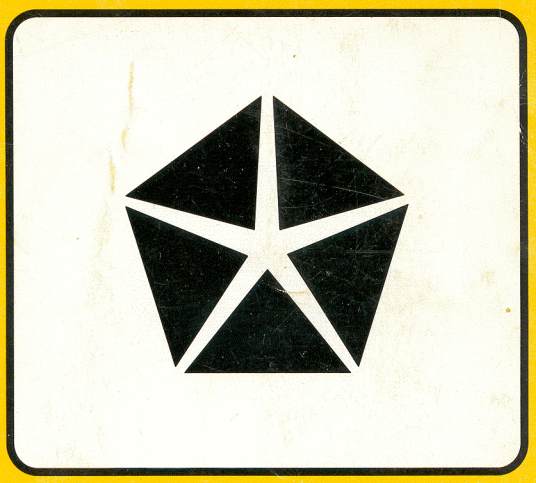
1994

IMPORT SERVICE MANUAL

STEALTH



ELECTRICAL

Volume — 2

CHRYSLER CORPORATION

SAFETY NOTICE

CAUTION

ALL SERVICE AND REBUILDING INSTRUCTIONS CONTAINED HEREIN ARE APPLICABLE TO, AND FOR THE CONVENIENCE OF, THE AUTOMOTIVE TRADE ONLY. **All test and repair procedures on components or assemblies in non-automotive applications should be repaired in accordance with instructions supplied by the manufacturer of the total product.**

Proper service and repair is important to the safe, reliable, operation of all motor vehicles. The service procedures recommended and described in this publication were developed for professional service personnel and are effective methods for performing vehicle repair. Following these procedures will help assure efficient economical vehicle performance and service reliability. Some of these service procedures require the use of special tools designed for specific procedures. These special tools should be used when recommended throughout this publication.

Special attention should be exercised when working with spring or tension loaded fasteners and devices such as E-Clips, Circlips, Snap rings, etc., as careless removal may cause personal injury. Always wear safety goggles whenever working on vehicles or vehicle components.

It is important to note that this publication contains various **Cautions** and **Warnings.** These should be carefully read in order to minimize the risk of personal injury, or the possibility that improper service methods may damage the vehicle or render it unsafe. It is important to note that these **Cautions** and **Warnings** cover only the situations and procedures Chrysler Corporation has encountered and recommended. Chrysler Corporation could not possibly know, evaluate, and advise the service trade of all conceivable ways that service may be performed, or of the possible hazards of each. Consequently, Chrysler Corporation has not undertaken any such broad service review. Accordingly, anyone who uses a service procedure, or tool, that is not recommended in this publication must assure oneself thoroughly that neither personal safety, nor vehicle safety, be jeopardized by the service methods they select.

BackupServiceManual

Stealth

1994

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 diagnosis, 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

Printed in Japan

GROUP / SECTION INDEX

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

FUSIBLE LINK, FUSE AND IOD OR STORAGE CONNECTOR LOCATION

Name	Symbol	Name	Symbol
Dedicated fuse ① to ⑦	B	Fusible link	A
Dedicated fuse ⑧ ⑨	C	IOD or Storage connector	B
Dedicated fuse ⑩	E	Multi-purpose fuse	D

NOTE
The "Name" column is arranged in alphabetical order.

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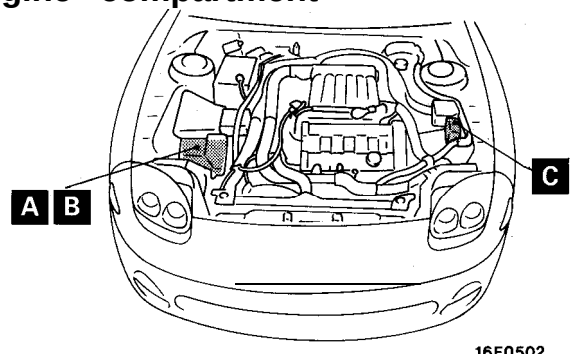

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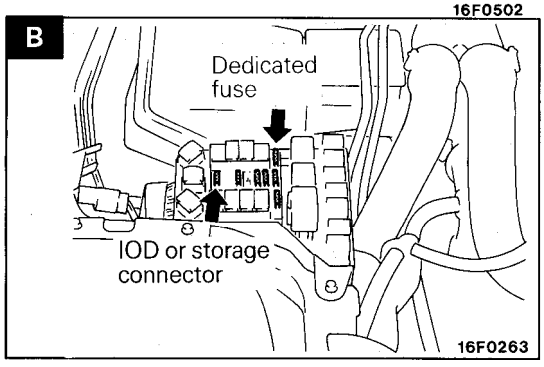

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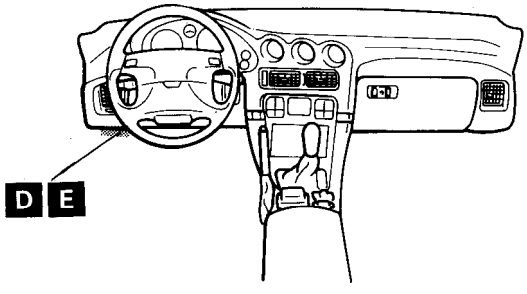

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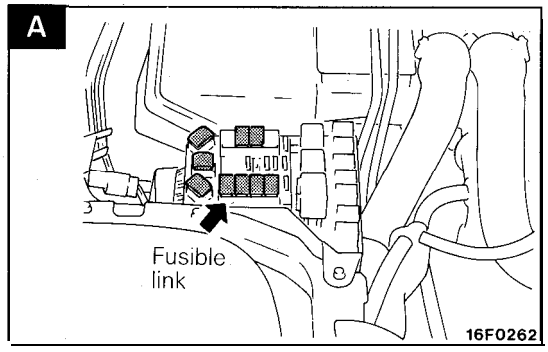

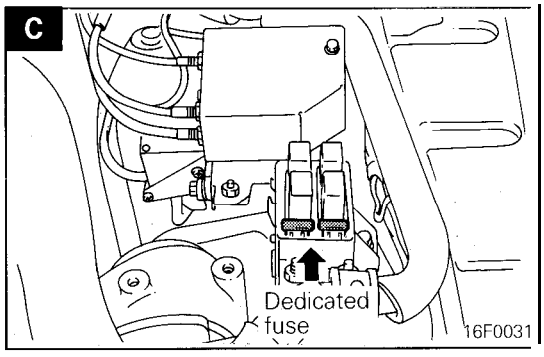

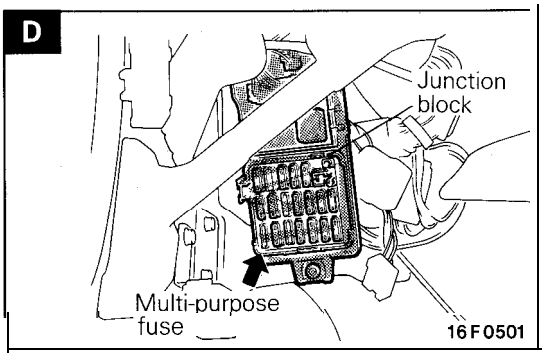

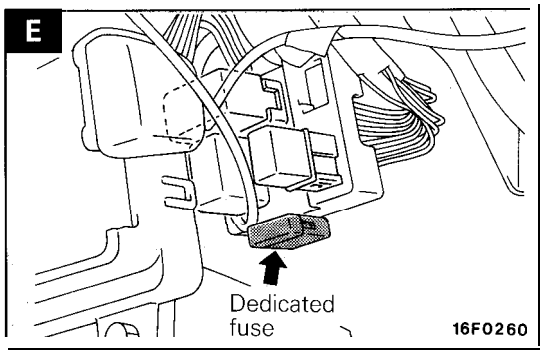

INSPECTION TERMINAL LOCATION

Name	Symbol	Name	Symbol
Data link connector	B	Fuel pump check connector	A
Engine speed detection connector <DOHC>	A	Ignition timing adjustment connector	A

NOTE
The "Name" column is arranged in alphabetical order.

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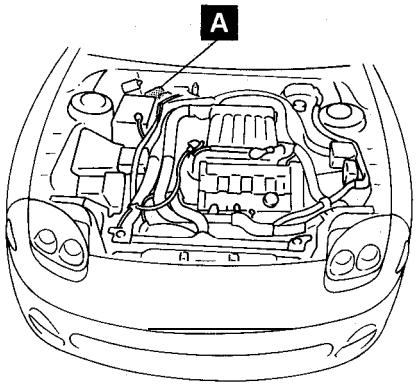

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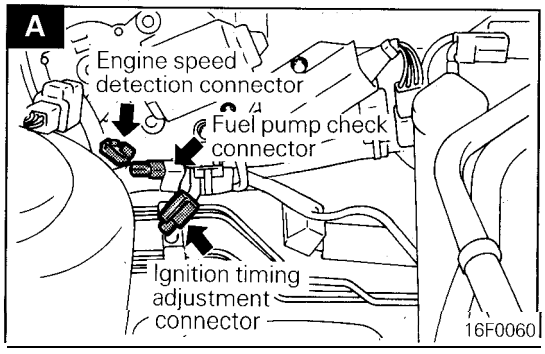

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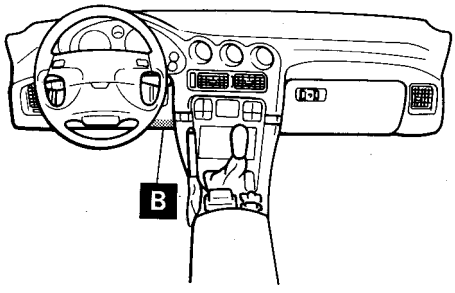

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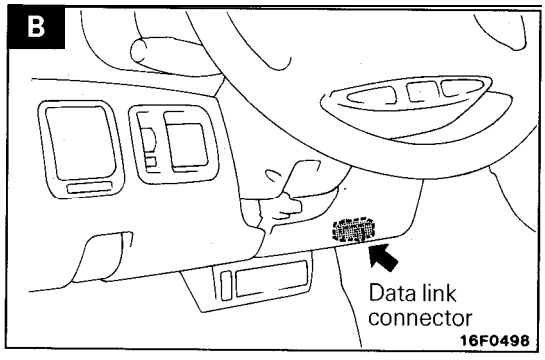
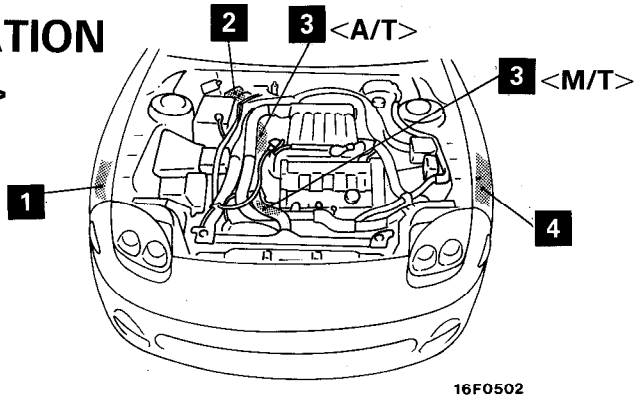


GROUNDING LOCATION

<Engine compartment>



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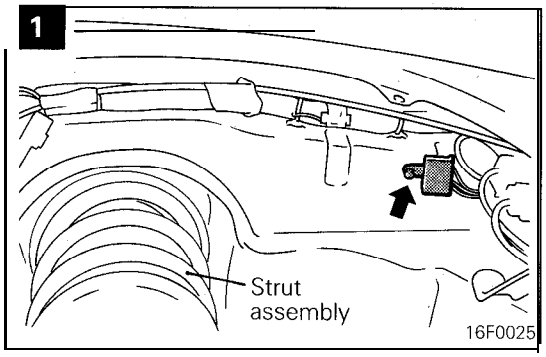

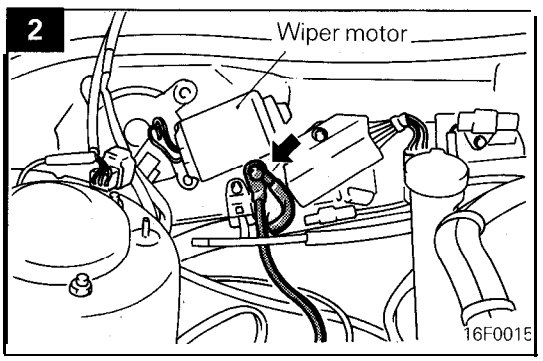

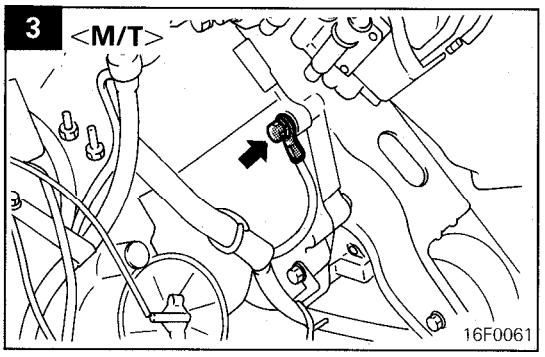

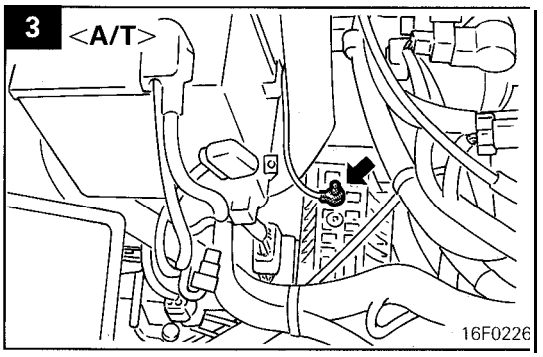

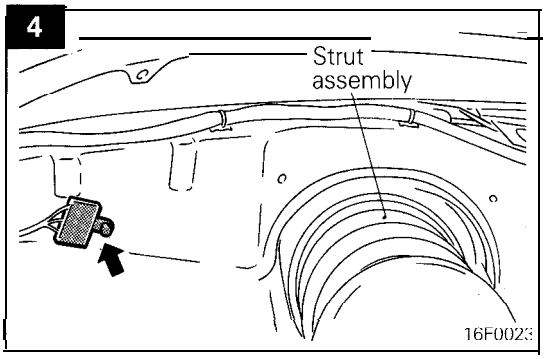

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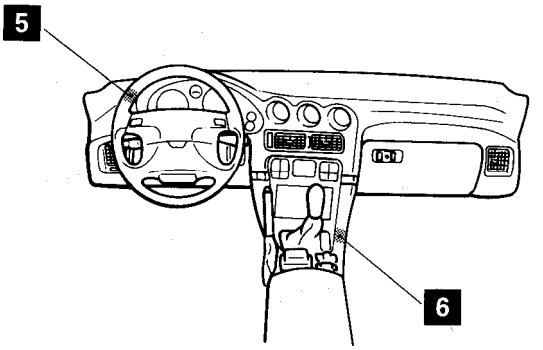

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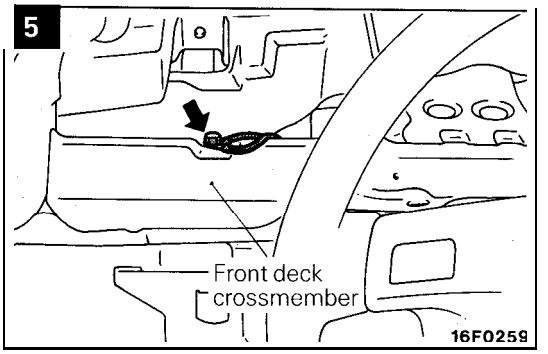

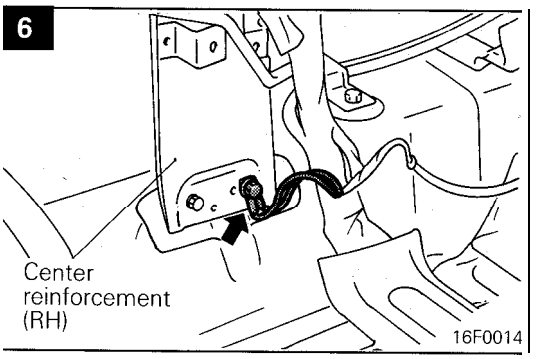

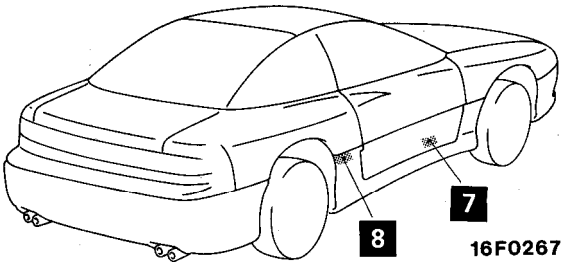

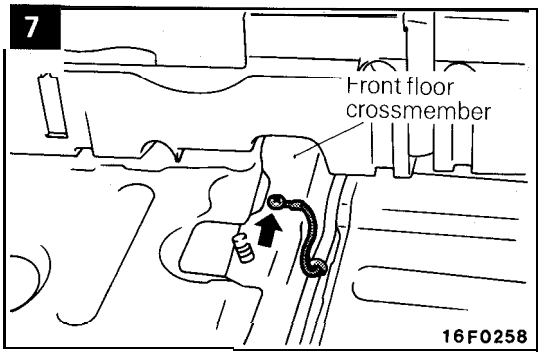

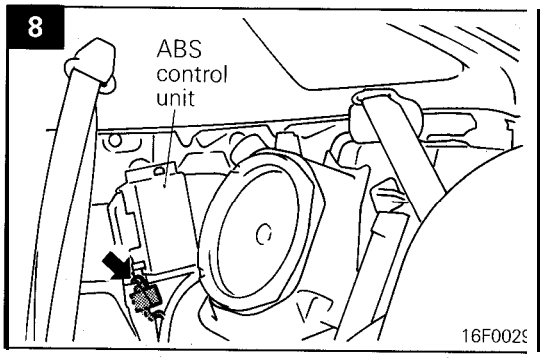

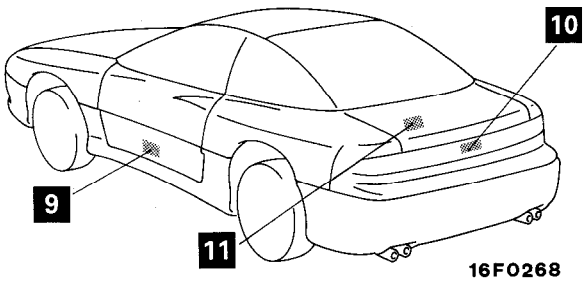
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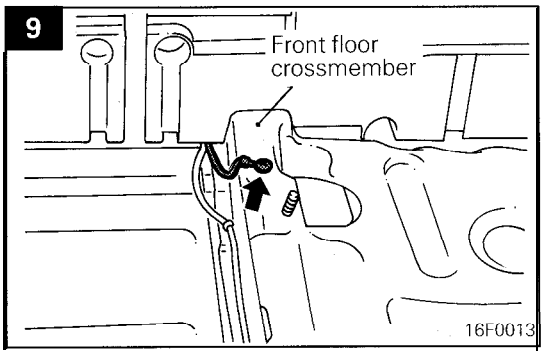
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Front floor crossmember
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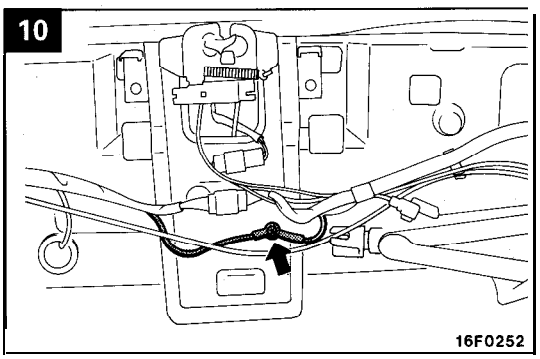
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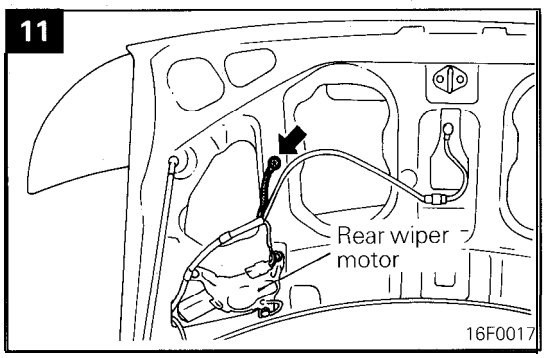
11
Rear wiper motor
16F0017

RELAY LOCATION

Name	Symbol	Name	Symbol
ABS power relay	A	Magnetic clutch relay	D
Auto-cruise relay	J	MFI relay	K
Blower motor relay	F	Motor relay (ABS hydraulic unit)	B
Blower motor relay (HI)	L	Power window relay	G
Condenser fan motor relay (HI)	D	Radiator fan motor relay (HI)	A
Condenser fan motor relay (LO)	D	Radiator fan motor relay (LO)	A
Defogger relay	G	Rear intermittent wiper relay	M
Door lock power relay 1	G	Starter relay	A
Door lock power relay 2 (keyless entry system equipped car)	M	Taillight relay	A
Fog light relay	A	Theft-alarm horn relay*	F
Fuel pump relay	C	Theft-alarm starter relay*	I
Generator relay	A	Turn-signal and hazard flasher unit	H
Headlight relay	A	Upper beam relay	E
Horn relay	A	Valve relay (ABS hydraulic unit)	B

NOTE
(1) *: Vehicles with theft-alarm system.
(2) Names are listed in alphabetical order.

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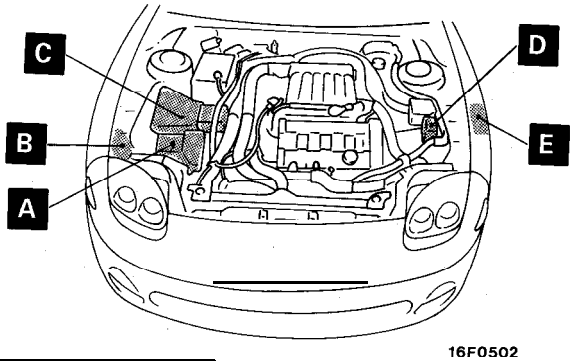

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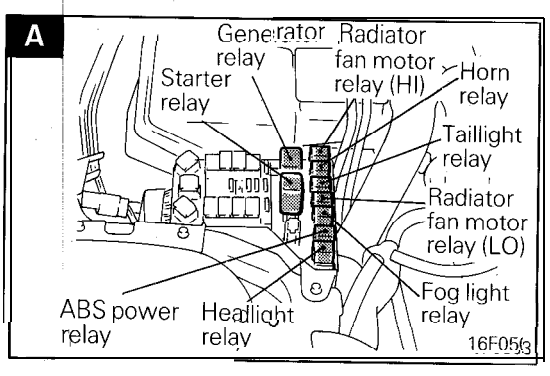

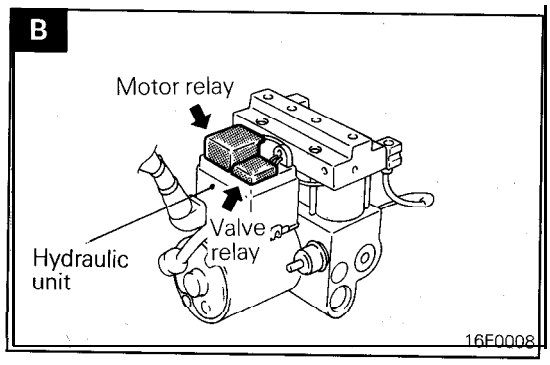

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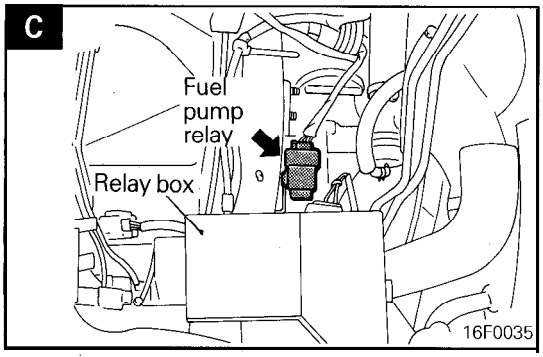

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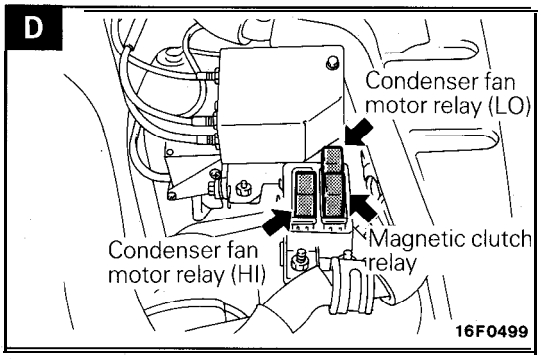

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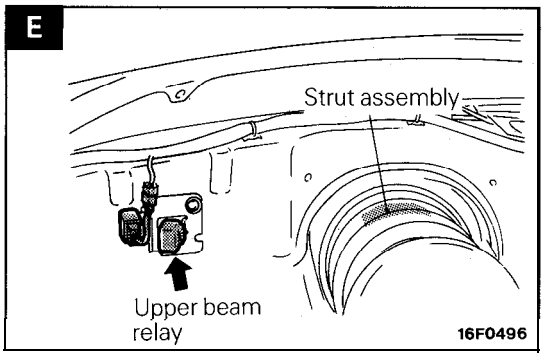

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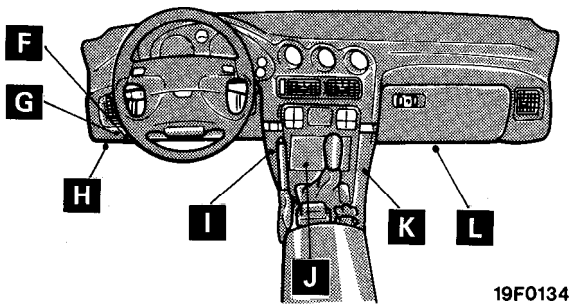

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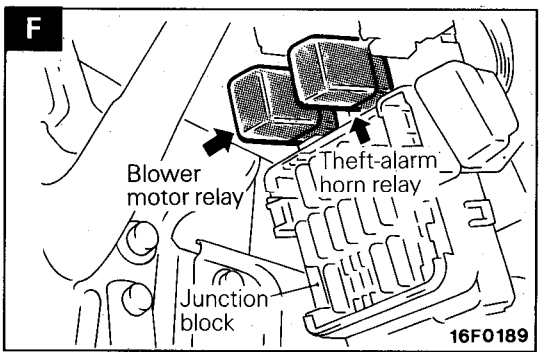

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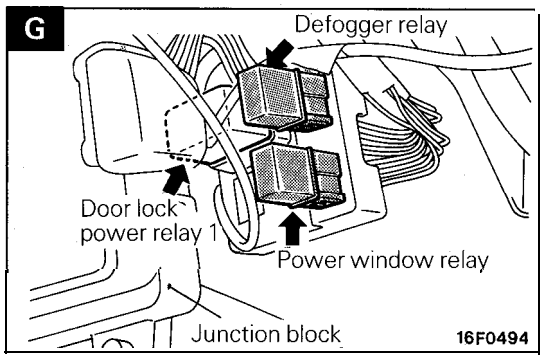

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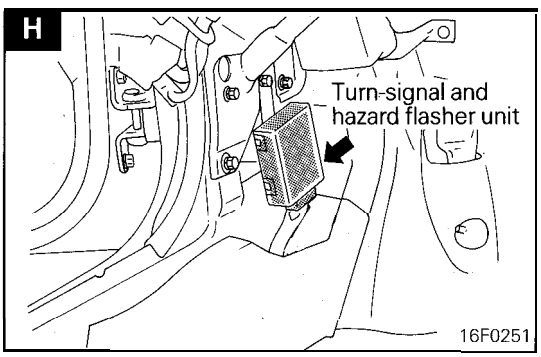

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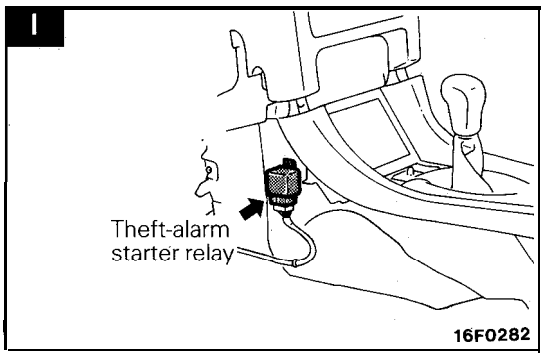

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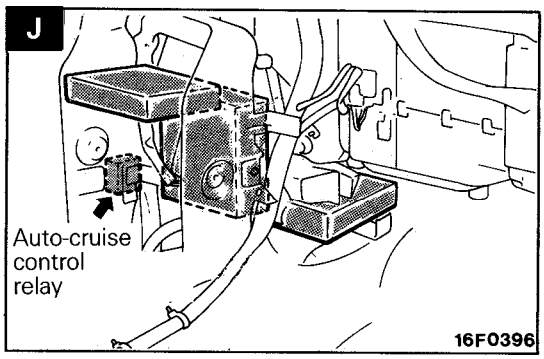

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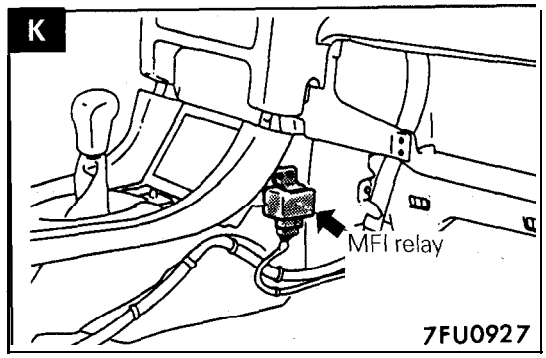

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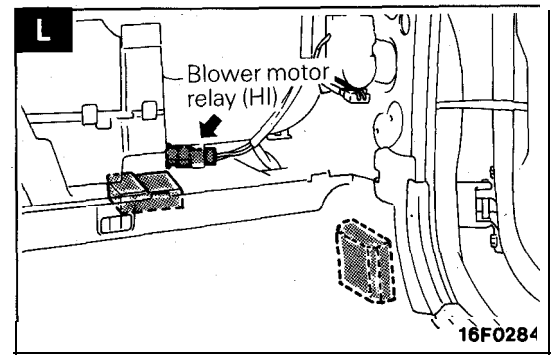

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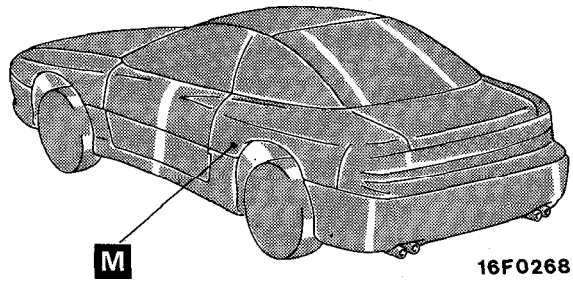
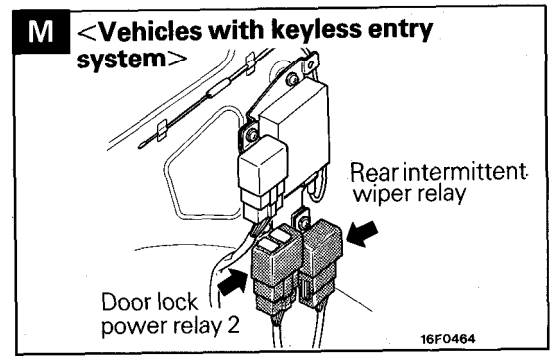


M <Vehicles with keyless entry system>



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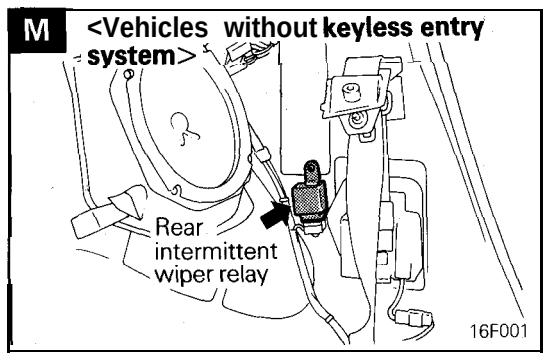


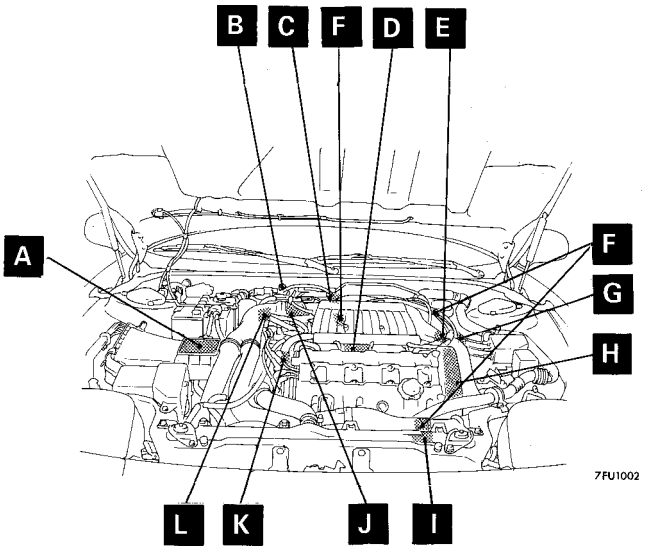
SENSOR LOCATION

Name	Symbol	Name	Symbol
ABS front speed sensor	W	Heated oxygen sensor	F
ABS rear speed sensor	X	Interior temperature sensor	U
Air inlet sensor (for A/C)	Q	Kickdown servo switch	L
Air thermo sensor (for A/C)	P	Knock sensor <DOHC>	D
Automatic transaxle oil temperature sensor <A/T>	L	Photo sensor	R
Camshaft position sensor and crankshaft position sensor <SOHC>	M	Power steering pressure switch	E
Camshaft position sensor <DOHC>	G	Pulse generator A, B <A/T>	L
Crankshaft position sensor <DOHC>	H	Revolution pick-up sensor	I
EGR temperature sensor <Turbo, Non Turbo (California)>	C	Steering wheel angle speed sensor	N
Engine coolant temperature sensor (for A/C)	O	Thermostat	I
Engine coolant temperature sensor (for engine control)	K	Throttle position sensor	J
Front impact sensor	V	Vehicle speed sensor	B
G sensor (for ABS)	S	Volume air flow sensor	A
G sensor (for ECS)	T		–

NOTE
Names are listed in alphabetical order.

