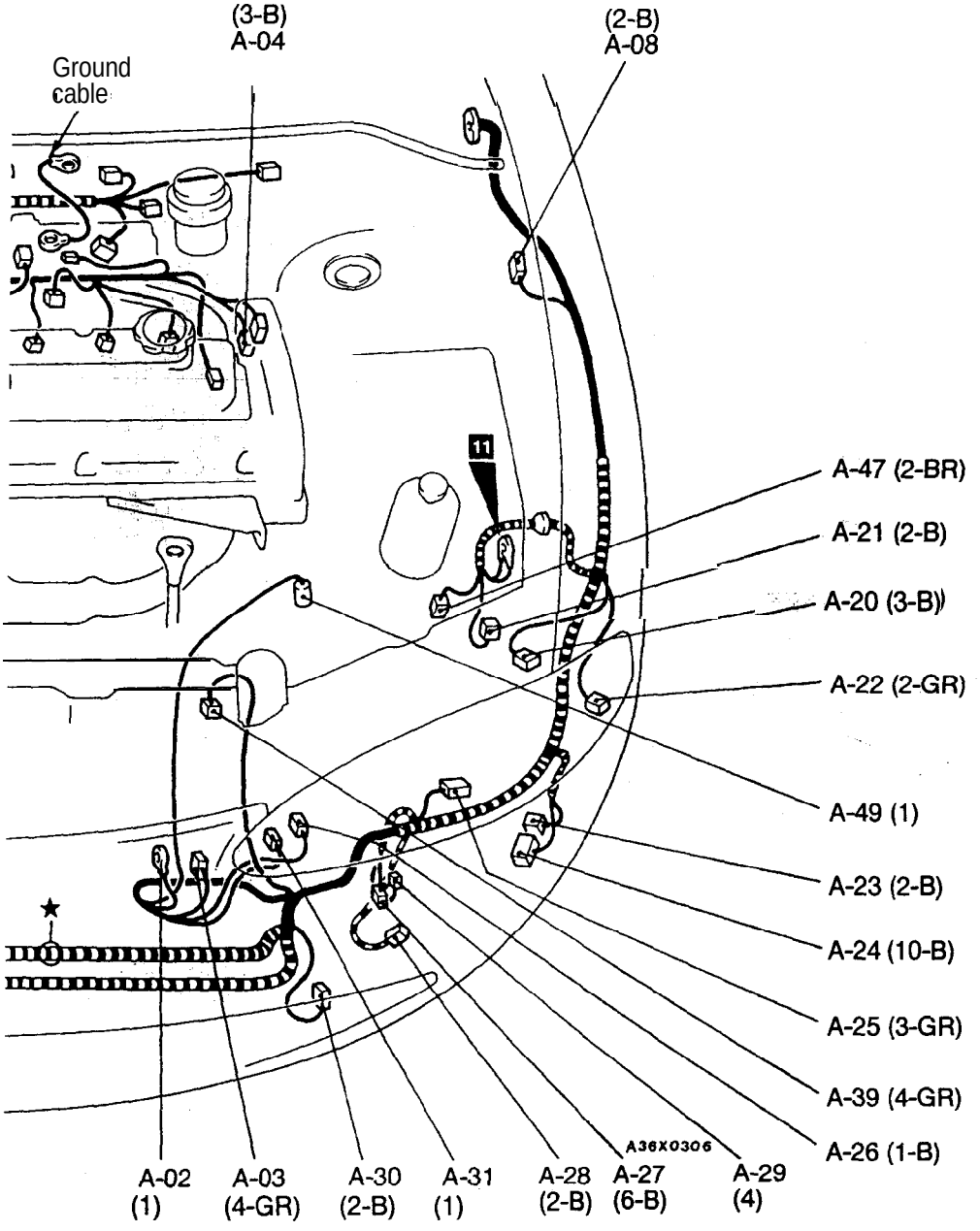


A-82 J/C (3)
A-83 J/C (4)
A-84 Back-up light switch <M/T>
A-86 Output speed sensor <A/T>
A-87 Aspirator solenoid valve <M/T>
A-89 Input speed sensor <A/T>
A-90 Solenoid and pressure switch assembly
A-91 EGR solenoid valve
A-93 Injector No.4
A-94 Heated oxygen sensor (front)
A-95 A/C compressor
A-96 Engine coolant temperature gauge unit
A-97 Engine coolant temperature sensor
A-I 06 Powertrain control module
A-I 07 Powertrain control module
A-I 08 Transaxle range switch <A/T>
A-I 09 Evaporative emission ventilation solenoid

ENGINE COMPARTMENT <TURBO>



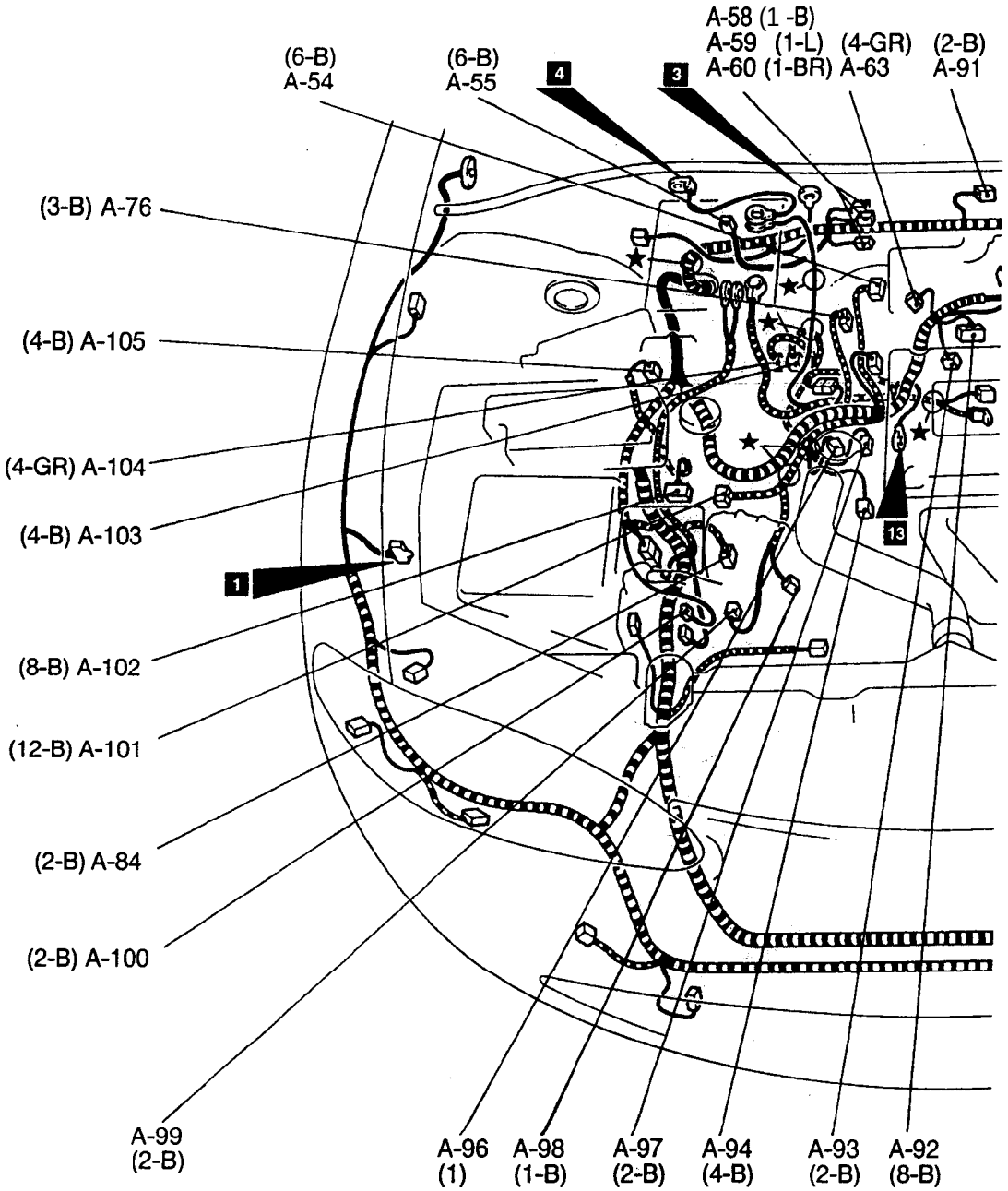
A-01 ABS wheel-speed sensor (right side)
A-02 Generator
A-03 Generator
A-04 Crankshaft position sensor
A-05 Knock sensor
A-08 ABS wheel-speed sensor (left side)
A-09X Condenser fan relay (LO)
A-l OX Condenser fan relay (HI)
A-11X Radiator fan relay (LO1)
A-l **2X** Radiator fan relay (LO2)
A-l **3X** Radiator fan relay (HI)
A-l **4X** Headlight relay
A-15X Taillight relay
A-l **6X** Foglight relay
A-17X Horn relay
A-l **8X** A/C compressor clutch relay
A-20 Front combination light (left side)
A-21 Hood switch <with theft-alarm system>
A-22 Front side-marker light (left side)
A-23 Hydraulic unit <ABS>
A-24 Hydraulic unit <ABS>
A-25 Headlight (left side)
A-26 Oil pressure gauge unit
A-27 DRL-ECU
A-28 Horn
A-29 High beam relay <DRL>
A-30 Fog light (left side)
A-31 Oil pressure switch



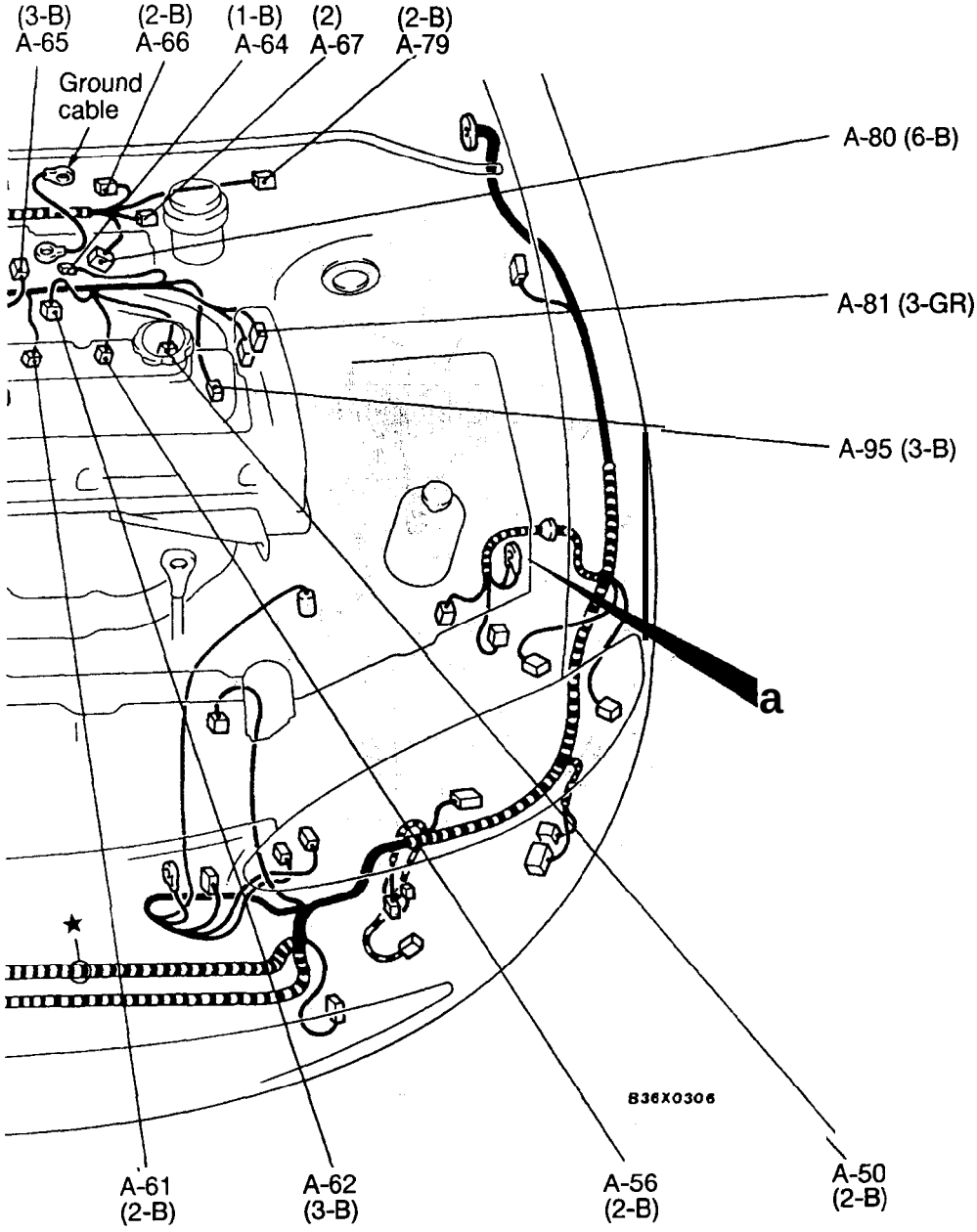
A-32 Front wiring harness and control wiring harness combination
A-33 Radiator fan motor
A-34 Control wiring harness and battery cable combination
A-35 Starter motor
A-36 Starter motor
A-37 Fog light (right side)
A-38 No connection
A-39 Condenser fan motor
A-40 Generator relay
A-41 Headlight (right side)
A-43 Front side-marker light (right side)
A-44 Front combination light (right side)
A-45 Theft-alarm horn
A-47 Dual pressure switch
A-48 Engine coolant level switch
A-49 Power steering pressure switch

Connector symbol

A –50 thru –105

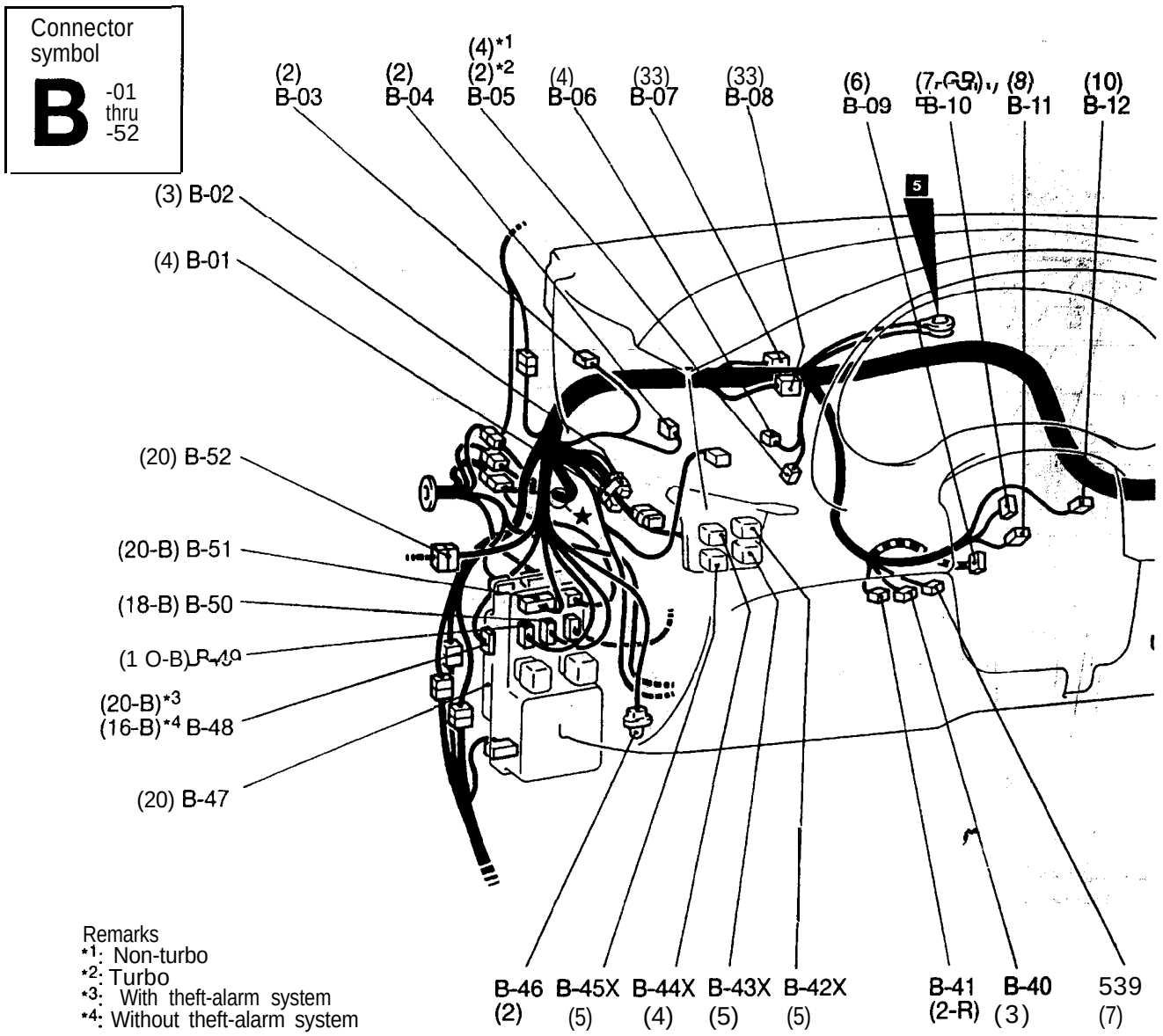


A-50 Injector No.1
A-54 Idle air control motor
A-55 Windshield wiper motor
A-56 Injector No.2
A-58 Fuel pump check connector
A-59 Engine speed detection connector
A-60 Ignition timing adjustment connector
A-61 Injector No.3
A-62 Ignition coil
A-63 Throttle position sensor
A-64 Capacitor
A-65 Manifold differential pressure sensor
A-66 Evaporative emission purge solenoid valve
A-67 Brake fluid level switch
A-76 Vehicle speed sensor
A-79 Fuel pressure solenoid valve
A-80 Resistor



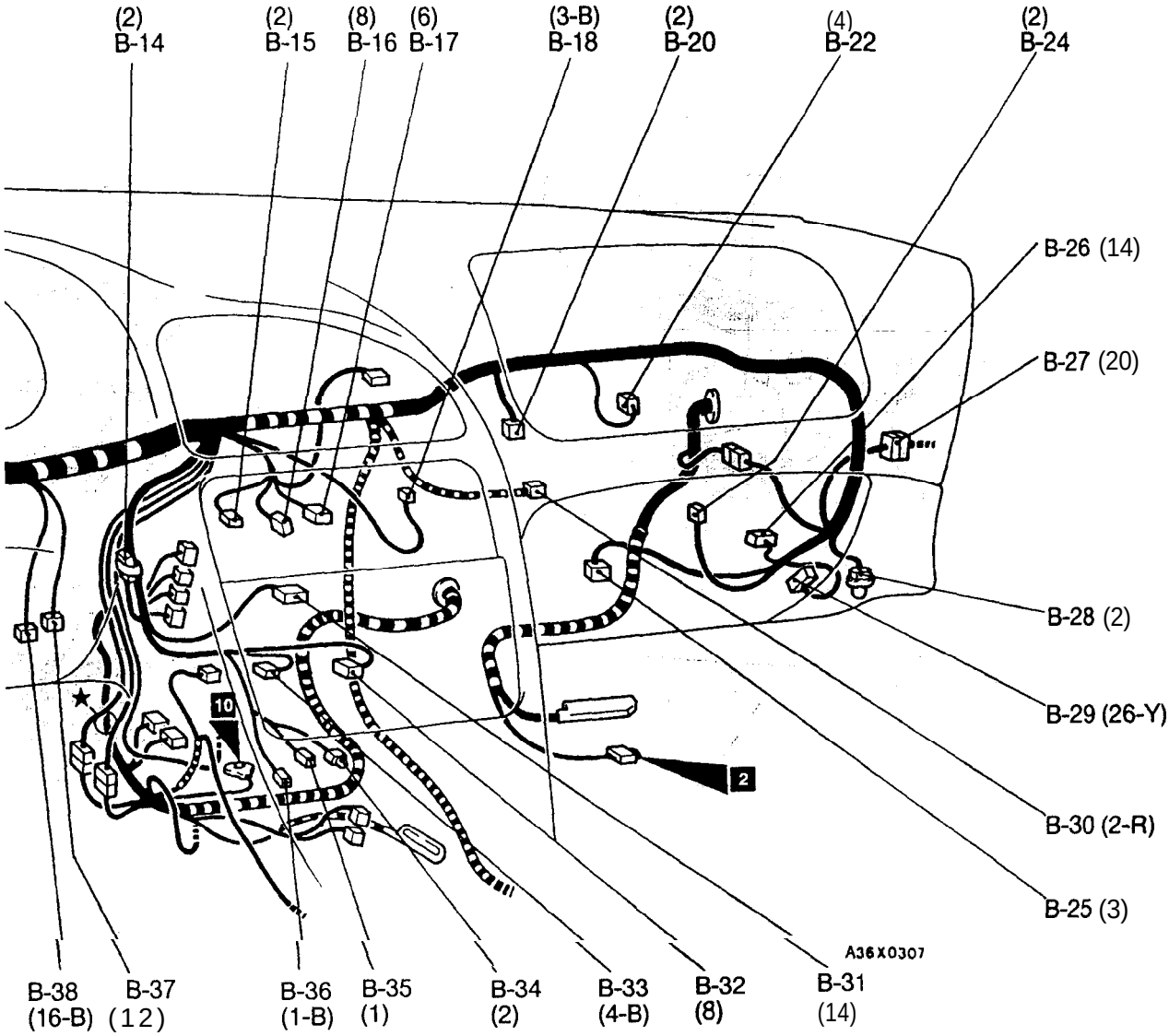
A-81 Camshaft position sensor
A-84 Back-up light switch <M/T>
A-91 EGR solenoid valve
A-92 Ignition power transistor
A-93 Injector No.4
A-94 Heated oxygen sensor (front)
A-95 A/C compressor
A-96 Engine coolant temperature gauge unit
A-97 Engine coolant temperature sensor
A-98 Kickdown servo switch <A/T>
A-99 A/T fluid temperature sensor
A-I 00 Turbocharger waste gate solenoid valve
A-I 01 Park/neutral position switch <A/T>
A-102 Volume air flow sensor
A-I 03 ELC Cspeed automatic transaxle control solenoid valve
A-1 04 Pulse generator <A/T>
A-I 05 Auto-cruise control vacuum pump

DASH PANEL

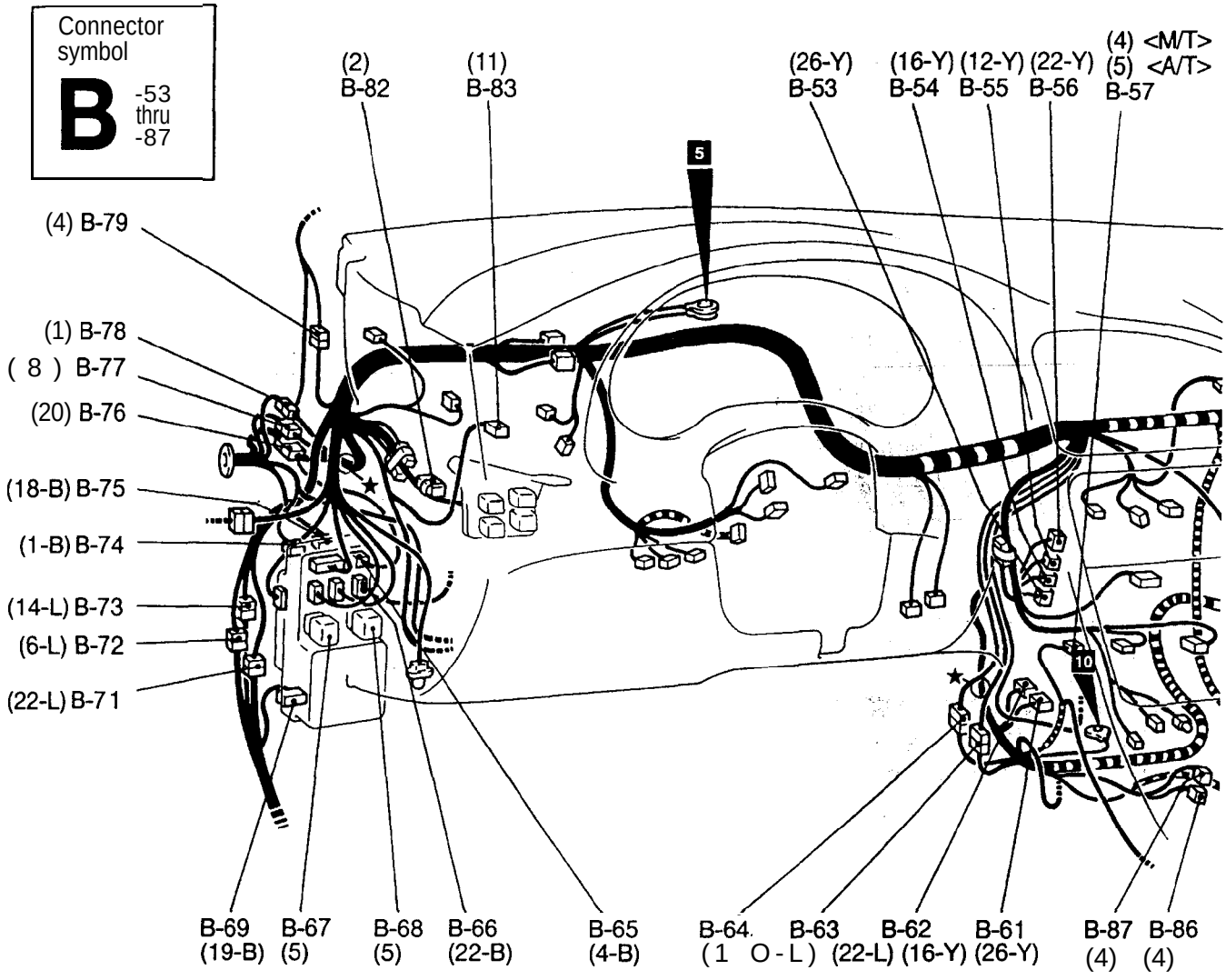


Remarks
*1: Non-turbo
*2: Turbo
*3: With theft-alarm system
*4: Without theft-alarm system

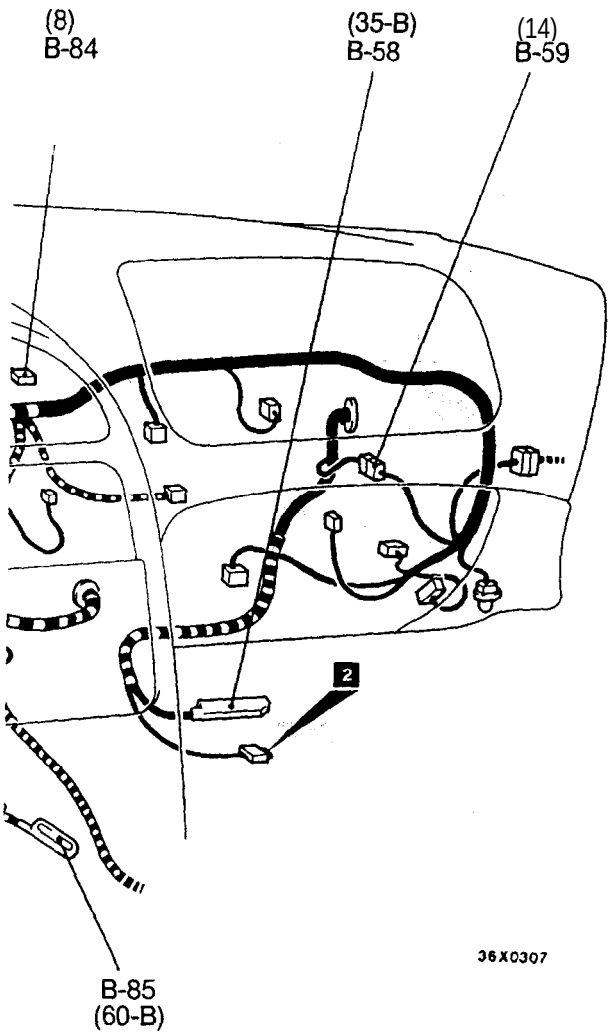
B-01 Diode (for central door locking system)
B-02 Diode (for theft-alarm system)
B-03 Clutch pedal position switch
B-04 Clutch pedal position switch <Turbo>
B-05 Stop light switch (Four terminals) <Non-turbo>
Stop light switch (Two terminals) <Turbo>
B-06 Stop light switch (Four terminals) <Turbo>
B-07 J/C (1)
B-08 J/C (2)
B-09 Ignition switch
B-10 Column switch
B-l 1 Column switch
B-12 Column switch
B-l 4 Resistor <with ABS or auto-cruise control system
B-15 A/C illumination light
B-16 Blower switch
B-17 A/C switch
B-18 Turn signal and hazard flasher unit
B-20 Fin thermo sensor <Non-turbo>
B-22 Blower resistor
B-24 Blower motor
B-25 Automatic compressor-ECM <Turbo>
B-26 Automatic compressor-ECM <Non-turbo>
B-27 Body wiring harness and door wiring harness (right side) combination

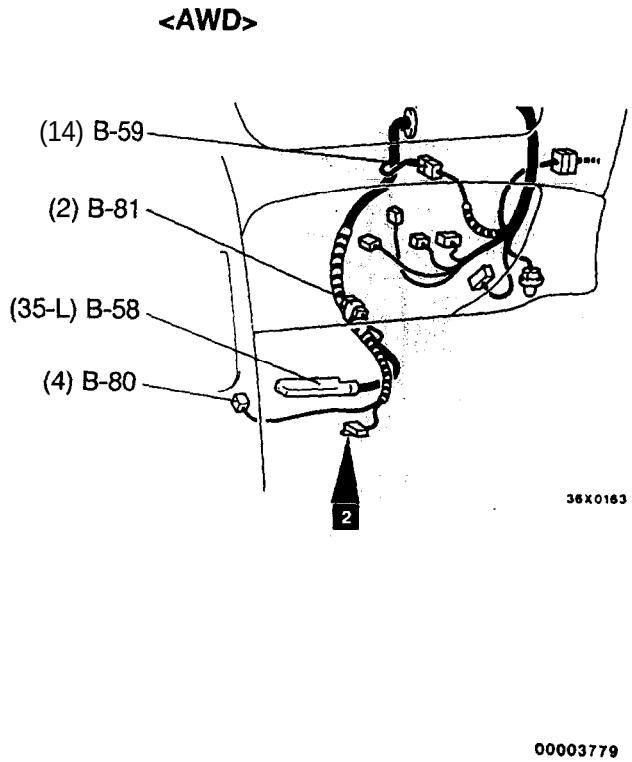


B-28 Foot light (right side)
B-29 Auto-cruise-ECU <Turbo>
B-30 Air bag module (passenger's side)
B-31 Radio
B-32 Door lock power relay 1
B-33 ABS G sensor <AWD>
B-34 Cigarette lighter illumination light
B-35 Cigarette lighter
B-36 Cigarette lighter
B-37 Data link connector <Non-trubo>
B-38 Data link connector
B-39 Key reminder switch
B-40 Clock spring
B-41 Air bag module (driver's side)
B-42X Power window relay
B-43X Theft-alarm starter relay <M/T>
B-44X -Theft-alarm starter relay <A/T>
B-45X Theft-alarm horn relay
B-46 Foot light (left side)
B-47 ETACS-ECU
B-48 ETACS-ECU
B-49 Body wiring harness and J/B combination
B-50 Body wiring harness and J/B combination
B-51 Body wiring harness and J/B combination
B-52 Body wiring harness and door wiring harness (left side) combination



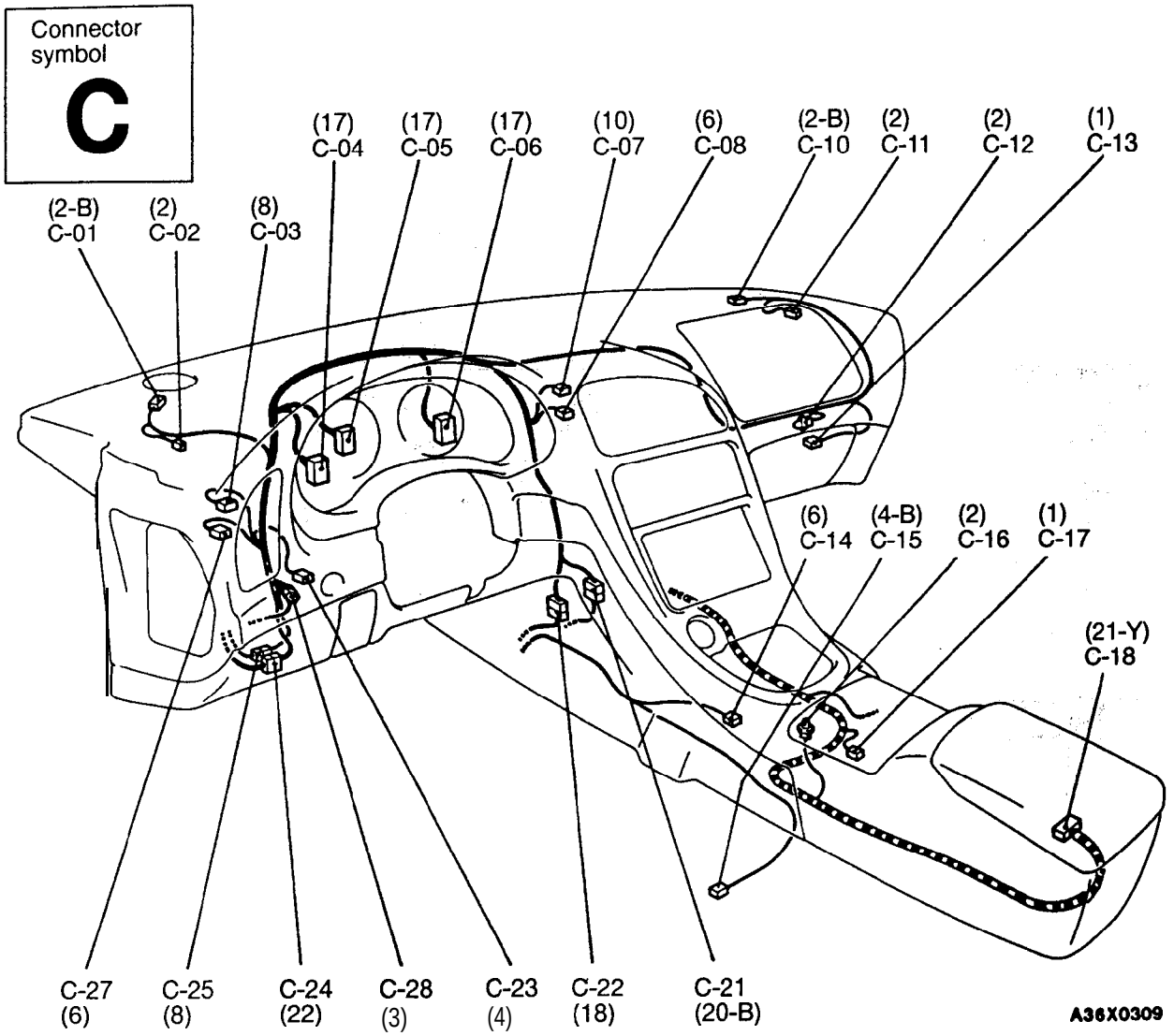
B-53 Engine control module <Turbo>
B-54 Engine control module <Turbo>
B-55 Engine control module <Turbo>
B-56 Engine control module <Turbo>
B-57 Starter relay
B-58 ABS-ECU
B-59 Body wiring harness and front wiring harness combination <with ABS>
B-61 ELC 4-speed automatic transaxle control module <Turbo>
B-62 ELC 4-speed automatic transaxle control module <Turbo>
B-63 Body wiring harness and control wiring harness combination
B-64 Body wiring harness and control wiring harness combination
B-65 Roof wiring harness and J/B combination
B-66 Instrument panel wiring harness and J/B combination
567 Defogger relay
B-68 Blower motor relay
B-69 Rear wiring harness and J/B combination
B-71 Rear wiring harness and body wiring harness combination
B-72 Rear wiring harness and body wiring harness combination
B-73 Rear wiring harness and body wiring harness combination <with central door locking system>
B-74 Front wiring harness and J/B combination
B-75 Front wiring harness and J/B combination





B-76 Front wiring harness and body wiring harness combination
B-77 Front wiring harness and body wiring harness combination
B-78 Front wiring harness and body wiring harness combination
B-79 Roof wiring harness and body wiring harness combination
B-80 ABS power relay <AWD>
B-81 Diode (for ABS circuit) <AWD>
B-82 Dedicated fuse <with auto-cruise control system>
B-83 Remote controlled mirror switch
B-84 Rear wiper and washer switch
B-85 EATX-ECM <Non-turbo (A/T)>
B-86 Fuel pump relay <Turbo>
B-87 MFI relay <Turbo>

INSTRUMENT PANEL AND FLOOR CONSOLE



C-01 Front speaker (left side) or no connection
C-02 Front speaker (left side) or no connection
C-03 Auto-cruise control main switch
C-04 Combination meter
C-05 Combination meter
C-06 Combination meter
C-07 Hazard warning switch
C-08 Defogger switch
C-10 Front speaker (right side) or no connection
C-11 Front speaker (right side) or no connection
C-12 Glove compartment light
C-13 Glove compartment light switch
C-14 Overdrive switch <A/T>
C-15 Heated oxygen sensor (rear)
C-16 Ashtray illumination light
C-17 Parking brake switch
C-18 SRS-ECU
C-21 Instrument panel wiring harness and body wiring harness combination
C-22 Instrument panel wiring harness and control wiring harness combination
C-23 Rheostat
C-24 Instrument panel wining harness and body wiring harness combination
C-25 Instrument panel wiring harness and front wiring harness combination
C-27 Fog light switch
C-28 Diode (for door-ajar warning light circuit)

CIRCUIT DIAGRAMS

CONTENTS

HEADLIGHT, FRONT TURN-SIGNAL LIGHT AND POSITION LIGHT ASSEMBLY

SERVICE SPECIFICATIONS

Items		Limit
Headlight intensity	High-beam cd	18,000 or more
	Low-beam cd	7,000 or more

HOW TO HANDLE HEADLIGHT, FRONT TURN-SIGNAL LIGHT AND POSITION LIGHT ASSEMBLY

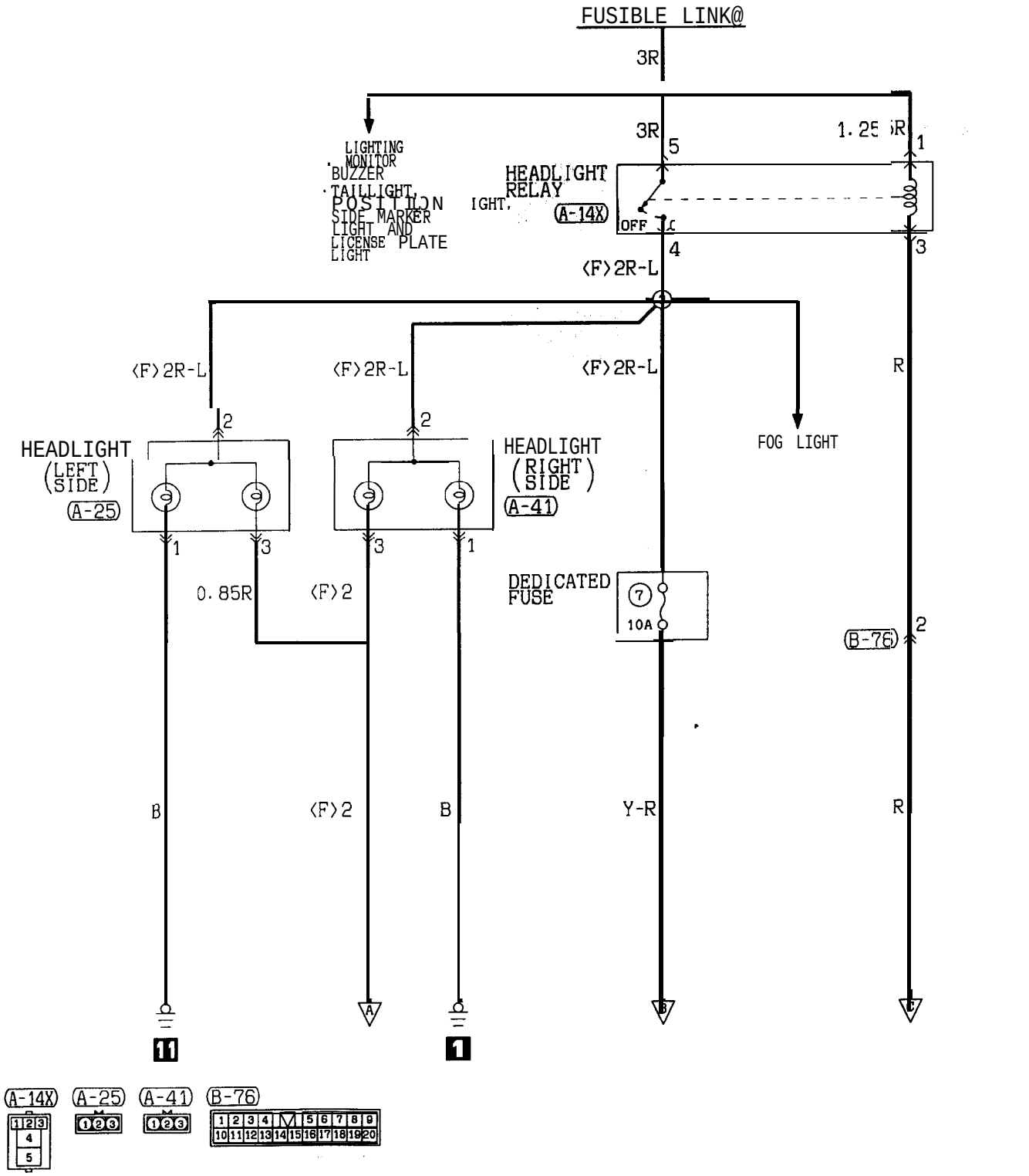
Plastic outer lenses are used for the headlight, front turn-signal light and position light assembly, and so pay attention to the following items.

- No brush the outer lens surface with a protruded tool.
- Use the specified genuine parts; bulbs.
- Don't apply the masking tape on the outer lens surface.
- When carrying out aiming adjustment, do not cover the headlights for more than three minutes while they are turned on. Otherwise heat from the bulb may warp the headlight lens.