<Engine compartment>

<DOHC>



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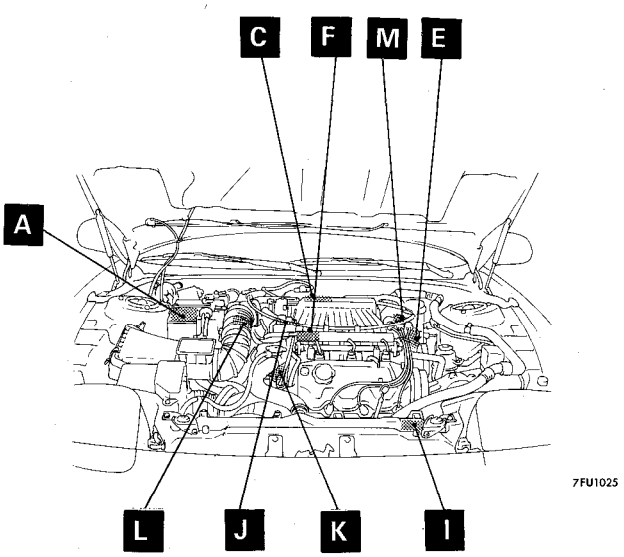

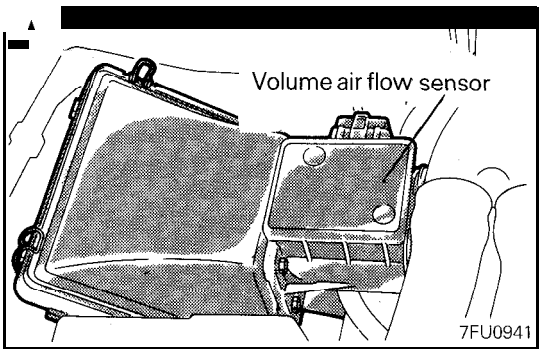
Volume air flow sensor
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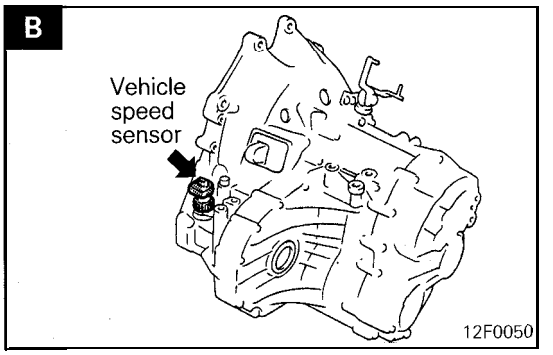
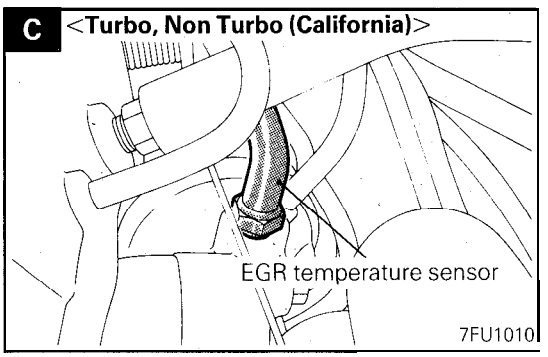
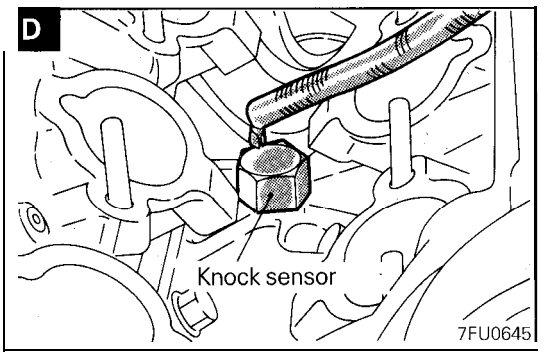
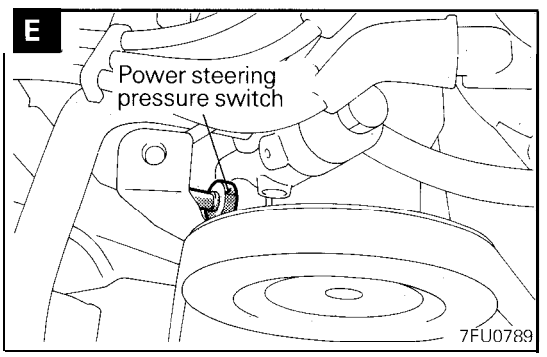
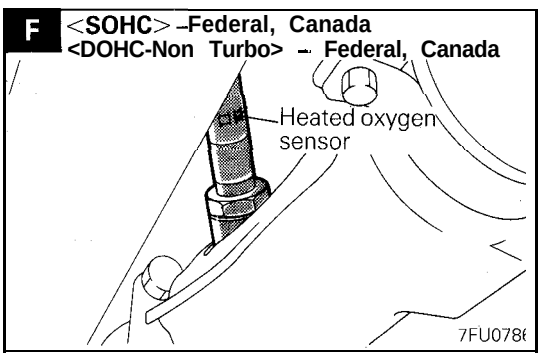
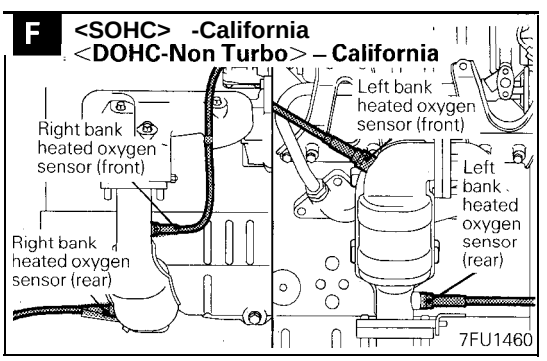

B
Vehicle speed sensor
12F0050

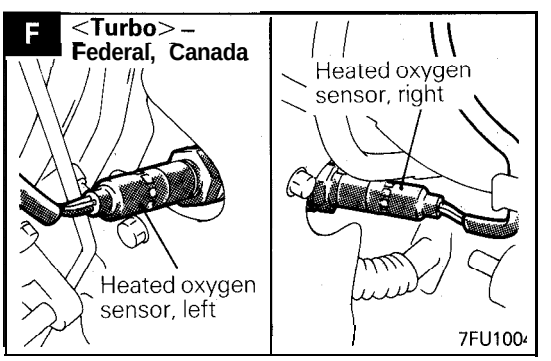

C <Turbo, Non Turbo (California)>
EGR temperature sensor
7FU1010

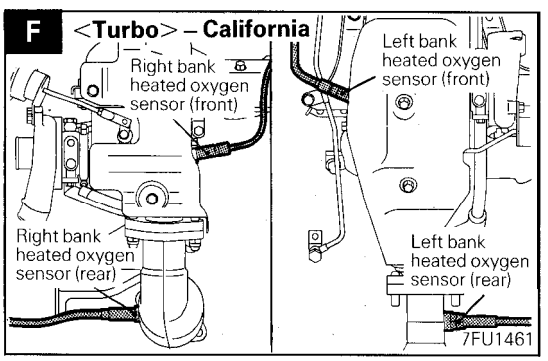

D
Knock sensor
7FU0645

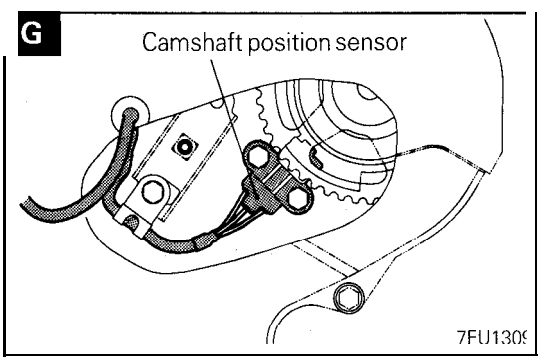

E
Power steering pressure switch
7FU0789


F <SOHC> –Federal, Canada
<DOHC-Non Turbo> – Federal, Canada
Heated oxygen sensor
7FU078

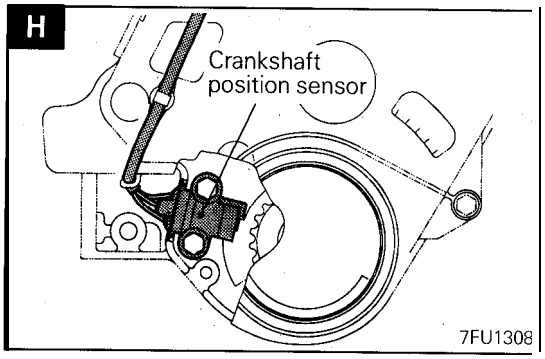

F <SOHC> -California
<DOHC-Non Turbo> – California
Right bank heated oxygen sensor (front)
Left bank heated oxygen sensor (front)
Left bank heated oxygen sensor (rear)
Right bank heated oxygen sensor (rear)
7FU1460


F <Turbo> – Federal, Canada
Heated oxygen sensor, right
Heated oxygen sensor, left
7FU100


F <Turbo> – California
Right bank heated oxygen sensor (front)
Left bank heated oxygen sensor (front)
Right bank heated oxygen sensor (rear)
Left bank heated oxygen sensor (rear)
7FU1461


G
Camshaft position sensor
7FU130

H



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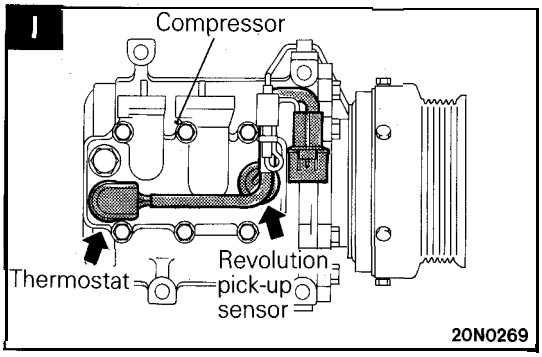
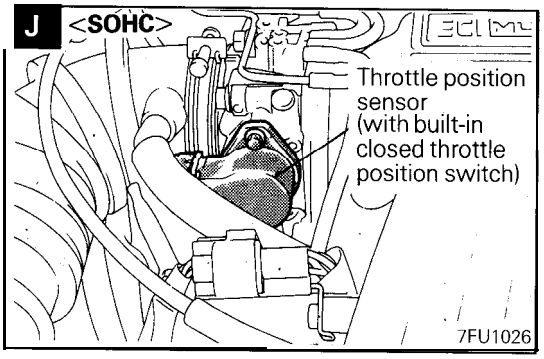
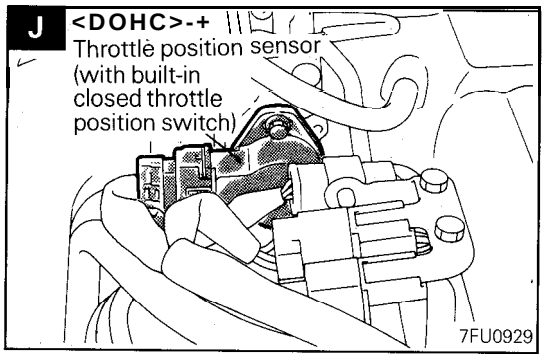


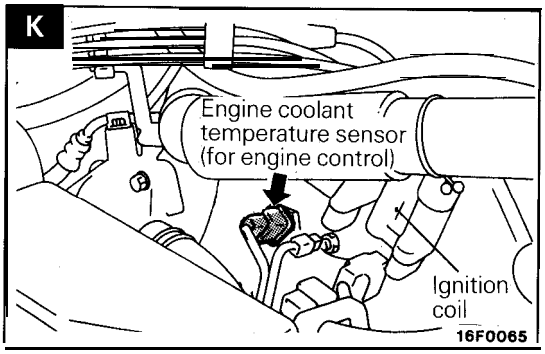
J <SOHC>



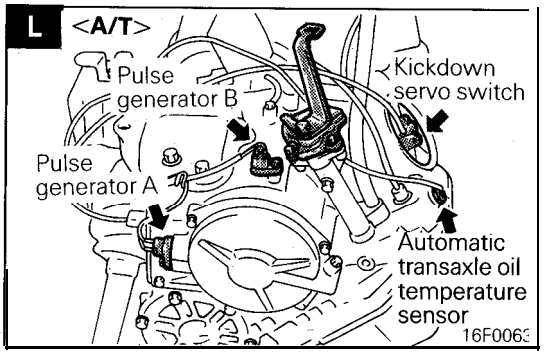
J <DOHC>-+



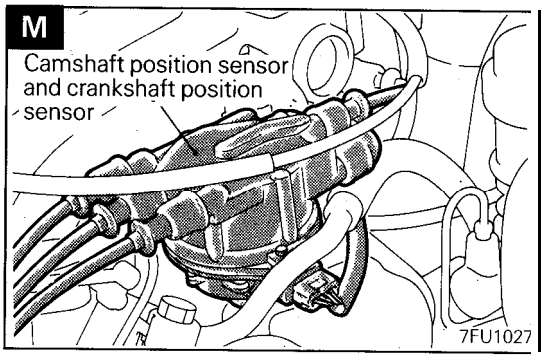
K



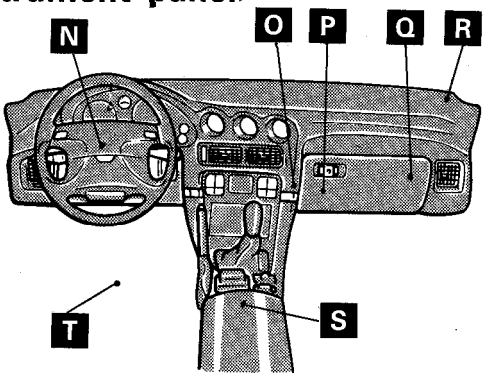
L <A/T>



M



<Instrument panel>



19F0134

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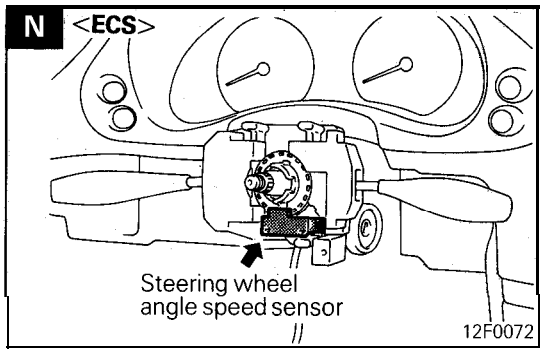
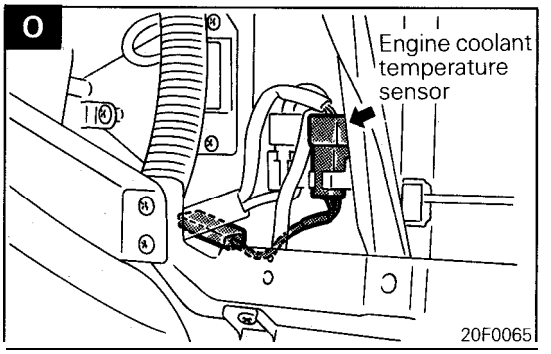


O



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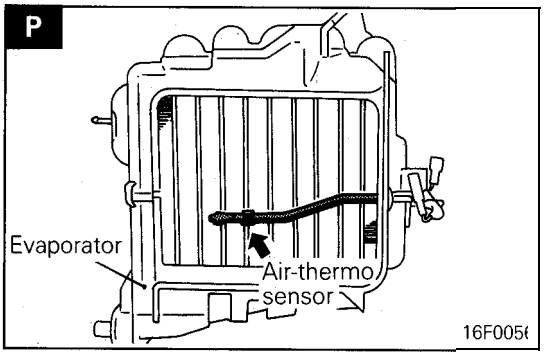

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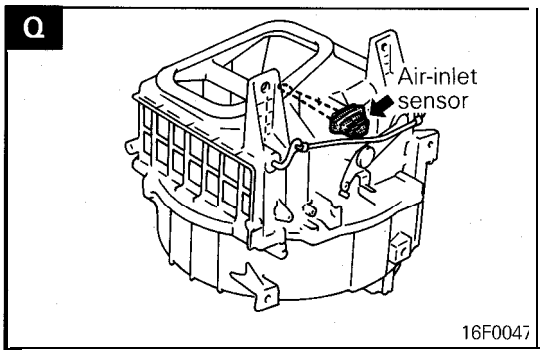

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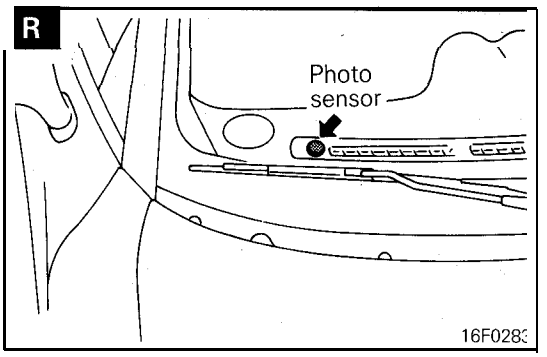
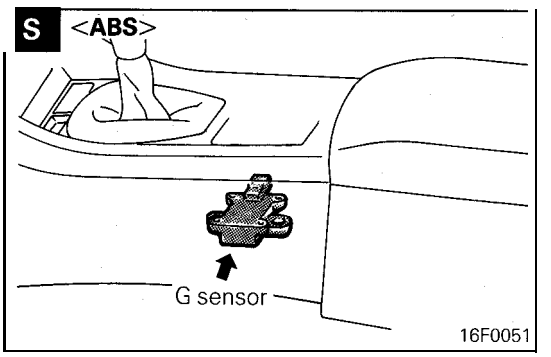
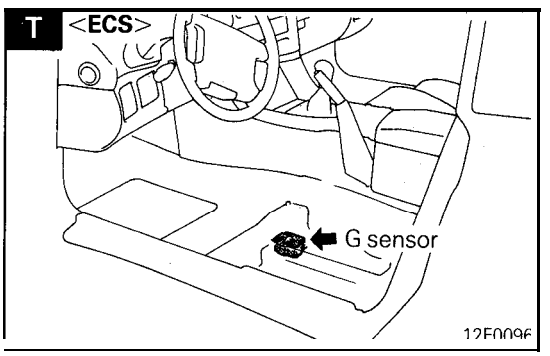


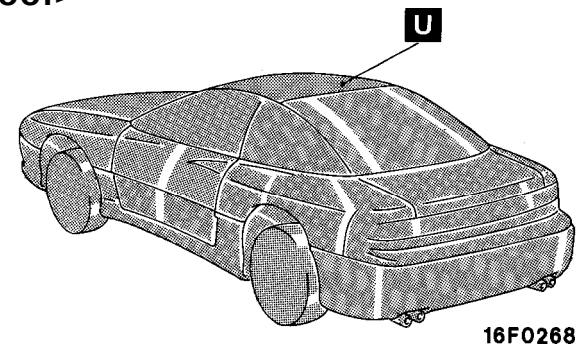
S <ABS>



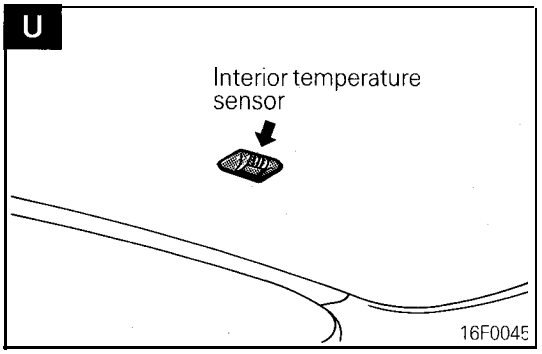
T <ECS>



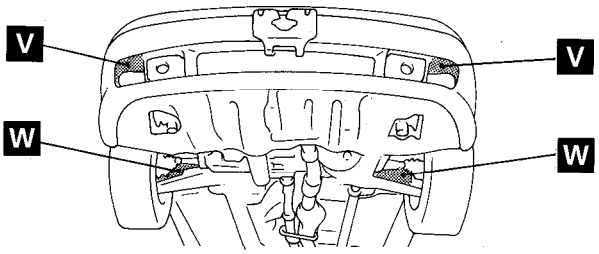
<Roof>



16F0268



<Front under floor>



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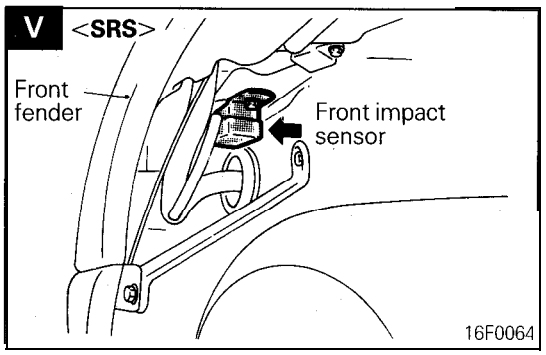
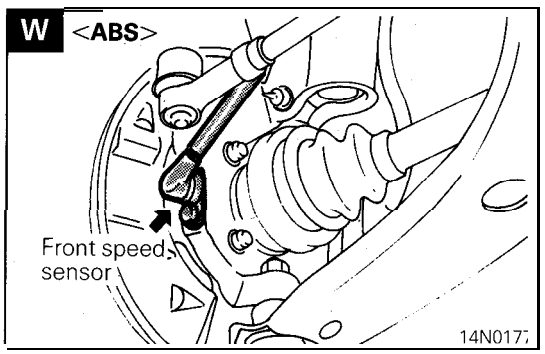
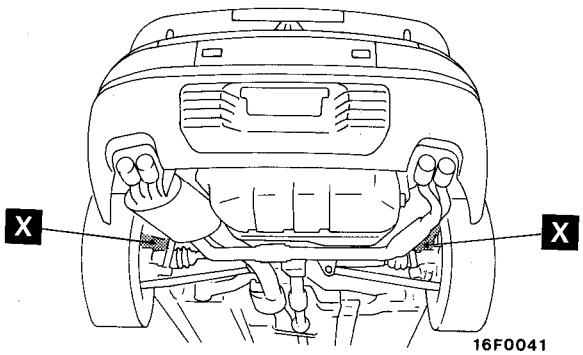
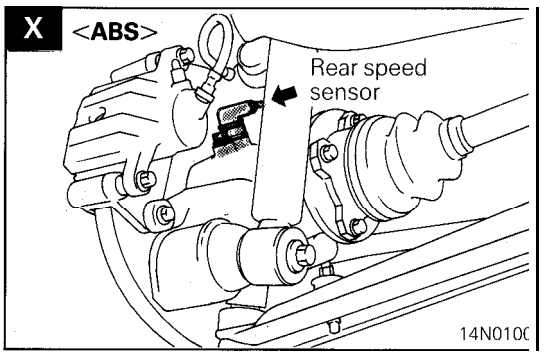




<Rear under floor>



16F0041

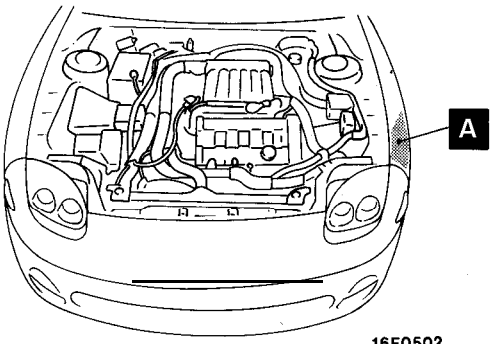


CONTROL UNIT LOCATION

Name	Symbol	Name	Symbol
ABS control unit	J	Electronic control suspension control unit	I
Active exhaust control module	H	Engine control module	C
Air conditioning compressor lock controller	D	ETACS control unit	B
Air conditioning control unit	C	Keyless entry control unit	F
Auto-cruise control unit	D	Light automatic shut-off unit	F
Daytime running light control unit	A	Motor antenna control unit	G
ELC-4 A/T control module	C	SRS diagnosis unit	E

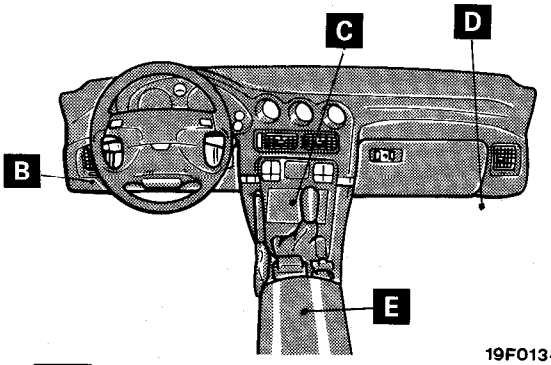
NOTE
Names are listed in alphabetical order.

<Engine compartment>



16F0502

<Instrument panel>



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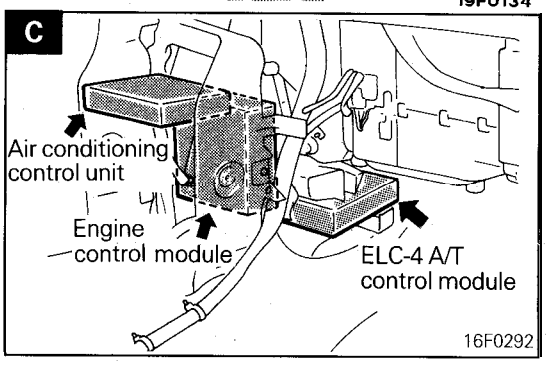

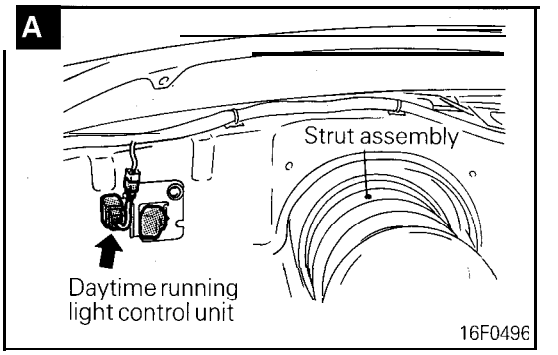

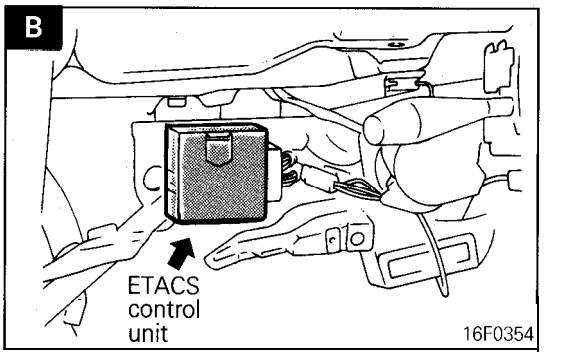

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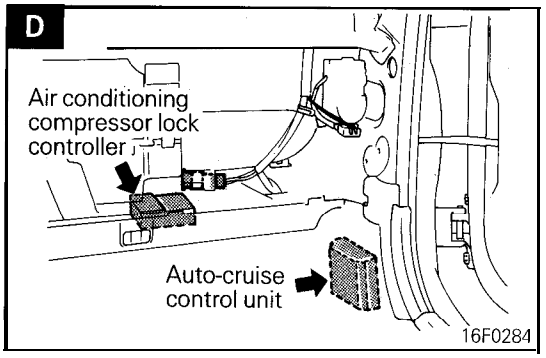

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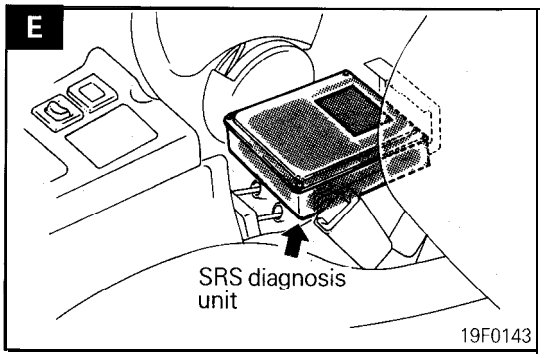
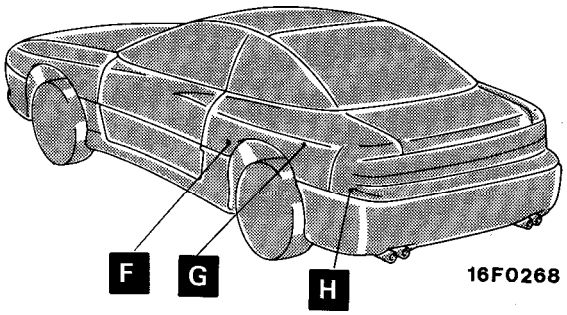
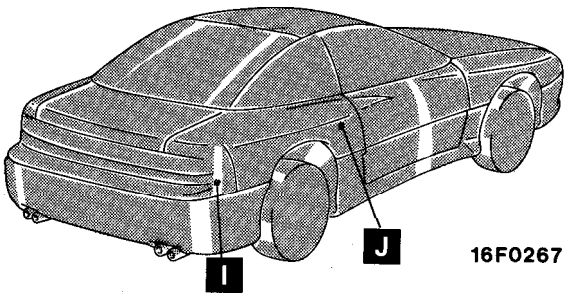
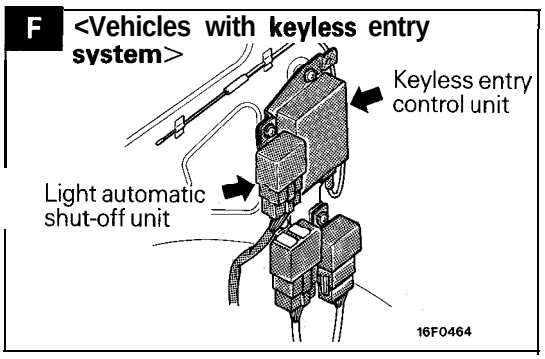


<Quarter panel . luggage compartment>

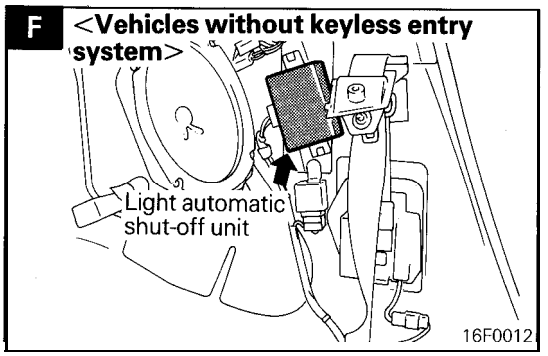




F <Vehicles with keyless entry system>



F <Vehicles without keyless entry system>



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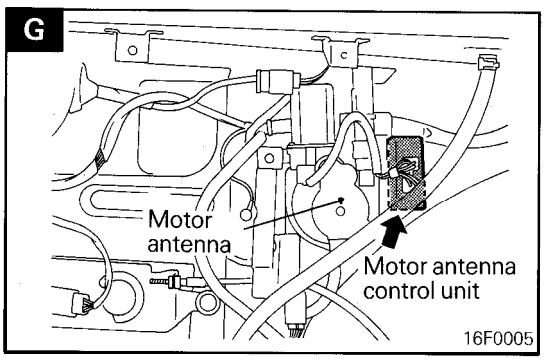

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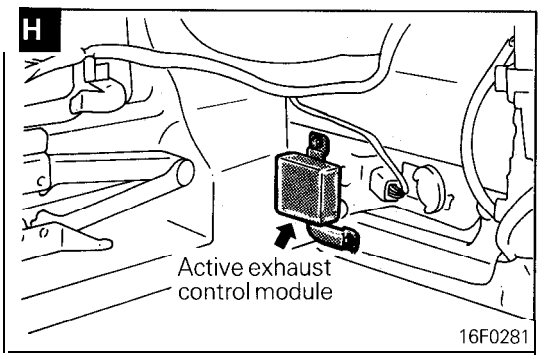

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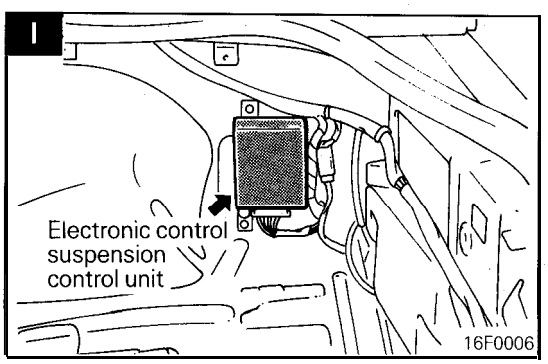

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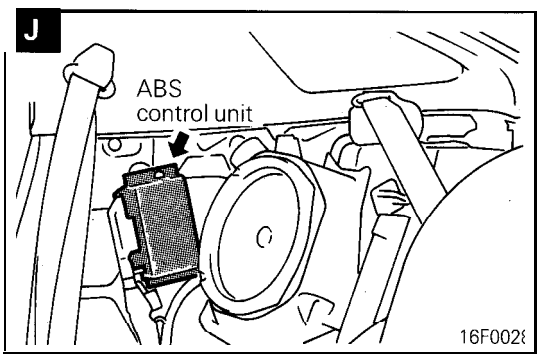
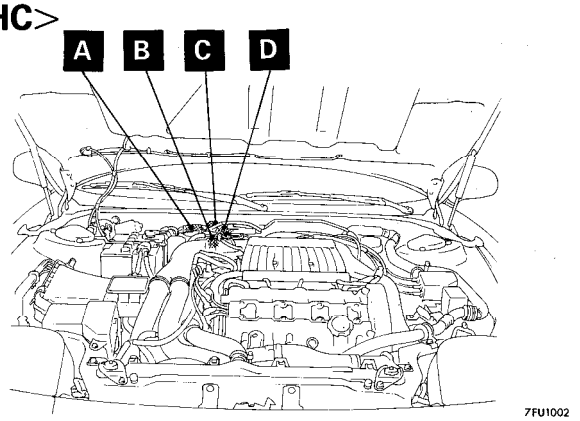


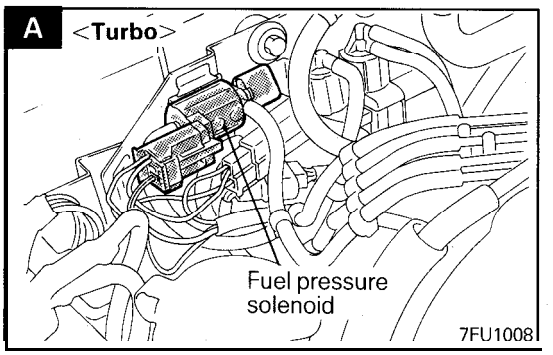
SOLENOID, SOLENOID VALVE LOCATION

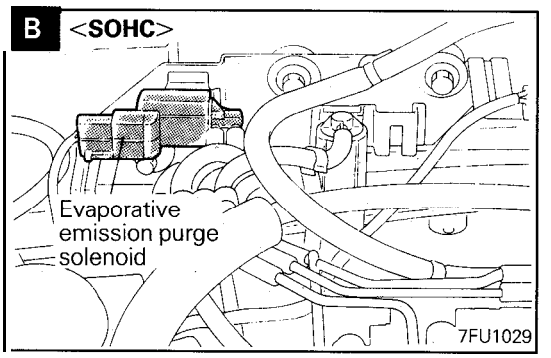
Name	Symbol	Name	Symbol
EGR solenoid <Turbo, Non Turbo (California)>	C	Fuel pressure solenoid <Turbo>	A
Evaporative emission purge solenoid	B	Turbocharger waste gate solenoid <Turbo>	D

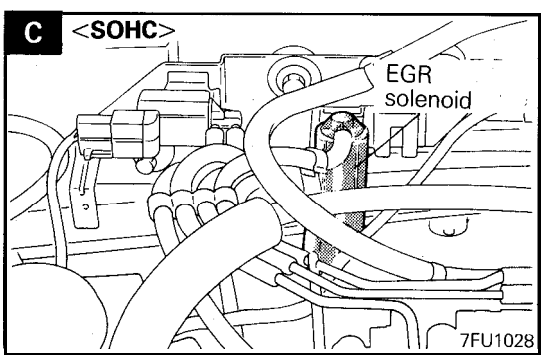
NOTE
Names are listed in alphabetical order.