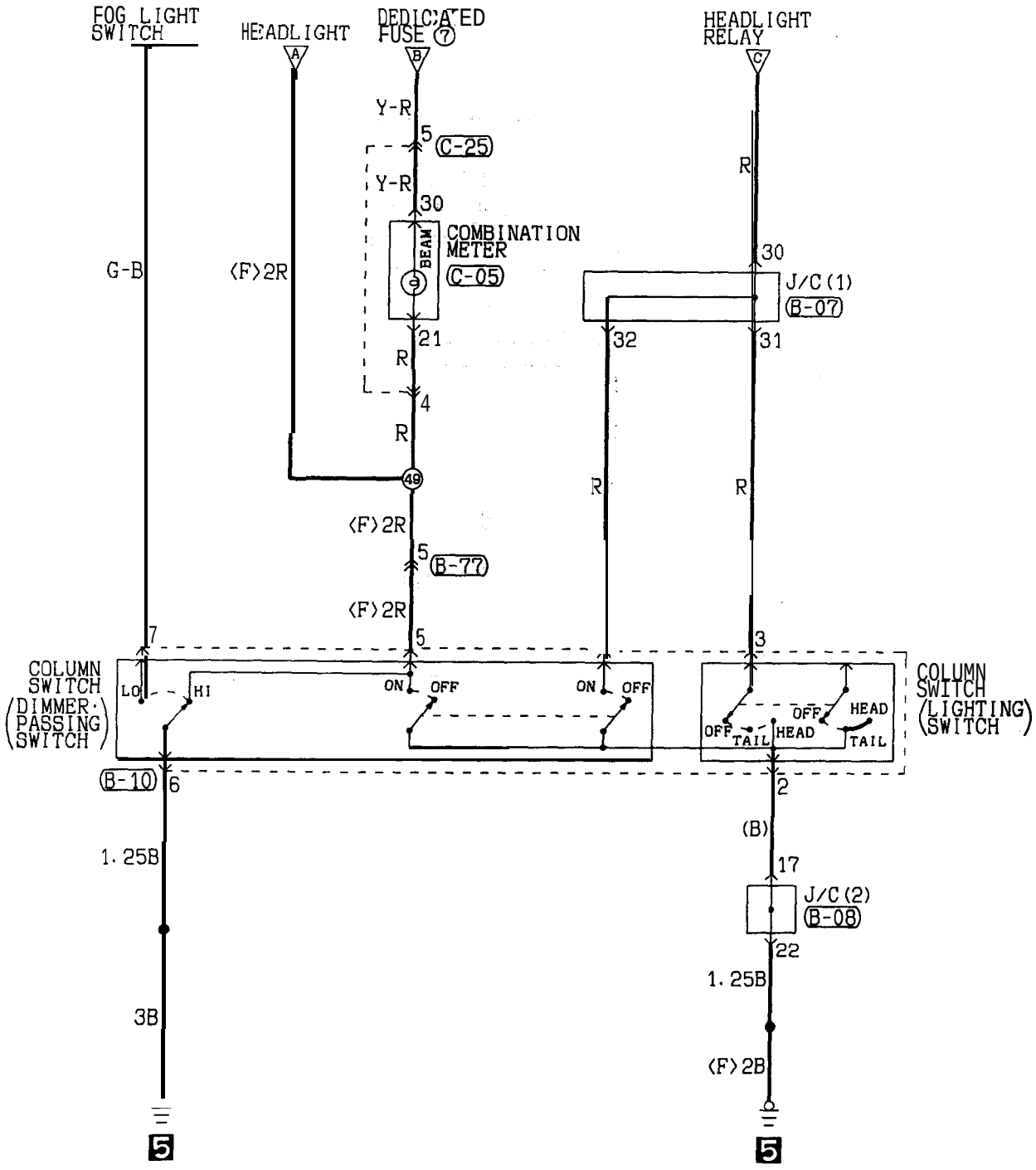
TROUBLESHOOTING

Headlight Circuit

<Vehicles for U.S.*>

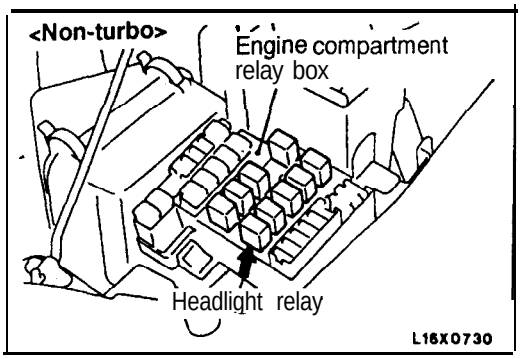


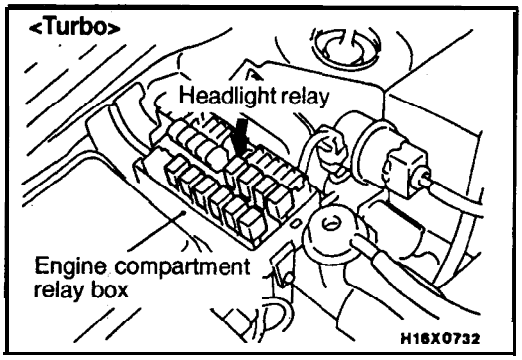
HF08C00AA


FOG LIGHT SWITCH
HEADLIGHT
DEDICATED FUSE ⑦
HEADLIGHT RELAY
Y-R
5
C-25
Y-R
30
COMBINATION METER
BEAM
9
C-05
G-B
(F)2R
R
30
J/C (1)
B-07
21
32
31
R
4
R
49
R
R
(F)2R
5
B-77
(F)2R
5
7
5
3
COLUMN SWITCH (DIMMER·PASSING SWITCH)
LO
HI
ON
OFF
ON
OFF
OFF
HEAD
OFF
TAIL
HEAD
TAIL
COLUMN SWITCH (LIGHTING SWITCH)
B-10
6
2
(B)
1.25B
17
J/C (2)
B-08
22
1.25B
3B
(F)2B
5
5
B-07
B-08
B-10
B-77
C-05
C-25

HF08C00AB

COMPONENT LOCATION





OPERATION

<Low-beam and high-beam>

- Turn the lighting switch to "HEAD", and the contact point of the headlight relay will be closed to turn "ON" the headlight relay.
- Turn the dimmer switch to "LO", and the low-beam will be lit. Turn the switch to "HI", and the high-beam will be lit together with the low-beam.

<Passing>

- When the low-beam is lit, turn the passing switch to "ON", and the high-beam will be lit together with the low-beam.
- When the lighting switch is at "OFF" or "TAIL", and the passing switch is turned to "ON", the contact point of the headlight relay will be closed turning on the headlight relay, and the low-beam and high-beam will be simultaneously lit.

<High-beam indicator light>

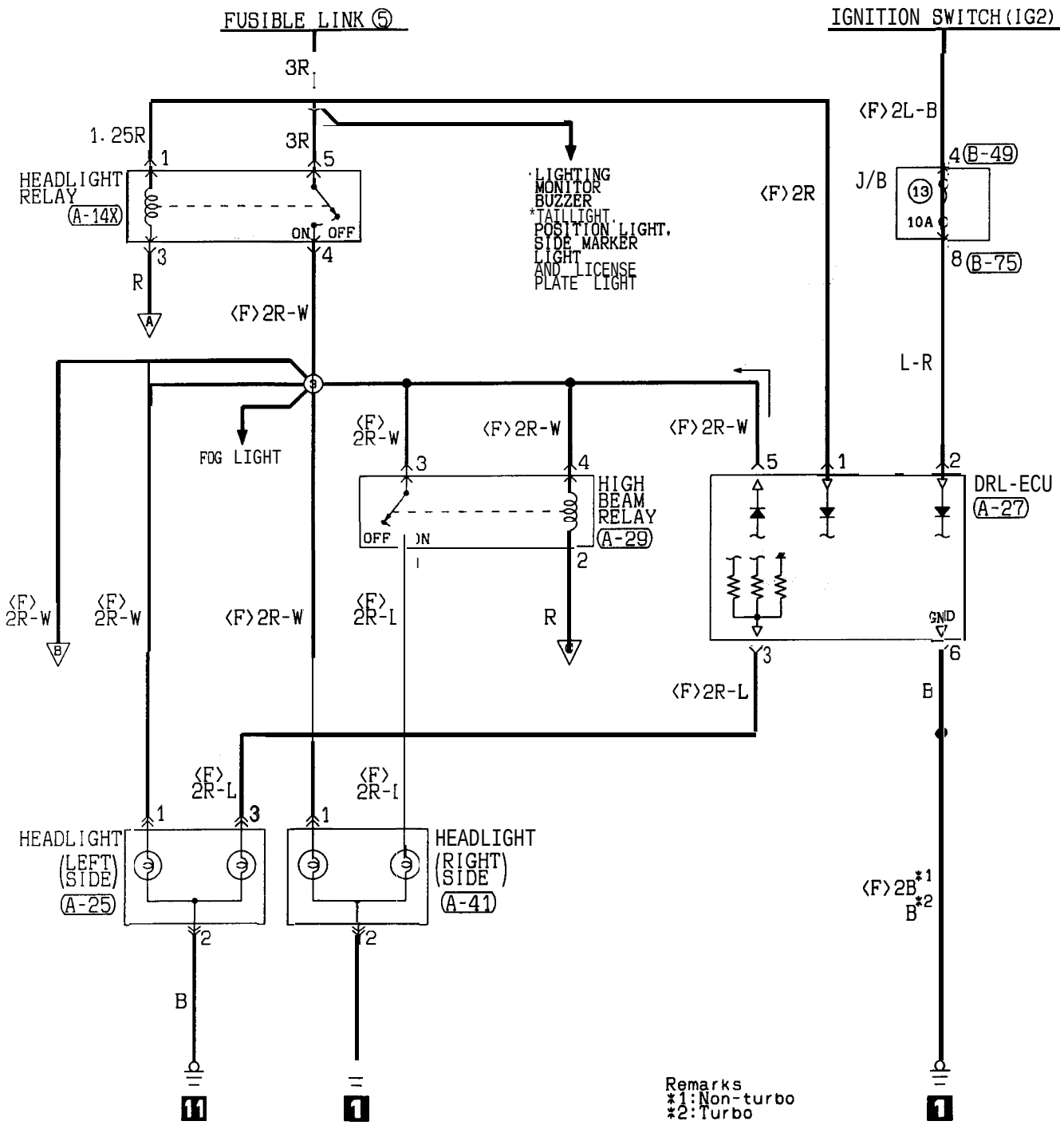
- When the high-beam is lit or when the passing switch is activated, the high-beam indicator light will be lit.

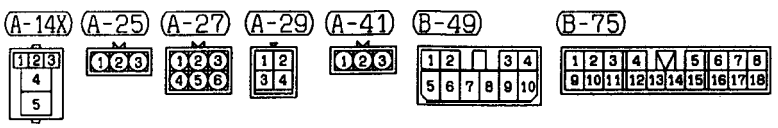
TROUBLESHOOTING HINTS

1. Any headlight does not come on.
   (1) Tail light comes on.
   - Check the headlight relay. (Refer' to P.8B-58.)
   - Check: the lighting switch. (Refer to P. 8B-58.)

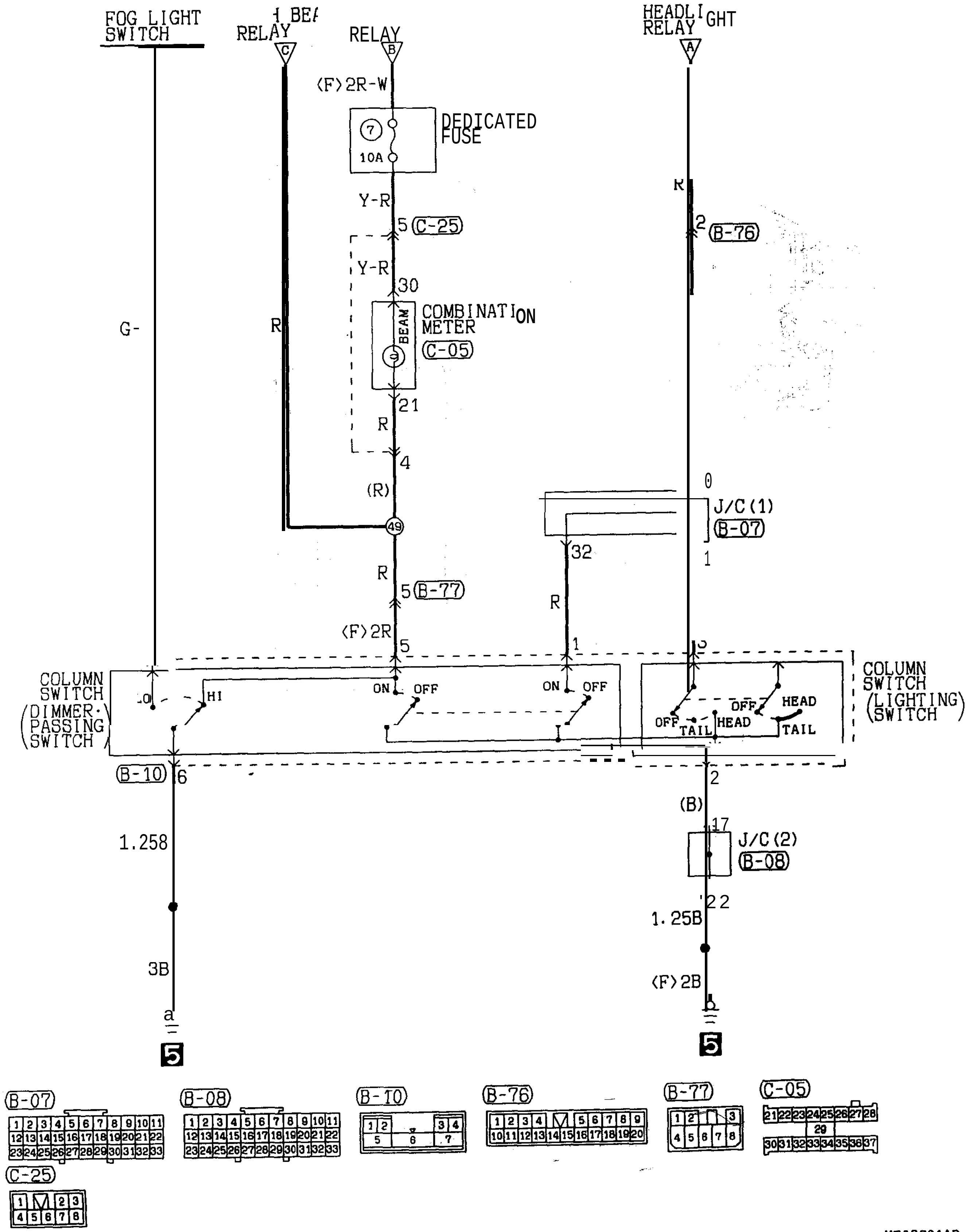
   (2) The taillight dose not come on, either.
   - Check the fusible link No. 5.
2. Low-beam does not come on on either side.
   - Check the grounding circuit.
3. High-beam does not come on on either side but comes on when the passing switch is ON.
   - Check the dimmer switch. (Refer to P.8B-58.)
4. High-beam indicator light dose not come on. However, high-beam is lit when the dimmer switch is at "HI"position or the passing switch is activated.
   - Check the dedicated fuse No. 7
   - Check the bulb.
5. Even if passing is activated, the headlights will not come on. However, the headlights will come on when the dimmer switch is at either "LO' or "HI".
   - Check the passing switch. (Refer to P.8B-58.)

<Vehicles for CANADA>



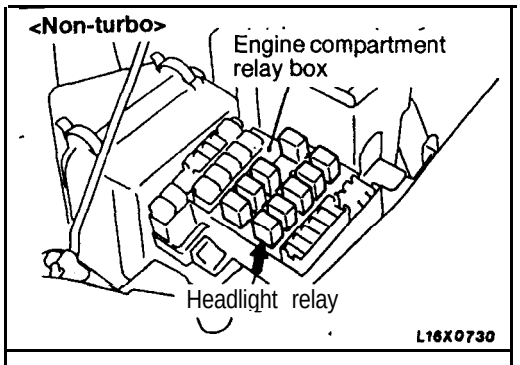


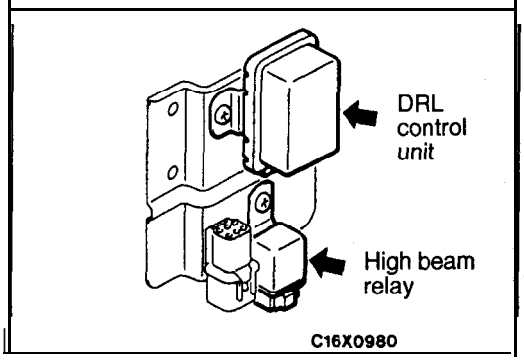
HF08C01AA

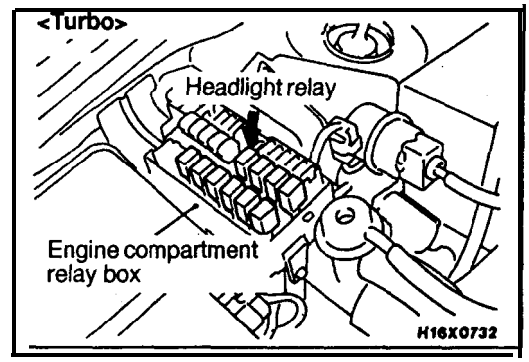

FOG LIGHT SWITCH
RELAY C
RELAY B
HEADLIGHT RELAY A
(F) 2R-W
7
10A
DEDICATED FUSE
Y-R
5 C-25
Y-R
30
BEAM
COMBINATION METER
C-05
21
R
4
(R)
49
G-
R
R
2 B-76
0
J/C (1)
B-07
32
1
R
5 B-77
R
(F) 2R
5
1
COLUMN SWITCH (DIMMER·PASSING SWITCH)
HI
ON
OFF
ON
OFF
OFF
HEAD
TAIL
OFF
TAIL
HEAD
COLUMN SWITCH (LIGHTING SWITCH)
B-10
6
2
(B)
17
J/C (2)
B-08
1.25B
3B
22
1.25B
(F) 2B
a
5
5
B-07
B-08
B-10
B-76
B-77
C-05
C-25

HF08C01AB

COMPONENT LOCATION







OPERATION

Conditions for switch-ON of headlight relay

Ignition switch	Lighting switch	Dimmer/passing switch	Headlight relay
"ON"	"OFF"		–
	"HEAD"		ON
		"PASS"	ON

<Daytime running light operation>

- Turn the ignition switch **to the "ON" position,** and the battery voltage will be applied **from** the fusible link No. 5 to the DRL-ECU **headlights** (high beam) and ground, and the headlights (high beam) will illuminate.

<Low-beam operation>

- The headlight relay is switched ON when the lighting switch is set to the "HEAD" position.
- In this state, place the **dimmer/passing switch** in the "LO" position to turn on the low-beam headlights.

<Upper-beam operation>

- The headlight relay is switch ON when the lighting switch is set to the "HEAD" position.
- In this state, place the dimmer/passing switch in the "HI." position, and the **high-beam relay** will be closed and the headlights will be on high beam.

<High-beam indicator light>

- This indicator illuminates during use of the high beam of the headlights, and also when the passing signal (high beam)is activated.

<Passing operation*

- When the dimmer/passing switch is set to the "ON" position, the headlight relay is switched ON and the high beam of the headlight illuminates

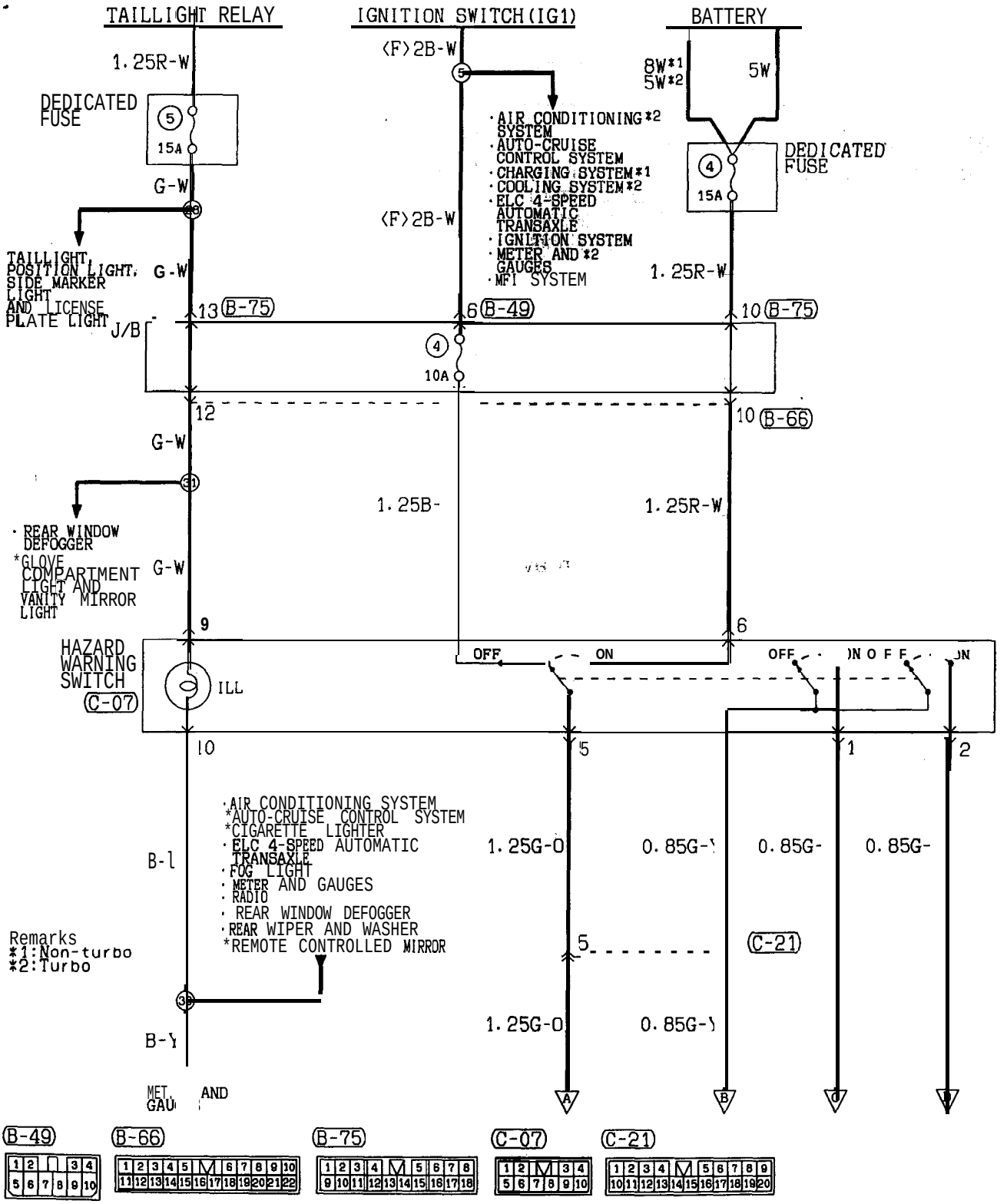
TROUBLESHOOTING HINTS

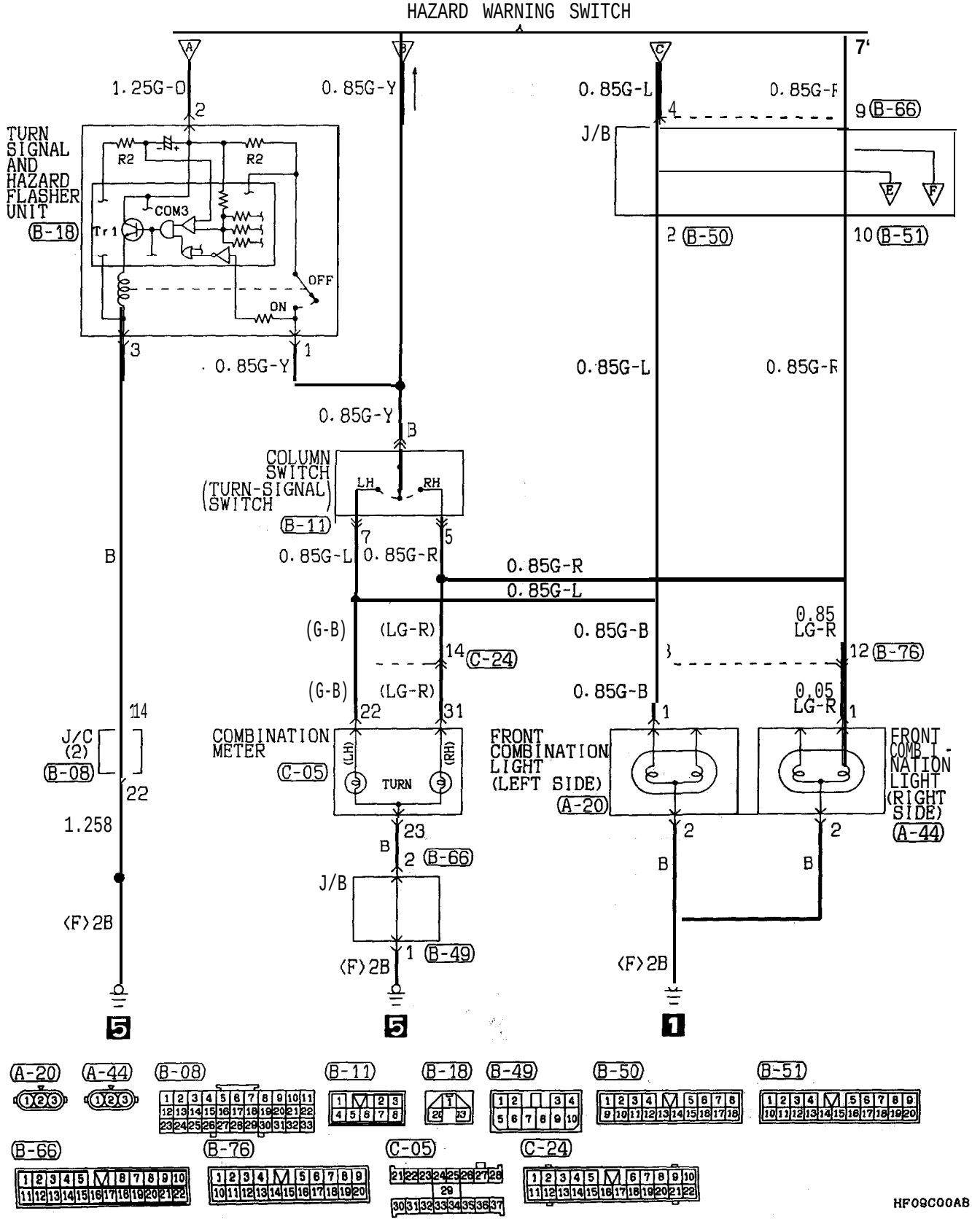
1. Headlights don't illuminate.
   (1) But the tail lights do illuminate.
   - Check the headlight relay. (Refer to P.8B-58)
   - Check the lighting switch. (Refer to P.8B-58)

   (2) The tail lights also don't illuminate.
   - Check the fusible link No. 5.
2. The both low beams don't illuminate.
   - Check the "LO" contacts of the dimmer switch. (Refer to P.8B-58)
3. The high beam at both sides doesn't illuminate.
   (1) The passing signal functions OK.
   - Check the "HI" contacts of the dimmer switch. (Refer to P.8B-58)

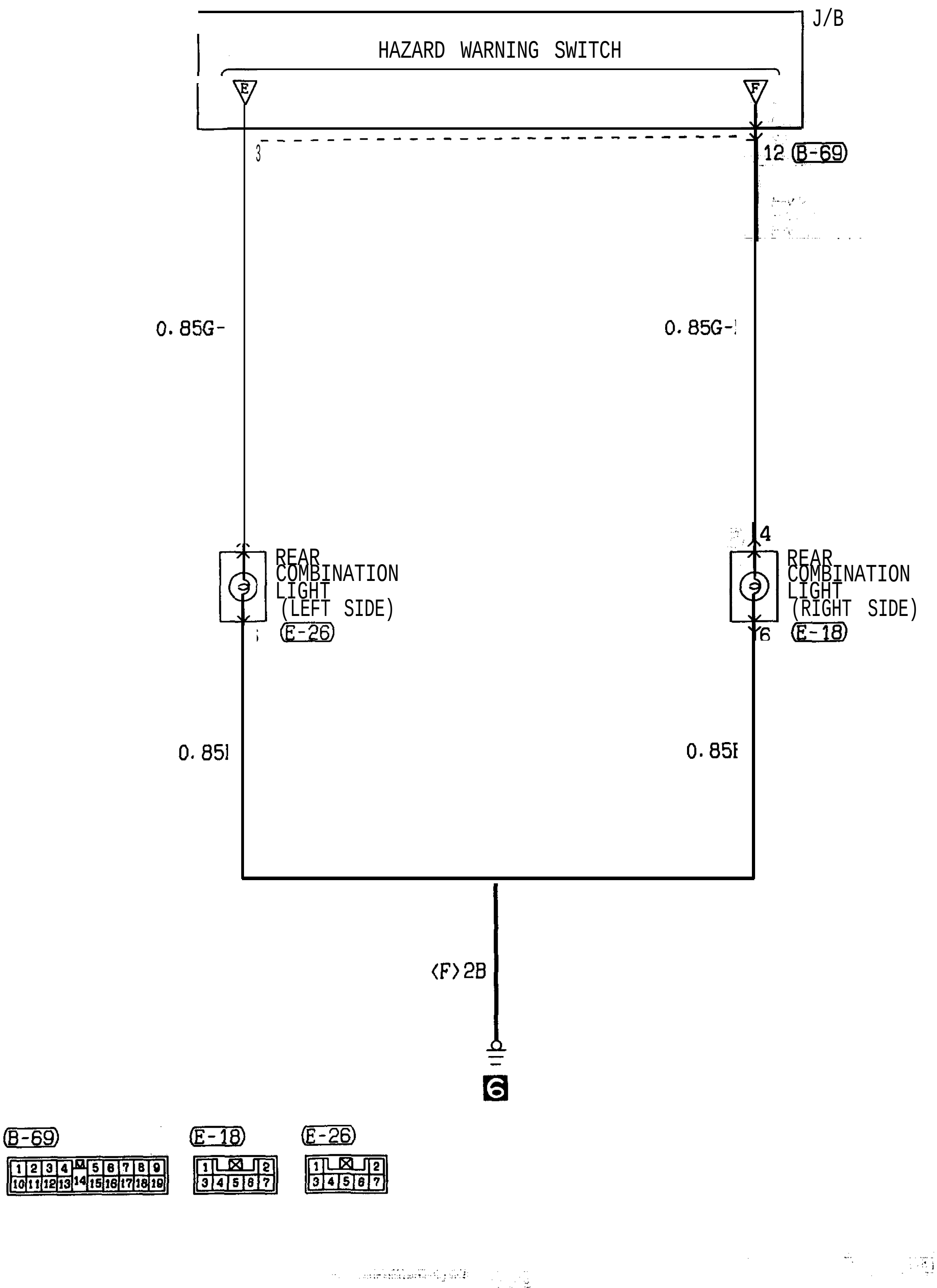
   (2) The passing signal doesn't function.
   - Check the dimmer switch. (Refer to P.8B-58)
   - Check the high beam relay. (Refer to P.8B-59)
   - Check the DRL-ECU.
4. One headlight doesn't illuminate.
   - Check the bulb.
5. The headlights can't switch from low to high beam or vice versa.
   - Check the dimmer switch. (Refer to P.8B-58)
6. With the ignition switch at the "ON" position, the headlights'high beam, does not illuminate.
   - Check the high beam relay.
7. The high beam indicator light doesn't illuminate.
   (1) The **high beam of the headlights is normal.**
   - **Check dedicated fuse No. 7.**
   - Check the bulb.

Turn-signal Light and Hazard Warning Light Circuit

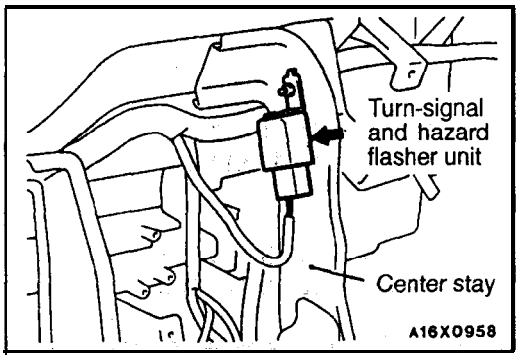



HAZARD WARNING SWITCH
TURN SIGNAL AND HAZARD FLASHER UNIT
B-18
R2
R2
COM3
Tr1
OFF
ON
1.25G-O
0.85G-Y
0.85G-L
0.85G-R
J/B
9 B-66
2 B-50
10 B-51
0.85G-Y
COLUMN SWITCH (TURN-SIGNAL SWITCH)
B-11
LH
RH
0.85G-L
0.85G-R
(G-B)
(LG-R)
14 C-24
0.85G-B
0.85
LG-R
12 B-76
J/C (2)
B-08
COMBINATION METER
C-05
TURN
FRONT COMBINATION LIGHT (LEFT SIDE)
A-20
FRONT COMBINATION LIGHT (RIGHT SIDE)
A-44
1.25B
(F)2B
J/B
B-49
A-20
A-44
B-08
B-11
B-18
B-49
B-50
B-51
B-66
B-76
C-05
C-24
HF08C00AB

Turn-signal Light and Hazard Warning Light Circuit (CONTINUED)



COMPONENT LOCATION



OPERATION

<Turn-signal lights>

1. When operation is normal
- When the ignition switch is switched to the "ON" position, battery voltage is applied (via the hazard-switch) to the turn-signal and hazard-flasher unit.
- When the turn-signal switch is switched to the "LH" (or "RH") position, Trl (within the flasher unit) is switched ON and the relay contact (also within the flasher unit) is switched ON. As a result, the "LH" (or "RH") turn-signal lights and turn-signal indicator light illuminate.
- At the same' time, charging to the capacitor (via R2) begins, and charging continues until the lower-limit potential (set by COM3) is reached.
- When the capacitor becomes fully charged, the COM3 output reverses and Trl is switched OFF; the relay contact is also switched OFF, and, as a result, the "LH" (or "RH") turn-signal lights and turn-signal indicator light are switched OFF.
- At the same time that Tr1 is switched OFF, the capacitor begins discharging, and, when discharging finishes, the output of COM3 once again reverses and Trl is switched ON, after which the "LH" (or "RH") turn-signal lights and turn-signal indicator light illuminate.
- As a result of the continued repetition of the steps described above, the "LH" (or "RH") turn-signal lights and turn-signal indicator light flash ON and OFF repeatedly.

2. If one light's wiring is damaged or disconnected
- If the bulb for one turn-signal light is damaged or disconnected, the result is an overall increase of the resistance for the entire light circuitry, resulting is a decrease of the voltage at the R1 part within the flasher unit.
- As a result of this being detected, the lower-limit potential set by. COM3 is increased, with the result that the time required for charging of the capacitor becomes shorter.
- As a result, the ON and OFF cycles of Trl also become shorter, and thus the number of flashes of the lights becomes greater.

<Hazard-warning lights>

- When the hazard-warning switch is switched to the "ON" position, the relay contact of the flasher unit is switched ON and OFF repeatedly, in the same manner as for the operation of the turn-signal lights, and the left and right turn-signal lights and turn-signal indicator lights simultaneously flash repeatedly.

NOTE
- The number of flashes of the hazard-warning lights does not change if there is damaged or disconnected, wiring of one light.

TROUBLESHOOTING HINTS

1. The turn-signal lights and hazard-warning lights do not operate at all.
   - Check the hazard switch contact (power supply side).
   - Check the flasher unit.
2. All turn-signal lights at the left (or right) side do not function.
   The hazard-warning lights function normally.
   - Check the hazard switch contact (turn-signal side).
   - Check the turn-signal switch. (Refer to P.8B-58.)
3. The number of flashes of the turn-signal lights is excessive.
   - Check the bulbs.
4. The hazard-warning lights do not function.
   The turn-signal lights function normally.
   - Check the' hazard warning switch contact.

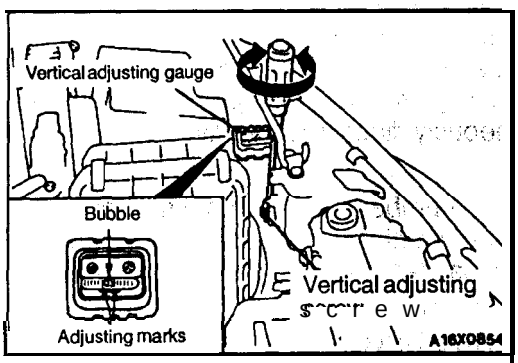
ON-VEHICLE SERVICE

HEADLIGHT AIMING

PRE-AIMING INSTRUCTIONS

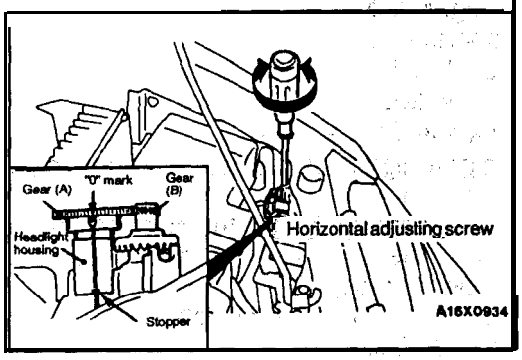
1. Inspect for badly rusted or faulty headlight assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Place vehicle on a level floor.
4. Bounce front suspension through three (3) oscillations by applying body weight to hood or bumper.
5. Inspect tire inflation.
6. Rock vehicle sideways to allow vehicle to -assume its normal position.
7. If fuel is not full, place a weight in trunk of vehicle to simulate weight of a full tank [3 kg (6.5 lbs.) per gallon.]
8. There should be no other load in the vehicle other than driver or substituted weight of approximately 70 kg (150 lbs.) placed in driver's position.

Thoroughly clean headlight lenses.



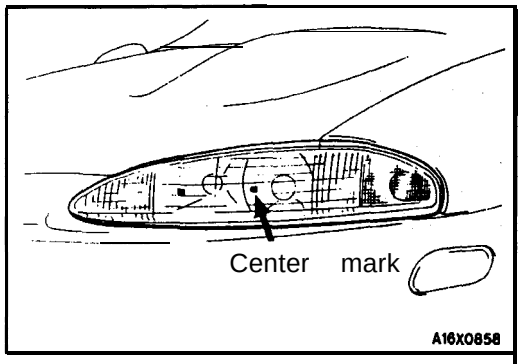
VERTICAL ADJUSTING

Adjust the vertical angle by rotating the vertical adjusting screw so that the bubble in the vertical adjusting gauge locates inside the. 'adjusting marks.



HORIZONTAL ADJUSTING

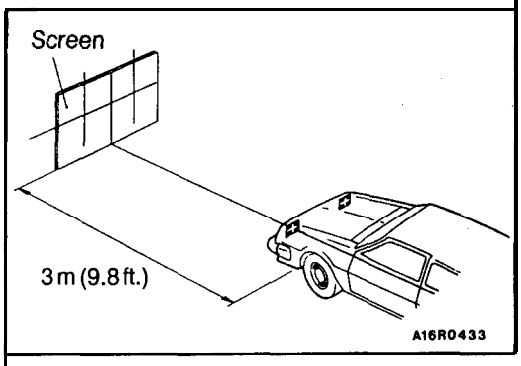
1. Check that gear (A) and gear (B) are engaged. If they are not engaged, press down the stopper until the gears engage.
2. Turn the horizontal adjusting screw to align the "0" mark of gear (B) with the stopper line and the headlight housing line.



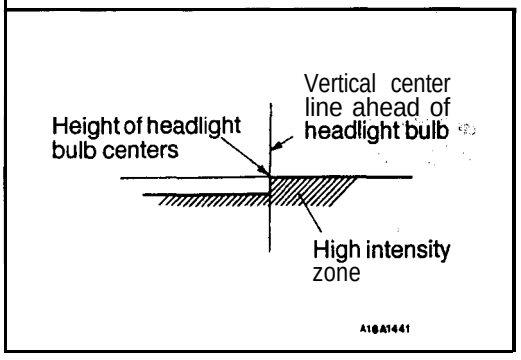
AIMING WITH SCREEN

Headlight Aim Preparation

1. Set the distance between the screen and the bulb center marks of the headlight as shown in the illustration.



2. Four lines of adhesive tape or like are required on screen or wall:
   (1) Position a vertical tape so that it is aligned with the vehicle center line.
   (2) Position a horizontal tape with reference to center line of headlight bulb.
   (3) Position a vertical tape on the screen with reference to the center line of each headlight bulb.



Visual Headlight Adjustment

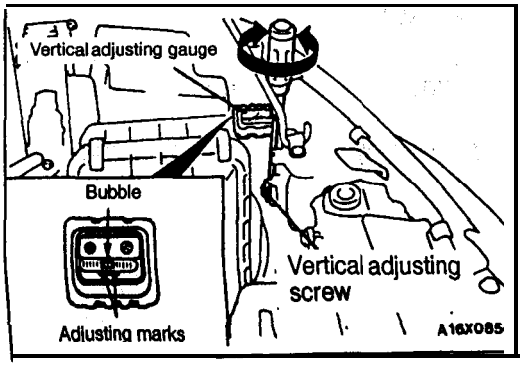
1. A properly aimed lower beam will appear on the aiming screen 3 m (9.8 feet) in front of the vehicle. The shaded area as shown in the illustration indicates high intensity zone.
2. Adjust low beam of headlights to match the low beam pattern of the right and left headlights.

Caution

When adjusting one headlight, the other headlight should be turned off if possible. If this is not possible, do not cover the other headlight for more than three minutes while it is turned on. Otherwise, heat from the bulb may warp the headlight lens.

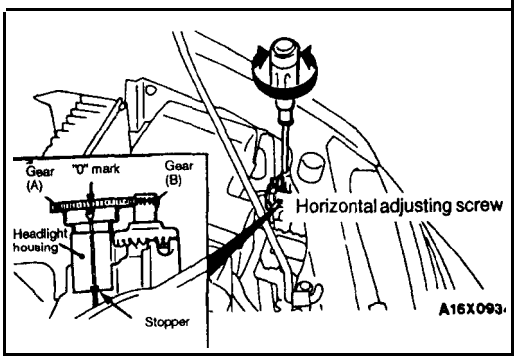
NOTE

If the visual headlight adjustment at low beam is made, the adjustment at high beam is not necessary.



Vertical Adjusting

1. Adjust the vertical angle by rotating the vertical adjusting screw so that the bubble in the vertical adjusting gauge locates inside the adjusting marks.
2. Check to see if the light distribution projected on the aiming screen is as same as the light distribution pattern described in Visual Headlight Adjustment.
3. In case they differ, turn the vertical adjusting screw to adjust the vertical angle until the light distribution coincides with the correct) lighting pattern.



Horizontal Adjusting

1. Check that gear (A) and gear (B) are engaged. If they are not engaged, press down the stopper until the gears engage.
2. Check to see if the light distribution projected on the aiming screen is as same as the light distribution pattern described in Visual Headlight Adjustment.
3. In case they differ, turn the vertical adjusting screw to adjust the vertical angle until the light distribution coincides with the correct lighting pattern.
4. Turn the horizontal adjusting screw to align the "0" mark of gear (B) with the stopper line and the headlight housing line.

LUMINOUS INTENSITY MEASUREMENT

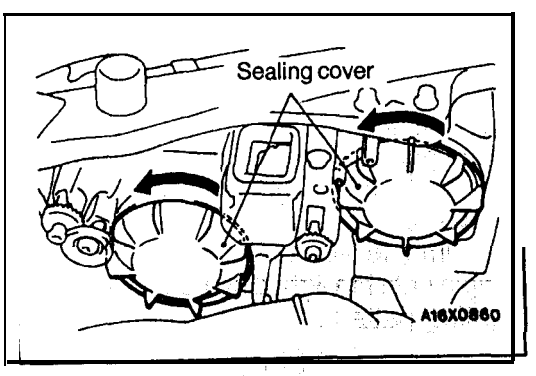
Measure the luminous intensity of headlights with a photometer in accordance with the instruction manual prepared by the manufacturer of the photometer and make sure that the luminous intensity is within the following limit.

Limit:

High-beam: 18,000 cd or more
Low-beam: 7,000 cd or more

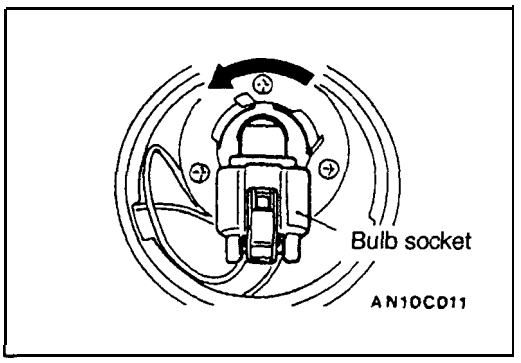
NOTE

1. When measuring the luminous intensity of headlight, keep the engine at 2,000 rpm and have the battery charged.
2. If there are specific regulations for luminous intensity of headlights in the region where the vehicle is operated, make sure that the intensity conforms to the requirements of such regulations.



HEADLIGHT BULB REPLACEMENT

(1) Remove the air cleaner assembly and radiator reserve tank. (When replacing the right headlight for turbo vehicles)
(2) Remove the sealing cover by turning it counterclockwise.



(3) Remove the bulb socket by turning it counterclockwise, and then remove the bulb.

Caution
Do not touch the surface of the bulb glass with hands or dirty gloves. If the glass does become dirty, clean it with alcohol or thinner, and let it dry thoroughly before installing.