<DOHC>

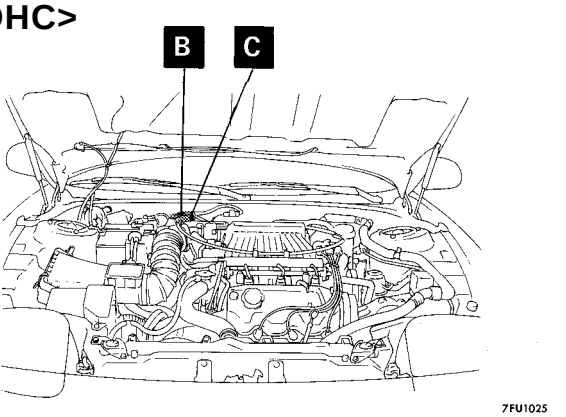


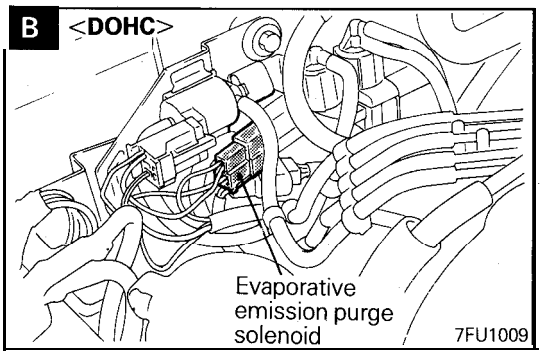


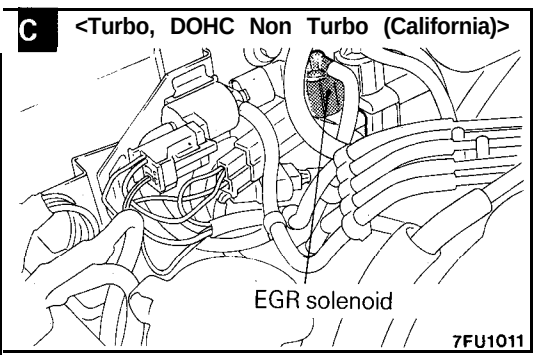


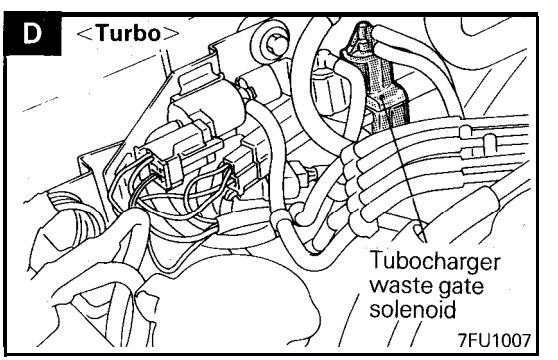


<SOHC>





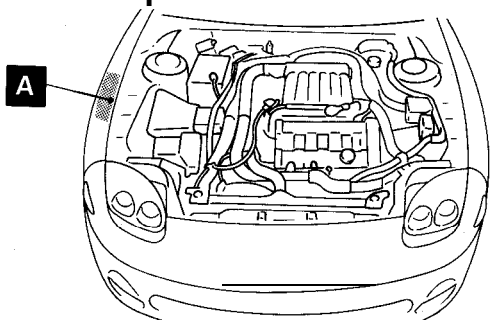




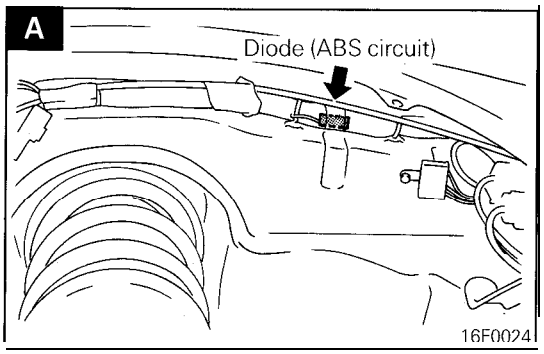
DIODE LOCATION

Name	Symbol	Name	Symbol
Diode (ABS circuit)	A	Diode (Theft-alarm circuit)	C
Diode (MFI circuit)	B	Diode (4WS fluid level warning light circuit)	D
Diode (Seat belt warning circuit)	C	–	–

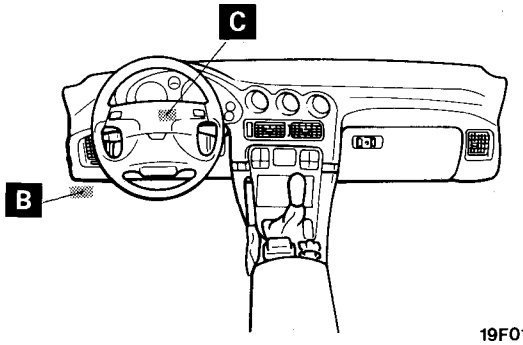
<Engine compartment>



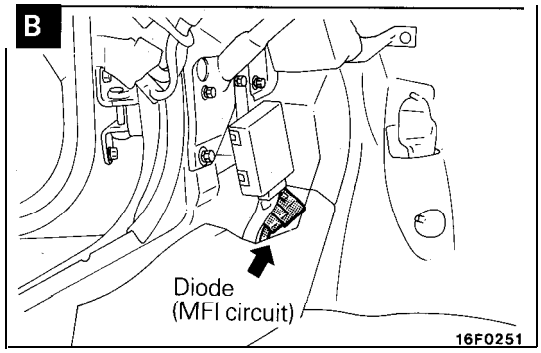
16F0502

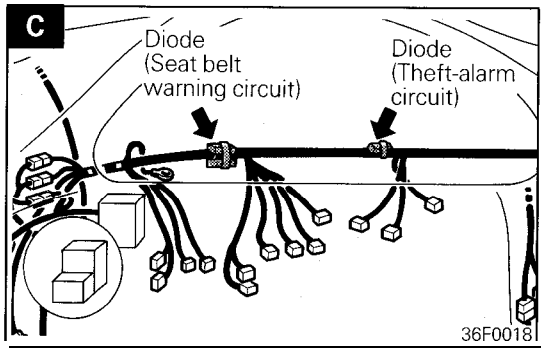


<Dash panel>



19F0134





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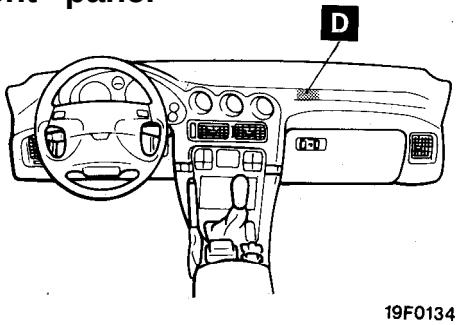

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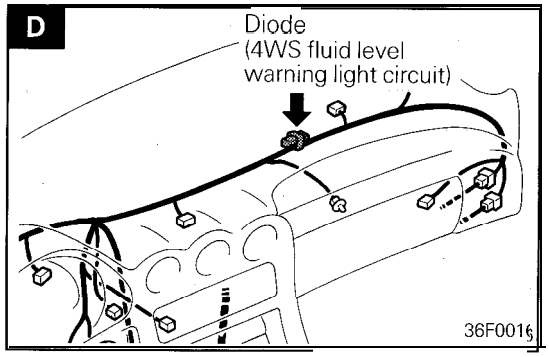
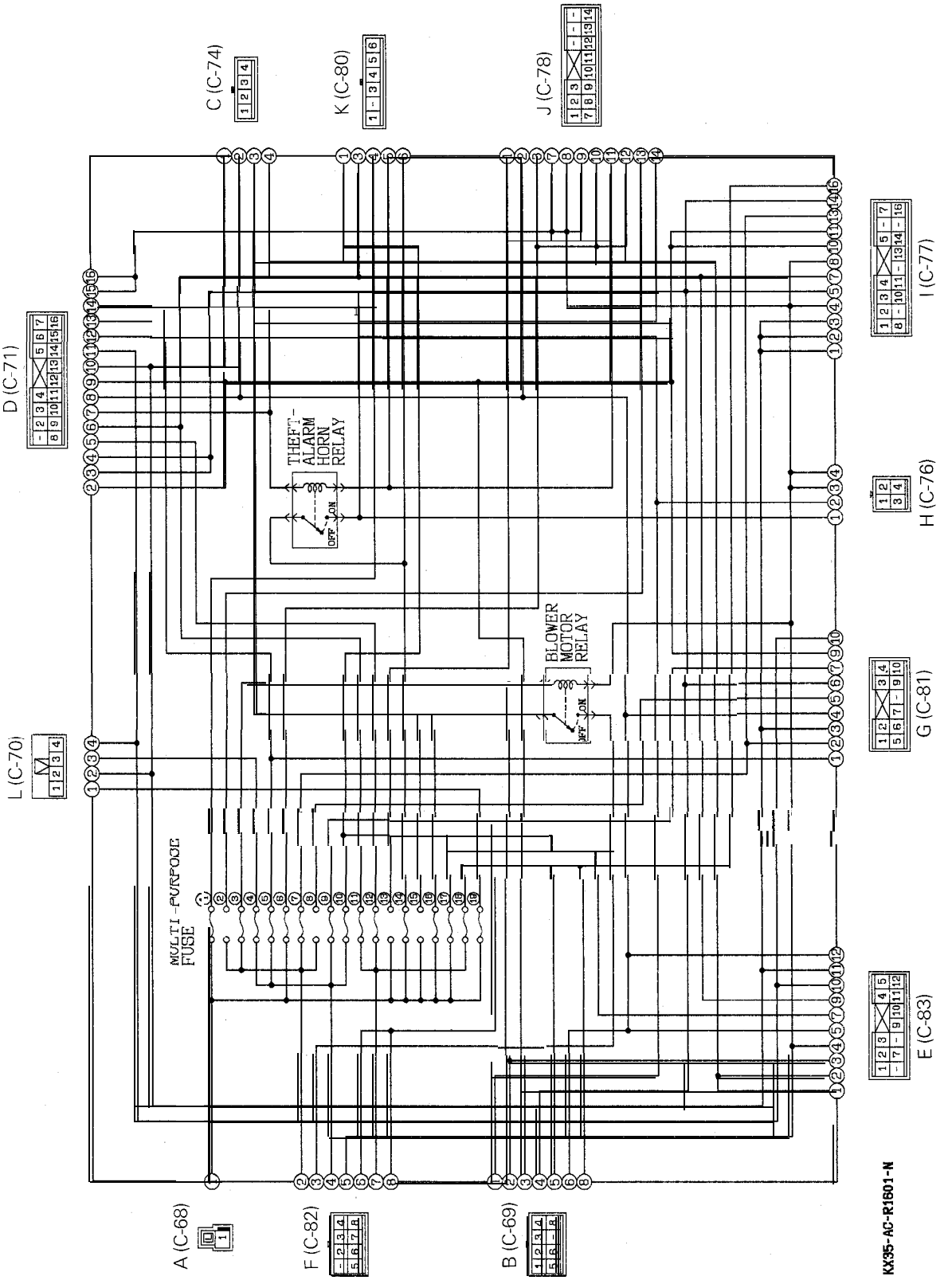
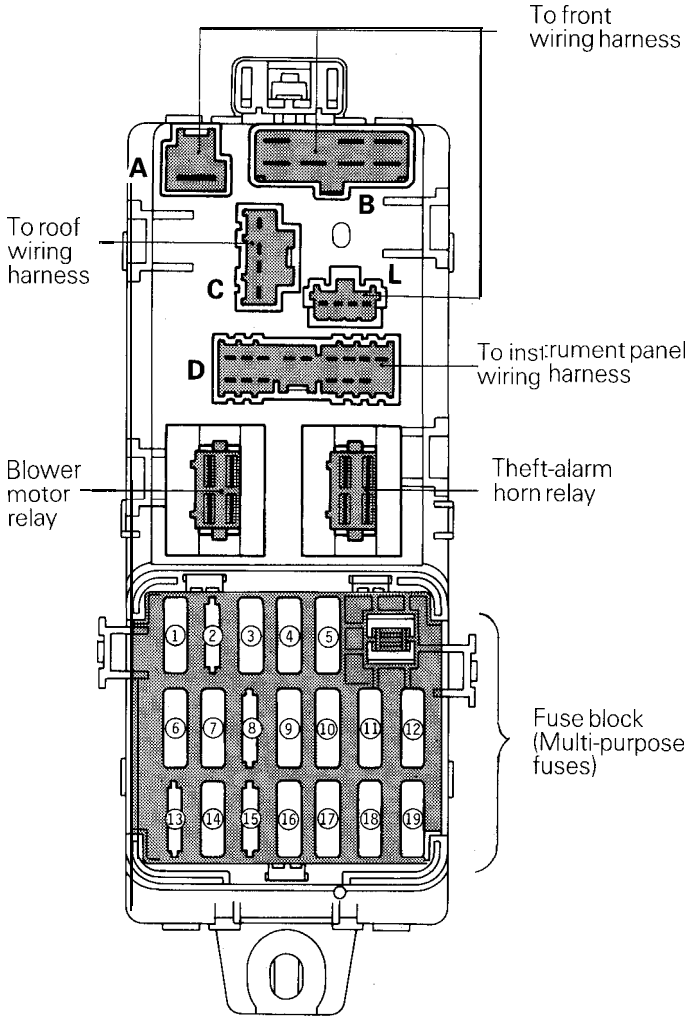


JUNCTION BLOCK



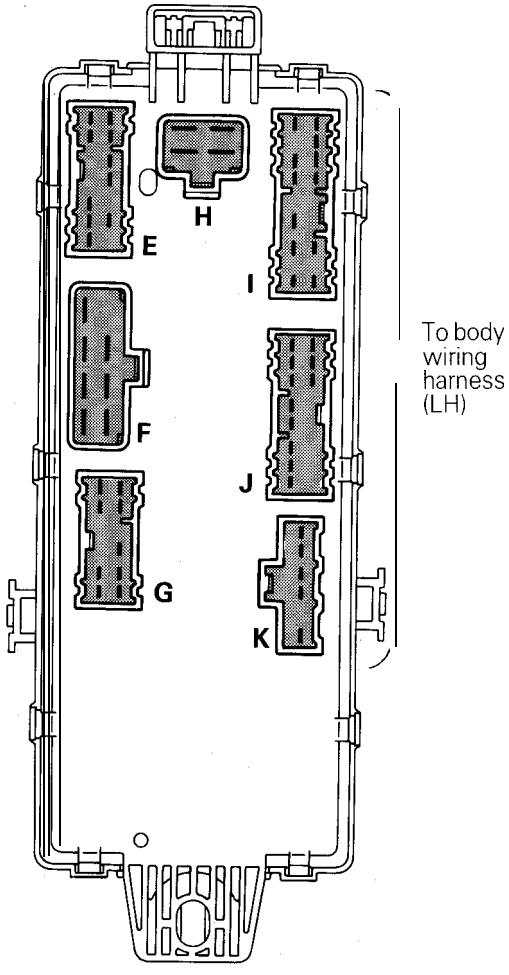
Remarks
(1) Alphabets assigned to the connectors are keyed to those assigned to connectors on P.8-20.
(2) Terminals of the harness side connector are indicated in parentheses ( ).

Front



16F0304

Back

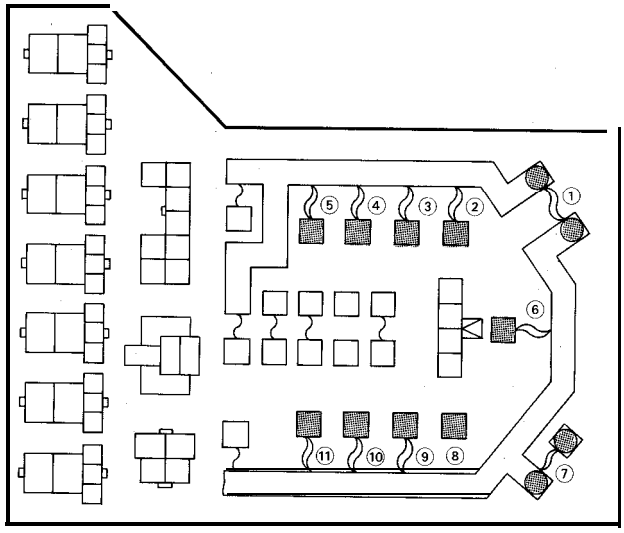


16F0058

CENTRALIZED JUNCTION

FUSIBLE LINK (Relay box in engine compartment)

No.	Circuit	Housing color	Rated capacity (A)
1	Generator circuit	Wine red	120
2	–	–	–
3	Lighting circuit	Green	40
4	Ignition switch circuit	Pink	30
5	Radiator fan motor and condenser fan motor circuit	Green	40
6	Junction block (Multipurpose fuse ①, ⑥, ⑭, ⑯, ⑰, ⑲)	Green	40
7	ABS circuit	Yellow	60
8	–	–	–
9	Power window circuit	Pink	30
10	Defogger circuit	Green	40
11	–	–	–

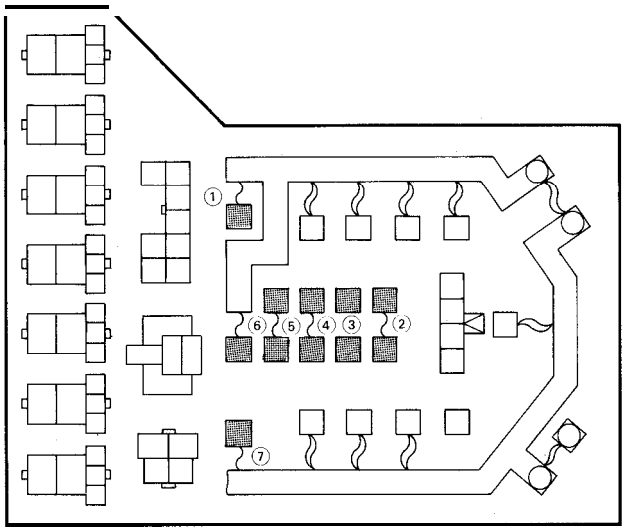


16F0256

DEDICATED FUSE

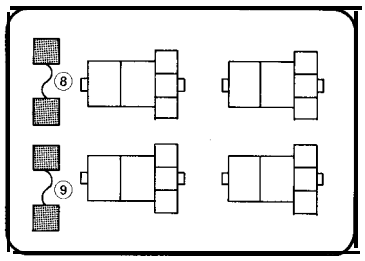
Power supply circuit	No.	Rated capacity (A)	Housing color	Circuit
Battery	1	20	Yellow	MFI circuit
Taillight relay	2	15	Blue	Taillight circuit
Fusible link ⑥	3	10	Red	Horn circuit
Fusible link ③	4	15	Red	Fog light circuit
Headlight relay	5	10	Red	Upper beam circuit
Battery	6	10	Red	Hazard light circuit
	7	10	Red	ABS circuit
Fusible link ⑤	8	20	Yellow	Condenser fan motor circuit
	9	10	Red	Air conditioning circuit
Defogger relay	10	10	Red	Remote controlled mirror heater circuit

<Relay box in engine compartment>



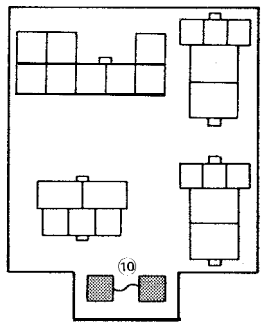
16F0256

<Air conditioning relay box in engine compartment>



16F0002

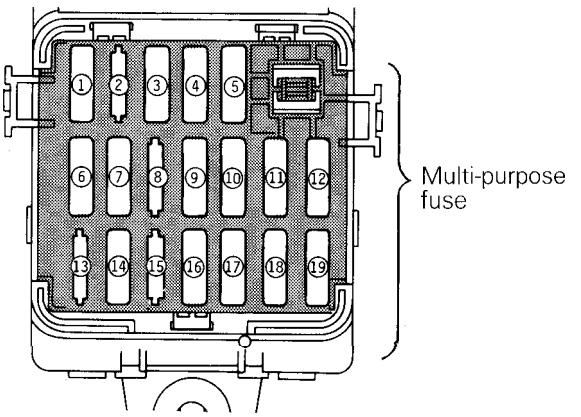
<Interior relay box>



16F0431

MULTI-PURPOSE FUSE (In junction block)

Power supply circuit		No.	Rated capacity (A)	Load circuit
Battery		1	10	Seat belt solenoid, MFI relay
–		2	–	–
Ignition switch	IG_2	3	10	Radiator fan motor relay, Air conditioning compressor lock controller, Blower motor relay, Air conditioning control unit, ABS relay, ECS control unit, Condenser fan motor relay
	ACC	4	10	Audio, Motor antenna control unit, Auto-cruise control unit, ETACS unit
		5	15	Remote controlled mirror, Cigarette lighter
Battery		6	10	Door lock power relay, Motor antenna control unit
Ignition switch IG_2		7	10	ELC-4A/T control module
		8	–	–
Ignition switch	ACC	9	15	Wiper relay, Wiper motor, Washer motor, Rear intermittent wiper relay, Keyless control unit
		10	15	Accessory socket, ETACS unit
	IG_1	11	15	Combination meter, Combination gauge, ETACS unit, Speed sensor, Motor antenna control unit, Turn signal and hazard flasher unit, Auto-cruise control main switch, SRS diagnosis unit, Auto-cruise relay
		12	15	Ignition coil, Power transistor, MFI relay, Engine control module
Battery		13	15	Amplifier
		14	10	Theft-alarm horn, Theft-alarm horn relay
–		15	–	–
Battery		16	30	Blower motor
		17	15	Stop light, High-mounted stop light
Ignition switch IG_1		18	10	Back-up light, Light automatic shut-OFF unit, SRS diagnosis unit
Battery		19	10	Engine control module, ELC-4 A/T control module, ETACS unit, Dome light, Foot light, Door light, Luggage compartment light, Combination meter, Air conditioning control unit, Auto-cruise control unit, Ignition key cylinder illumination light, Audio, Light automatic shut-OFF unit, ECS control unit



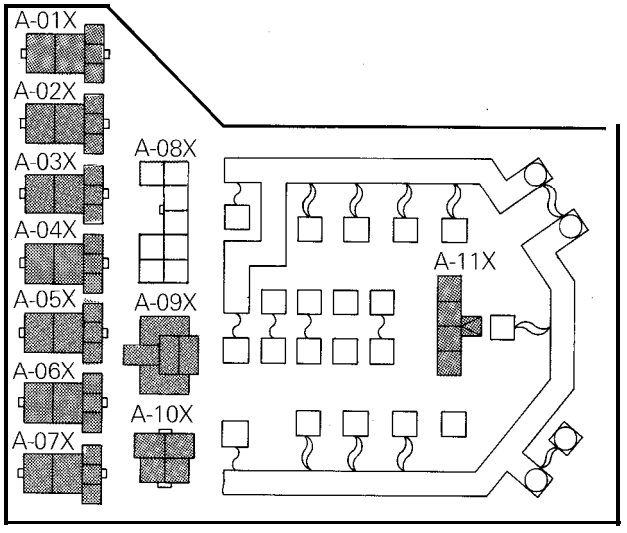
16F0304

CENTRALIZED RELAY

Classification		Name	Classification		Name
Relay box in engine compartment	A-01X	Headlight relay	Air conditioning relay box in engine compartment	A-31X	Condenser fan motor relay (HI)
	A-02X	ABS power relay		A-32X	–
	A-03X	Fog light relay		A-33X	Magnetic clutch relay
	A-04X	Radiator fan motor relay (LO)		A-34X	Condenser fan motor relay (LO)
	A-05X	Taillight relay	Interior relay box	C-04X	Door lock power relay 1
	A-06X	Horn relay		C-05X	–
	A-07X	Radiator fan motor relay (HI)		C-06X	Defogger relay
	A-08X	–		C-07X	Power window relay
	A-09X	Starter relay			
	A-10X	Generator relay	–		–
	A-11X	IOD or Storage connector			

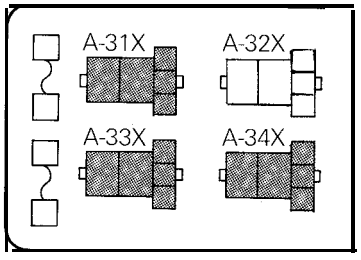
NOTE
IOD: Ignition Off Draw

<Relay box in engine compartment>



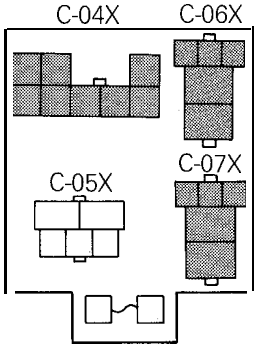
16F0256

<Air conditioning relay box in engine compartment>

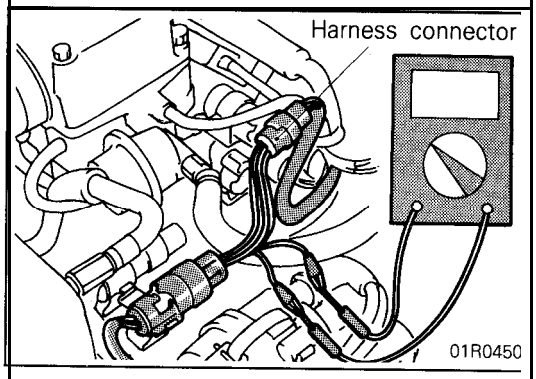


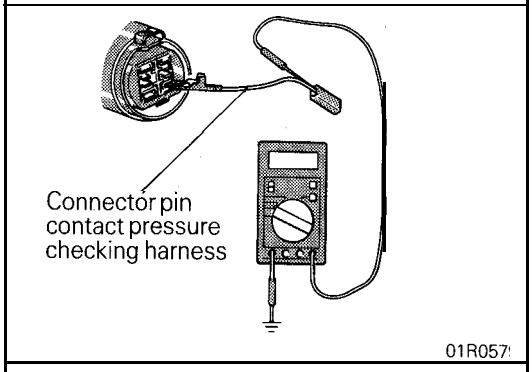
16F0002

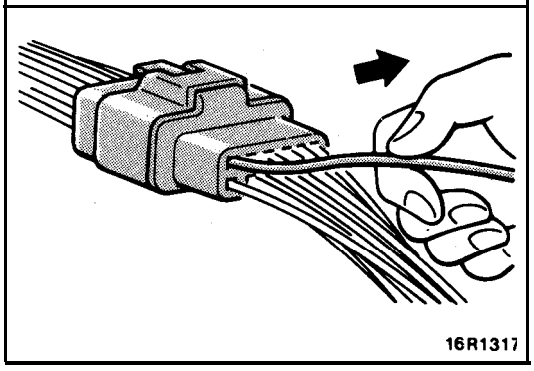
<Interior relay box>



16F0431







HARNESS CONNECTOR INSPECTION

CONNECTOR CONTINUITY AND VOLTAGE TEST

When checking continuity and/or voltage at the waterproof connectors, follow the steps below to avoid poor connector contact and/or reduced waterproof performance of connectors.

(1) When checking is performed with the circuit in the state of continuity, be sure to use the special tool (harness connector).
Never insert a test bar from the harness side, because to do so will reduce the waterproof performance and result in corrosion.

(2) When the connector is disconnected for checking the female pin (the harness for checking the contact pressure of connector pins should be used.
Never force the insertion of a test bar, because to do so will cause poor contact.

(3) When the male pin is to be checked, apply the test bar against the pin directly.

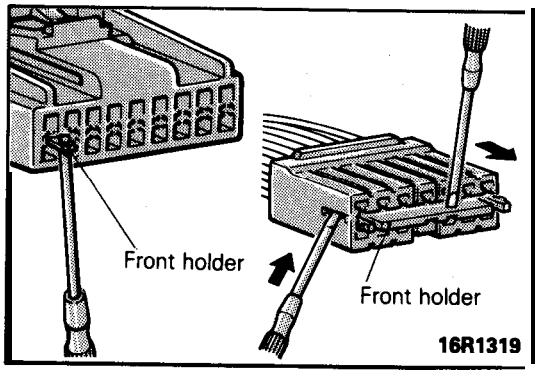
Care must be taken not to short-circuit the connector pins.

TERMINAL ENGAGEMENT CHECK

When the terminal stopper of connector is out of order, engagement of male and female terminals becomes improper even when the connector itself is engaged perfectly and the terminal sometimes slips out to the rear side of connector. Ascertain, therefore, that each terminal does not come off the connector by pulling each harness wire.

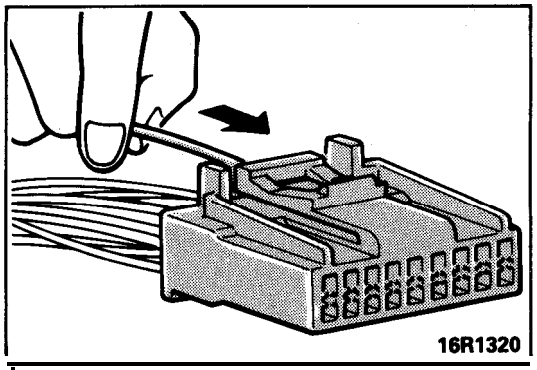
CONNECTOR TERMINAL ENGAGEMENT AND DISENGAGEMENT

Connectors which are loose shall be rectified by removing the female terminal from connector housing and raising its lance to establish a more secure engagement. Removal of connector terminal used for MFI and 4 A/T control circuit shall be done in the following manner.

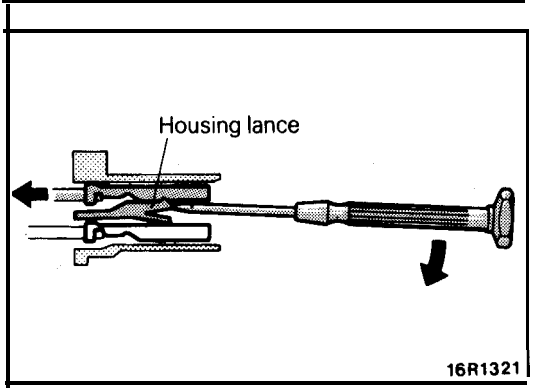


COMPUTER CONNECTOR

(1) Insert screwdriver [I .4 mm (.06 in.) width] as shown in the figure, disengage front holder and remove it.

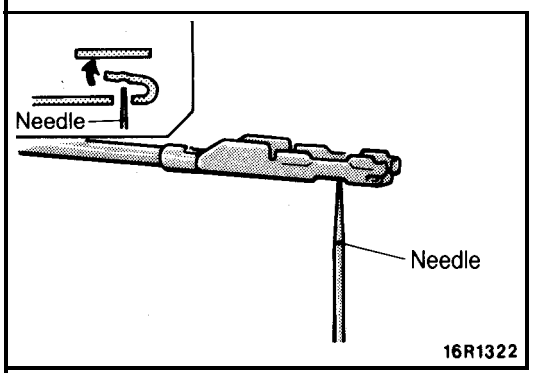


(2) Insert harness of terminal to be rectified deep into connector from harness side and hold it there.



(3) Insert tip of screwdriver [1.4 mm (.06 in.) width] into connector in a manner as shown in the figure, raise housing lance slightly with it and pull out harness.

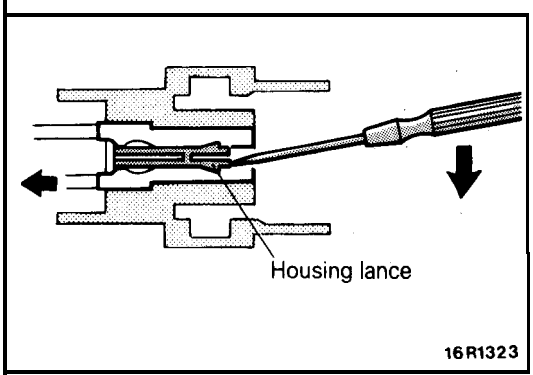
Caution
Tool No. 753787-l supplied by AMP can be used instead of screwdriver.

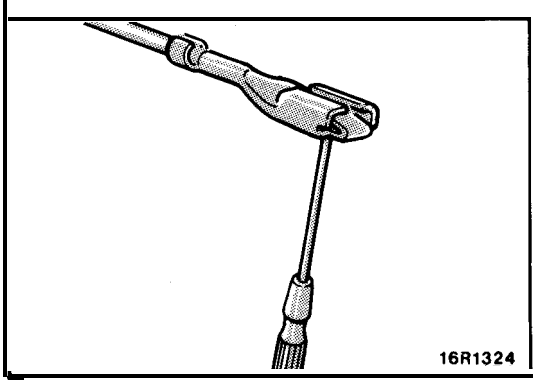


(4) Insert needle through a hole provided on terminal and raise contact point of male terminal.