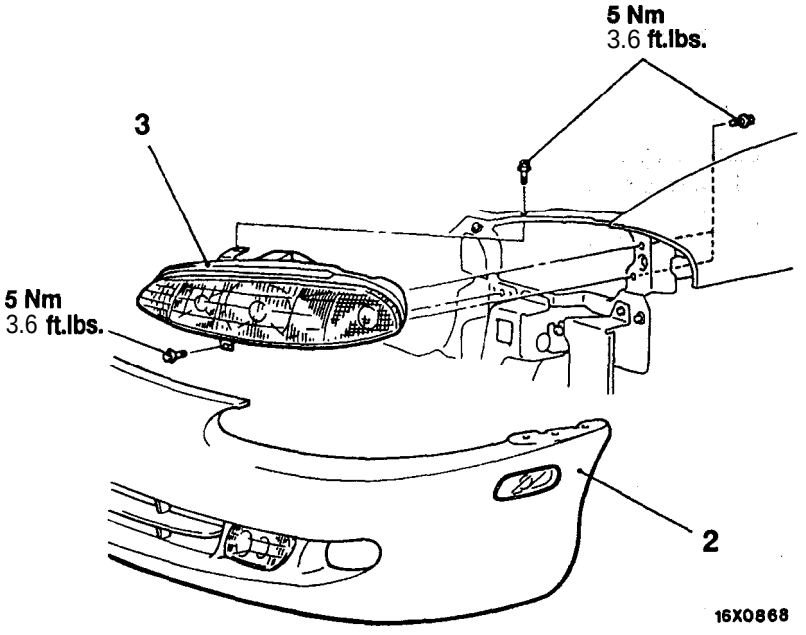
(4) Install the sealing cover securely after the bulb replacenient, or the lens will be out of focus, or water will get inside the light unit.

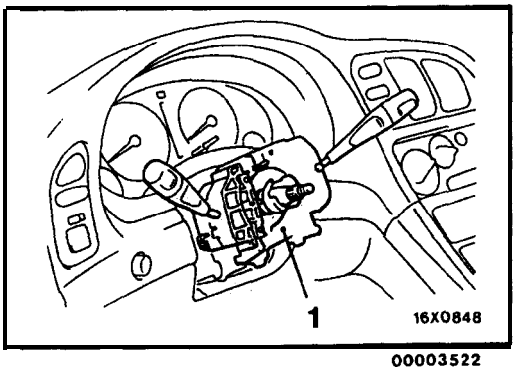
HEADLIGHT, FRONT TURN-SIGNAL LIGHT AND POSITION LIGHT ASSEMBLY

REMOVAL AND INSTALLATION

CAUTION: SRS
Before removal of air bag module and clock spring, refer to GROUP 23B – Service Precautions, Air Bag Module and Clock Spring.

Pre-removal and Post-installation Operation
Removal and Installation of Air Cleaner Assembly and Radiator Reserve Tank. (When removing the right headlight for turbo vehicles)





00003522

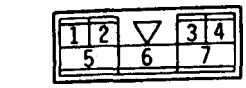
Column switch removal steps

1. Column switch <Lighting switch and dimmer/passing switch> (Refer to P.8B-117.)

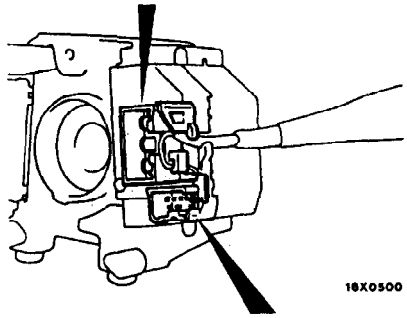
Headlight, front turn-signal light and position light removal steps

2. Front bumper (Refer to GROUP 23A – Front Bumper)
3. Headlight, front turn-signal light and position light assembly

Lighting switch and dimmer/passing switch connector

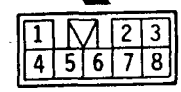


16X0203



16X0500

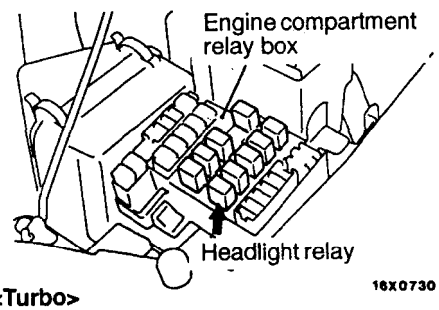
Turn-signal light switch connector



16X0202

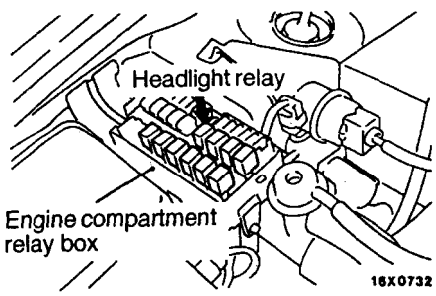
00003523

<Non-turbo>

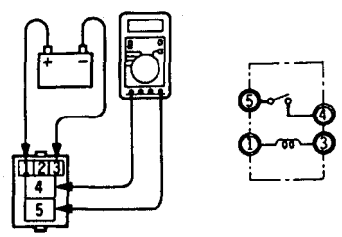


16X0730

<Turbo>



16X0732



18W0350
00003524

INSPECTION

COLUMN SWITCH CONTINUITY CHECK

<Lighting Switch and Dimmer/Passing Switch>

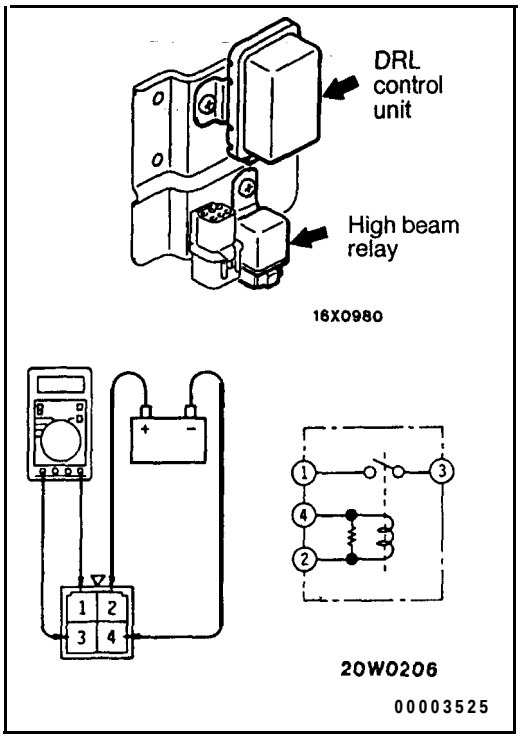
Switch position		Terminal No. 1	2	3	4	5	6	7
LIGHTING SWITCH	OFF							
	TAIL		○		○			
	HEAD		○		○			
DIMMER/PASSING SWITCH	Low-beam						○	○
	High-beam					○	○	
	PASSING	○	○			○		

<Turn-signal light switch>

Switch position		Terminal No. 5	7	a
TURN-SIGNAL LIGHT SWITCH	RH	○		○
	OFF			
	LH		○	○

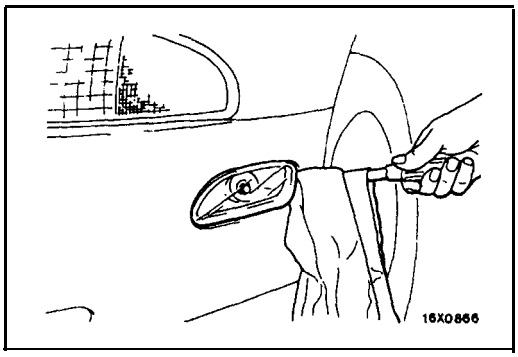
HEADLIGHT RELAY CONTINUITY CHECK

Battery voltage	Terminal No. 1	3	4	5
Power is not supplied	○	○		
Power is supplied	⊕	⊖		○ ○



HIGH BEAM RELAY CONTINUITY CHECK

Battery voltage	Terminal No.			
	1	3	2	4
Power is not supplied			0 —— 0	
Power is supplied	0 —— O		⊕ - - - ⊖	



FRONT SIDE-MARKER LIGHT

REMOVAL SERVICE POINTS

FRONT SIDE-MARKER LIGHT REMOVAL

Use a flat-tip screwdriver to remove the front side-marker light from the front bumper.

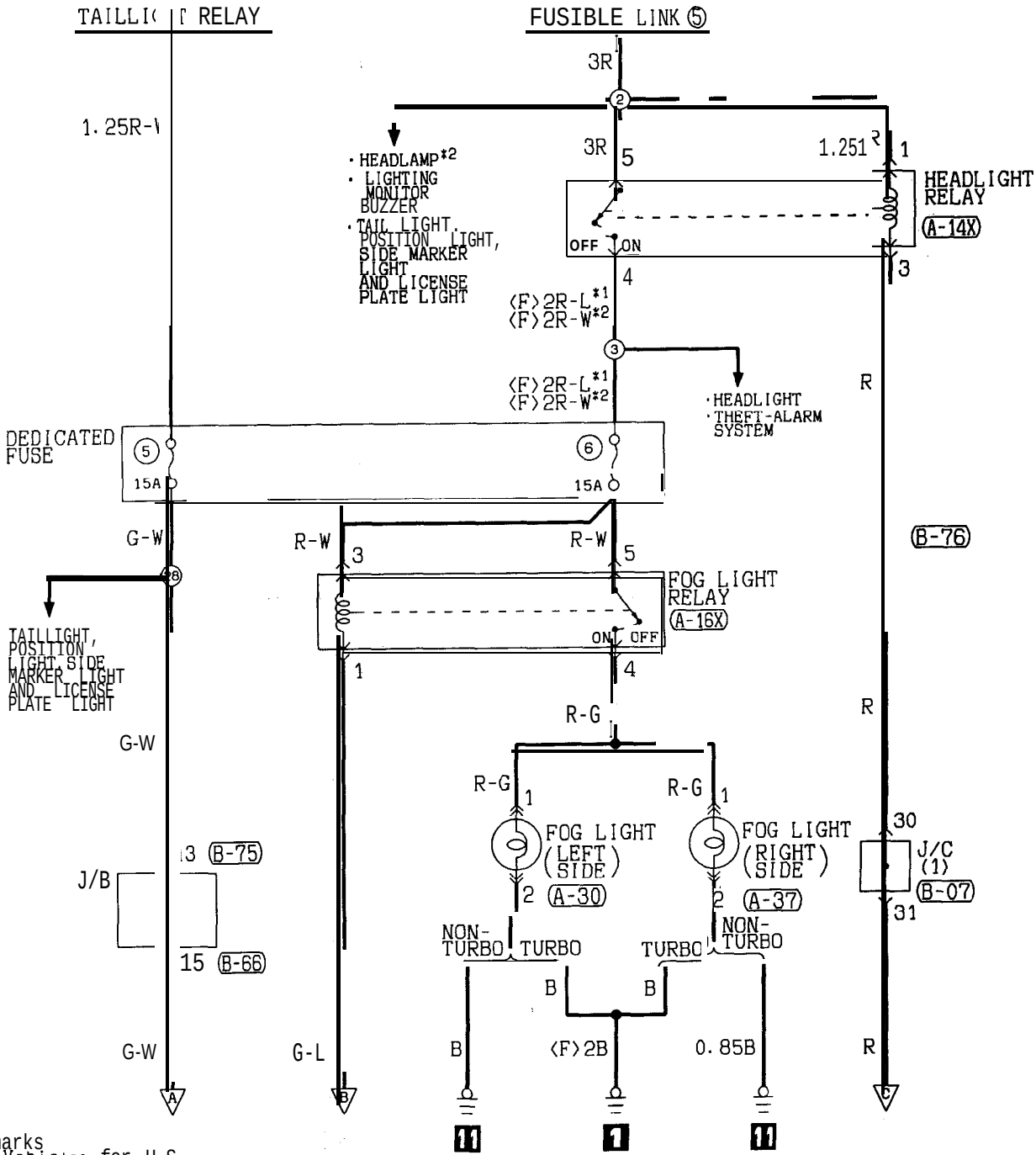
FOG LIGHT

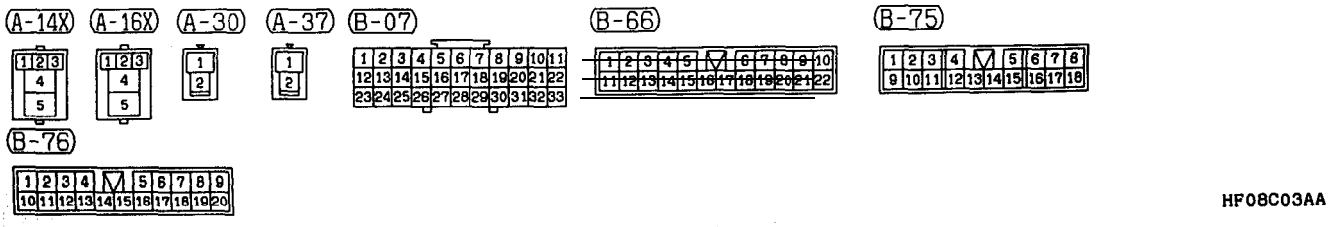
SERVICE SPECIFICATIONS

Items		Standard value
Fog light aiming	Vertical direction	150 mm (5.9 in.) below horizontal (H)
	Horizontal direction	Parallel to direction of vehicles travel

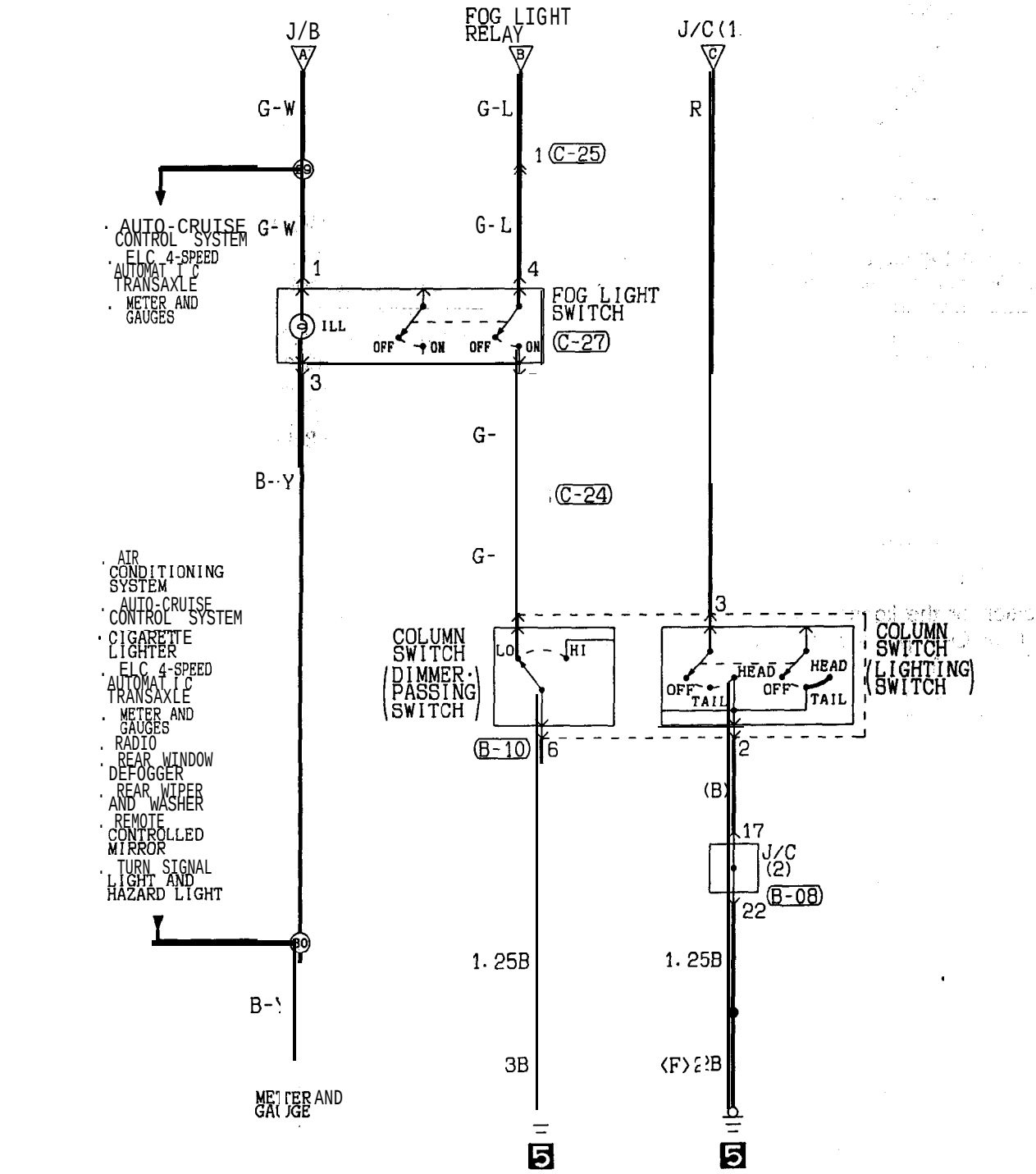
TROUBLESHOOTING

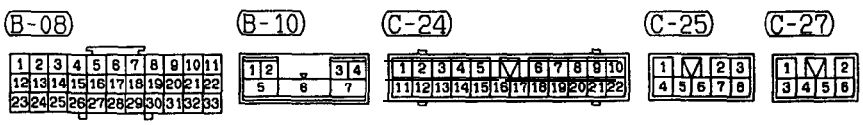
Fog Light Circuit





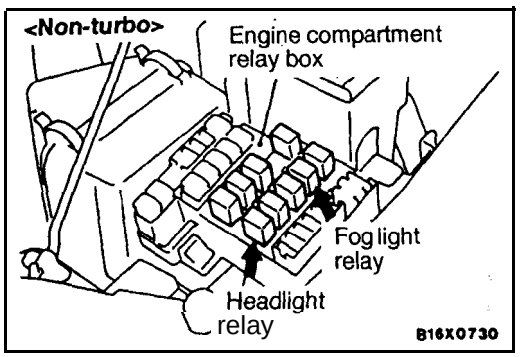
HF08C03AA

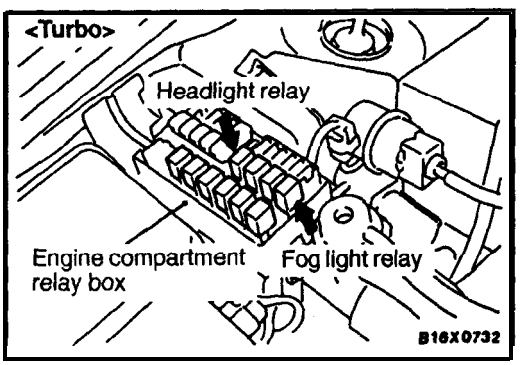

J/B
FOG LIGHT RELAY
J/C(1
G-W
G-L
R
1 C-25
AUTO-CRUISE CONTROL SYSTEM
ELC 4-SPEED AUTOMATIC TRANSAXLE
METER AND GAUGES
G-W
G-L
1
4
ILL
OFF
ON
OFF
ON
FOG LIGHT SWITCH
C-27
3
G-
B-Y
C-24
G-
AIR CONDITIONING SYSTEM
AUTO-CRUISE CONTROL SYSTEM
CIGARETTE LIGHTER
ELC 4-SPEED AUTOMATIC TRANSAXLE
METER AND GAUGES
RADIO
REAR WINDOW DEFOGGER
REAR WIPER AND WASHER
REMOTE CONTROLLED MIRROR
TURN SIGNAL LIGHT AND HAZARD LIGHT
30
B-
METER AND GAUGE
COLUMN SWITCH (DIMMER·PASSING SWITCH)
LO
HI
3
OFF
HEAD
TAIL
HEAD
OFF
TAIL
COLUMN SWITCH (LIGHTING SWITCH)
B-10
6
2
(B)
17
J/C (2)
B-08
22
1.25B
1.25B
3B
(F)2B
5
5


B-08
B-10
C-24
C-25
C-27

HF08C03AB

COMPONENT LOCATION





OPERATION

- When the fog light switch is placed in the ON position with the lighting switch in the HEAD position and the dimmer switch in the LO position, current flows through the dedicated fuse No. 7 to the coil of the fog light relay, the fog light switch, the dimmer switch and ground, causing the contacts of the fog light relay to close.
  When the contacts of the fog light relay close, current flows through the dedicated fuse No. 7 to the contacts of the fog light relay, the fog lights and ground, causing the fog lights to come on.
- When the dimmer switch is placed in the HI position or the lighting switch is placed in the. TAIL or OFF position while the fog lights are ON, current supply to the fog light relay or headlight relay is cut off. As a result, the contacts of the fog light relay open, and the fog lights go out.

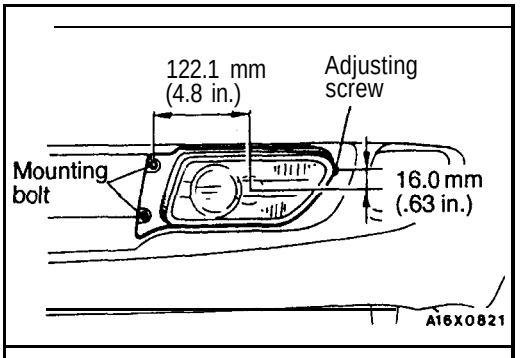
TROUBLESHOOTING HINTS

1. The right or left fog lights only go on.
   - Check the bulb.
2. Fog fights do not go on when the fog light switch is set at ON.
   - Check the dedicated fuse No. 6.
   - Check the fog light relay. (Refer to P.8B-67.)
   - Check the fog light switch. (Refer to P.8B-67.)