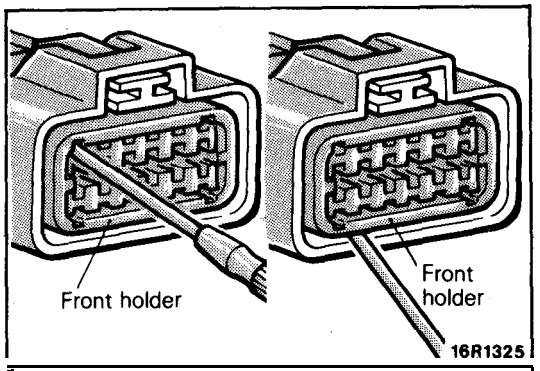
ROUND WATERPROOF CONNECTOR

(1) Remove waterproof cap by using a screwdriver.
(2) Insert tip of screwdriver [I .4 mm (.06 in.) or 2.0 mm (.08 in.) width] into connector in a manner as shown in the figure, raise housing lance slightly with it and pull out harness.



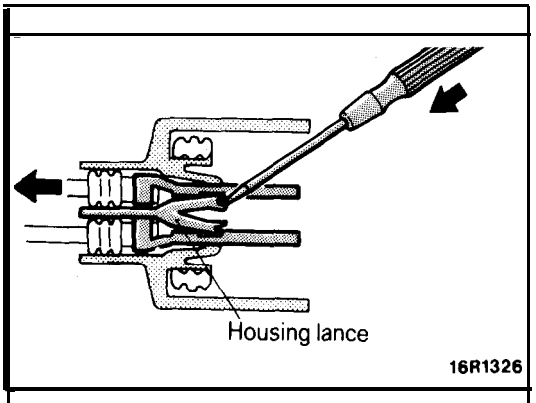


(3) Insert screwdriver through a hole provided on terminal and raise contact point of male terminal.

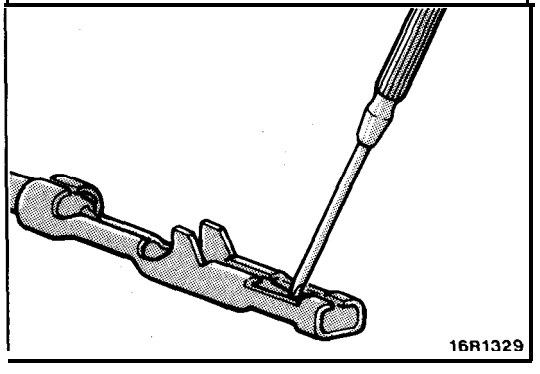


RECTANGULAR WATERPROOF CONNECTOR

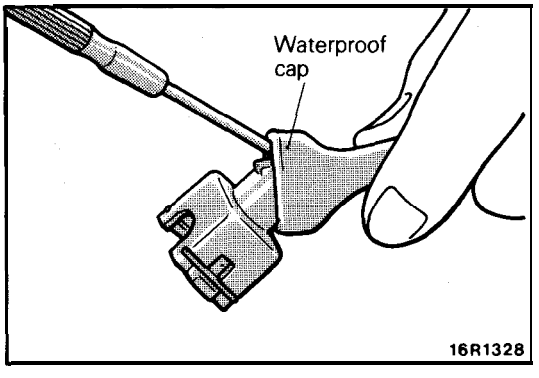
(1) Disengage front holder by using a screwdriver and remove it.



(2) Insert tip of screwdriver [*0.8 mm (.03 in.) width] into connector in a manner as shown in the figure, push it lightly to raise housing lance and pull out harness.
*If right size screwdriver is not available, convert a conventional driver to suit the size.

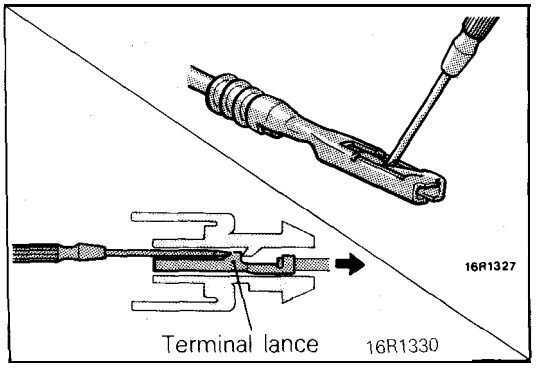


(3) Press contact point of male terminal down by holding a screwdriver [I .4 mm (.06 in.) width] in a manner as shown in the figure.



INJECTOR CONNECTOR

(1) Remove waterproof cap.



(2) Insert tip of screwdriver [I .4 mm (.06 in.) width] into connector in a manner as shown in the figure, press in terminal lance and pull out harness.
(3) Press contact point of male terminal down by holding a screwdriver [I .4 mm (.06 in.) width] in a manner as shown in the figure.

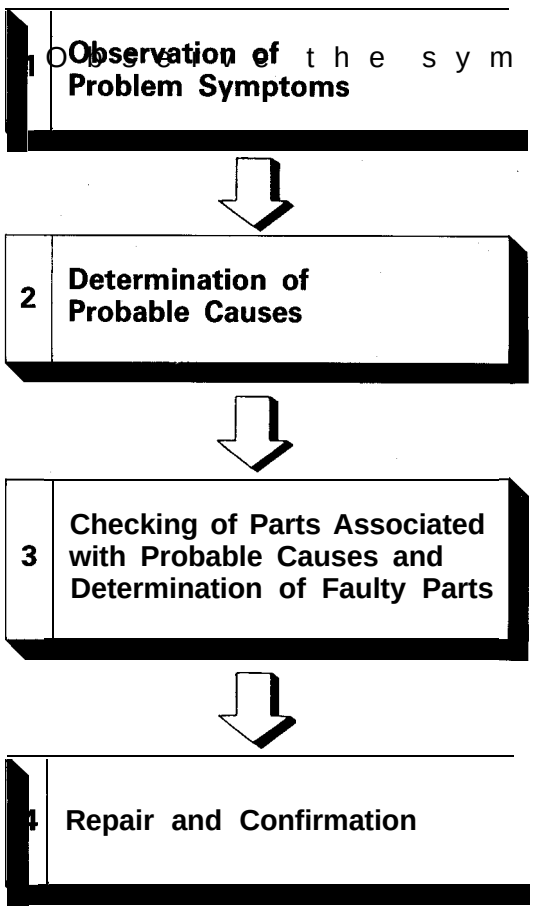
Caution
Make sure that lance is in proper condition before terminal is inserted into connector.

HOW TO DIAGNOSE

The most important point in troubleshooting is to determine “Probable Causes”. Once the probable causes are determined, parts to be checked can be limited to those associated with such probable causes. Therefore, unnecessary checks can be eliminated. The determination of the probable causes must be based on a theory and be supported by facts and must not be based on intuition only.

TROUBLESHOOTING STEPS

If an attempt is made to solve a problem without going through correct steps for troubleshooting, the problem symptoms could become more complicated, resulting in failure to determine the causes correctly and making incorrect repairs. The four steps below should be followed in troubleshooting.



1 Observation of the symptom carefully. Check if there are also other problems.

In determining the probable causes, it is necessary to check the wiring diagram to understand the circuit as a system. Knowledge of switches, relays and other parts is necessary for accurate determination. The causes of similar problems in the past must be taken into account.

Troubleshooting is carried out by making step by step checks until the true cause is found. Always go through the procedures considering what check is to be made where for the best results.

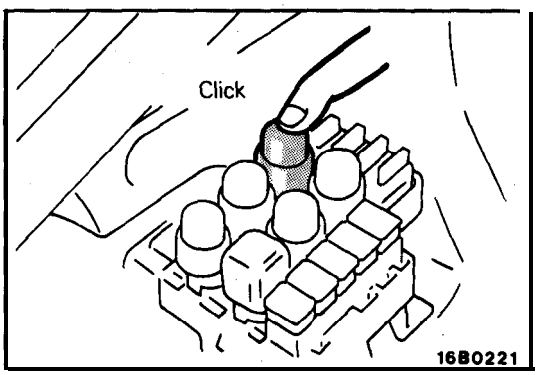
After the problems are corrected, be sure to check that the system operates correctly. Also, check that new problems have not been caused by the repair.

INFORMATION FOR DIAGNOSIS

This manual contains the cable diagrams as well as the individual circuit drawings, operational explanations, and troubleshooting hints for each component required to facilitate the task of troubleshooting. The information is compiled in the following manner:

(1) Cable diagrams show the connector positions, etc., on the actual vehicle as well as the harness path.
(2) Circuit drawings show the configuration of the circuit with all switches in their normal positions.
(3) Operational explanations include circuit drawings of voltage flow when the switch is operated and how the component operates in reaction.
(4) Troubleshooting hints include numerous examples of problems which might occur, traced backward in a common-sense manner to the origin of the trouble.
Problems whose origins may not be found in this manner are pursued through the various system circuits.

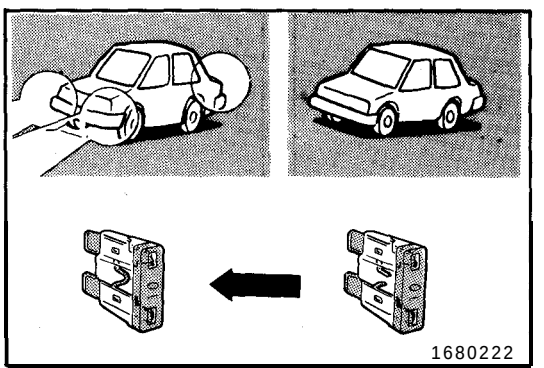
NOTE
Components of MFI, ETACS, ECS, etc. with ECU do not include 3 and 4 above. For this information, refer to a manual which includes details of these components.



INSPECTION

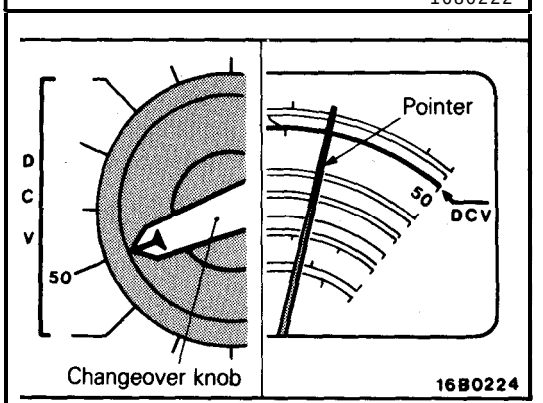
1. Visual and aural checks

Check relay operation, blower motor rotation, light illumination, etc. visually or aurally. The flow of current is invisible but can be checked by the operation of the parts.



2. Simple checks

For example, if a headlight does not come on and a faulty fuse or poor grounding is suspected, replace the fuse with a new one or ground the light to the body by a jumper wire to determine which part is responsible for the problem.



3. Checking with instruments

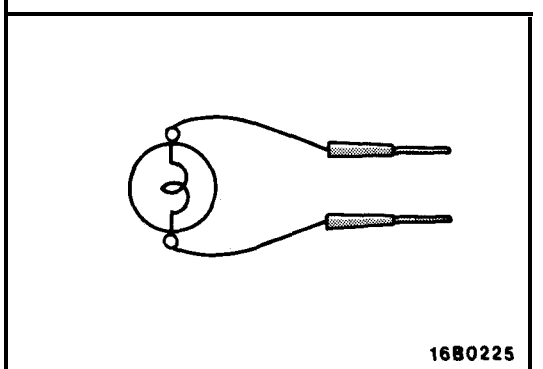
Use an appropriate instrument in an adequate range and read the indication correctly. You must have sufficient knowledge and experience to handle instruments correctly.

INSPECTION INSTRUMENTS

In inspection, make use of the following instruments.

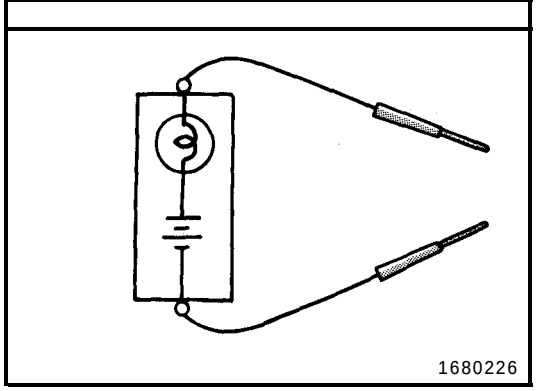
1. Test lights

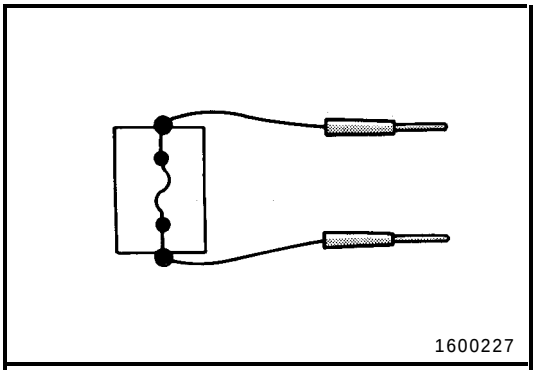
A test light consists of a 12V bulb and lead wires. It is used to check voltages or shortcircuits.



2. Self-power test light

A self-power test light consists of a bulb, battery and lead wires connected in series. It is used to check continuity or grounding.

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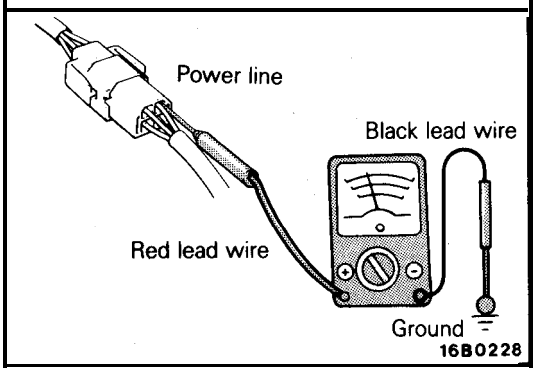
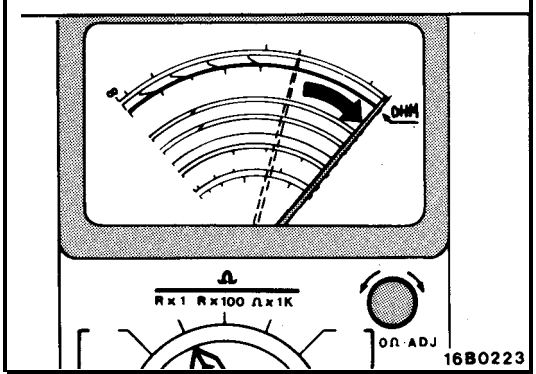
3. Jumper wire

A jumper wire is used to close an open circuit. Never use one to connect a power supply directly to a load.



4. Voltmeter

A voltmeter is used to measure the circuit voltage. Normally, the positive (red lead) probe is applied to the point of voltage measurement and the negative (black lead) probe to the body ground.



5. Ohmmeter

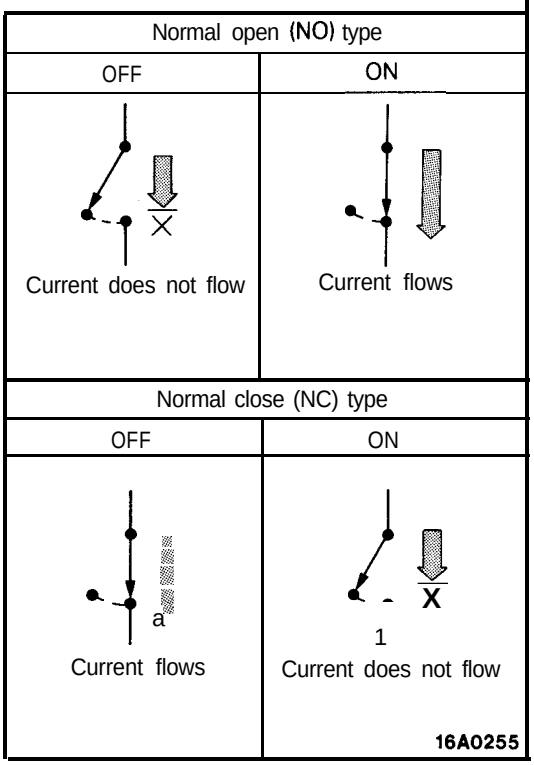
An ohmmeter is used to check continuity or measure resistance of a switch or coil. If the measuring range has been changed, the zero point must be adjusted before measurement.

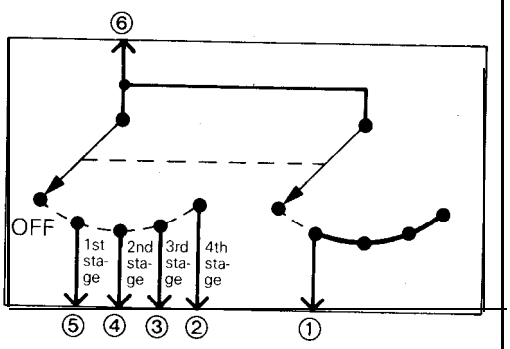
CHECKING SWITCHES

In a circuit diagram, a switch is represented by a symbol and in the idle state.

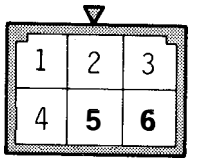
1. Normal open or normal close switch

Switches are classified into those which make the circuit open and those which make the circuit closed when off.





16A0253



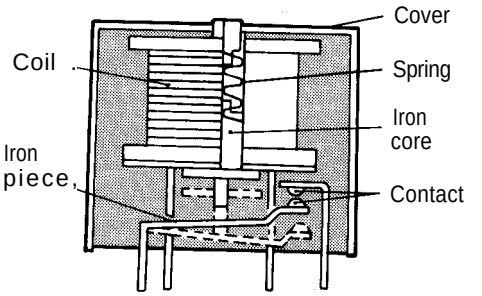
16W898

2. SWITCH CONNECTION

This figure illustrates a complex switch. The continuity between terminals at each position is as indicated in the table below.

Position \ Terminal No.	1	2	3	4	5	6
OFF						
1 st stage	○				○	○
2nd stage	○			○		○
3rd stage	○		○			○
4th stage	○	○				○

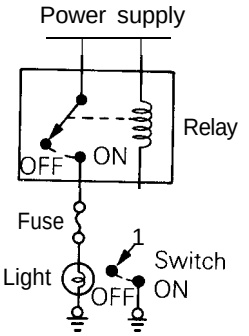
NOTE
O-O denotes continuity between terminals.



16B0231

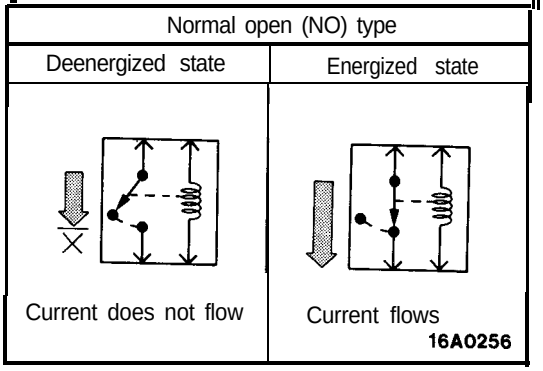
CHECKING RELAYS

1. When current flows through the coil of a relay, its core is magnetized to attract the iron piece, closing (ON) the contact at the tip of the iron piece. When the coil current is turned off, the iron piece is made to return to its original position by a spring, opening the contact (OFF).



16A0254

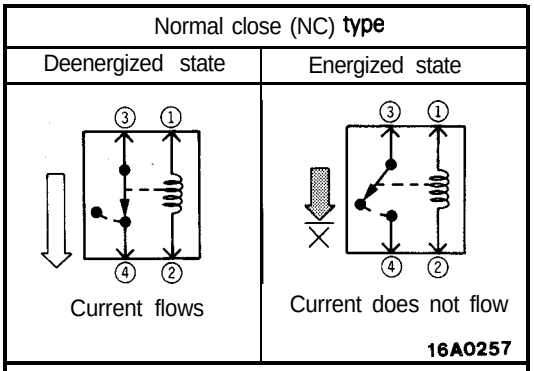
2. By using a relay, a heavy current can be turned on and off by a switch of small capacity. For example, in the circuit shown here, when the switch is turned on (closed), current flows to the coil of the relay. Then, its contact is turned on (closed) and the light comes on. The current flowing at this time to the switch is the relay coil current only and is very small.



16A0256

3. The relays may be classified into the normal open type and the normal close type by their contact construction.

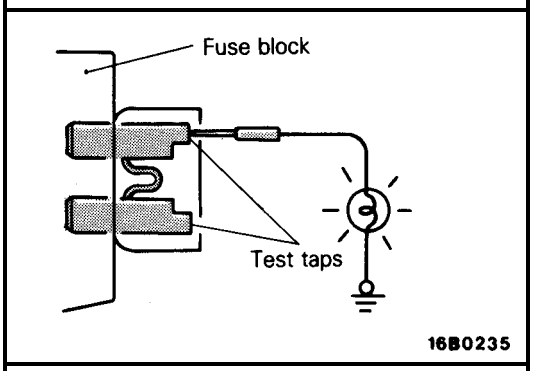
NOTE
The deenergized state means that no current is flowing through the coil and the energized state means that current is flowing through the coil.



When a normal close type relay as illustrated here is checked, there should be continuity between terminals (1) and (2) and between terminals 3 and 4 when the relay is deenergized, and the continuity should be lost between terminals 3 and 4 when the battery voltage is applied to the terminals 1 and 2. A relay can be checked in this manner and it cannot be determined if a relay is okay or faulty by checking its state only when it is deenergized (or energized).

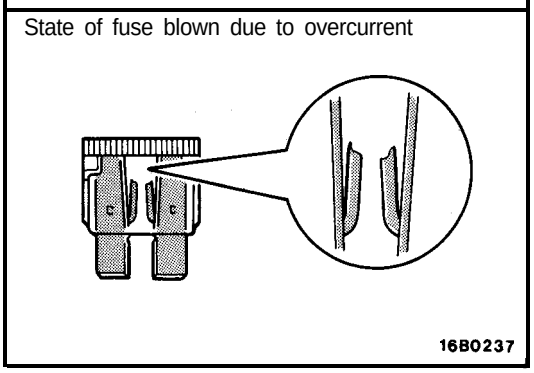
CHECKING FUSES

A blade type fuse has test taps provided to allow checking of the fuse itself without removing it from the fuse block. The fuse is okay if the test light comes on when its one lead is connected to the test taps (one at a time) and the other lead is grounded. (Change the ignition switch position adequately so that the fuse circuit becomes live.)

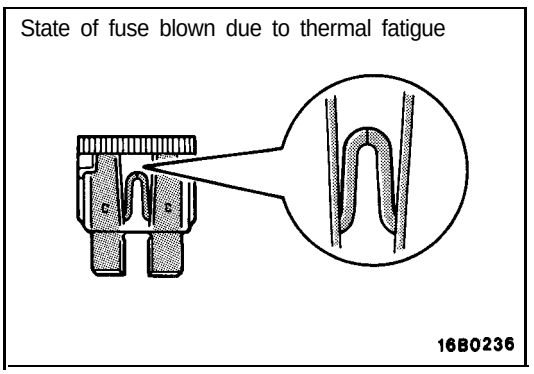


CAUTIONS IN EVENT OF BLOWN FUSE

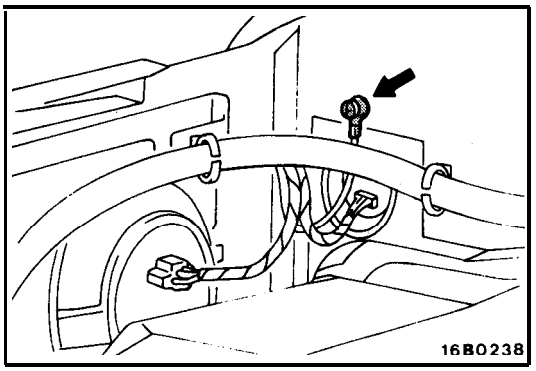
When a fuse is blown, there are two probable causes as follows: One is that it is blown due to flow of current exceeding its rating.
The other is that it is blown due to repeated on/off current flowing through it. Which of the two causes is responsible can be easily determined by visual check as described below.

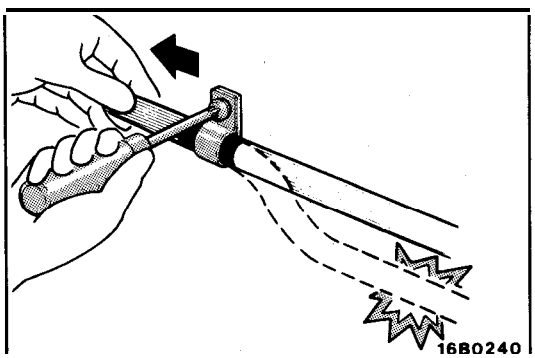


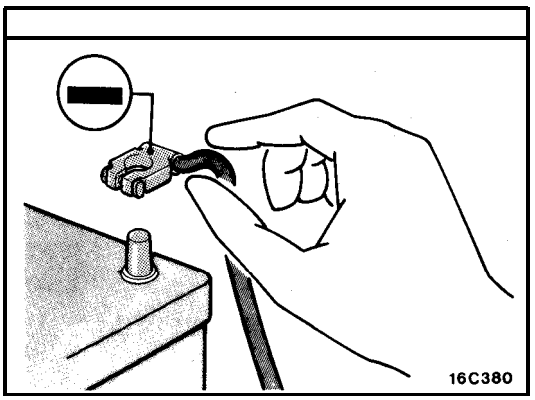
(1) Fuse blown due to current exceeding rating
The illustration shows the state of a fuse blown due to this cause. In this case, do not replace the fuse with a new one hastily since a current heavy enough to blow the fuse has flowed through it. First, check the circuit for shorting and check for abnormal electric parts. Only after the correction of such shorting or parts, fuse of the same capacity should be used as a replacement. Never use a fuse of larger capacity than the one that has blown. If such a fuse is used, electric parts or wirings could be damaged before the fuse blows in the event an overcurrent occurs again.



(2) Fuse blown due to repeated current on/off
The illustration shows the state of a fuse blown due to repeated current on/off. Normally, this type of problem occurs after fairly long period of use and hence is less frequent than the above type. In this case, you may simply replace with a new fuse of the same capacity.







CHECKING CABLES AND WIRES

1. Check connections for looseness, rust and stains.
2. Check terminals and wires for corrosion by battery electrolyte, etc.
3. Check terminals and wires for open circuit or impending open circuit.
4. Check wire insulation and coating for damage, cracks and degrading.
5. Check conductive parts of terminals for contact with other metallic parts (vehicle body and other parts).
6. Check grounding parts to verify that there is complete continuity between attaching bolt(s) and vehicle body.
7. Check for incorrect wiring.
8. Check that wirings are so clamped as to prevent contact with sharp corners of the vehicle body, etc. or hot parts (exhaust manifold, pipe, etc.).
9. Check that wirings are clamped firmly to secure enough clearance from the fan pulley, fan belt and other rotating or moving parts.
10. Check that the wirings between the fixed parts such as the vehicle body and the vibrating parts such as the engine are made with adequate allowance for vibrations.

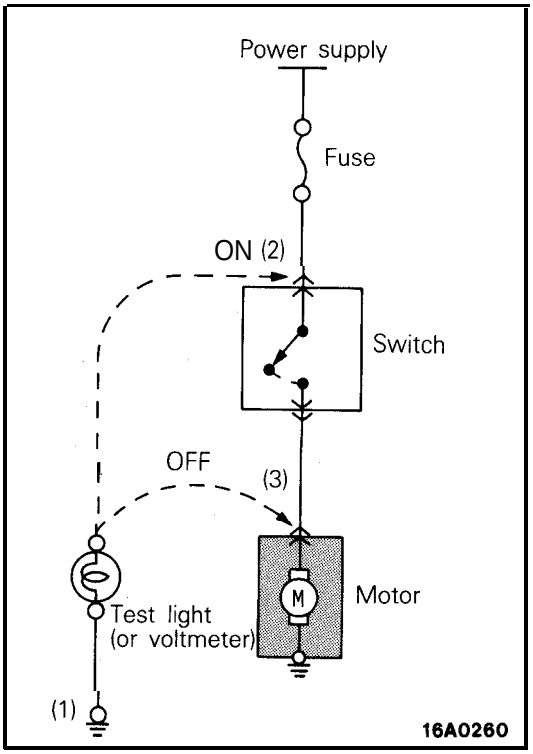
HANDLING ON-VEHICLE BATTERY

When checking or servicing does not require power from the on-vehicle battery, be sure to disconnect the cable from the battery (–) terminal. This is to prevent problems that could be caused by a short circuit. Disconnect the (–) terminal first and reconnect it last.

Caution

1. **Before connecting or disconnecting the negative cable, be sure to turn off the ignition switch and the lighting switch.**
   (If this is not done, there is the possibility of semiconductor parts being damaged.)
2. **After completion of the work steps [when the battery's negative (–) terminal is connected], warm up the engine and allow it to idle for approximately five minutes under the conditions described below, in order to stabilize the engine control conditions, and then check to be sure that the idling is satisfactory.**

   Engine coolant temperature: 85 – 95°C (185 – 203°F)
   Lights, electric fans, accessories: OFF
   Transaxle: neutral position
   (A/T models: "N" or "P")
   Steering wheel: neutral (center) position

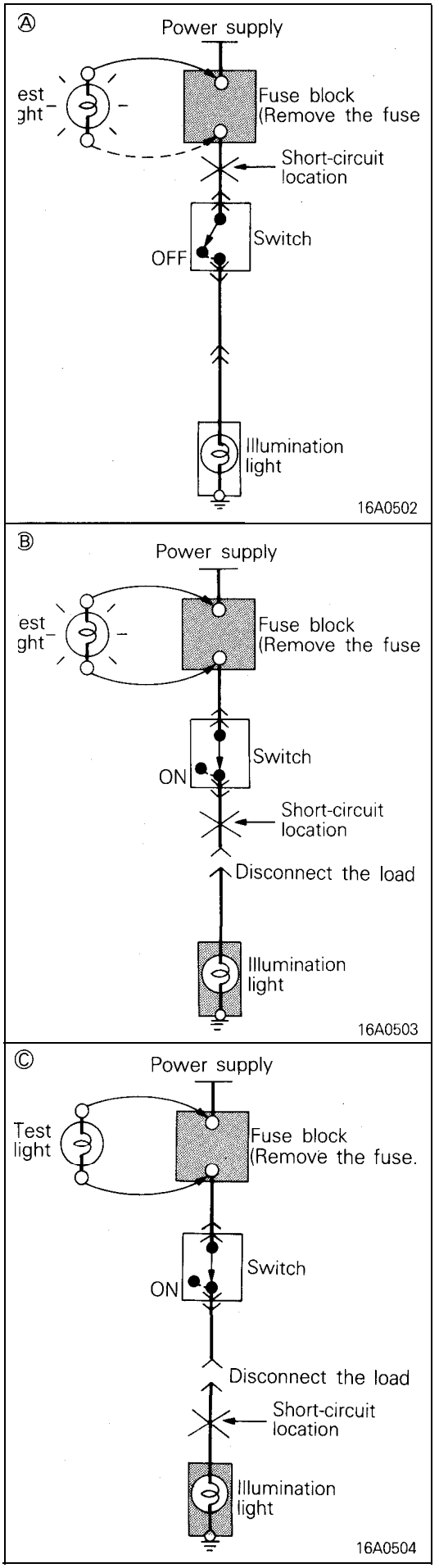


GENERAL ELECTRICAL SYSTEM CHECKS

A circuit consists of the power supply, switch, relay, load, ground, etc. There are various methods to check a circuit including an overall check, voltage check, shortcircuit check and continuity check. Each of these methods is briefly described in the following.

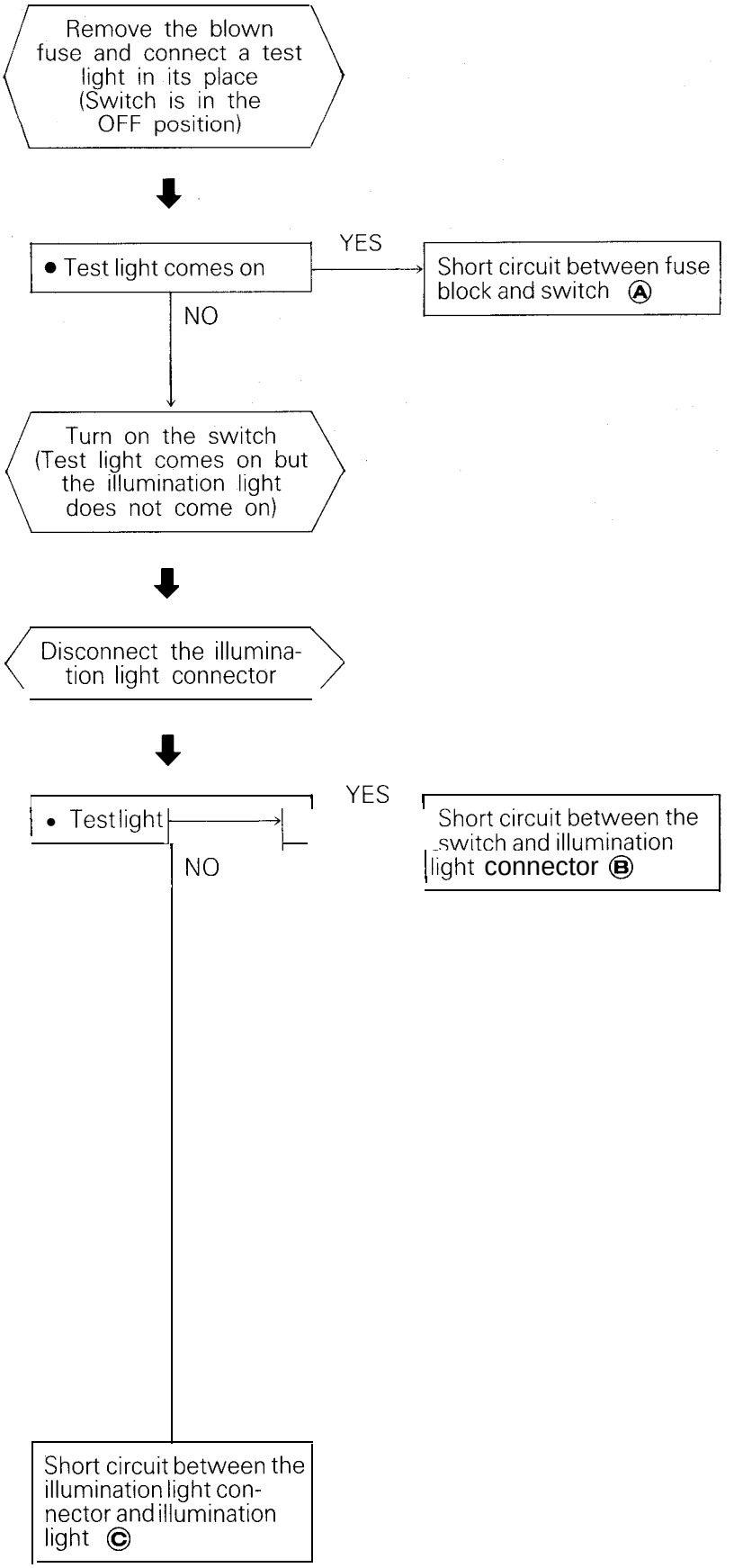
1. VOLTAGE CHECK

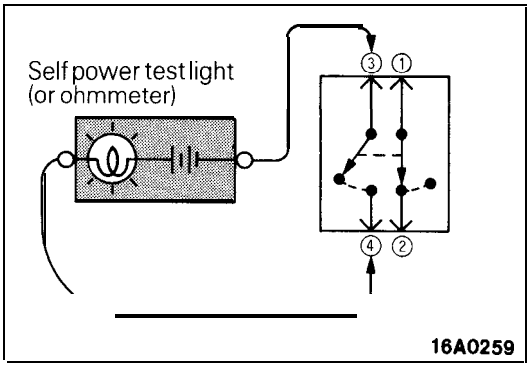
(1) Ground one lead wire of the test light. If a voltmeter is used instead of the test light, ground the grounding side lead wire.
(2) Connect the other lead wire of the test light to the power side terminal of the switch connector. The test light should come on or the voltmeter should indicate a voltage.
(3) Then, connect the test light or voltmeter to the motor connector. The test light should not come on, or the voltmeter should indicate no voltage. When the switch is turned on in this state, the test light should come on, or the voltmeter should indicate a voltage, with motor starting to run.
(4) The circuit illustrated here is normal but if there is any problem such as the motor failing to run, check voltages beginning at the connector nearest to the motor until the faulty part is identified.



2. SHORT CIRCUIT CHECK

A blown fuse indicates that a circuit is shorted. The circuit responsible can be determined by the following procedures.





3. CONTINUITY CHECK

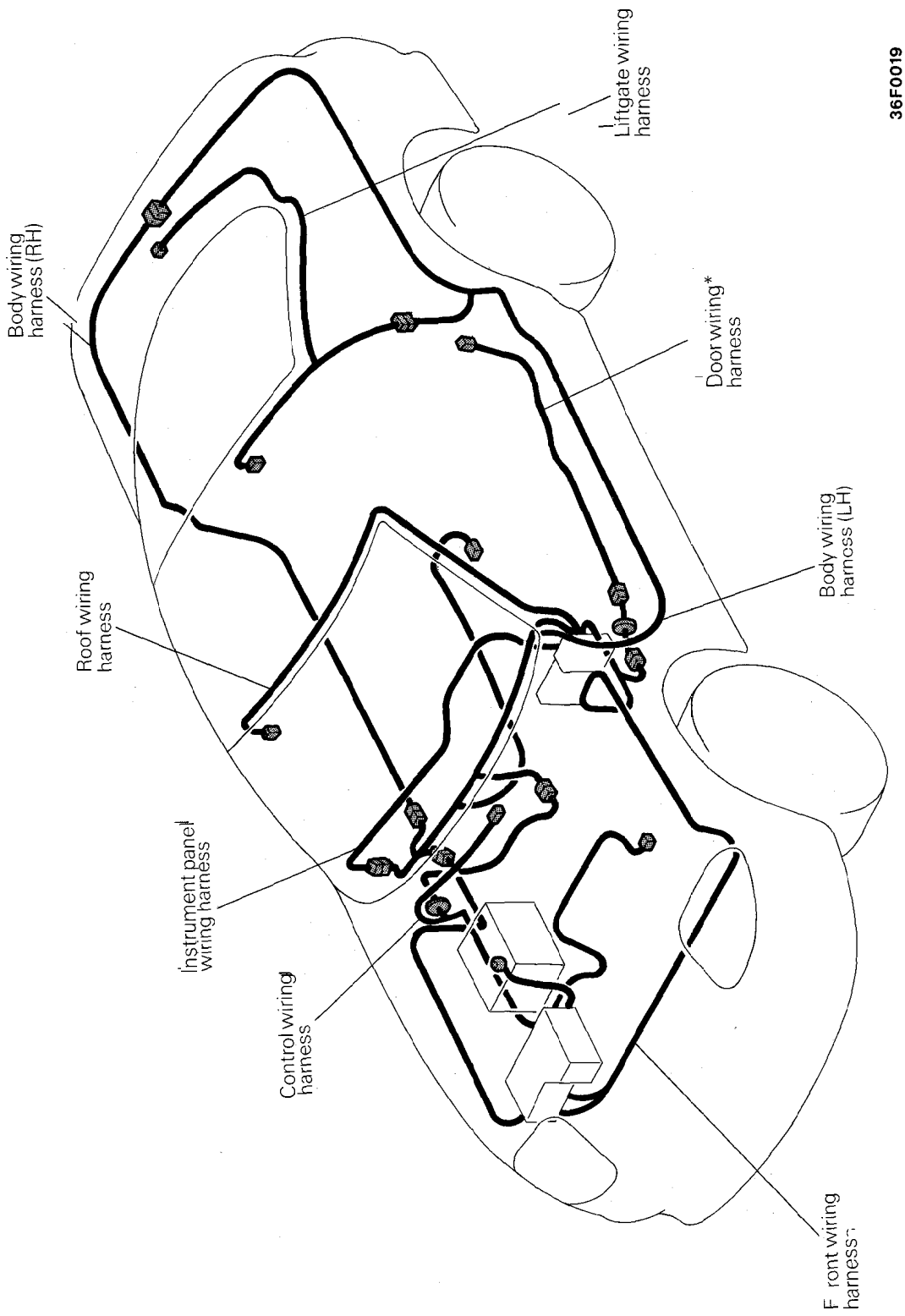
(1) When the switch is in the OFF position, the self power test light should come on or the ohmmeter should read 0 ohm only when the terminals 1 and 2 are interconnected.

(2) When the switch is in the ON position, the self power test light should come on or the ohmmeter should read 0 ohm only when the terminals 3 and 4 are interconnected.

CONFIGURATION DIAGRAMS

CONTENTS

OVERALL CONFIGURATION DIAGRAM



NOTE
(1) This illustration shows only the major wiring harnesses.
(2) * indicates also equipped at the right side

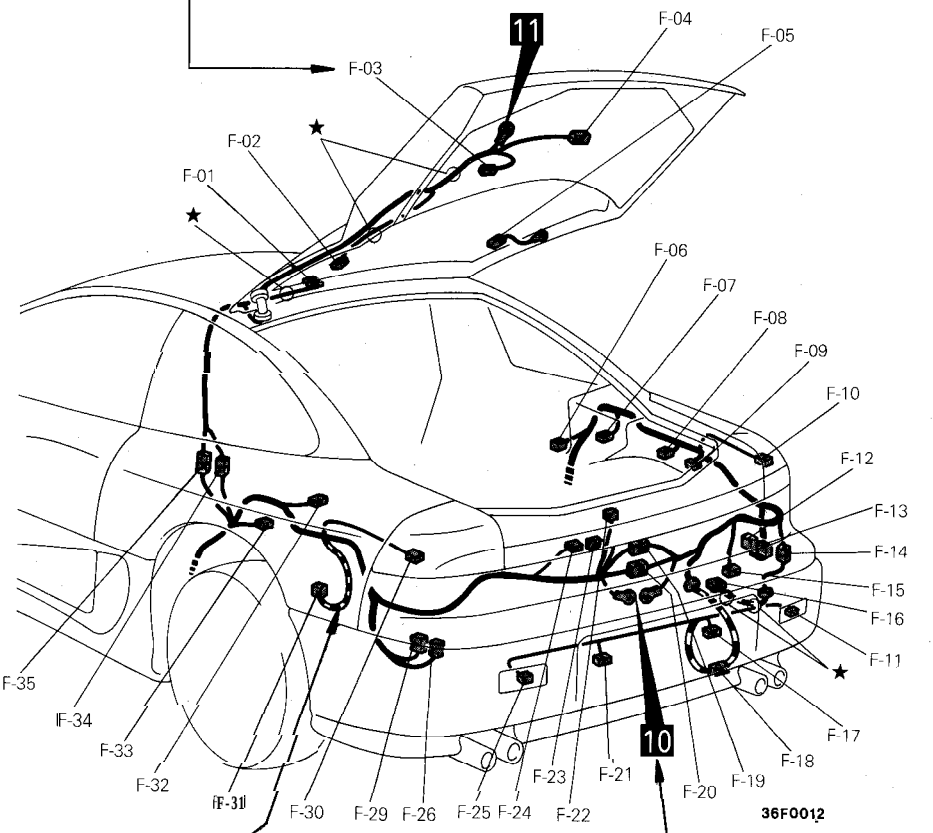
HOW TO READ CONFIGURATION DIAGRAM

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

Denotes connector No.
The same connector No. is used throughout the circuit diagrams to facilitate connector location searches.
The first alphabetical symbol indicates the location site of the connector and a number that follows in the unique number.
Numbers are assigned to parts in clockwise order on the diagram.
In case connectors of the same shape (same number of poles) are located close to each other, connector colors are shown to aid in identification.

Example: A-12

- Number specific to connector (serial number)
- Connector location site symbol
  - A: Engine compartment
  - B: Engine and transaxle
  - C: Dash panel
  - D: Instrument panel and floor console
  - E: Interior
  - F: Luggage compartment



Denotes a section covered by a corrugated tube.

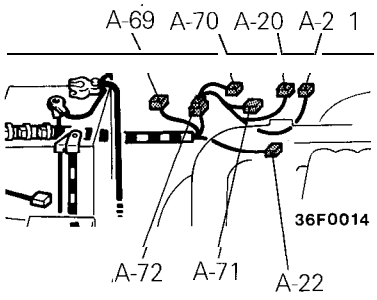
Denotes ground point.
Same ground number is used throughout circuit diagrams to facilitate search of ground point. Refer to GROUNDING LOCATION for details of ground points.

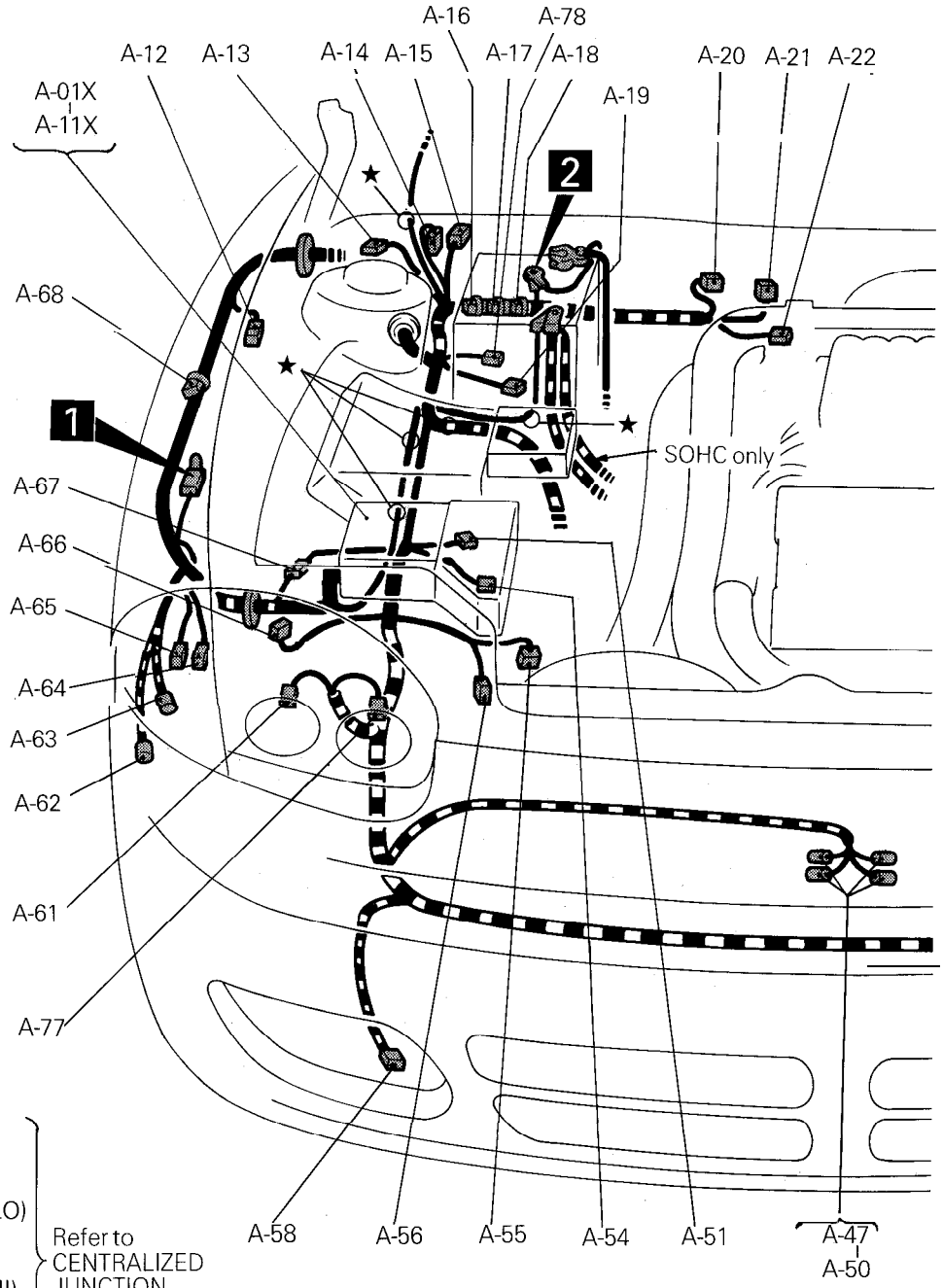
ENGINE COMPARTMENT

Connector symbol

A

<Turbo>



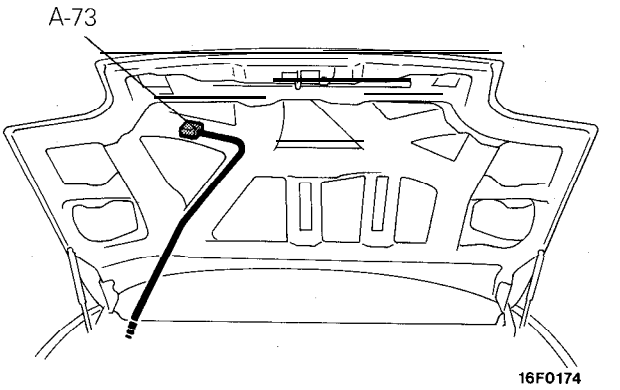


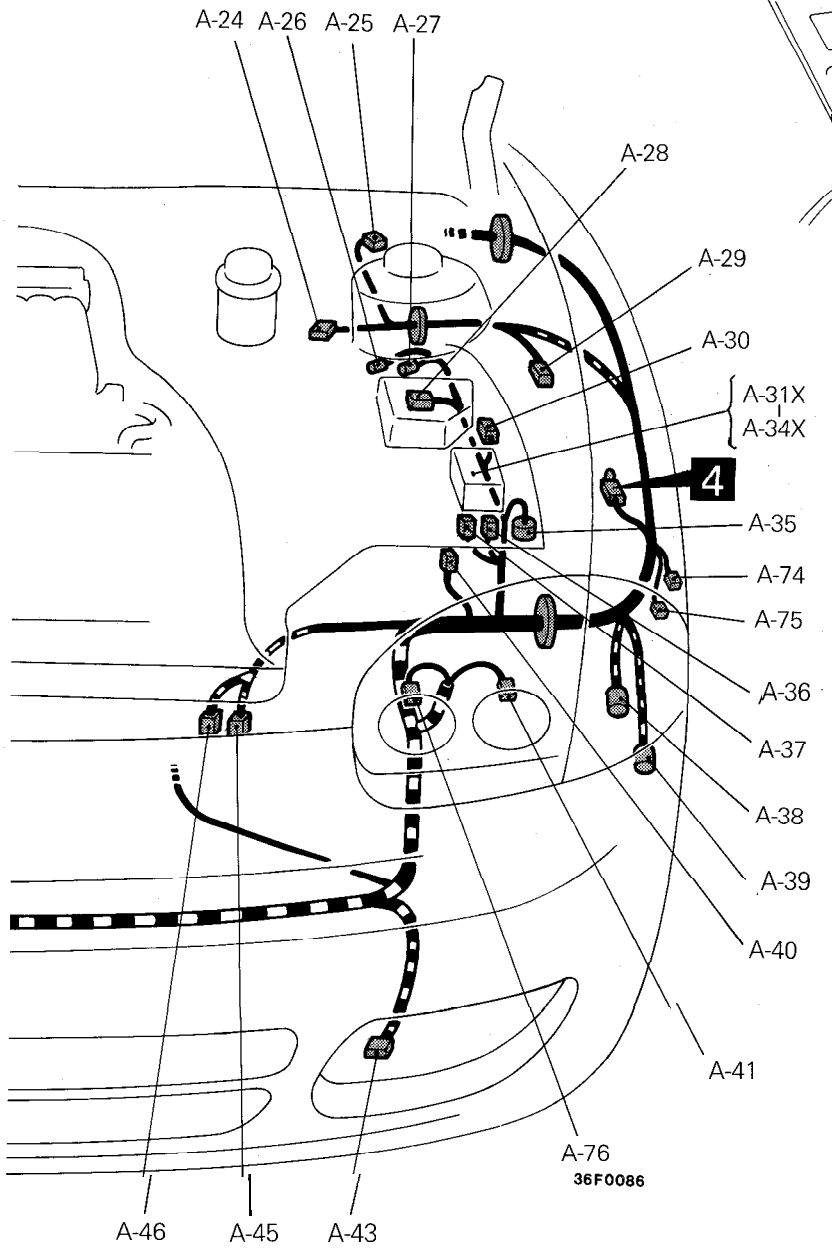
A-01X Headlight relay
A-02X ABS power relay
A-03X Foglight relay
A-04X Radiator fan motor relay (LO)
A-05X Taillight relay
A-06X Horn relay
A-07X Radiator fan motor relay (HI)
A-08X –
A-09X Starter relay
A-10X Generator relay
A-11X IOD or Storage connector

} Refer to CENTRALIZED JUNCTION

A-12 ABS front speed sensor (RH)
A-13 ECS front shock absorber (RH)
A-14 Washer fluid level sensor
A-15 Front wiper motor
A-16 Engine speed detection connector <DOHC>
A-17 Fuel pump check connector
A-18 Ignition timing adjustment connector
A-19 Front washer motor
A-20 Evaporative emission purge solenoid
A-21 EGR solenoid <Turbo, Non Turbo (California)>
A-22 EGR temperature sensor <Turbo, Non Turbo (California)>
A-23 –
A-24 Brake fluid level sensor
A-25 ECS front shock absorber (LH)
A-26 } Theft-alarm horn
A-27 }
A-28 Auto-cruise vacuum pump
A-29 ABS front speed sensor (LH)
A-30 4WS fluid level sensor <Turbo>

ENGINE HOOD





A-41 Headlight (LO, LH)
A-42 –
A-43 Fog light (LH)
A-44 –
A-45, A-46 } Condenser fan motor
A-47, A-50 } Horn
A-51 Fuel pump resistor <Turbo>
A-52 –
A-53 –
A-54 Pulse generator <A/T>
A-55 Radiator fan motor
A-56 Engine coolant level sensor
A-57 –
A-58 Fog light (RH)
A-59 –
A-60 –
A-61 Headlight (LO, RH)
A-62 Front combination light (RH)
A-63 SRS front impact sensor (RH)
A-64, A-65 } ABS hydraulic unit
A-66 Hood switch
A-67 Front wiring harness and control wiring harness combination
A-68 Diode (for ABS circuit)
A-69 Resistor <Turbo>
A-70 Turbocharger waste gate solenoid <Turbo>
A-71 Fuel pressure solenoid <Turbo>
A-72 Control wiring harness and solenoid valve harness combination
A-73 Inspection light
A-74 Daytime running light control unit
A-75 Upper beam relay
A-76 Headlight (HI, LH)
A-77 Headlight (HI, RH)
A-78 No connection <Turbo>

A-31X Condenser fan motor relay (HI)
A-32X –
A-33X Magnetic clutch relay
A-34X Condenser fan motor relay (LO)
} Refer to CENTRALIZED JUNCTION

A-35 Dual pressure switch
A-36, A-37 } Air conditioning relay box
A-38 SRS front impact sensor (LH)
A-39 Front combination light (LH)
A-40 Inspection light switch

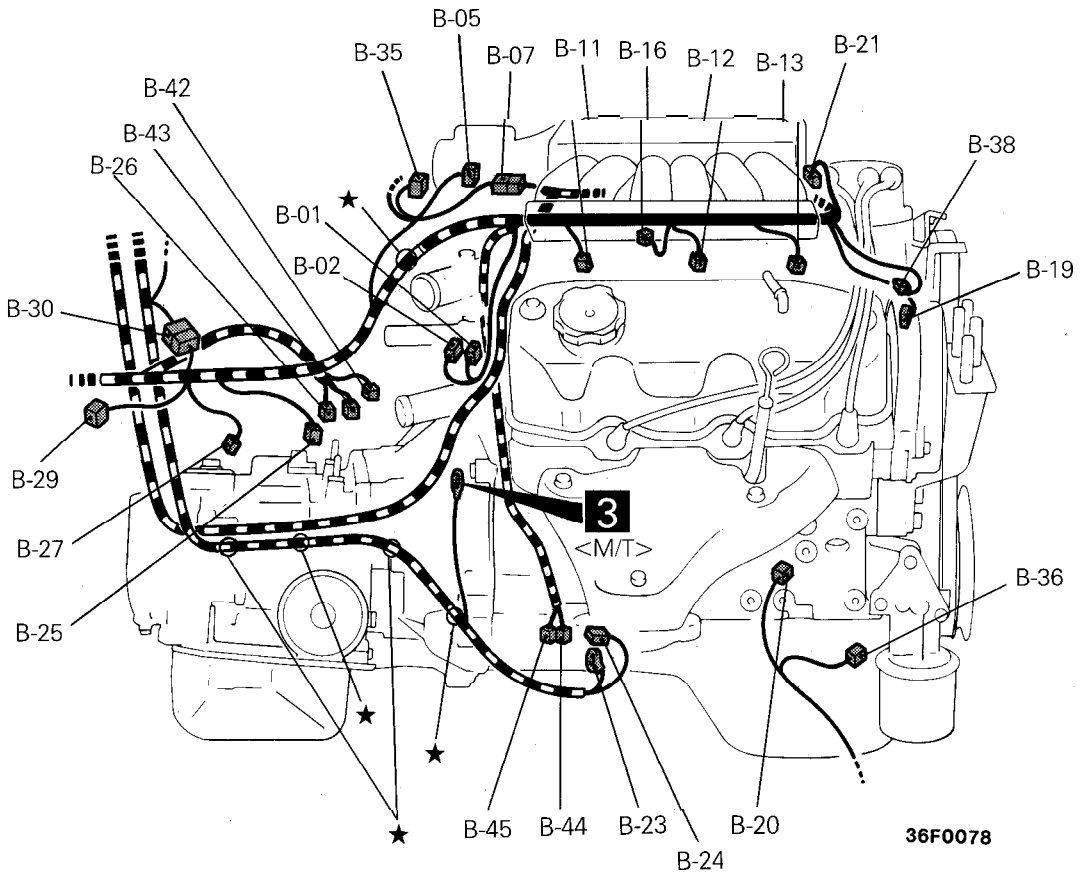
Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: 1), refer to P.8-4.
(3) "–" means that the connector with code-number is not used.

ENGINE AND TRANSAXLE <SOHC>

Connector symbol

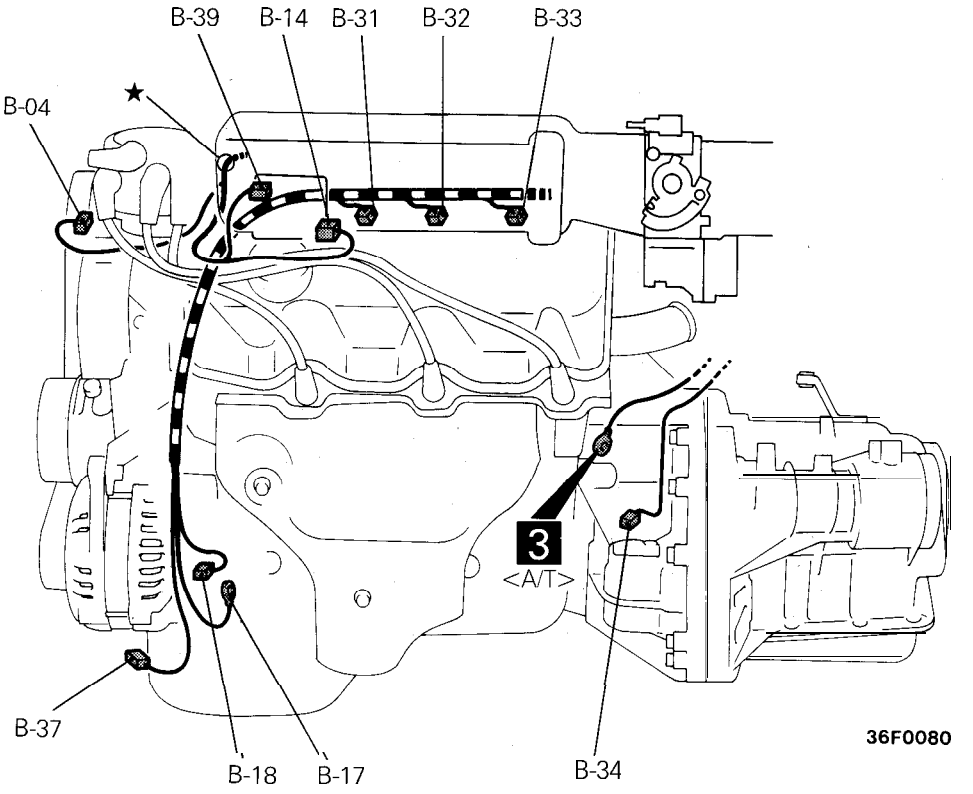
B

Front View



B-01 Engine coolant temperature gauge unit
B-02 Engine coolant temperature sensor
B-03 –
B-04 Crankshaft position sensor and camshaft position sensor
B-05 Throttle position sensor
B-06 –
B-07 Control wiring harness and injector wiring harness combination
B-08
B-09
B-10 –
B-11 Injector No. 5
B-12 Injector No. 3
B-13 Injector No. 1
B-14 Ignition coil
B-15 –
B-16 Left bank heated oxygen sensor (front) <California>
B-17, B-18 } Generator
B-19 Right bank heated oxygen sensor (front) <California>
B-20 Magnetic clutch
B-21 Power transistor
B-22 –
B-23, B-24 } Starter motor

Rear View



B-25 Back-up light switch <M/T>
B-26 Park/Neutral position switch <A/T>
B-27 ELC-4 A/T control solenoid valve <A/T>
B-28 –
B-29 Volume air flow sensor (with intake air temperature sensor and atmospheric sensor)
B-30 Control wiring harness and battery cable combination
B-31 Injector No. 2
B-32 Injector No. 4
B-33 Injector No. 6
B-34 Speed sensor
B-35 Idle air control motor (stepper motor)
B-36 Oil pressure gauge unit
B-37 Oil pressure switch
B-38 Power steering pressure switch
B-39 Condenser assembly
B-40 } –
B-41
B-42 Kickdown servo switch
B-43 A/T temperature sensor
B-44 Right bank heated oxygen sensor (rear) <California>
B-45 Left bank heated oxygen sensor (rear) <California>

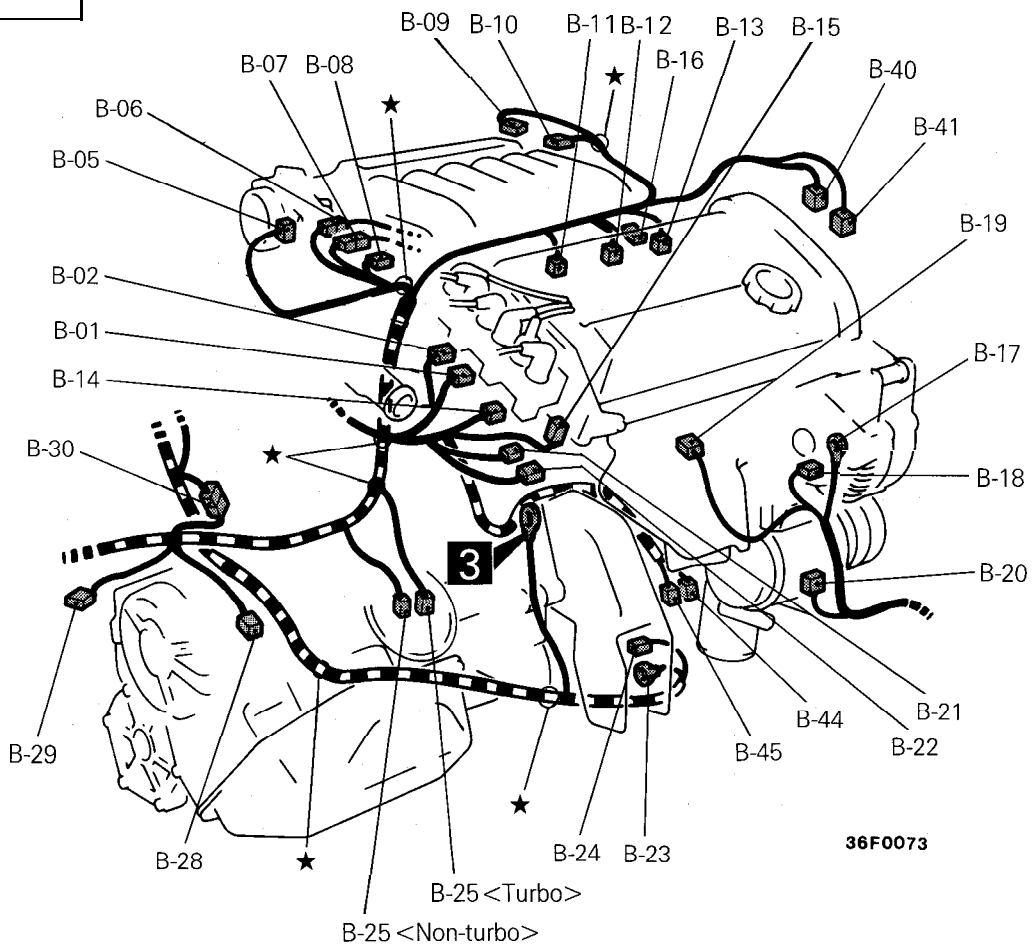
Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: 3), refer to P.8-4.
(3) "–" means that the connector with code-number is not used.