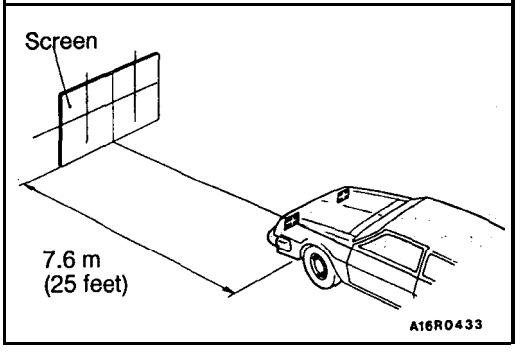
ON-VEHICLE SERVICE

FOG LIGHT AIMING

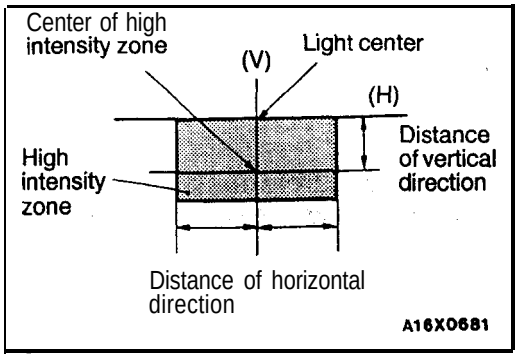
1. Inspect for badly rusted or faulty fog light.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Place vehicle on a level floor.
4. Bounce front suspension through three (3) oscillations by applying body weight to hood or bumper.
5. Inspect tire inflation.
6. Rock vehicle sideways to allow vehicle to assume its normal position.
7. If fuel tank is not full, place a weight in trunk of vehicle to simulate weight of a full tank [3 kg (6.5 lbs.) per gallon].
8. There should be no other load in the vehicle other than driver or substituted weight of approximately 70 kg (150 lbs.) placed in driver's position.
   Thoroughly clean fog light lenses.



9. Measure the center of the fog lights as shown in the illustration.

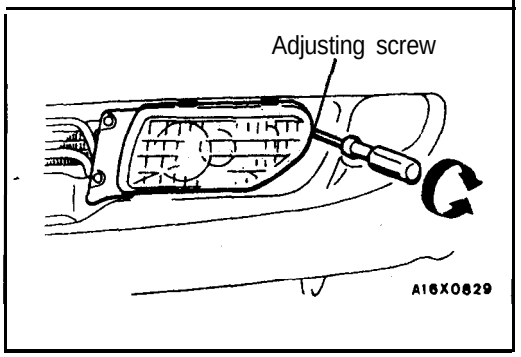


10. Set the distance between the screen and the center of the fog lights as shown in the illustration.



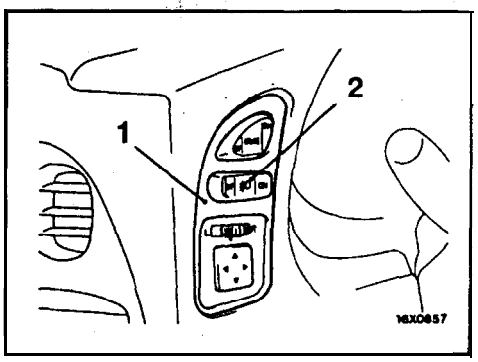
11. Check if the beam shining onto the screen is at the standard value.

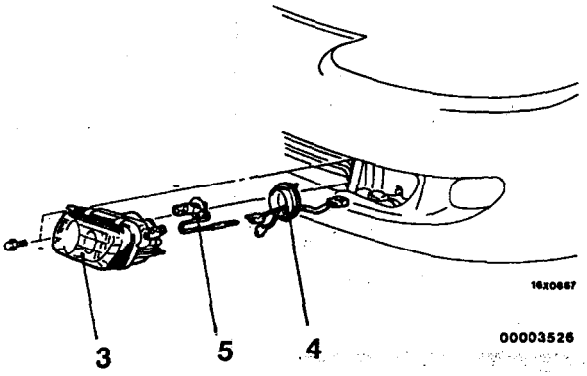
Standard value:
(Vertical direction)
150 mm (5.9 in.) below horizontal (H)
(Horizontal direction)
Parallel to direction of vehicle travel



NOTE
The horizontal direction is non-adjustable. If the deviation of the light beam axis exceeds the standard value, check that the mounting location or some other point is not defective.

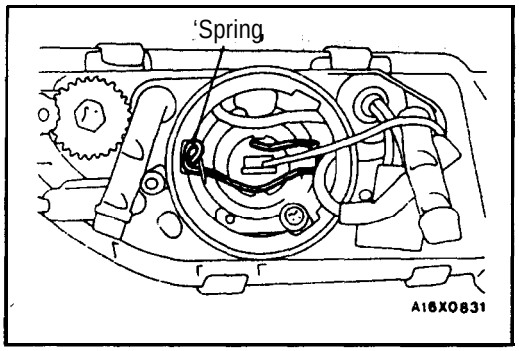
FOG LIGHT
REMOVAL AND INSTALLATION





Fog light switch removal steps
1. instrument panel switch
2. Fog light switch

Fog light removal steps
3. Fog light
▶A◀ 4. Sealing cover
◀A▶ 5. Bulb

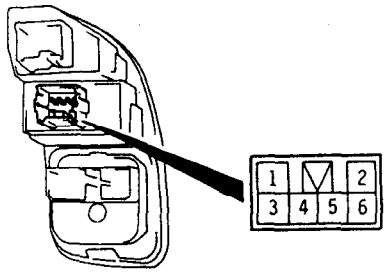


REMOVAL SERVICE POINT
◀A▶ BULB REMOVAL
Remove the bulb attaching spring and pull out the bulb.

Caution
Do not touch the surface of the bulb glass with hands or dirty gloves. If the surface does become dirty, clean it with alcohol or thinner, and let it dry thoroughly before installing.

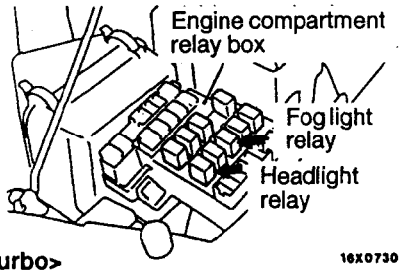
INSTALLATION SERVICE POINT
▶A◀ SEALING COVER INSTALLATION
Install the sealing cover securely.

Caution
If the sealing cover is not securely installed, the lens will be out of focus, or water will get inside the light unit.



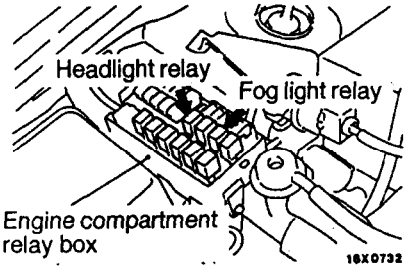
16X0849

<Non-turbo>

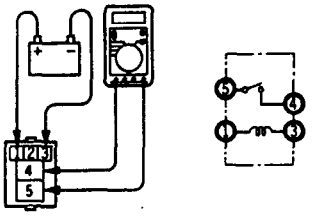


<Turbo>

16X0730



16X0732



16W0350
00003527

INSPECTION

FOG LIGHT SWITCH CONTINUITY **CHECK**

Switch position	Terminal No.				
	1		3	4	5
OFF	0 — ILL —		0		
ON	0 — ILL —		0	0 —	— O

FOG LIGHT RELAY CONTINUITY CHECK

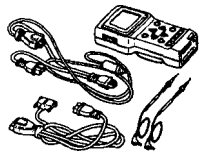
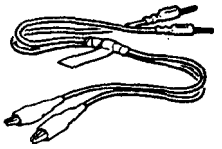
Battery voltage	Terminal No.				
	1	3	4	5	
Power is not supplied	O —	— O			
Power is supplied		o--o		O —	— O

HEADLIGHT RELAY CONTINUITY CHECK

Refer to P.8B-58.

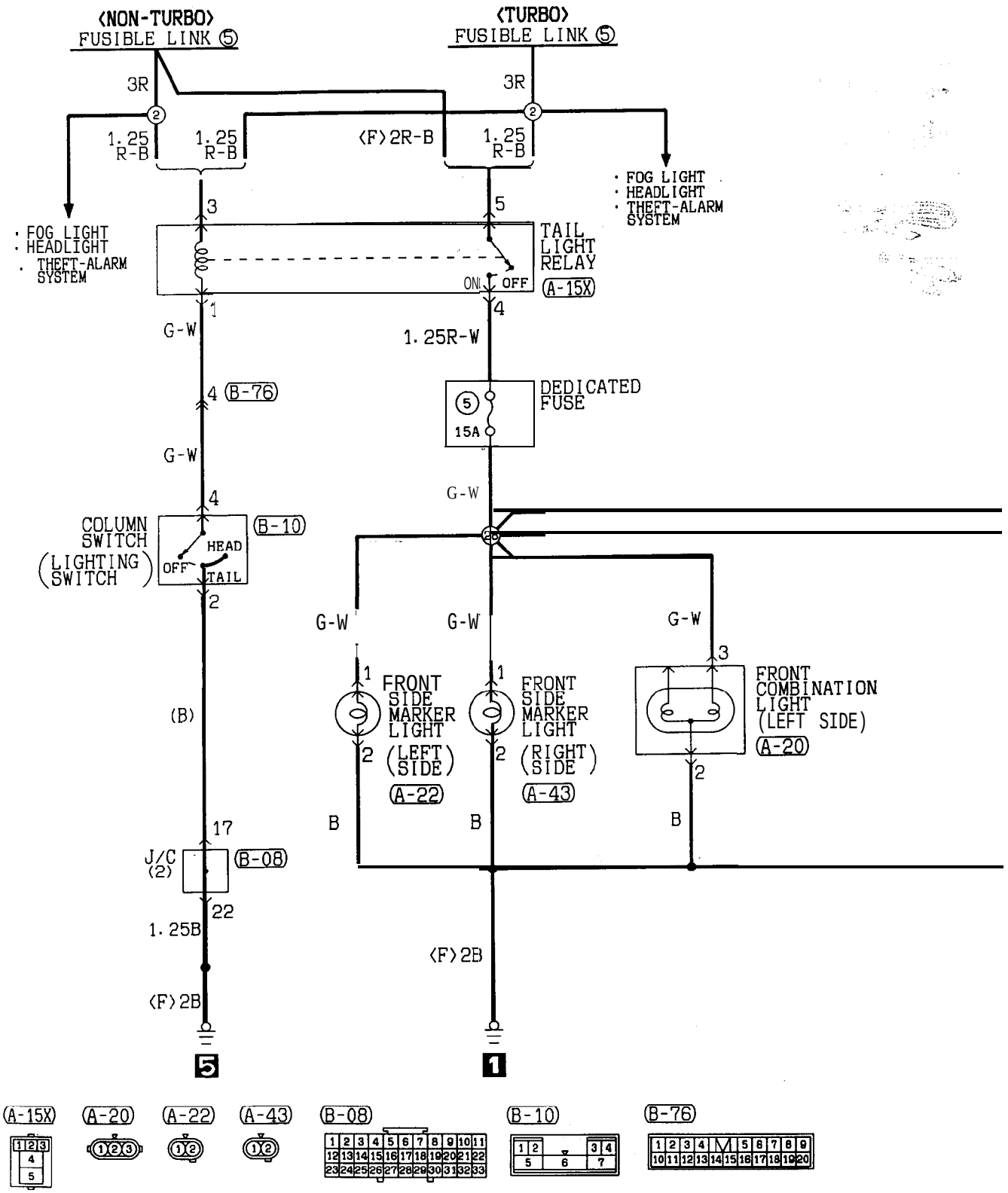
REAR COMBINATION LIGHT

SPECIAL TOOLS

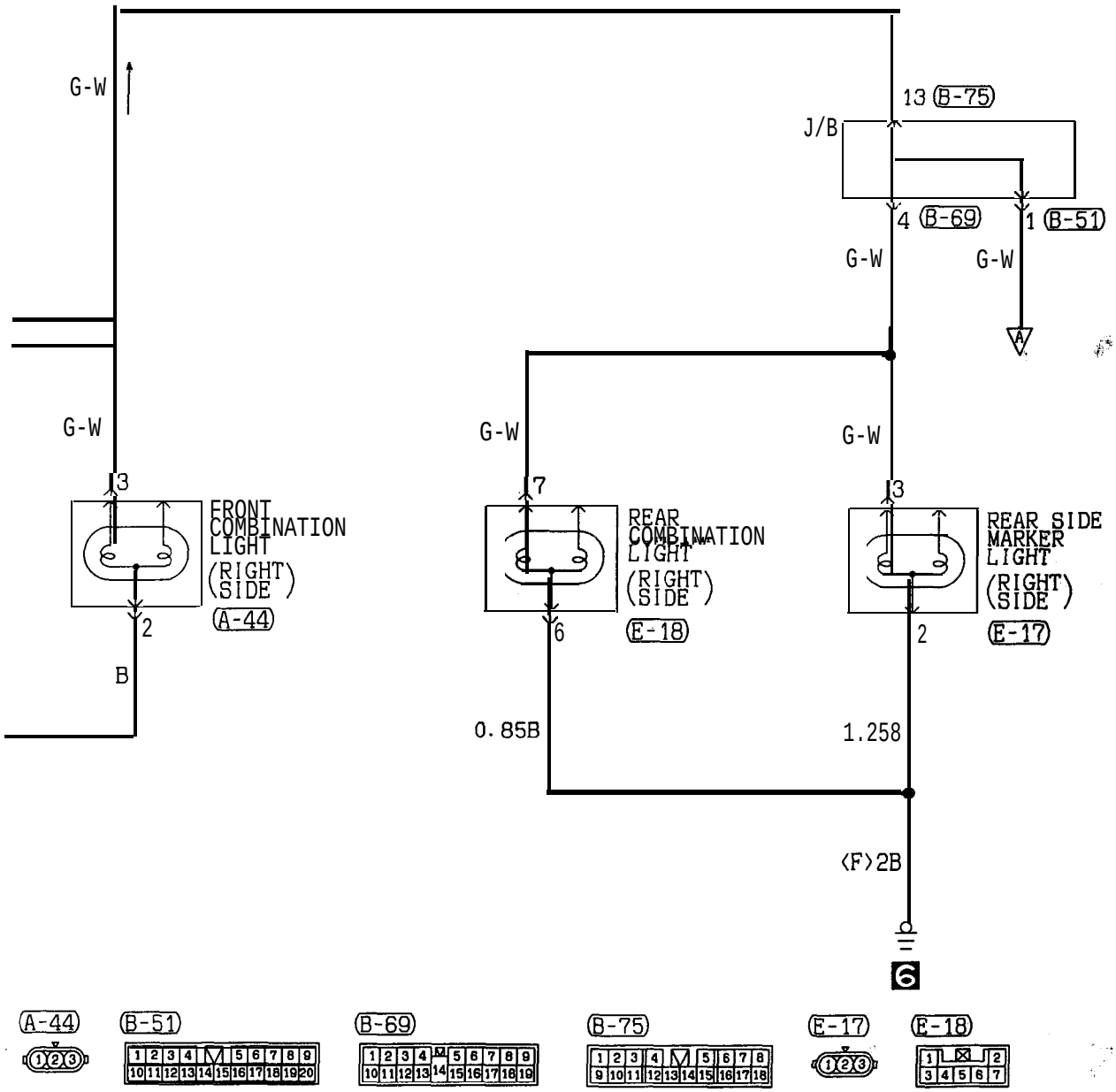
Tool	Tool number and name	Replaced by Miller tool number	Application
	MB991 502 Scan tool (MUT-II)	DRB-III scan tool	ETACS-ECU input signal checking
	MB991 529 Diagnostic trouble code check harness	MB991 529	ETACS-ECU input signal checking (When using a voltmeter)

TROUBLESHOOTING

Taillight, Position Light, Side-marker Light and License Plate Light Circuit



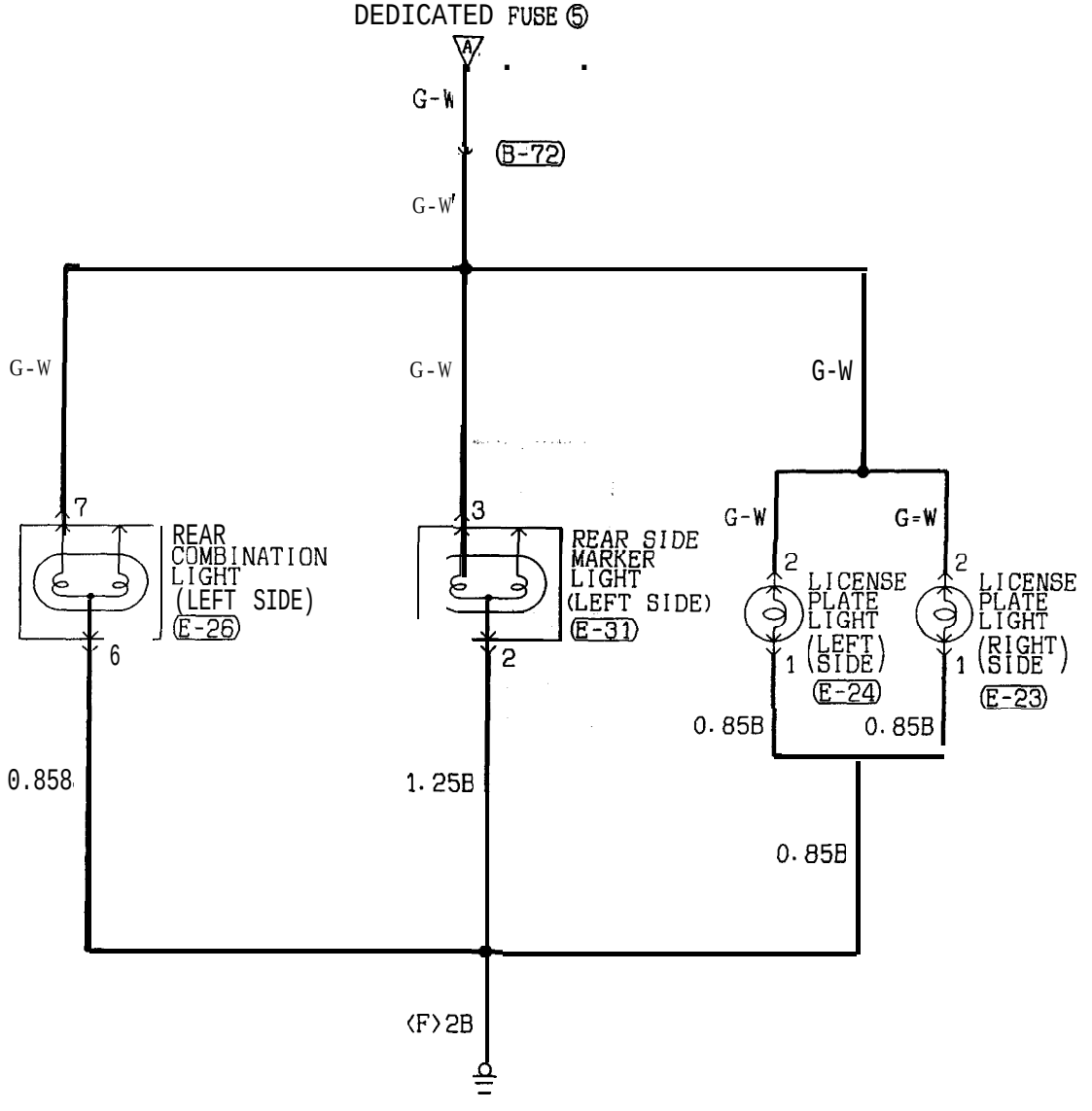
HF08C02AA

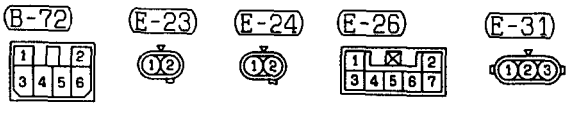

G-W
13 B-75
J/B
4 B-69
1 B-51
G-W
G-W
A
G-W
G-W
G-W
3
7
3
FRONT COMBINATION LIGHT (RIGHT) SIDE
A-44
REAR COMBINATION LIGHT (RIGHT) SIDE
E-18
REAR SIDE MARKER LIGHT (RIGHT) SIDE
E-17
2
6
2
B
0.85B
1.25B
(F)2B
6

A-44
B-51
B-69
B-75
E-17
E-18

HF08C02AB

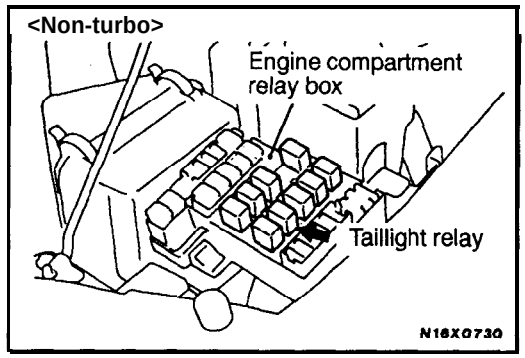
Taillight, Position Light, Side-marker Light and License Plate Light Circuit (CONTINUED)

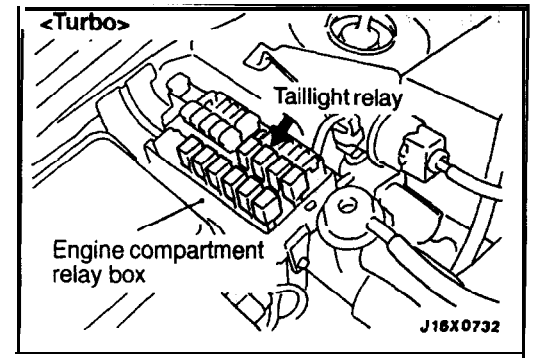




HF08C02BA

COMPONENT LOCATION





- The taillight relay is switched ON when the lighting switch is set to the "TAIL" or "HEAD" position.
- As a result, electricity flows via dedicated fuse No. 5 to each light, and each light illuminates.