ENGINE AND TRANSAXLE <DOHC-M/T>

Connector symbol

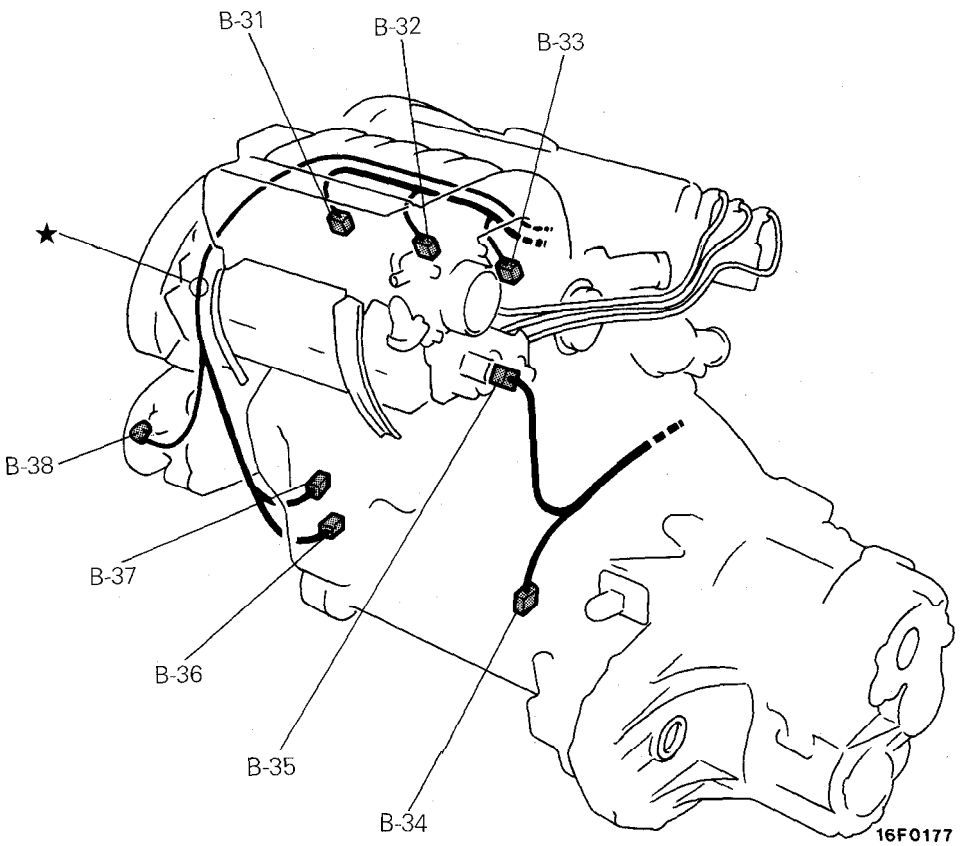
B

Front View



B-01 Engine coolant temperature gauge unit
B-02 Engine coolant temperature sensor
B-03 –
B-04 –
B-05 Throttle position sensor
B-06 Control wiring harness and oil pressure wiring harness combination
B-07 Control wiring harness and injector wiring harness combination
B-08 Knock sensor
B-09, B-10 } Variable induction servo motor (with intake control valve position sensor) <Non-Turbo>
B-11 Injector No. 5
B-12 Injector No. 3
B-13 Injector No. 1
B-14 Ignition coil
B-15 Capacitor
B-16 Left bank heated oxygen sensor (front) <Turbo, Non Turbo – California>
B-17, B-18 } Generator
B-19 Right bank heated oxygen sensor (front)
B-20 Magnetic clutch
B-21, B-22 } Power transistor

Rear View



B-23, B-24 } Starter motor
B-25 Back-up light switch
B-26
B-27 –
B-28 Fuel pump relay <Turbo>
B-29 Volume air flow sensor (with intake air temperature sensor and atmospheric sensor)
B-30 Control wiring harness and battery cable combination
B-31 Injector No. 2
B-32 Injector No. 4
B-33 Injector No. 6
B-34 Speed sensor
B-35 Idle air control motor (stepper motor)
B-36 Oil pressure gauge unit
B-37 Oil pressure switch
B-38 Power steering pressure switch
B-39 –
B-40 Camshaft position sensor
B-41 Crankshaft position sensor
B-42 –
B-43 –
B-44 Right bank heated oxygen sensor (rear) <California>
B-45 Left bank heated oxygen sensor (rear) <California>

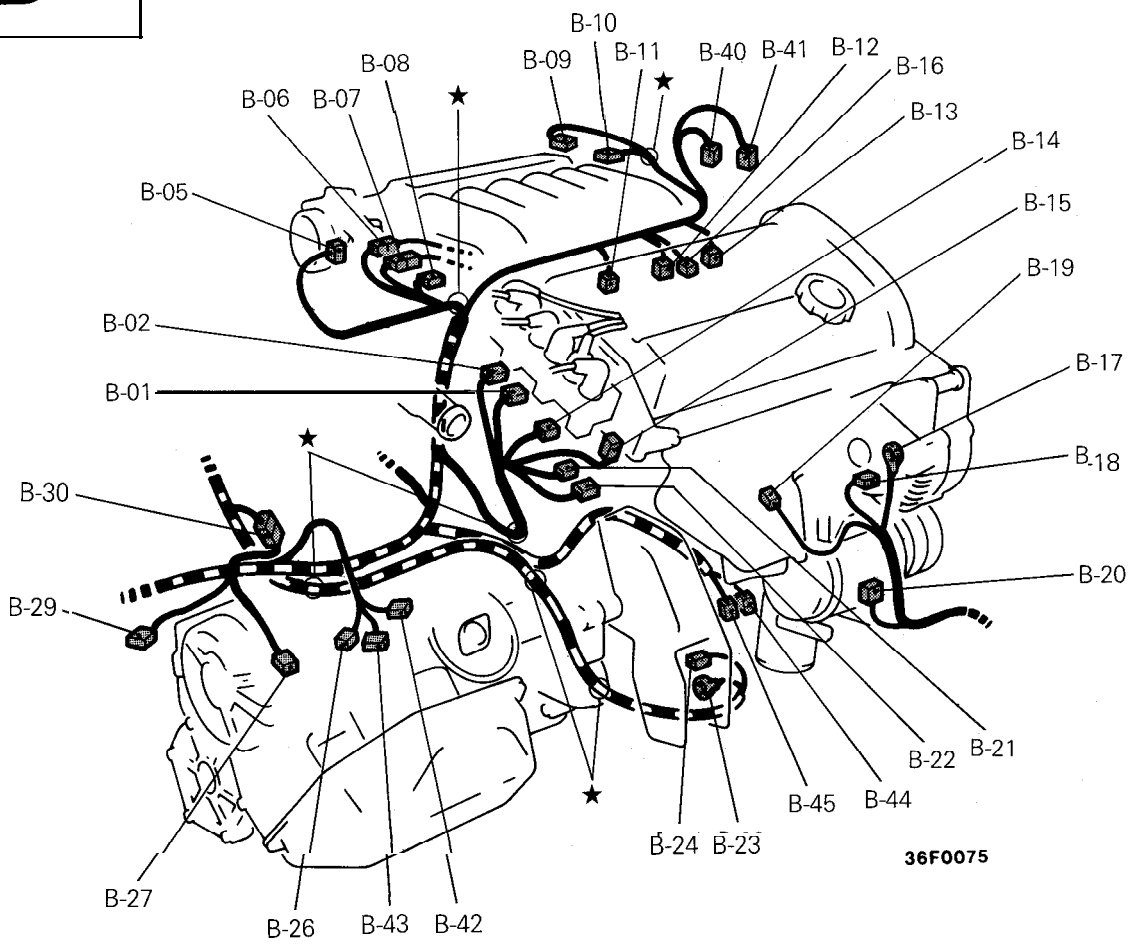
Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: 3), refer to P.8-4.
(3) "–" means that the connector with code-number is not used.

ENGINE AND TRANSAXLE <DOHC-A/T>

Connector symbol

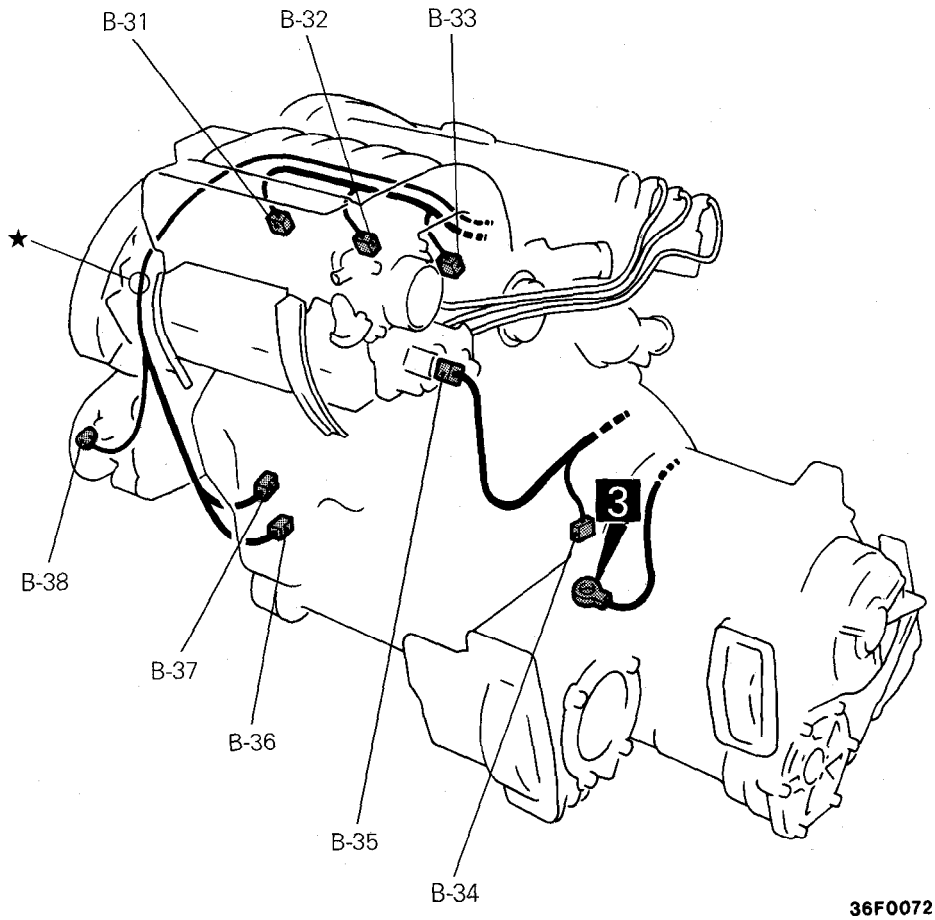
B

Front View



B-01 Engine coolant temperature gauge unit
B-02 Engine coolant temperature sensor
B-03 –
B-04 –
B-05 Throttle position sensor
B-06 Control wiring harness and oil pressure wiring harness combination
B-07 Control wiring harness and injector wiring harness combination
B-08 Knock sensor
B-09 } Variable induction servo motor
B-10 } (with intake control valve position sensor)
B-11 Injector No.5
B-12 Injector No.3
B-13 Injector No. 1
B-14 Ignition coil
B-1 5 Capacitor
B-16 Left bank heated oxygen sensor (front) <California>
B-17 } Generator
B-18 }
B-19 Right bank heated oxygen sensor (front)
B-20 Magnetic clutch
B-21 } Power transistor
B-22 }

Rear View



B-23, B-24 } Starter motor
B-25
B-26 Park/Neutral position switch
B-27 ELC-4 A/T control solenoid valve
B-28 –
B-29 Volume air flow sensor (with intake air temperature sensor and atmospheric sensor)
B-30 Control wiring harness and battery cable combination
B-31 Injector No. 2
B-32 Injector No. 4
B-33 Injector No. 6
B-34 Speed sensor
B-35 Idle air control motor (stepper motor)
B-36 Oil pressure gauge unit
B-37 Oil pressure switch
B-38 Power steering pressure switch
B-39 –
B-40 Camshaft position sensor
B-41 Crankshaft position sensor
B-42 Kickdown servo switch
B-43 A/T fluid temperature sensor
B-44 Right bank heated oxygen sensor (rear) <California>
B-45 Left bank heated oxygen sensor (rear) <California>

Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: 3), refer to P.8-4.
(3) "–" means that the connector with code-number is not used.

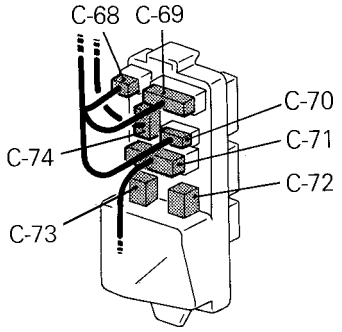
DASH PANEL

Connector symbol

C

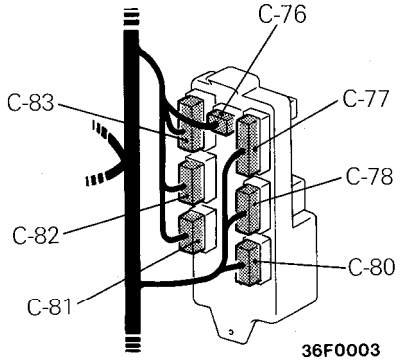
JUNCTION BLOCK

<Front side>

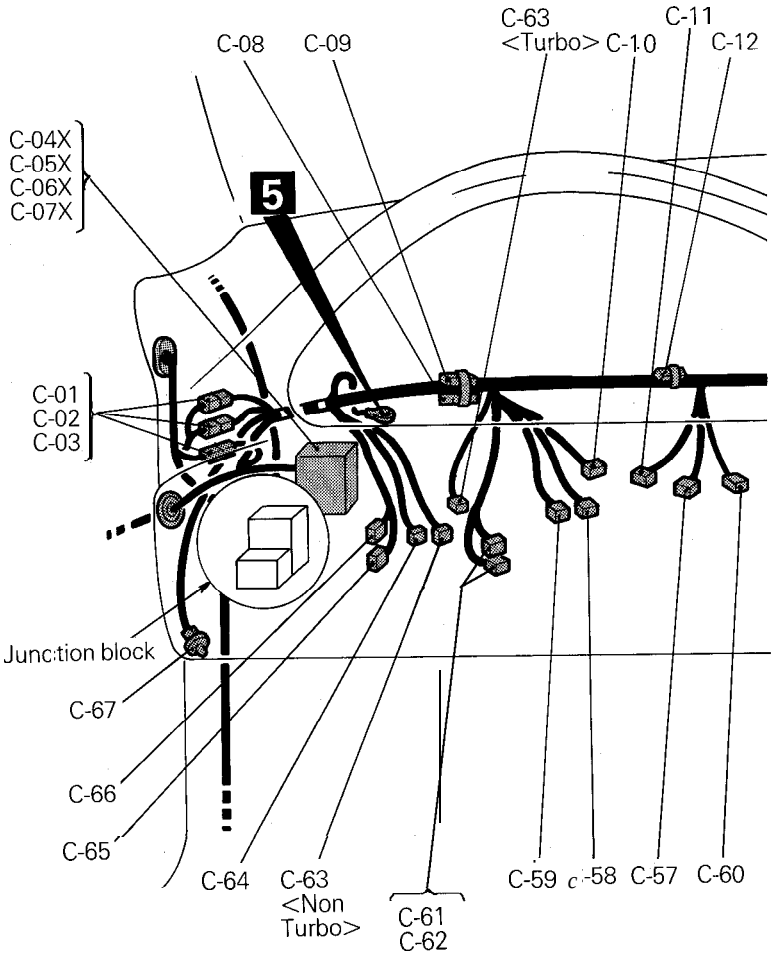


36F0079

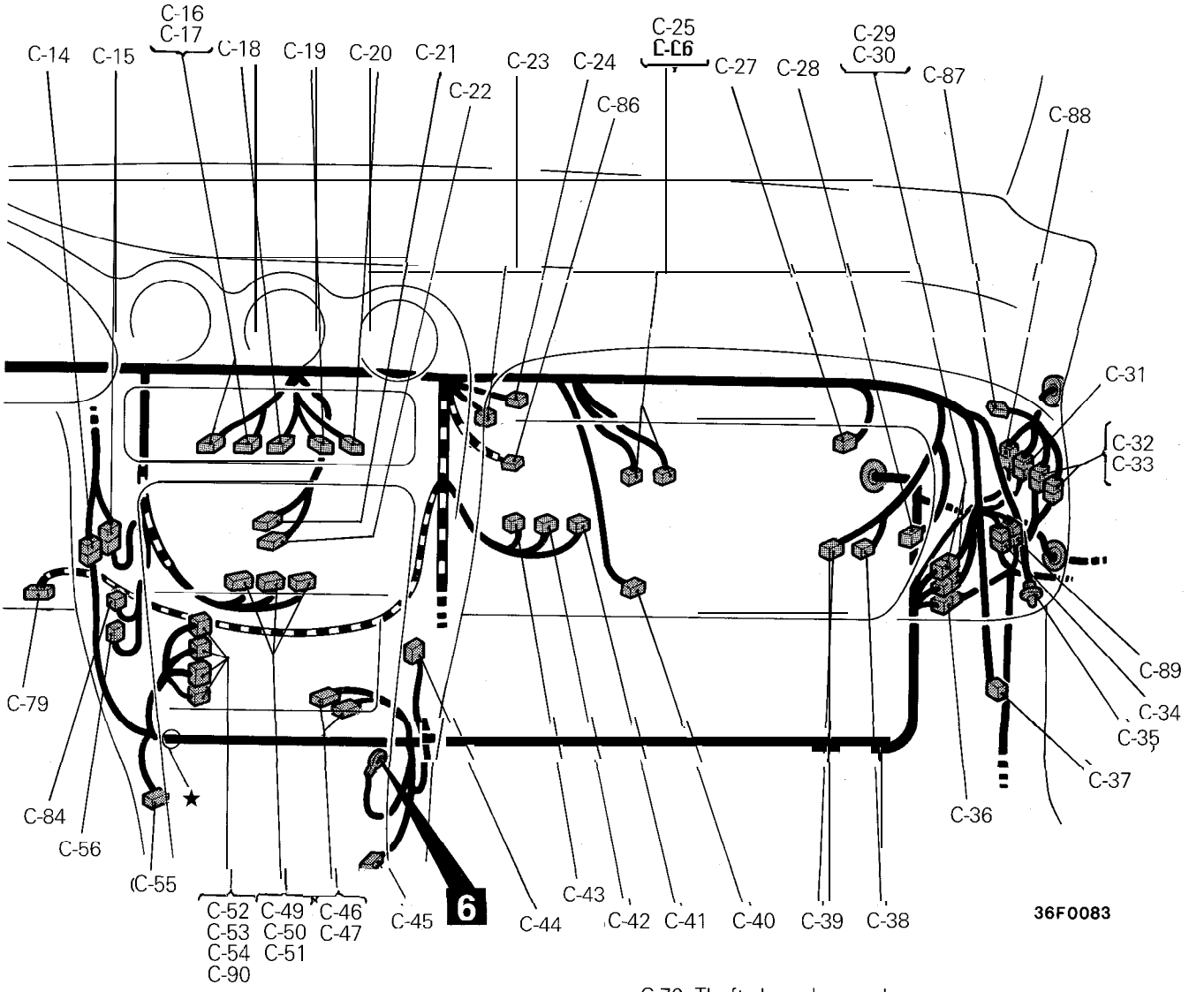
<Rear side>



36F0003



C-01, C-02, C-03 } Body wiring harness (LH) and front wiring harness combination
C-04X Door lock power relay 1
C-05X –
C-06X Defogger relay
C-07X Power window relay
} Refer to CENTRALIZED JUNCTION
C-08, C-09 } Diode (for seat belt warning circuit)
C-10, C-11 } Column switch
C-12 Diode (for theft-alarm circuit)
C-13 –
C-14 Control wiring harness and instrument panel wiring harness combination
C-15 Body wiring harness (LH) and instrument panel wiring harness combination
C-16, C-17 } Air conditioning control panel
C-18 Air conditioning switch
C-19 Blower switch
C-20 Heater control panel illumination light
C-21 Blend air damper control motor
C-22 Mode selection damper control motor
C-23 Power transistor (for full-auto air conditioning circuit)
C-24 Blower resistor
C-25, C-26 } Air conditioning control unit <Manual air conditioning>
C-27 Air-inlet sensor <Full-auto air conditioning>
C-28 Air selection damper control motor
C-29, C-30 } Body wiring harness (LH) and control wiring harness combination
C-31 Body wiring harness (LH) and front wiring harness combination
C-32, C-33 } Body wiring harness (RH) and front wiring harness combination
C-34 Body wiring harness (LH) and body wiring harness (RH) combination
C-35 Foot light (RH)
C-36 Body wiring harness (RH) and control wiring harness combination
C-37 Auto-cruise control unit
C-38 Blower motor
C-39 Blower motor relay (HI)
C-40 Air conditioning compressor lock controller
C-41 Air-inlet sensor <Manual air conditioning>
C-42 Air-thermo sensor
C-43 Engine coolant temperature sensor
C-44 Engine control relay
C-45 Over drive and power/economy switch
C-46, C-47 } ELC-4 A/T control module



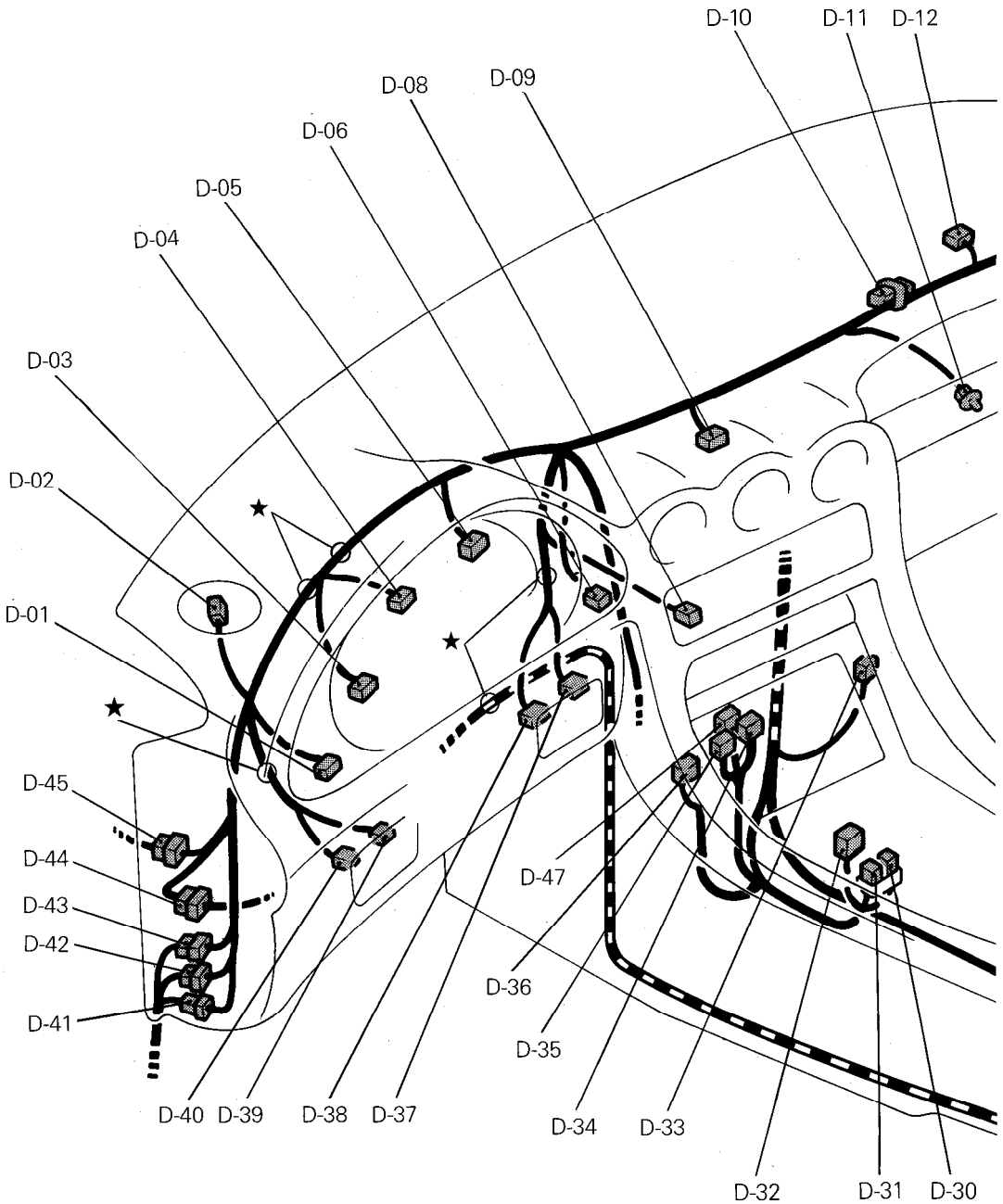
C-48 –
C-49, C-50, C-51: Air conditioning control unit <Full-auto air conditioning>
C-52, C-53, C-54: Engine control module
C-55 Left bank heated oxygen sensor (front) <Non Turbo except California>
C-56 Theft-alarm starter relay
C-57 Clock spring
C-58 Key reminder switch
C-59 Ignition switch
C-60 Steering wheel angle speed sensor
C-61, C-62: Stop light switch
C-63 Clutch pedal position switch (for auto-cruise control circuit)
C-64 Clutch pedal position switch (for theft-alarm circuit)
C-65, C-66: ETACS unit
C-67 Foot light (LH)
C-68, C-69, C-70: Front wiring harness and junction block combination
C-71 Adapter wiring harness and junction block combination
C-72 Theft-alarm horn relay
C-73 Blower motor relay
C-74 Roof wiring harness and junction block combination
C-75 –
C-76, C-77, C-78: Body wiring harness (LH) and junction block combination
C-79 Data link connector
C-80, C-81, C-82, C-83: Body wiring harness (LH) and junction block combination
C-84 Auto-cruise relay
C-85 –
C-86 Passenger's air bag module
C-87 No connection <Turbo>
C-88 Control wiring harness and front wiring harness combination
C-89 Body wiring harness (LH) and body wiring harness (RH) combination
C-90 Engine control module <Turbo, Non Turbo – California>

Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) The details concerning the ground point (example: 5), refer to P.8-4.

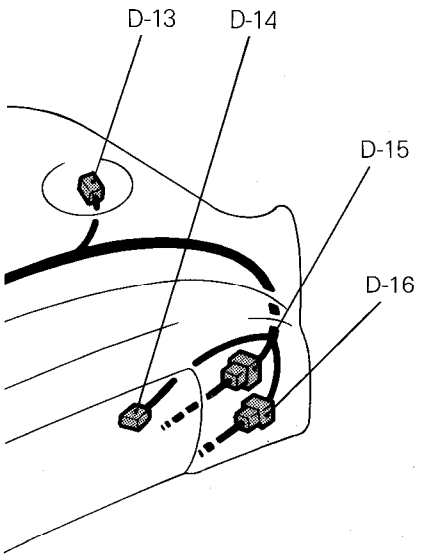
INSTRUMENT PANEL AND FLOOR CONSOLE

Connector symbol

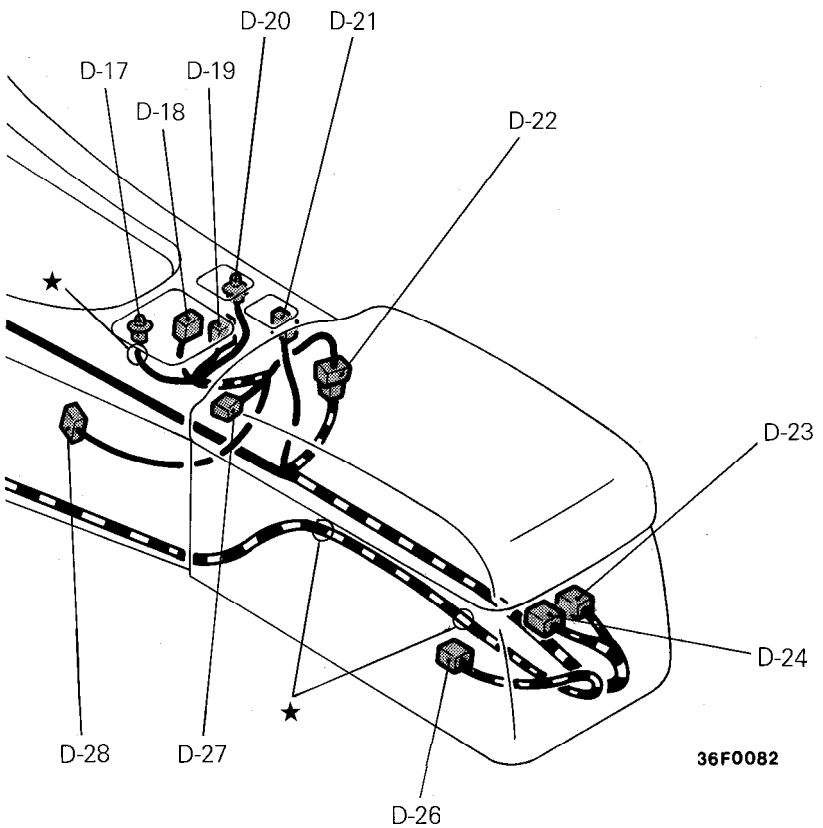
D



D-01 Fog light switch
D-02 Front speaker (LH)
D-03 } Combination meter
D-04 }
D-05 }
D-06 Defogger switch and ECS switch
D-07 –
D-08 Hazard switch
D-09 Combination gauge
D-10 Diode (for 4WS fluid level warning light circuit)
D-11 Glove box illumination light
D-12 Photo sensor
D-13 Front speaker (RH)
D-14 Glove box illumination light switch
D-15 Instrument panel wiring harness and control wiring harness combination
D-16 Instrument panel wiring harness and body wiring harness (RH) combination
D-17 Ashtray illumination light
D-18 } Cigarette lighter
D-19 }
D-20 Cigarette lighter illumination light
D-21 Power seat switch
D-22 Body wiring harness (LH) and console wiring harness combination



D-23, D-24 } SRS diagnosis unit
D-25 –
D-26 SRS diagnosis unit
D-27 ABS G sensor
D-28 Parking brake switch
D-29 –
D-30, D-31 } Accessory socket
D-32 Auto-cruise main switch
D-33 Seatbelt warning buzzer
D-34, D-35, D-36 } Radio
D-37 Rear wiper and washer switch
D-38 Active exhaust switch
D-39 Remote-control mirror switch
D-40 Rheostat
D-41, D-42, D-43 } Instrument panel wiring harness and body wiring harness (LH) combination
D-44 Instrument panel wiring harness and adapter wiring harness combination
D-45 Instrument panel wiring harness and front wiring harness combination
D-47 Radio

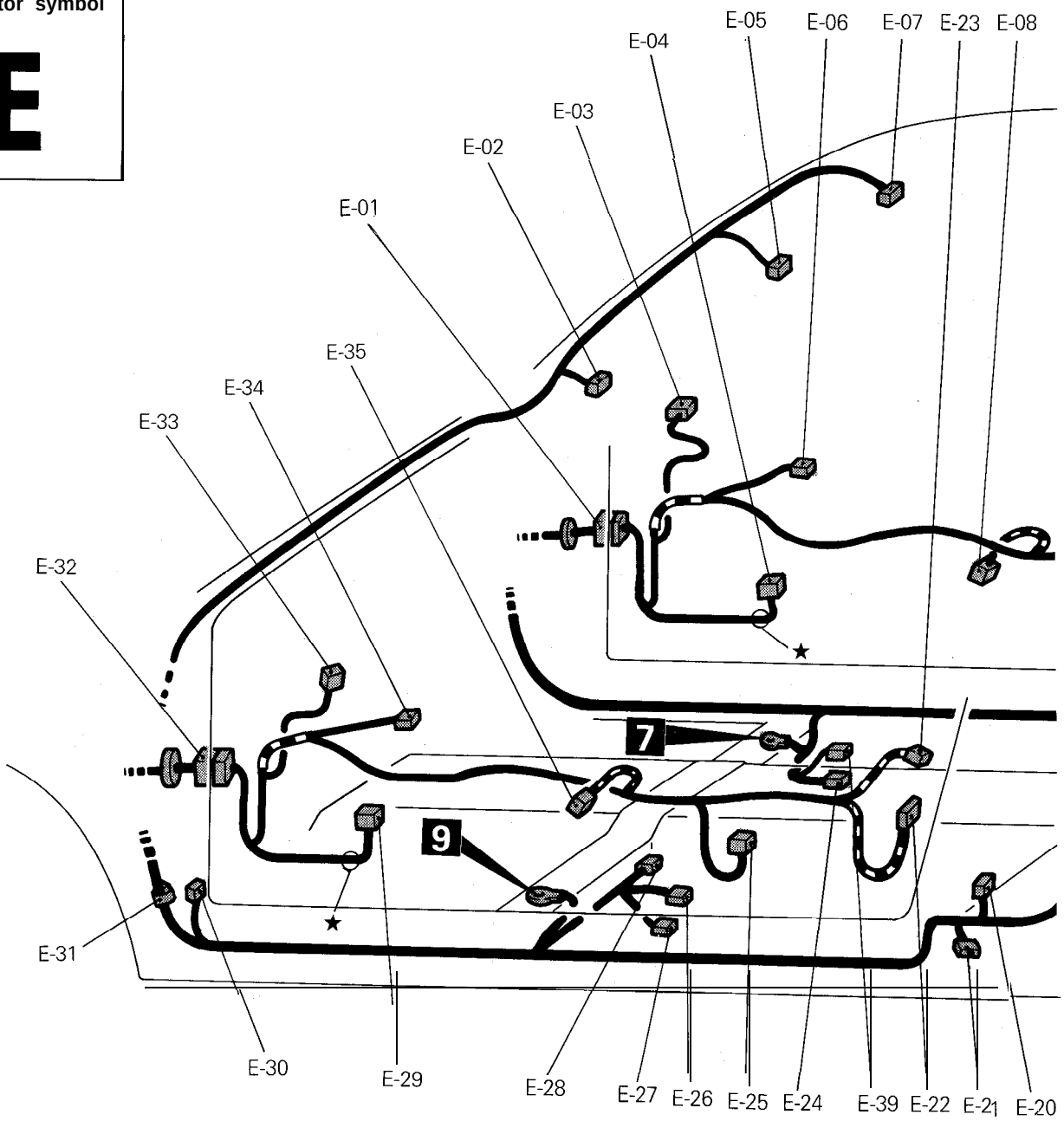


Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) "–" means that the connector with code-number is not used.

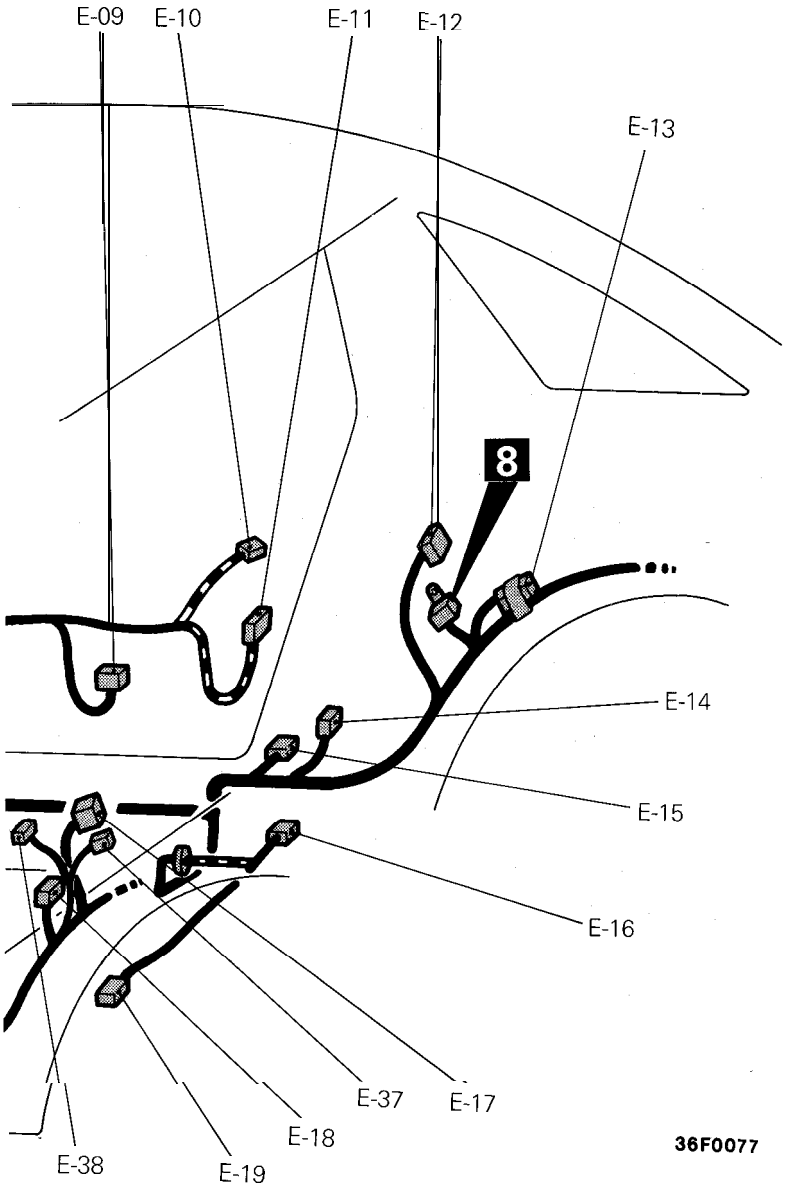
INTERIOR

Connector symbol

E



E-01 Body wiring harness (RH) and door wiring harness (RH) combination
E-02 Vanity mirror illumination light (LH)
E-03 Door mirror (RH)
E-04 Door speaker (RH)
E-05 Dome light
E-06 Power window sub switch
E-07 Vanity mirror illumination light (RH)
E-08 Power window motor (RH)
E-09 Door light (RH)
E-10 Door key cylinder unlock switch (RH)
E-11 Door lock actuator (RH)
E-12 ABS control unit
E-13 ABS resistor <AWD>
E-14 Front seat belt solenoid (RH)
E-15 Door switch (RH)
E-16 ABS rear speed sensor (RH)
E-17 Light automatic shut-OFF unit
E-18 Rear intermittent wiper relay
E-19 ABS rear speed sensor (LH)
E-20 Front seat belt solenoid (LH)
E-21 Door switch (LH)



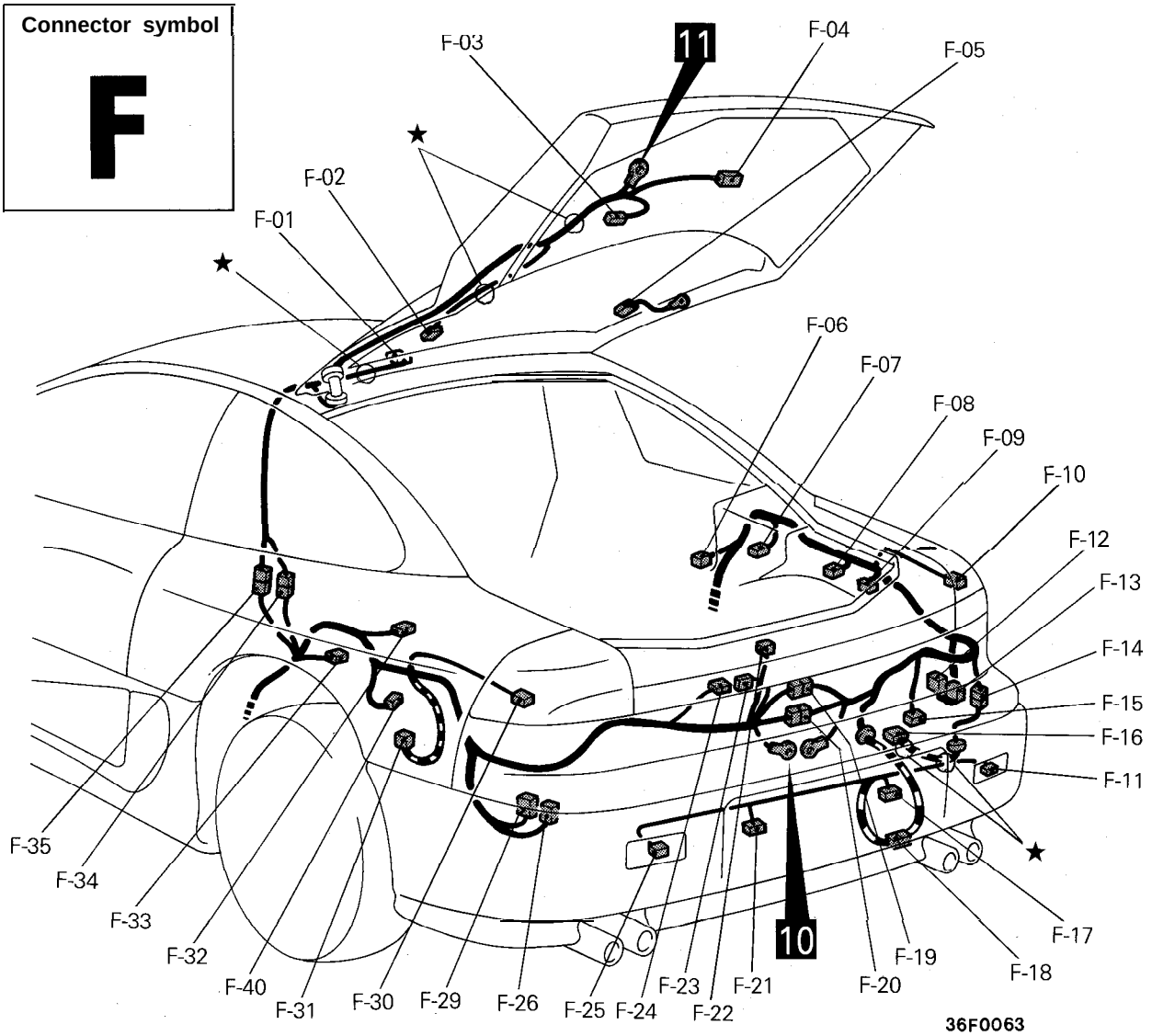
E-22 Door lock actuator (LH)
E-23 Door key cylinder unlock switch (LH)
E-24 Front seat belt switch (RH)
E-25 Door light (LH)
E-26 Front seat belt switch (LH)
E-27 Power seat assembly
E-28 ECS G sensor
E-29 Door speaker
E-30 Turn signal and hazard flasher unit
E-31 Diode (for MFI circuit)
E-32 Body wiring harness (LH) and door wiring harness (LH) combination
E-33 Door mirror (LH)
E-34 Power window main switch
E-35 Power window motor (LH)
E-36 –
E-37 Keyless control unit
E-38 Door lock power relay 2 (for keyless control system)
E-39 Amplifier

Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: 7), refer to P.8-4.
(3) "–" means that the connector with code-number is not used.

LUGGAGE COMPARTMENT

Connector symbol

F



36F0063

F-01 Interior temperature sensor
F-02 Defogger (+)
F-03 Rear wiper motor
F-04 High-mounted stop light
F-05 Defogger (–)
F-06 Rear speaker (RH)
F-07 ECS rear shock absorber (RH)
F-08 Luggage compartment light
F-09 ABS resistor <FWD>
F-10 Rear combination light (RH)
F-11 Back-up light (RH)
F-12, F-13 } ECS control unit
F-14 Body wiring harness (RH) and fuel tank wiring harness combination
F-15 Rear washer motor
F-16 Fuel tank
F-17 License plate light (RH)
F-18 Body wiring harness (RH) and rear bumper wiring harness combination
F-19, F-20 } Body wiring harness (LH) and body wiring harness (RH) combination
F-21 License plate light (LH)
F-22 Luggage compartment light switch
F-23 Liftgate cylinder lock switch
F-24 Liftgate switch
F-25 Back-up light (LH)
F-26 Active exhaust control unit
F-27, F-28 } –
F-29 Active exhaust actuator assembly
F-30 Rear combination light (LH)
F-31 Motor antenna control unit
F-32 ECS rear shock absorber (LH)
F-33 Rear speaker (LH)
F-34, F-35 } Body wiring harness (LH) and liftgate wiring harness combination
F-36 { } F-39 } –
F-40 CD changer

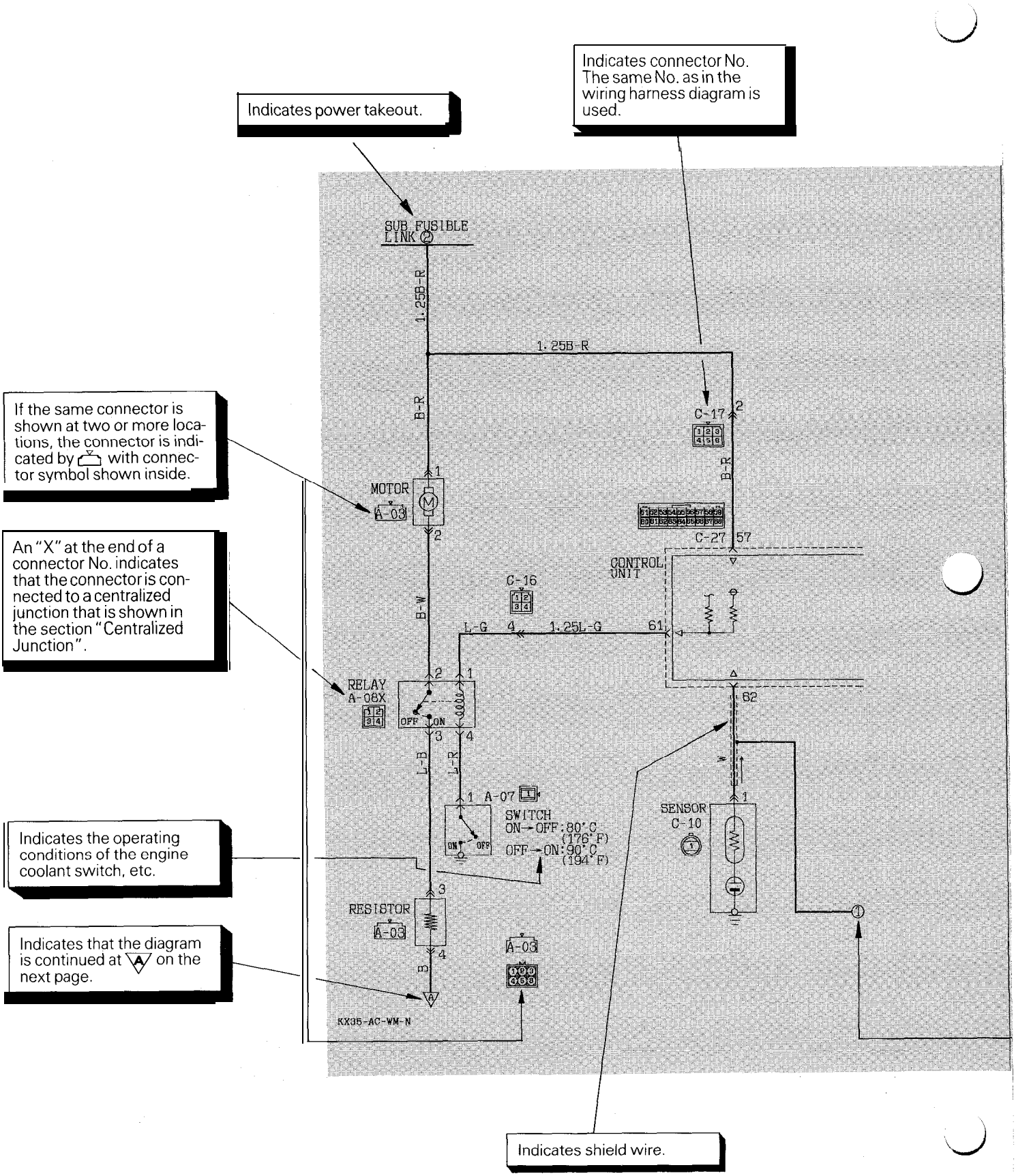
Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: [10]), refer to P.8-4.
(3) "–" means that the connector with code-number is not used.

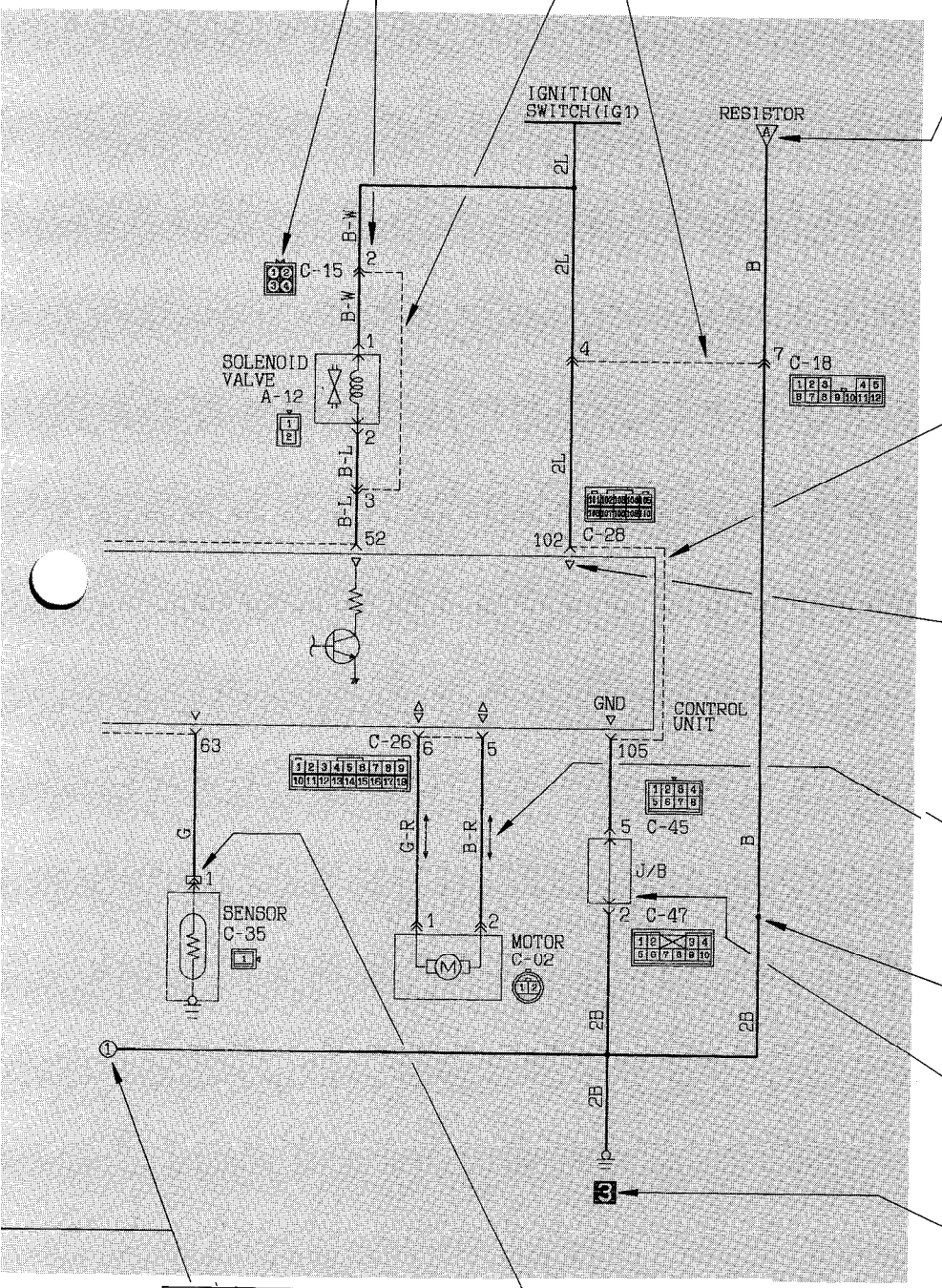
CIRCUIT DIAGRAMS

CONTENTS

HOW TO READ CIRCUIT DIAGRAMS

The circuit of each system from the fuse (or fusible link) to ground is shown. The power supply is shown at the top and the ground at the bottom to facilitate understanding of how the current flows.





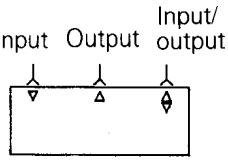
Indicates terminal No.

A broken line indicates that these connectors are the same intermediate connectors.

Indicates that the diagram is continued from Ⓐ on the previous page.

In case two or more connectors are connected to the same device, markings indicating the same connector are connected by a broken line.

Indicates input/output to/from control unit (current flow direction).



Indicates current flow downward or upward as controlled by the control unit.

Indicates harness junction where wire diameter or color changes.

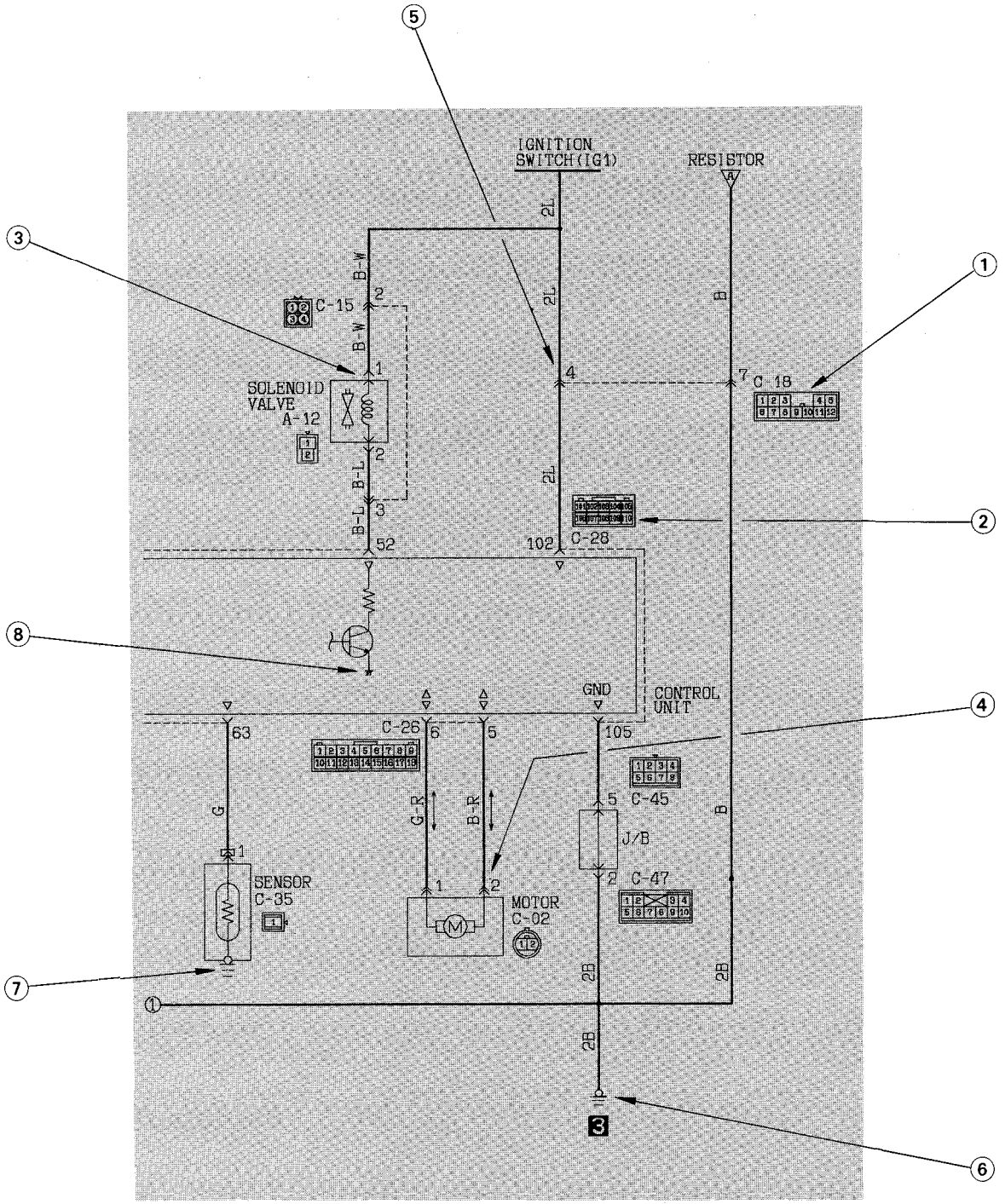
Indicates J/B (Junction Block).

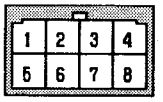
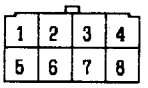
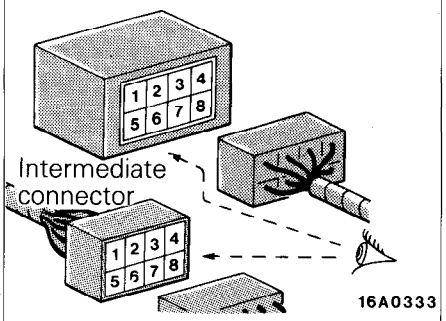
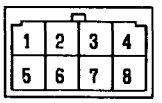
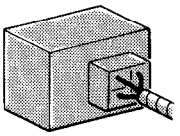
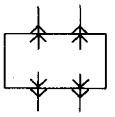
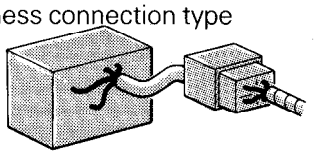
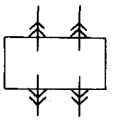
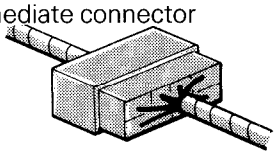
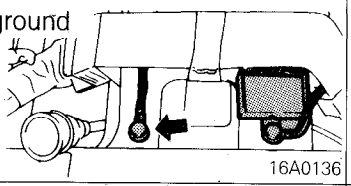
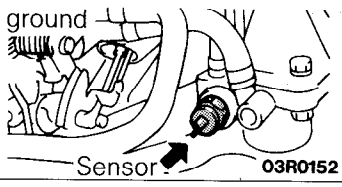
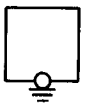
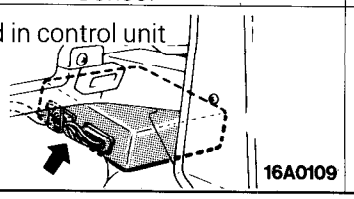
Indicates vehicle body ground point. (Same No. as that of ground point in GROUNDING LOCATION)

Indicates continuity of harnesses on the opposite page of a double page circuit diagram.

Indicates that the terminal is a spare one for the device (sensor in this case) is not provided.

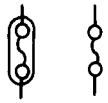
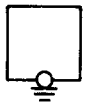
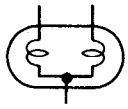
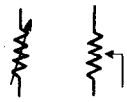
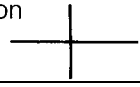
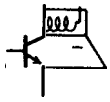
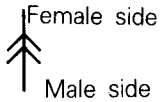
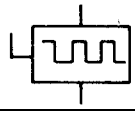
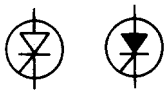
CONNECTOR / GROUNDING INDICATIONS



	No.	Item	Symbol	Contents
Connector marking	①	Male 		Double connector contour lines indicate male connector terminals and single contour lines indicates female terminals as illustrated here.
	–	Female 		
Connector symbol marking	②	Device 		The symbol indicates the connector as viewed from the illustrated direction. At the connection with a device, the connector symbol on the device side is shown, and for an intermediate connector, the male connector symbol is shown. However, the data link connector is indicated in a different way. For details, refer to MUT-II Operating Instruction.
Connector connection marking	③	Direct connection type 		A connection between a device and connector on the harness side is either by direct insertion in the device (direct connection type) or by connection with a harness connector furnished on the device side (harness connection type). The two types are indicated as illustrated.
	④	Harness connection type 		
	⑤	Intermediate connector 		
Grounding markings	⑥	Body ground 		Grounding is either by body ground, device ground or control unit interior ground. These are indicated as illustrated.
	⑦	Device ground 		
	⑧	Ground in control unit 		

SYMBOLS

Devices appearing in circuit diagrams are indicated by the following symbols.

Battery 	Body ground 	Single bulb 	Resistor 	Diode 	Capacitor 
Fuse 	Equipment ground 	Dual bulb 	Variable resistor 	Zener diode 	Crossing of wires without connection 
Fusible link	ECU interior ground 	Speaker 	Coil 	Transistor with	Crossing of wires connection 
Connector 	Motor 	Horn 	Pulse generator 	Buzzer 	Chime 
Thyristor 	Piezoelectric device 	Thermistor 	Light emitting diode 	Photo diode 	Photo transistor 

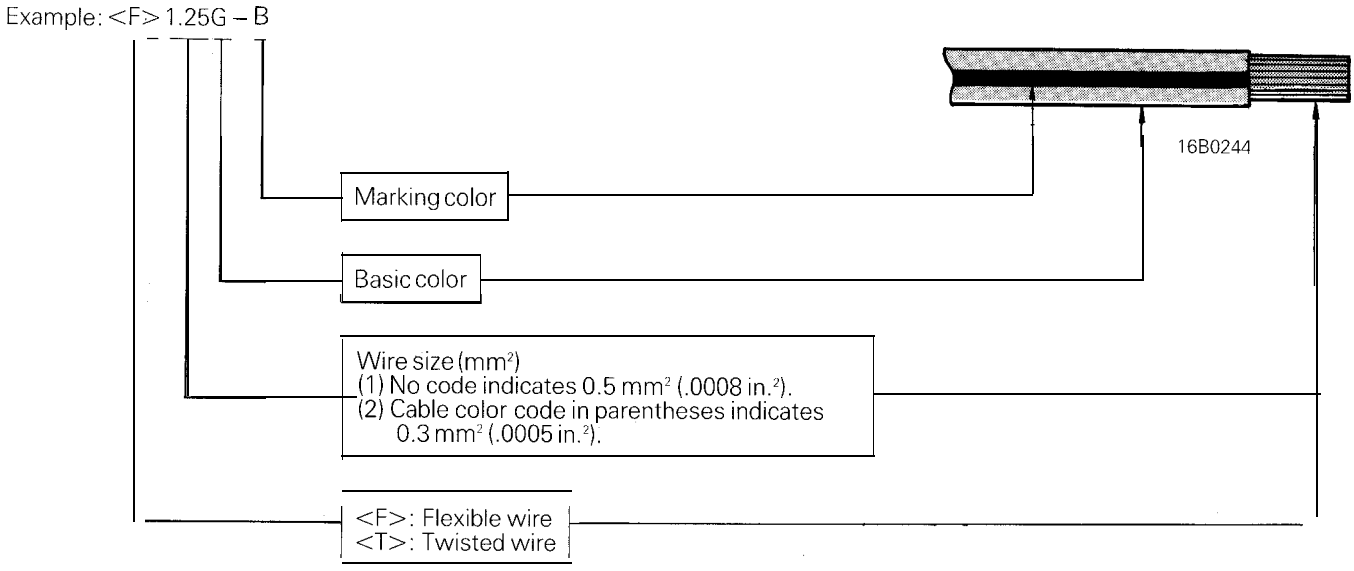
16A0252

WIRE COLOR CODES

Wire colors are identified by the following color codes.

Code	Wire color	Code	Wire color
B	Black	P	Pink
BR	Brown	R	Red
G	Green	SB	Sky blue
GR	Gray	V	Violet
L	Blue	W	White
LG	Light green	Y	Yellow
O	Orange	–	

NOTE
If a cable has two colors, the first of the two color code characters indicates the basic color (color of the cable coating) and the second indicates the marking color.



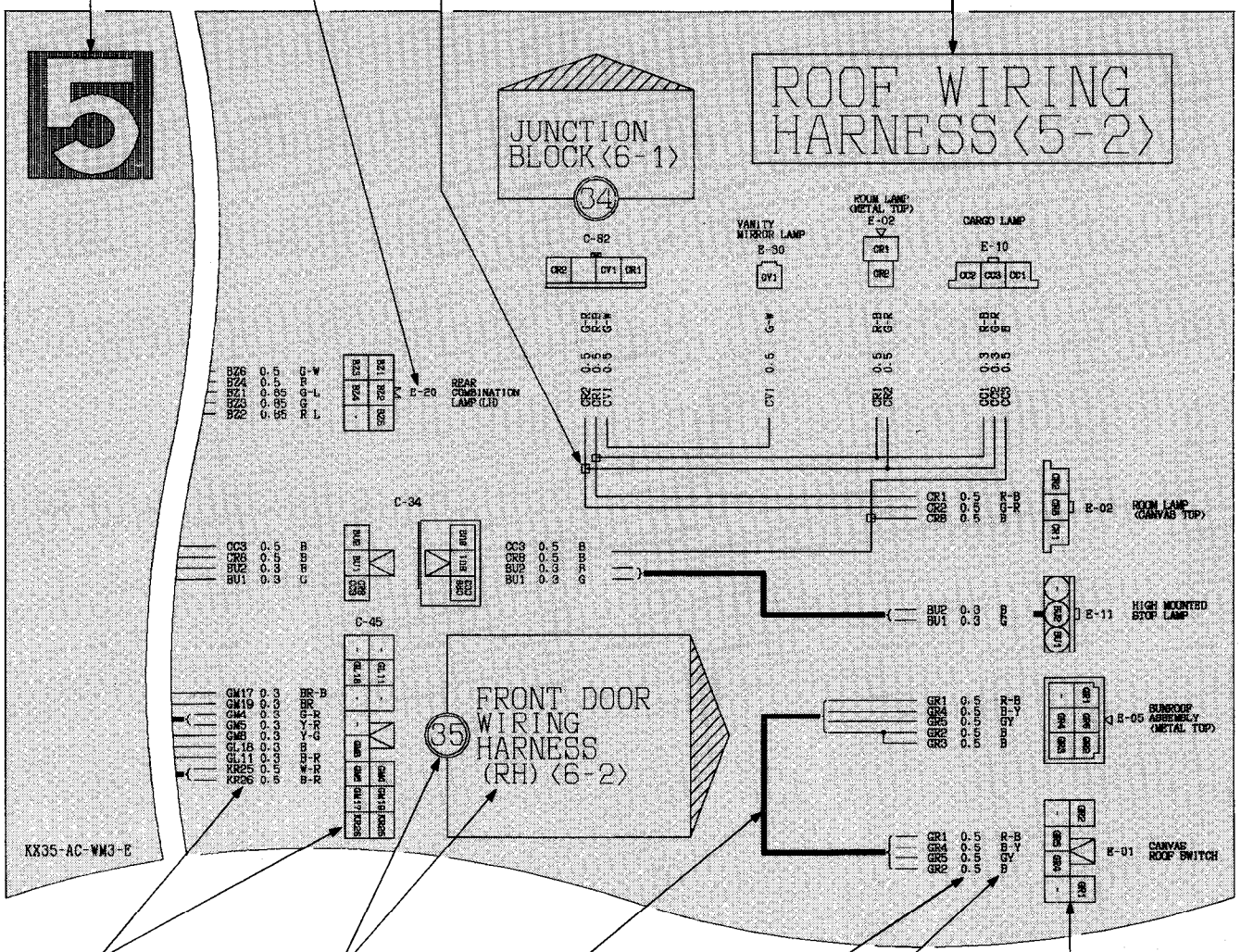
HOW TO READ WIRING DIAGRAMS

Indicates the connector No.
The same No. as the wiring diagram and circuit diagram is used.

Indicates the harness name and harness entry location.
(In this case, this indicates that the harness is the roof harness, and that it is entered in the harness entry location number of 5.)
Example: ⟨5-2⟩
- Classification number
- Harness entry location number

Indicates the harness entry location number.

Junction points indicated by a square (⊞) indicate circuits with differences in specifications.



Indicates the name of the harness to connect to and the number of the relevant connector.

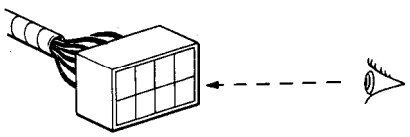
Wires with the same destination are indicated with a single thick line.

Indicates the connector terminal No.
Indentical symbols are entered to indicate which harness corresponds to which connector terminal.

Indicates size of wire (mm^2)

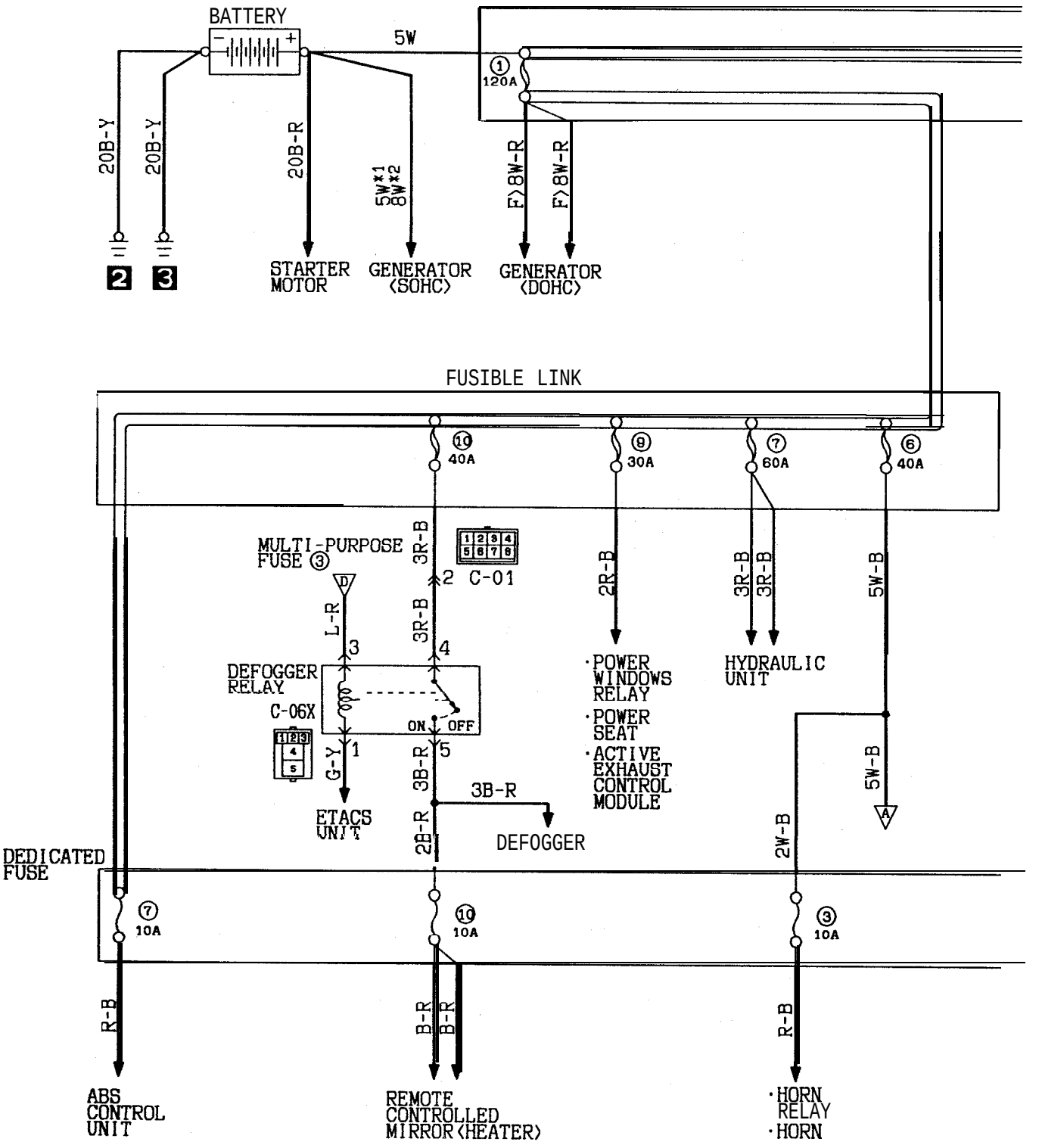
Indicates wire colour code.