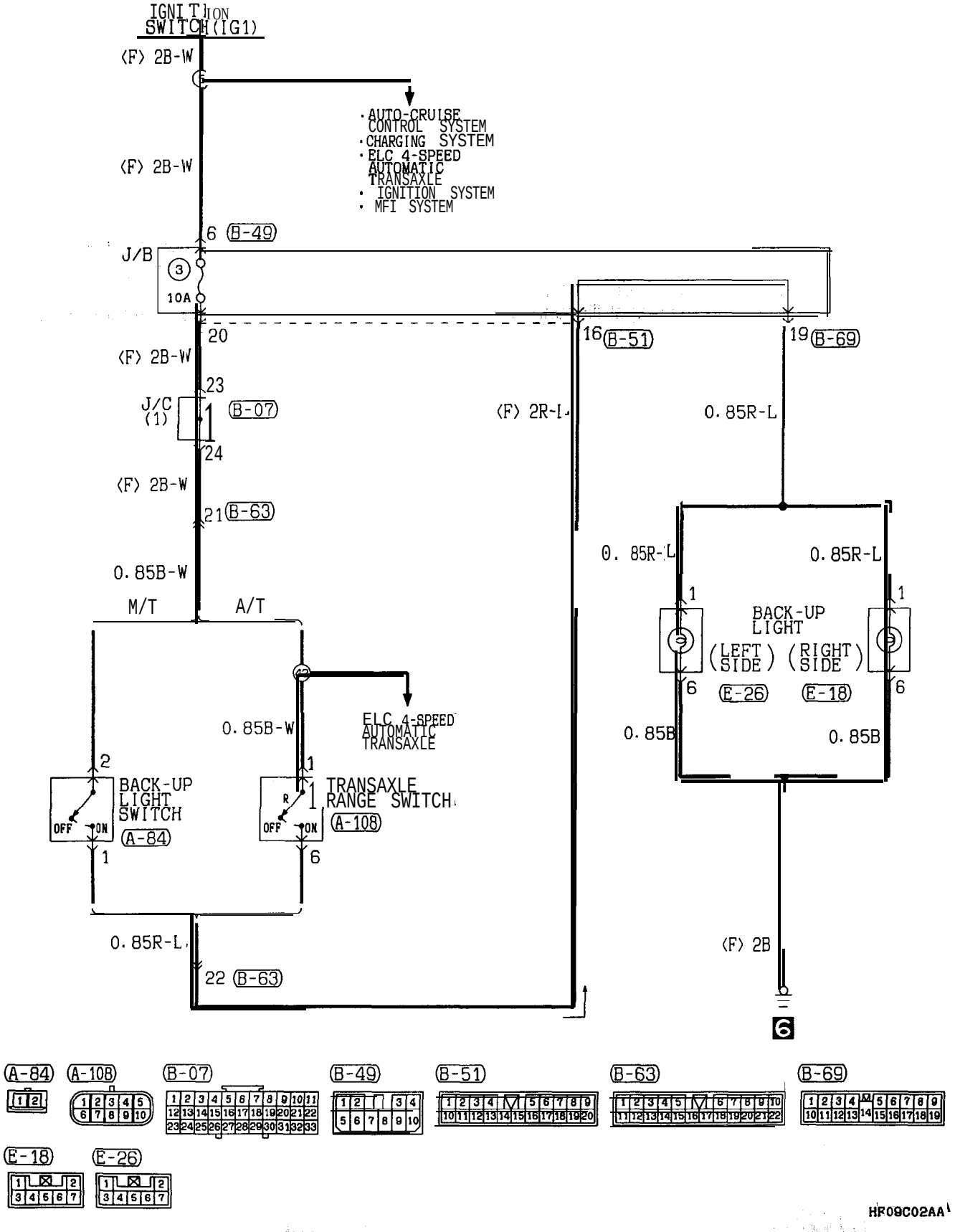
TROUBLESHOOTING HINTS

All lights do not illuminate.
(1) The headlights also do not illuminate.
- Check fusible link No. 5

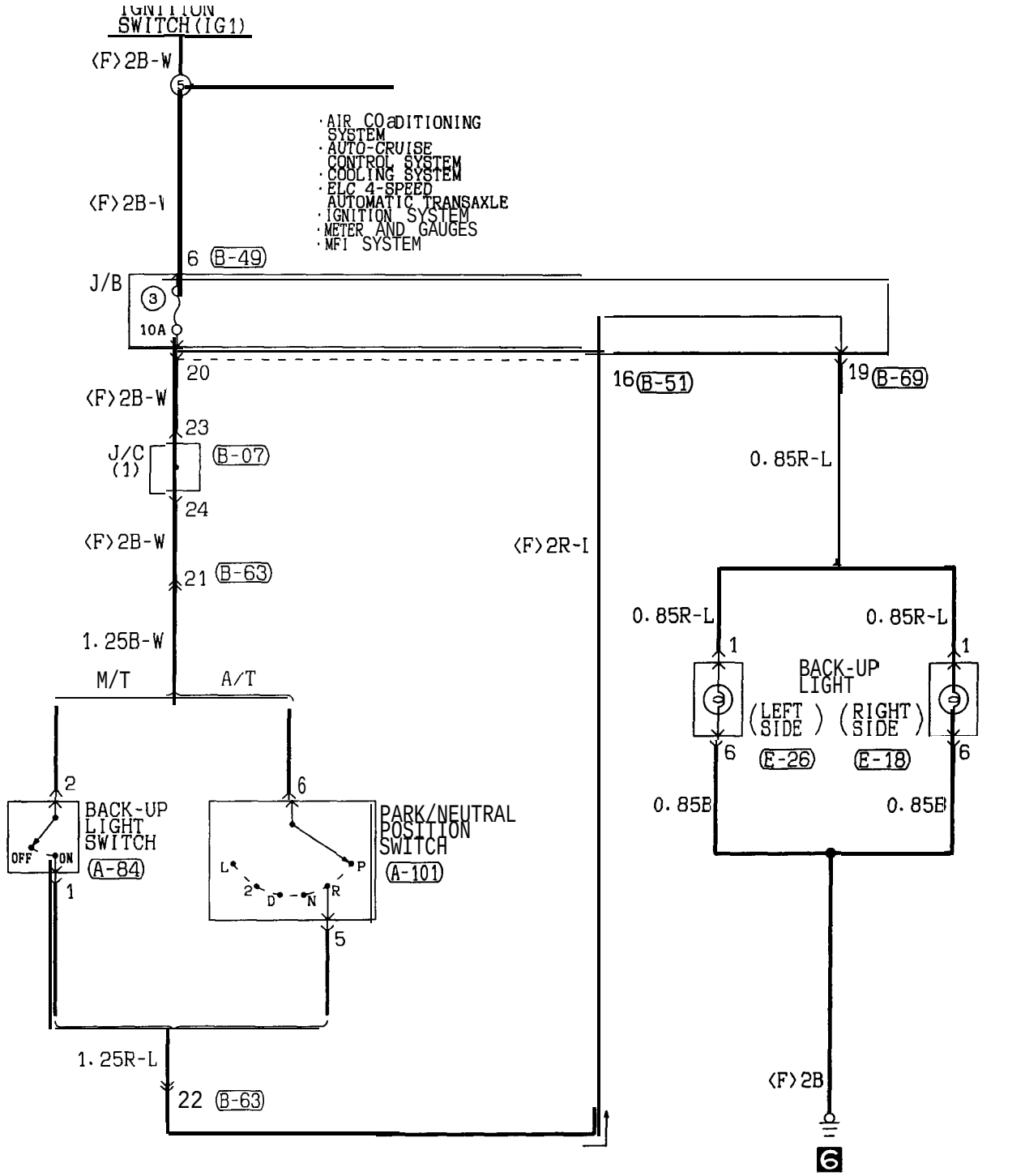
(2) The headlights illuminate.
- Check the taillight relay. (Refer to P.8B-87.)
- Check the dedicated fuse No. 5.

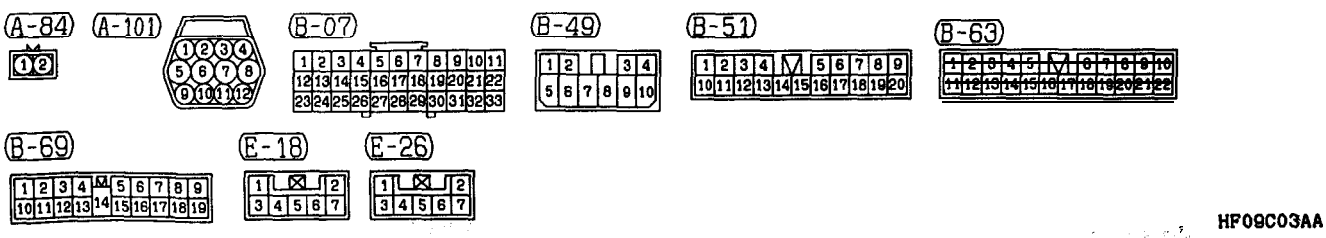
Back-up Light Circuit

<Non-turbo>



<Turbo>





HF09C03AA

OPERATION

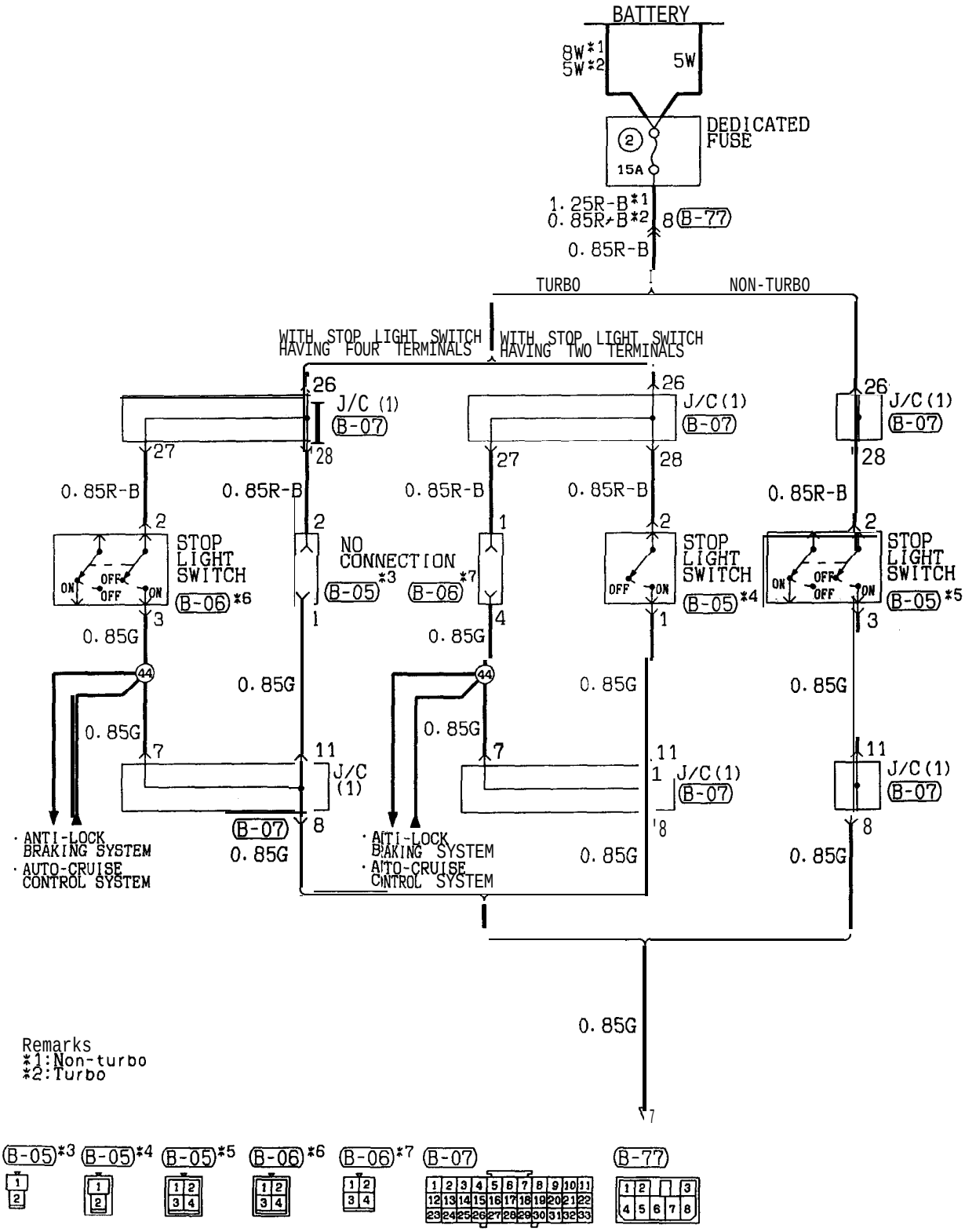
- When, with the ignition switch at the "ON" position, the shift lever (or the selector lever) is moved to the "R" position, the back-up light switch <M/T> is switched ON (or the transaxle range switch <non-turbo-A/T> park/neutral position switch <turbo-A/T> is switched to the "R" position), and the back-up light illuminates.

TROUBLESHOOTING HINTS

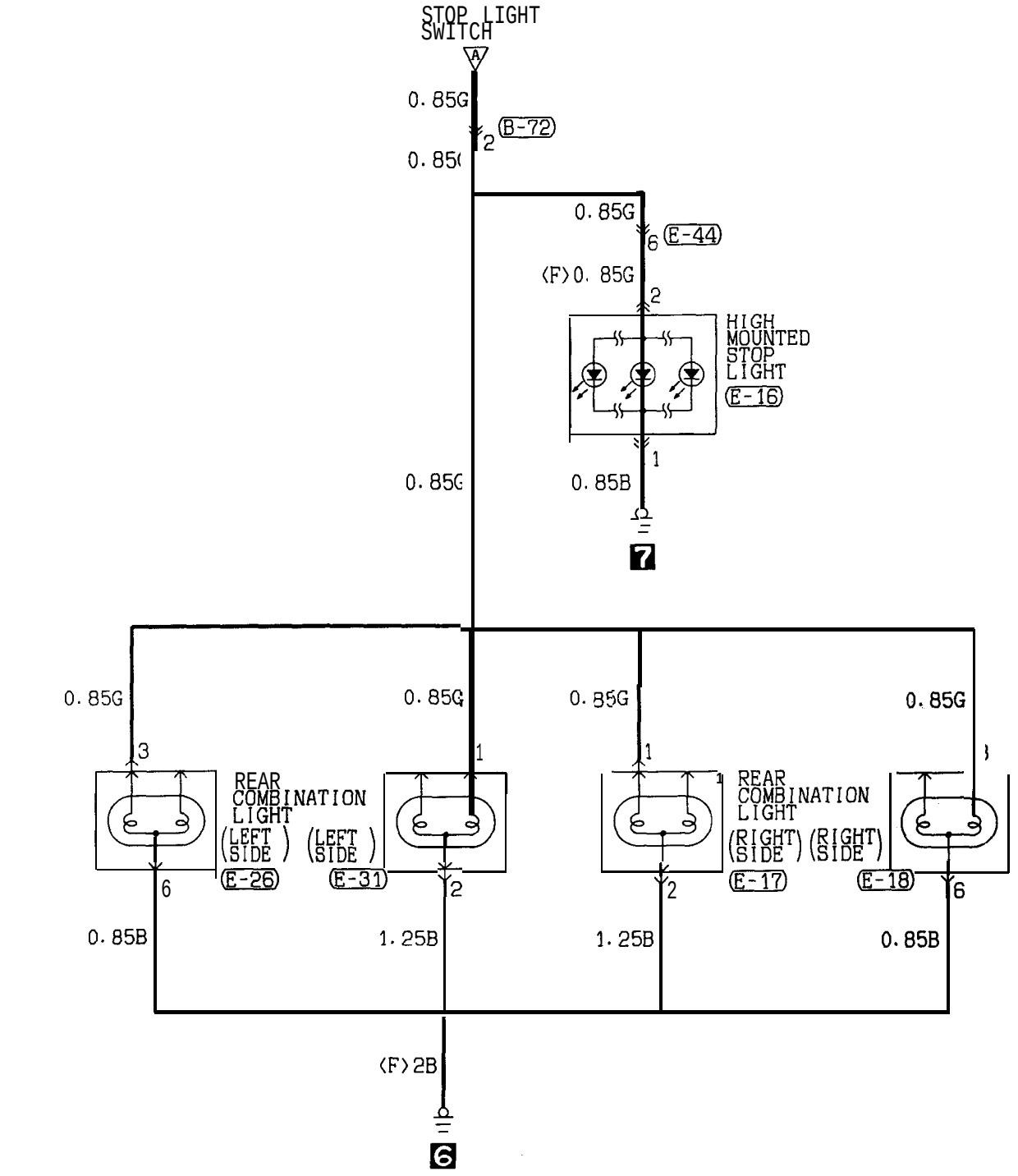
Even if the shift lever (or the selector lever) is moved to "R" position, the back-up light will not illuminate.

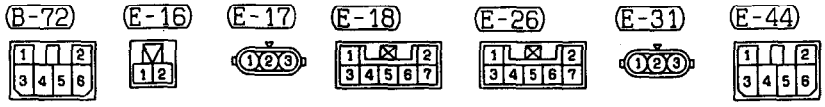
- Check the back-up light switch <M/T>
- Check the transaxle range switch <non-turbo-A/T> or park/neutral position switch <turbo-A/T> (Refer to GROUP 21 B-On-vehicle Service)
- Check the back-up light bulb.

Stop Light Circuit



HF09C01AA


STOP LIGHT SWITCH
A
0.85G
B-72
2
0.85(
0.85G
6
E-44
(F)0.85G
2
HIGH MOUNTED STOP LIGHT
E-16
1
0.85(
0.85B
7
0.85G
0.85G
0.85G
0.85G
3
1
1
3
REAR COMBINATION LIGHT (LEFT SIDE)
E-26
(LEFT SIDE)
E-31
REAR COMBINATION LIGHT (RIGHT SIDE)
E-17
(RIGHT SIDE)
E-18
6
2
2
6
0.85B
1.25B
1.25B
0.85B
(F)2B
6


B-72
E-16
E-17
E-18
E-26
E-31
E-44

HF09C01AB

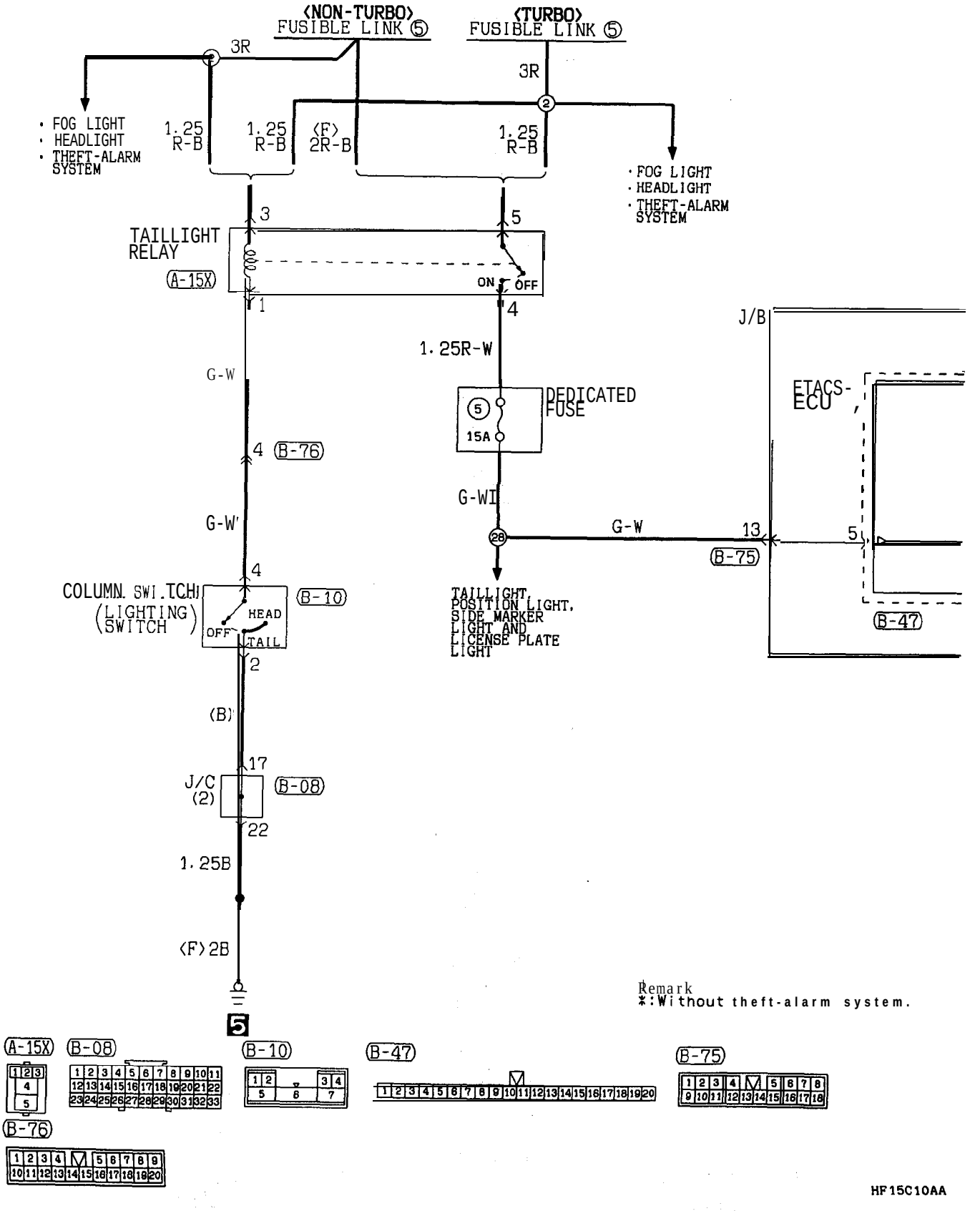
OPERATION

- Battery voltage is always applied to the stop light switch through the dedicated fuse No. 2.
- When the brake pedal is pressed, the stop light switch will be turned "ON" to turn on the stop lights.

TROUBLESHOOTING HINTS

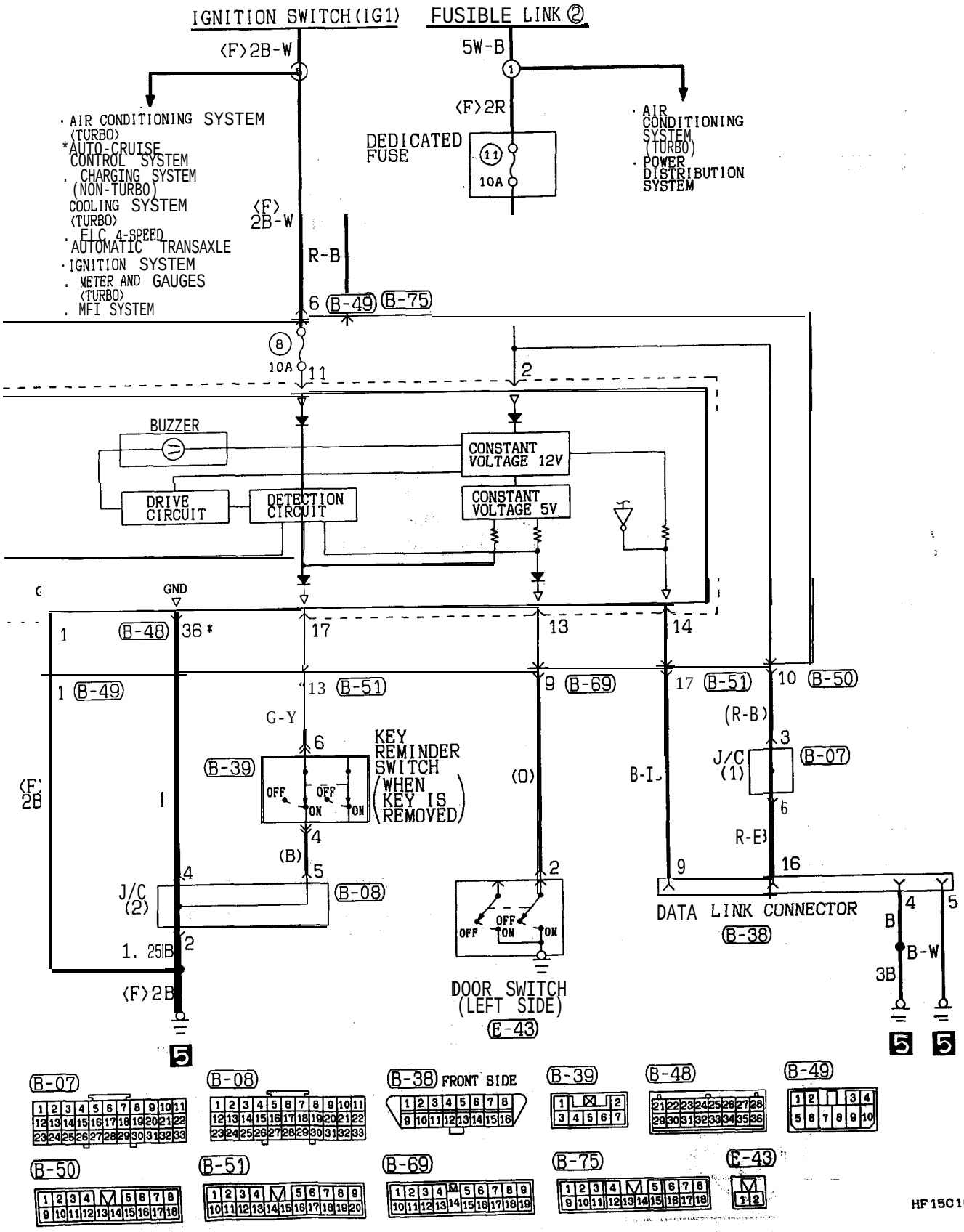
1. The stop lights do not come on.
   - Check the stop light switch. (Refer to GROUP 5A – On-vehicle Service.)
   - Check the dedicated fuse No. 2.
2. A stop light does not illuinate.
   - Check the ground circuit.

Lighting Monitor Buzzer Circuit



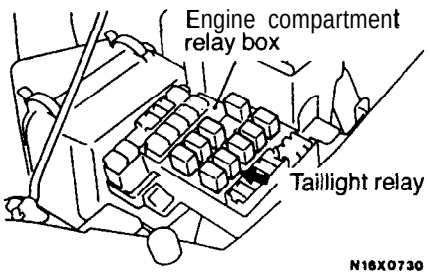
Remark
*: Without theft-alarm system.

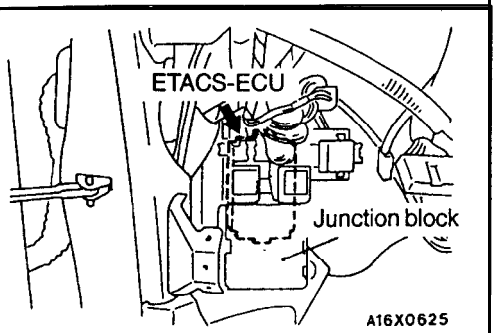
HF15C10AA


IGNITION SWITCH(IG1)
FUSIBLE LINK ②
⟨F⟩2B-W
5W-B
· AIR CONDITIONING SYSTEM ⟨TURBO⟩
*AUTO-CRUISE CONTROL SYSTEM
· CHARGING SYSTEM (NON-TURBO)
COOLING SYSTEM ⟨TURBO⟩
· ELC 4-SPEED AUTOMATIC TRANSAXLE
· IGNITION SYSTEM
· METER AND GAUGES ⟨TURBO⟩
· MFI SYSTEM
⟨F⟩2R
DEDICATED FUSE
10A
· AIR CONDITIONING SYSTEM (TURBO)
· POWER DISTRIBUTION SYSTEM
⟨F⟩2B-W
R-B
6 B-49 B-75
10A
BUZZER
CONSTANT VOLTAGE 12V
DRIVE CIRCUIT
DETECTION CIRCUIT
CONSTANT VOLTAGE 5V
GND
1 B-48 36 *
1 B-49
13 B-51
17
13
9 B-69
14
17 B-51
10 B-50
G-Y
KEY REMINDER SWITCH (WHEN KEY IS REMOVED)
B-39
OFF
ON
(B)
(O)
B-L
(R-B)
J/C (1)
B-07
R-B
J/C (2)
B-08
1. 25B
⟨F⟩2B
DOOR SWITCH (LEFT SIDE)
E-43
DATA LINK CONNECTOR
B-38
B
B-W
3B
5
B-07
B-08
B-38 FRONT SIDE
B-39
B-48
B-49
B-50
B-51
B-69
B-75
E-43
HF15C10AB

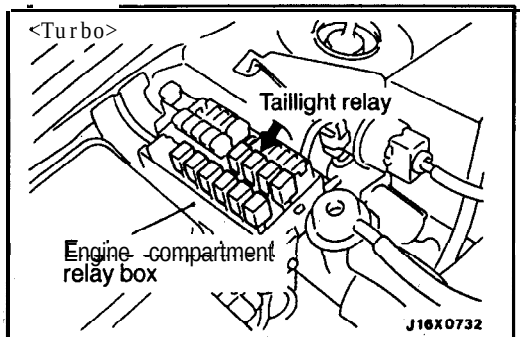
COMPONENT LOCATION

<Non-turbo>



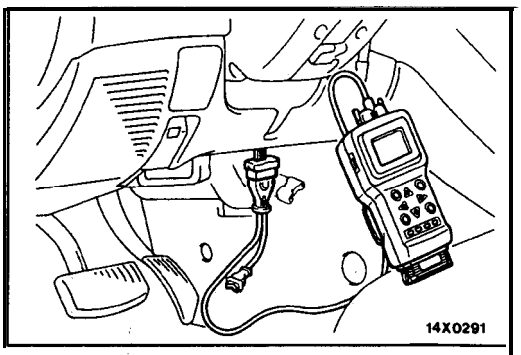


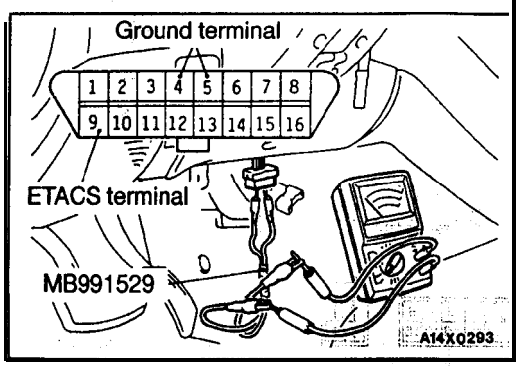
<Turbo>



OPERATION

- When, with the tail light illuminated (lighting switch-tail), the ignition switch is turned off and the driver's door is opened (door switch is switched ON), the ECU detective circuit will function.
- With the detective circuit activated, buzzer output makes the buzzer sound continuously to remind that the taillight is illuminated.
- The key reminder buzzer has a function priority to the lighting monitor buzzer. With the key inserted in the key cylinder, buzzer sounds intermittently.





DIAGNOSTIC FUNCTION

INPUT SIGNAL INSPECTION POINTS

When Using the Scan Tool

1. Connect the scan tool to the data link connector.

   Caution
   Always turn off the ignition switch when connecting and disconnecting the scan tool.

2. If buzzer of the scan tool sounds once when a switch is operated (ON/OFF), the ECU input signal for that switch circuit system is normal.

When Using a Voltmeter

1. Use the special tool to connect a voltmeter between the ground terminal and the ETACS terminal of data link connector.
2. If the voltmeter indicator deflects once when a switch is operated (ON/OFF), the ECU input signal forth& switch circuit system is normal.

INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom		Inspection procedure No.	Reference page
Communication with scan tool is not possible.	Communication with all systems is not possible.	1	P. 8B-85
	Communication with one-shot pulse input signal only is not possible.	2	P. 8B-85
While the tail lights or headlight are illuminated, driver's side door is opened but the light reminder warning buzzer does not sound. (With the ignition key inserted in the key cylinder, the ignition key reminder warning buzzer sounds.)		3	P. 8B-85

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

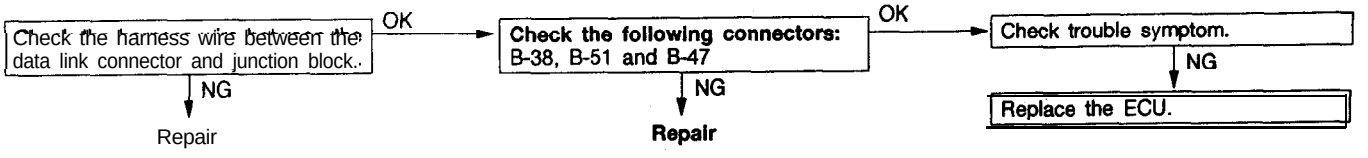
INSPECTION PROCEDURE 1

Communication with scan tool is not possible. (Communication with all systems is not possible.)	**Probable cause**
[Comment] The cause is probably a defect in the power supply system (including ground) for the diagnostic line.	• Malfunction of connector • Malfunction harness wire

Refer to GROUP 14A – Troubleshooting.

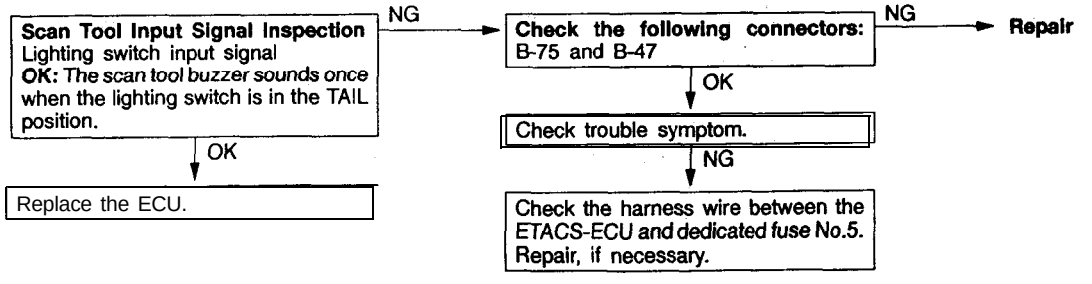
INSPECTION PROCEDURE 2

Communication with scan tool is not possible. (Communication with one-shot pulse input signal only is not possible.)	**Probable cause**
[Comment] The cause probably a defective one-shot pulse input signal circuit system of the diagnostic line.	• Malfunction of connector • Malfunction of harness wire • Malfunction of ECU



INSPECTION PROCEDURE 3

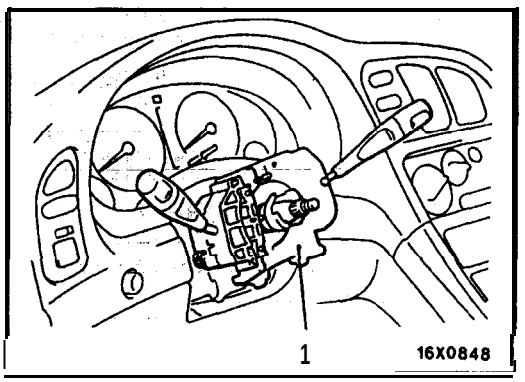
While the taillights *or* headlight are illuminated, driver's side door is opened but the light reminder warning buzzer does not sound. (With the ignition key inserted in the key cylinder, the ignition key reminder warning buzzer sounds.)	**Probable cause**
[Comment] The cause is probably a defective lighting switch input circuit system or a defective ECU. While the ignition key reminder warning buzzer sounds, the taillight or headlight are turned ON but the light reminder warning buzzer does not sound.	• Malfunction of connector • Malfunction of harness wire • Malfunction of ECU

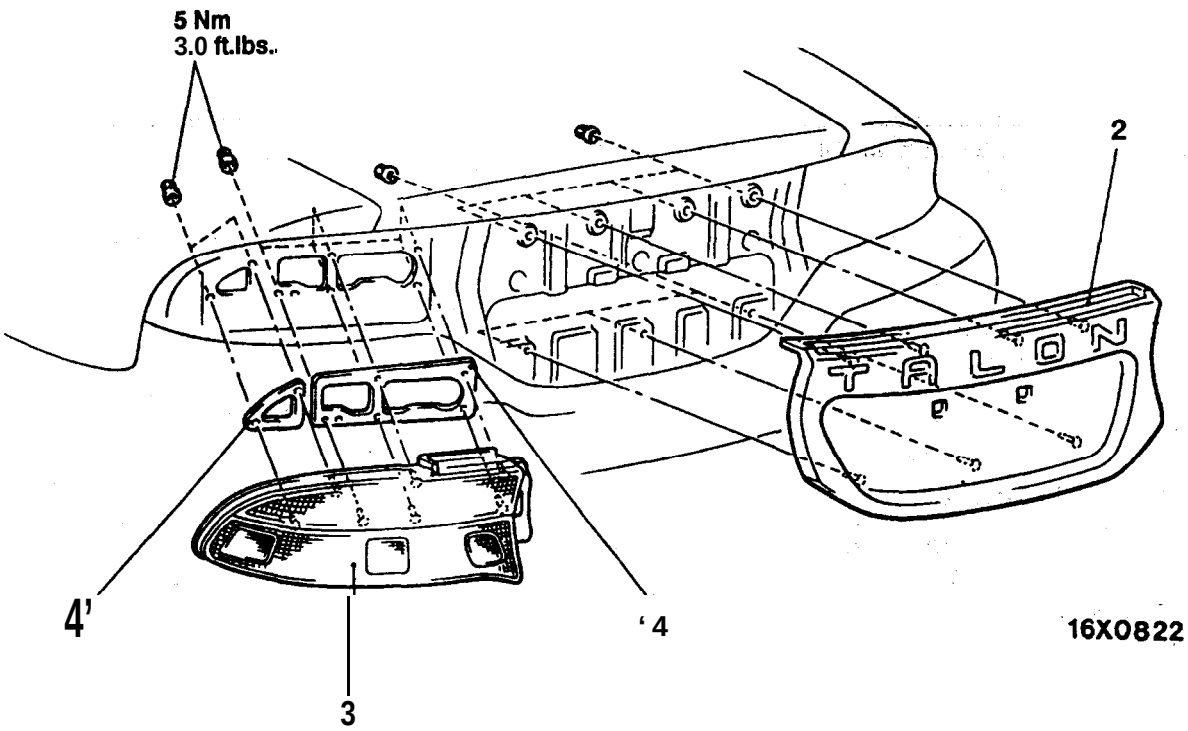


REAR COMBINATION LIGHT

REMOVAL AND INSTALLATION

CAUTION: SRS
Before removal of air bag module and clock spring, refer to GROUP 23B–SRS Service Precautions and Air Bag Module and Clock Spring.





00003528

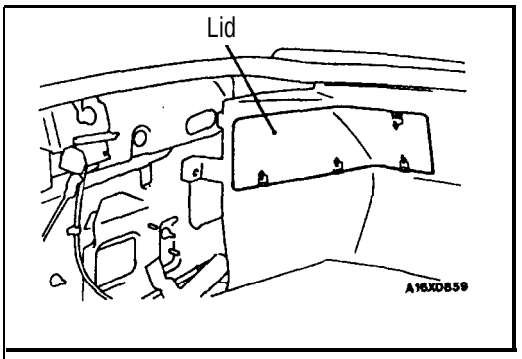
Column switch removal

1. Column switch <Lighting switch> (Refer to P.8B-117.)

◀A▶

Rear combination light removal steps

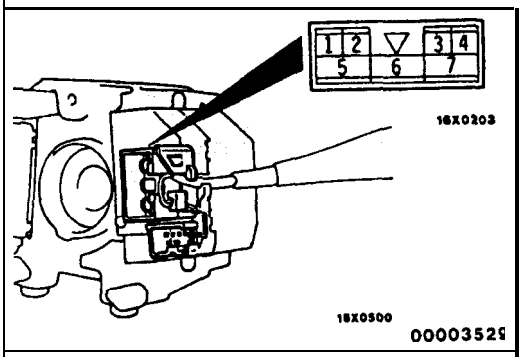
- Rear end trim (Refer to GROUP 23A – Triins)
2. **Rear** panel garnish assembly
3. **Rear** combination light
4. Gasket



REMOVAL SERVICE POINT

◀A▶ REAR COMBINATION LIGHT REMOVAL

Slide the lock knob of the lid in the direction of the arrow in the illustration to remove the lid, and then remove the rear combination light mounting nut.



INSPECTION

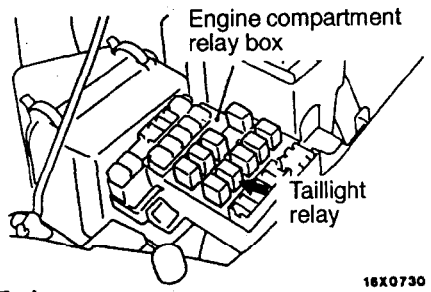
COLUMN SWITCH CONTINUITY CHECK <Lighting switch>

Switch position		Terminal No.		
		2	3	4
LIGHTING SWITCH	OFF			
	TAIL	0		0
	HEAD	0	⌒	0

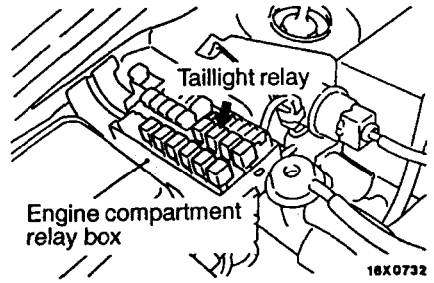
TAILLIGHT RELAY CONTINUITY CHECK

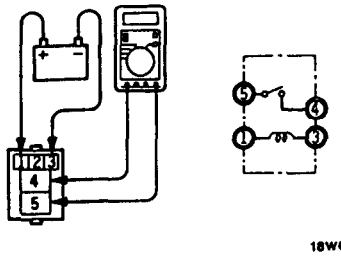
Battery voltage	Terminal No.			
	1	3	4	5
Power is not supplied.	○	○		
Power is supplied	⊕	⊖	○	○

<Non-turbo>



<Turbo>





HIGH MOUNTED STOP LIGHT

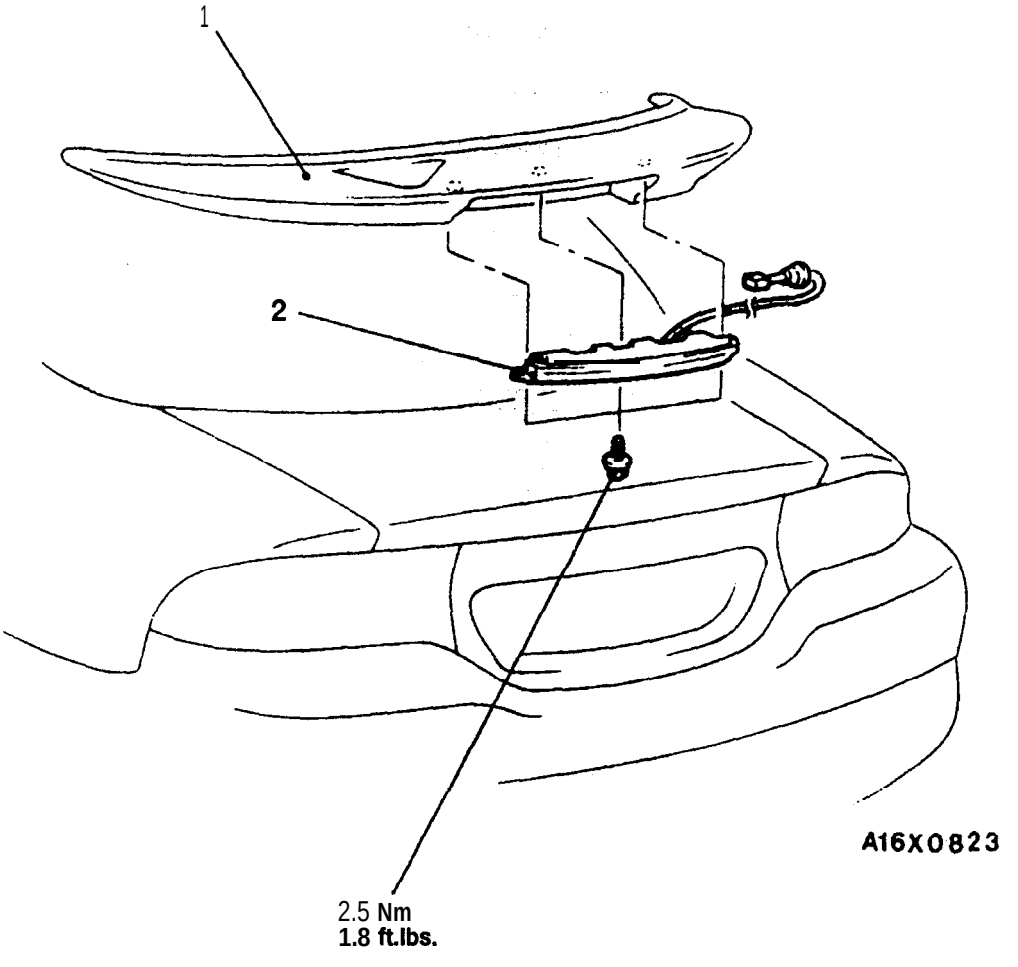
TROUBLESHOOTING

Refer to Rear Combination Light – Stop Light Circuit.

HIGH MOUNTED STOP LIGHT

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
- Liftgate Lower Trim Removal and installation (Refer to GROUP 23A – Trims.)



Removal steps
1. Rear spoiler (Refer to GROUP 23A – Aero Parts)
2. High mounted stop light