The connector symbol shows the harness-side connector as seen from front-on (from the direction shown in the illustration).



16S02.59

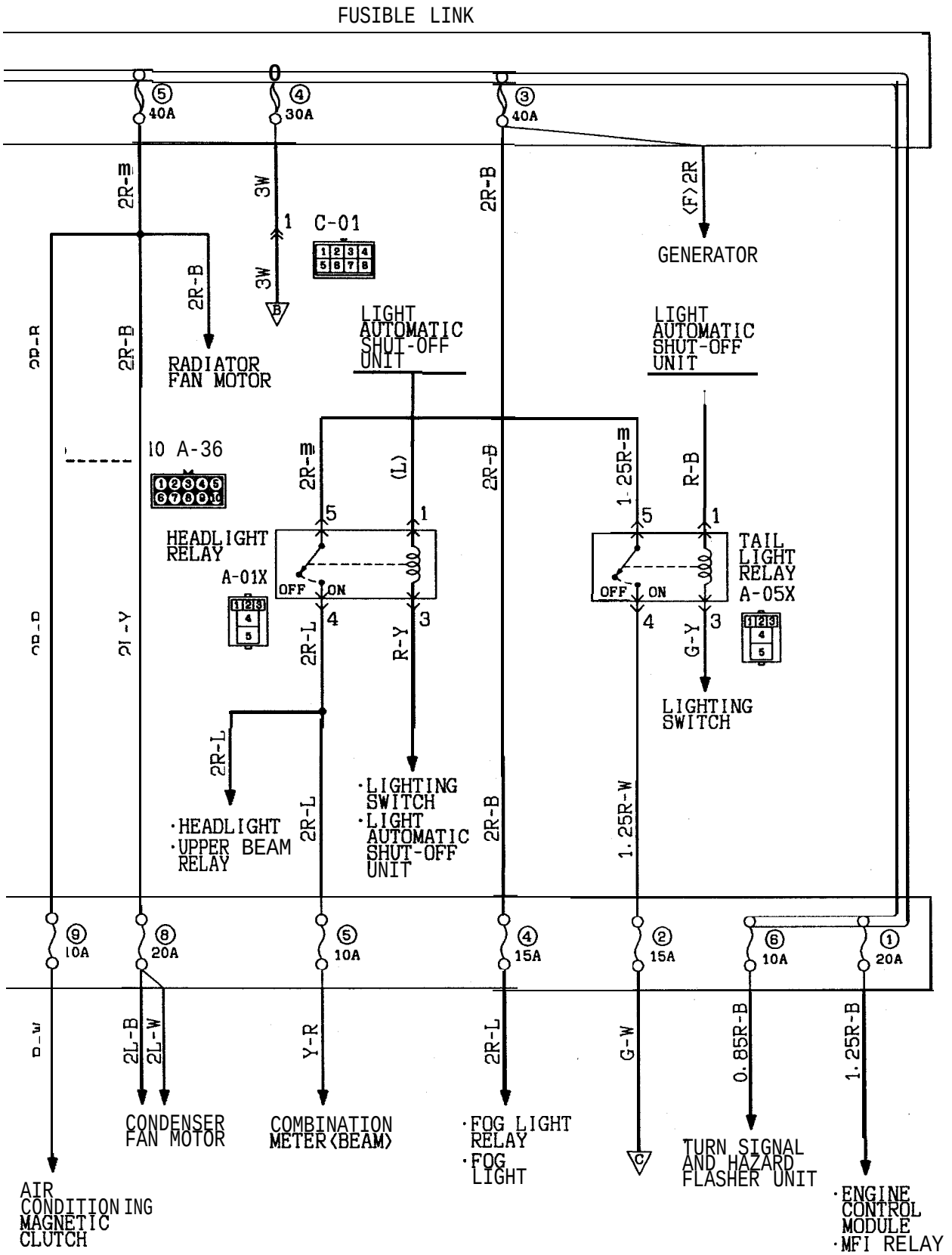
POWER DISTRIBUTION CIRCUIT

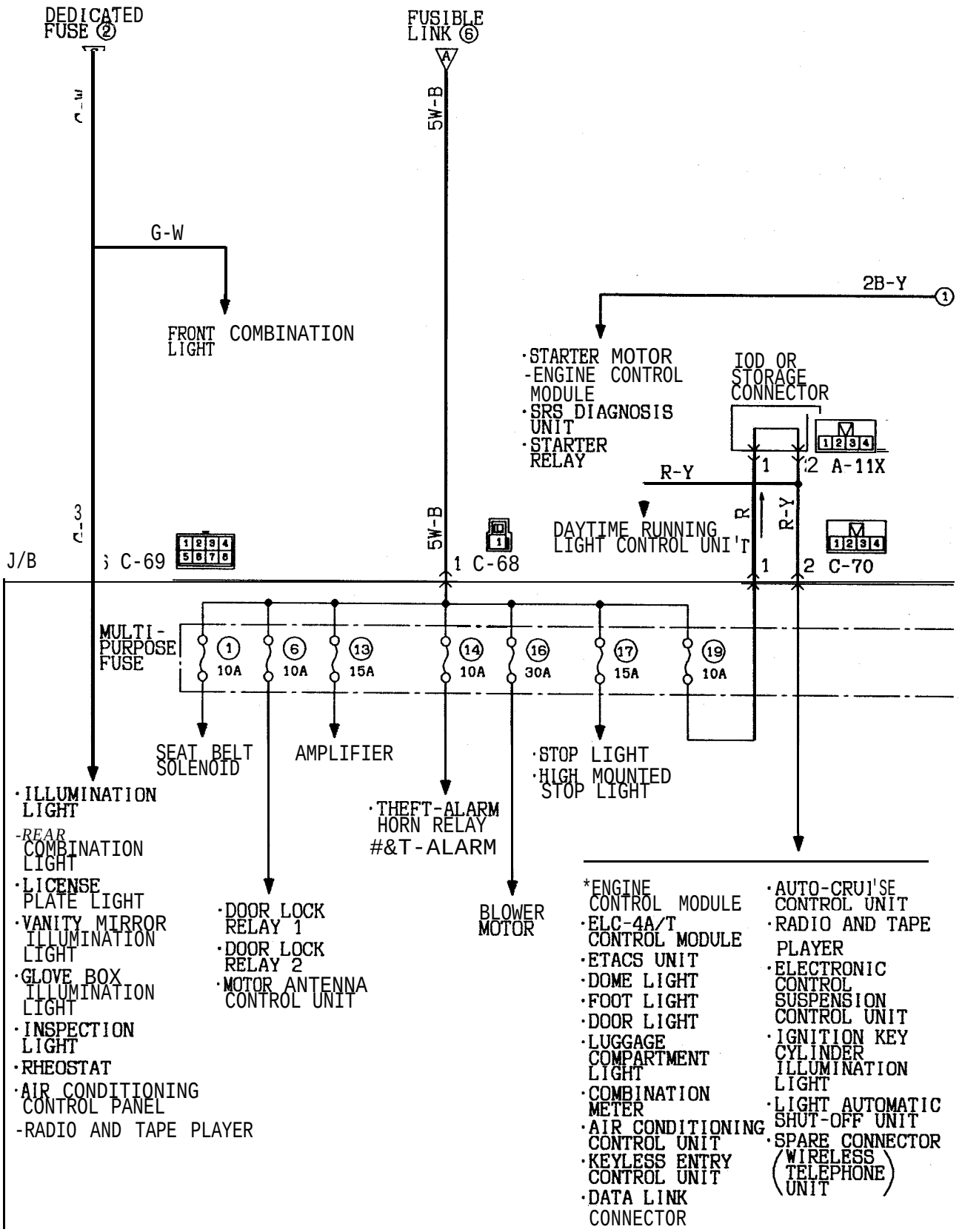


NOTE
*1:VEHICLES WITH GENERATOR RATED OUTPUT 90A
*2:VEHICLES WITH GENERATOR RATED OUTPUT 110A

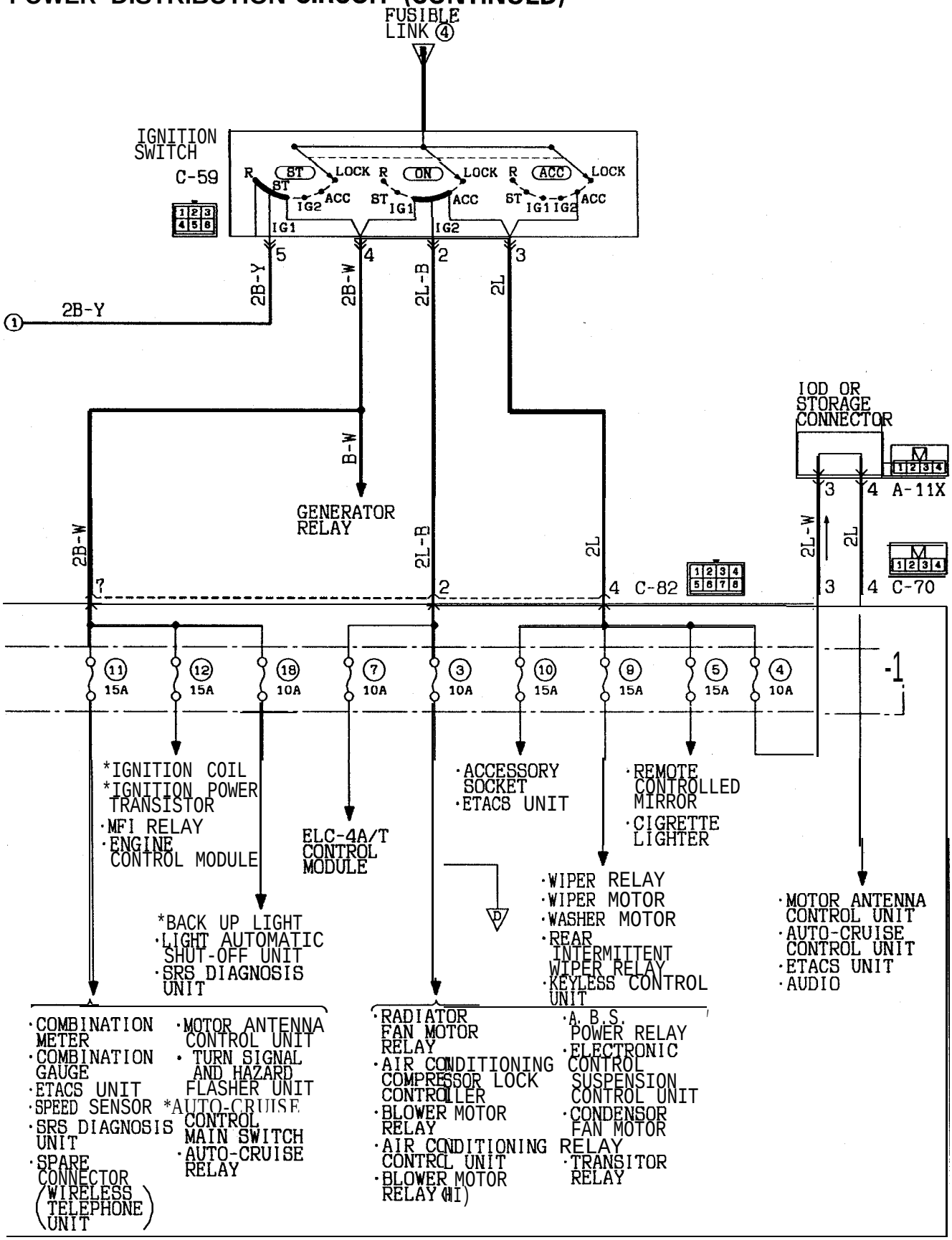
X35-AC-R0102-M4C

POWER DISTRIBUTION CIRCUIT (CONTINUED)




DEDICATED FUSE ②
FUSIBLE LINK ⑥
5W-B
G-W
FRONT COMBINATION LIGHT
2B-Y
①
·STARTER MOTOR
-ENGINE CONTROL MODULE
·SRS DIAGNOSIS UNIT
·STARTER RELAY
IOD OR STORAGE CONNECTOR
A-11X
R-Y
DAYTIME RUNNING LIGHT CONTROL UNIT
J/B
C-69
C-68
C-70
MULTI-PURPOSE FUSE
① 10A
⑥ 10A
⑬ 15A
⑭ 10A
⑯ 30A
⑰ 15A
⑲ 10A
SEAT BELT SOLENOID
AMPLIFIER
·STOP LIGHT
·HIGH MOUNTED STOP LIGHT
·ILLUMINATION LIGHT
-REAR COMBINATION LIGHT
·LICENSE PLATE LIGHT
·VANITY MIRROR ILLUMINATION LIGHT
·GLOVE BOX ILLUMINATION LIGHT
·INSPECTION LIGHT
·RHEOSTAT
·AIR CONDITIONING CONTROL PANEL
-RADIO AND TAPE PLAYER
·DOOR LOCK RELAY 1
·DOOR LOCK RELAY 2
·MOTOR ANTENNA CONTROL UNIT
·THEFT-ALARM HORN RELAY
#&T-ALARM
BLOWER MOTOR
*ENGINE CONTROL MODULE
·ELC-4A/T CONTROL MODULE
·ETACS UNIT
·DOME LIGHT
·FOOT LIGHT
·DOOR LIGHT
·LUGGAGE COMPARTMENT LIGHT
·COMBINATION METER
·AIR CONDITIONING CONTROL UNIT
·KEYLESS ENTRY CONTROL UNIT
·DATA LINK CONNECTOR
·AUTO-CRUISE CONTROL UNIT
·RADIO AND TAPE PLAYER
·ELECTRONIC CONTROL SUSPENSION CONTROL UNIT
·IGNITION KEY CYLINDER ILLUMINATION LIGHT
·LIGHT AUTOMATIC SHUT-OFF UNIT
·SPARE CONNECTOR (WIRELESS TELEPHONE UNIT)

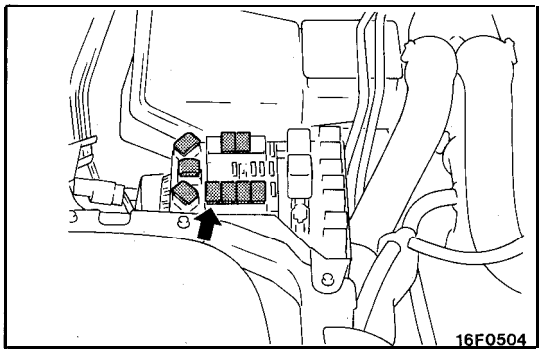
POWER DISTRIBUTION CIRCUIT (CONTINUED)



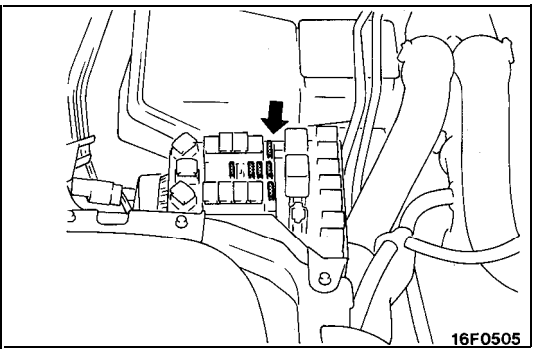
Remark
·The above circuit diagram shows the current flow at the ignition key position "ACC", "ON" and "ST" combined. Be sure trace the appropriate circuit depending on the ignition key position.

COMPONENT LOCATION

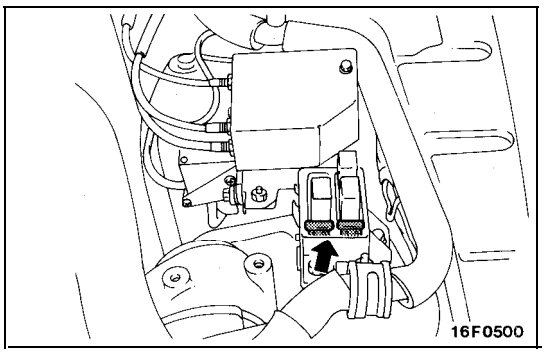
Fusible link



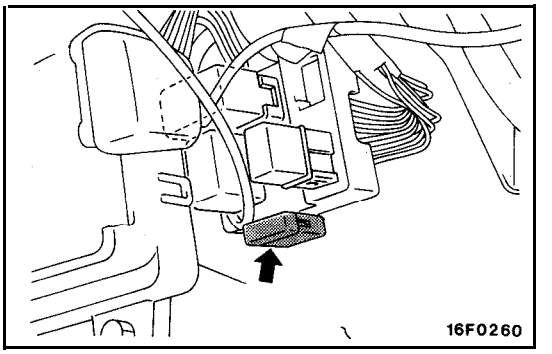
Dedicated fuse ① to ⑦



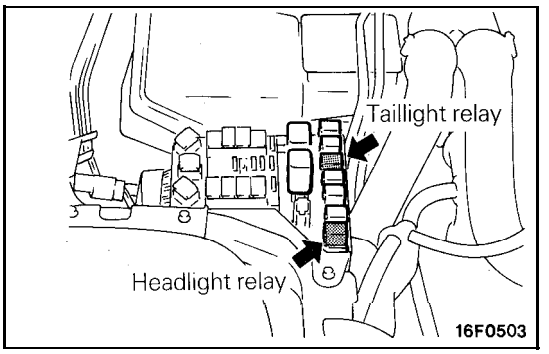
Dedicated fuse ⑧ ⑨



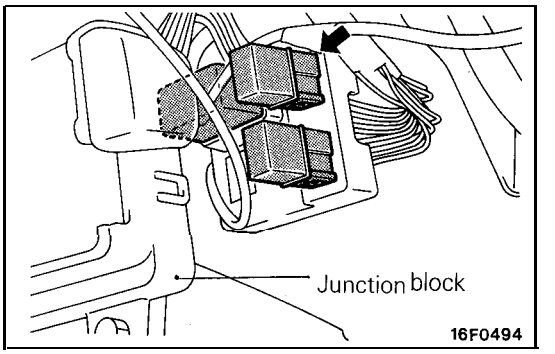
Dedicated fuse ⑩



Headlight relay, Taillight relay

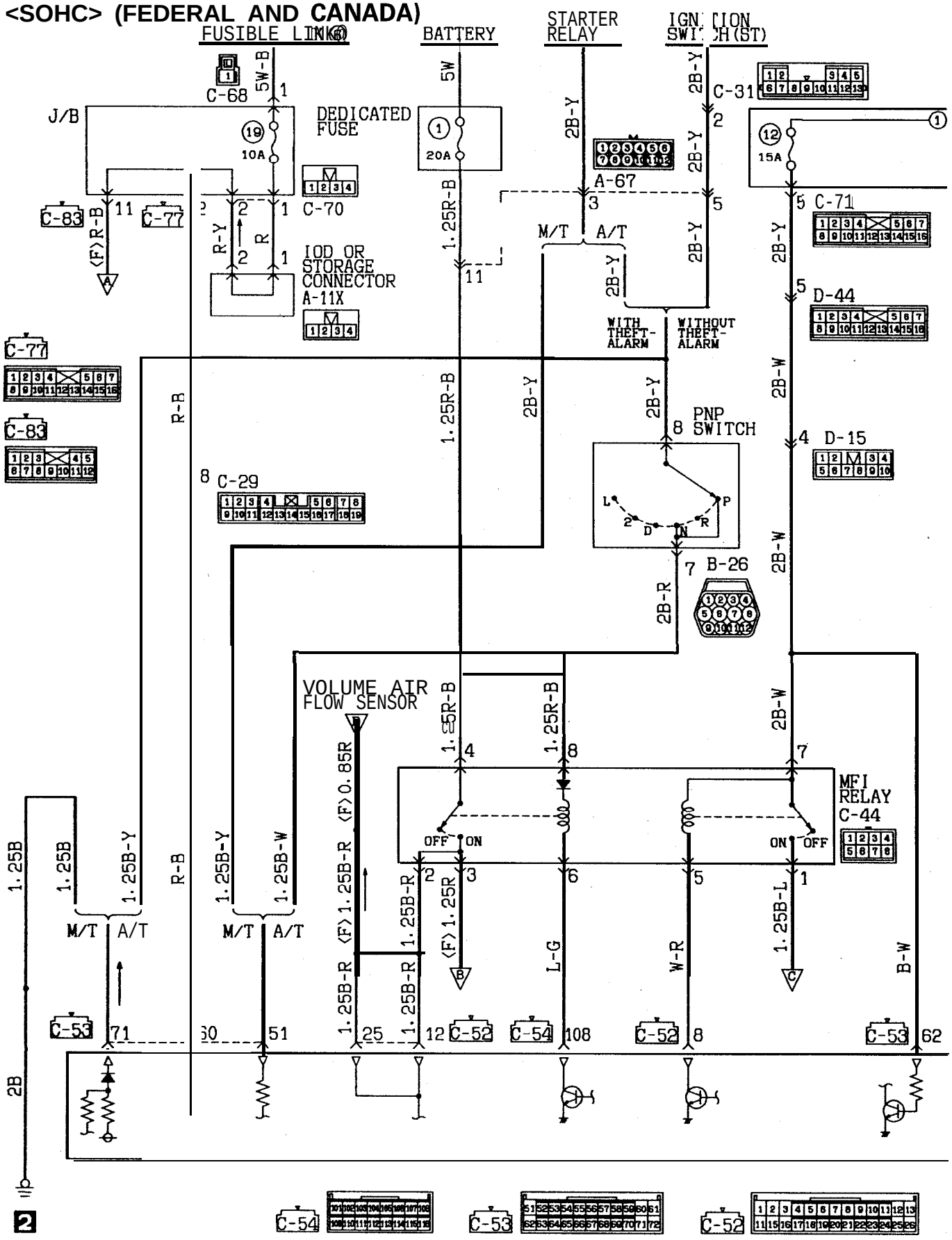


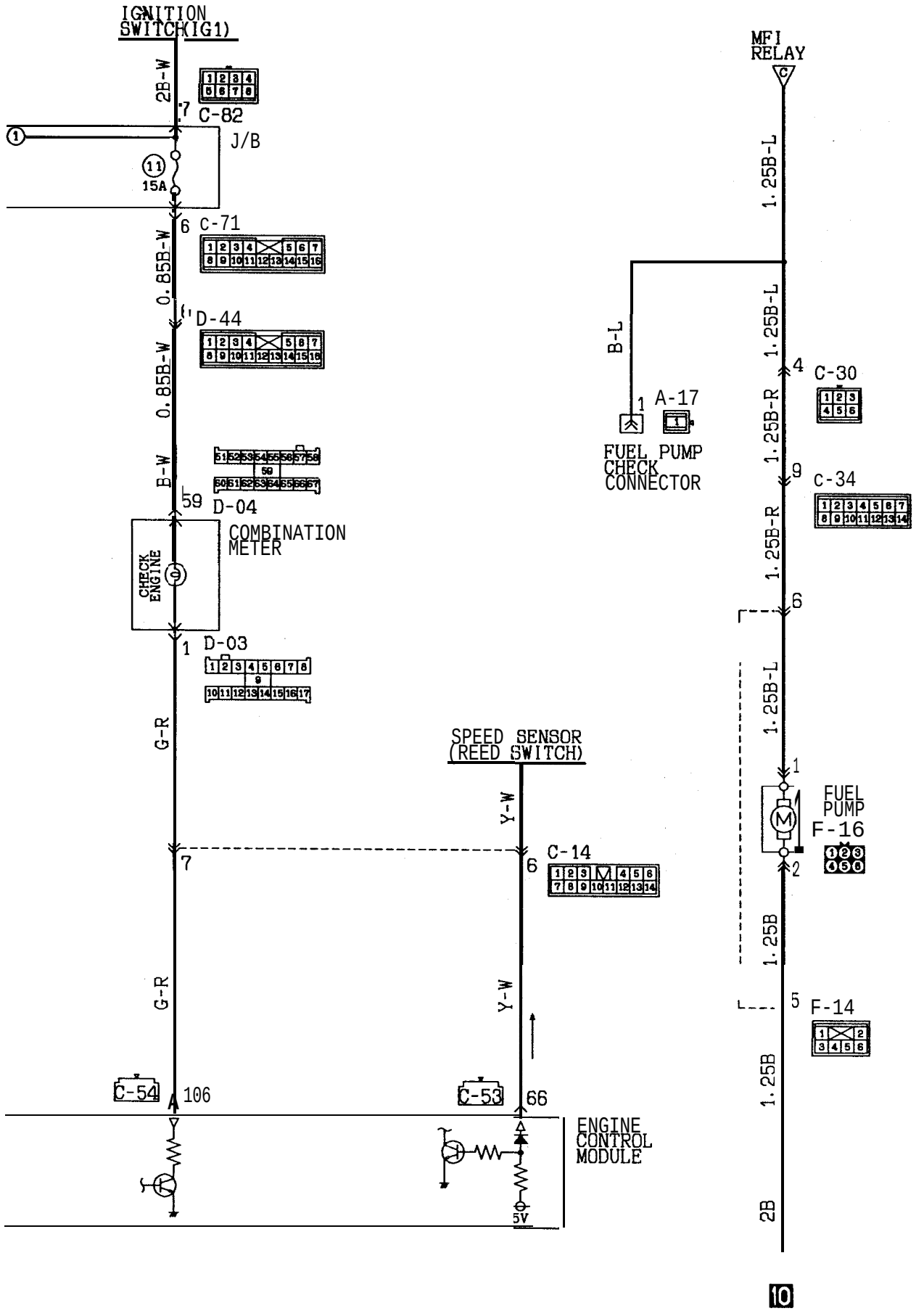
Defogger relay



MFI CIRCUIT

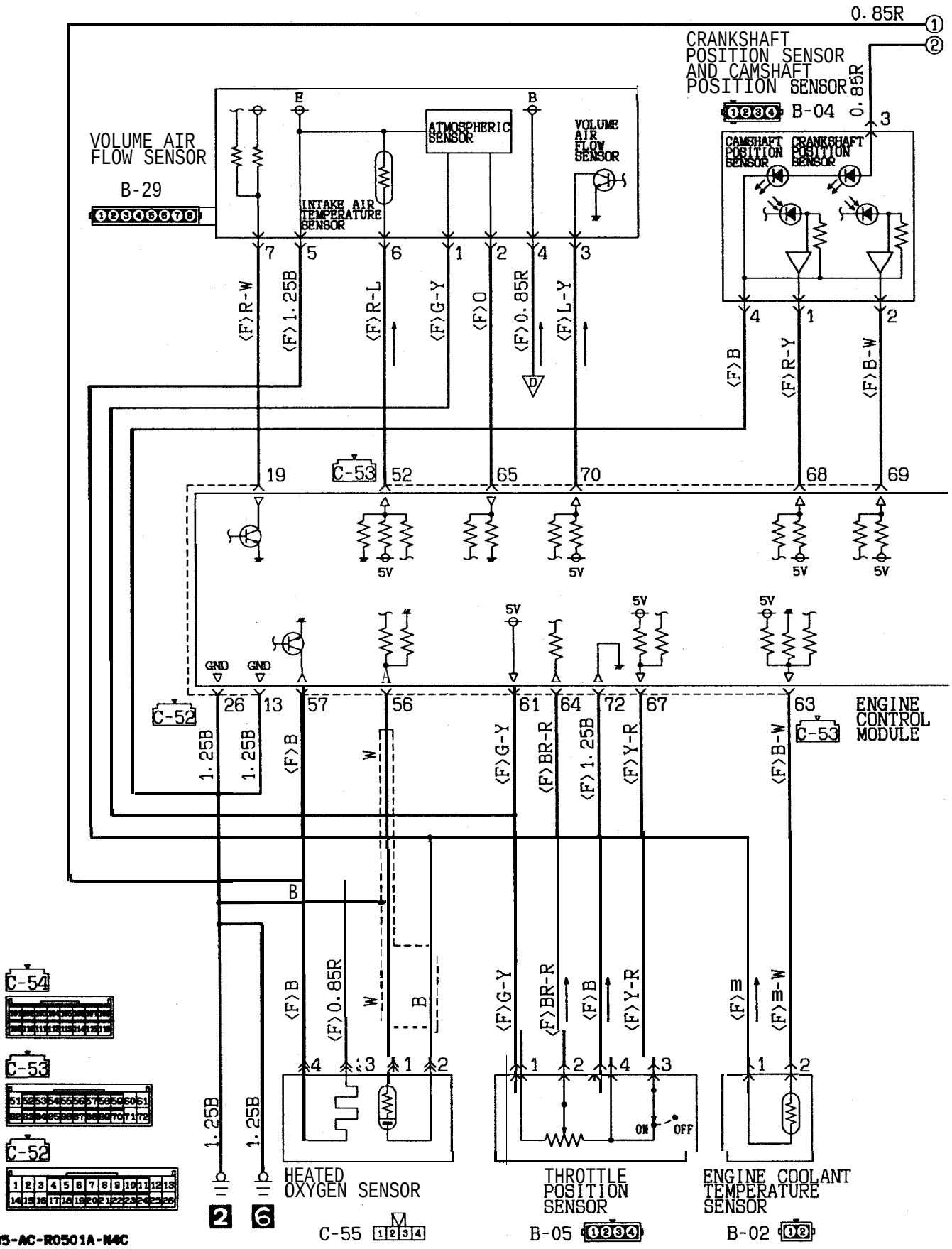
<SOHC> (FEDERAL AND CANADA)

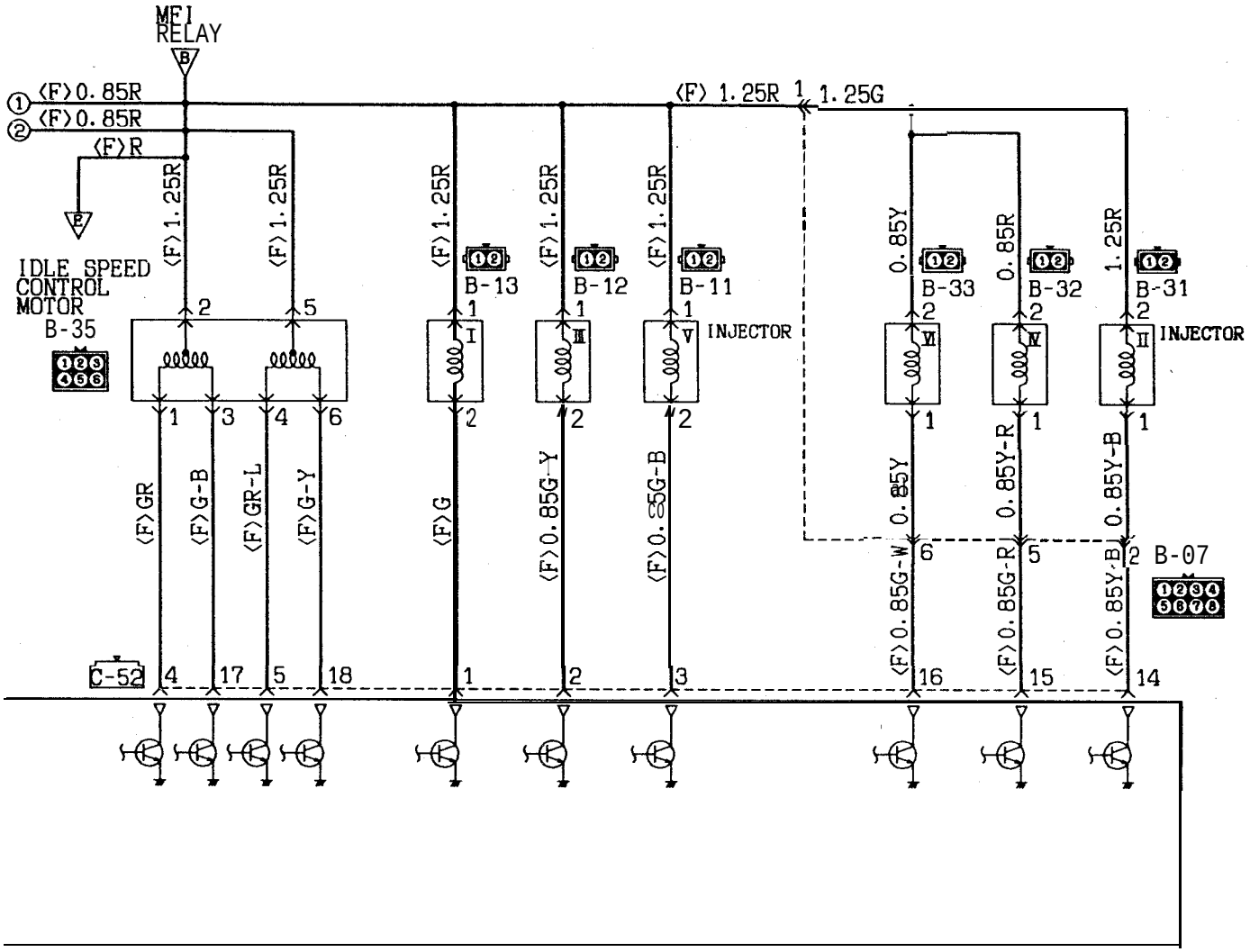



IGNITION SWITCH(IG1)
2B-W
7
C-82
J/B
11
15A
1
6
C-71
0.85B-W
D-44
0.85B-W
B-W
59
D-04
COMBINATION METER
CHECK ENGINE
1
D-03
G-R
SPEED SENSOR (REED SWITCH)
Y-W
7
6
C-14
G-R
Y-W
C-54
106
C-53
66
ENGINE CONTROL MODULE
5V
MFI RELAY
C
1.25B-L
B-L
1
A-17
FUEL PUMP CHECK CONNECTOR
1.25B-L
4
C-30
1.25B-R
9
C-34
1.25B-R
6
1.25B-L
1
FUEL PUMP
F-16
2
1.25B
5
F-14
1.25B
2B

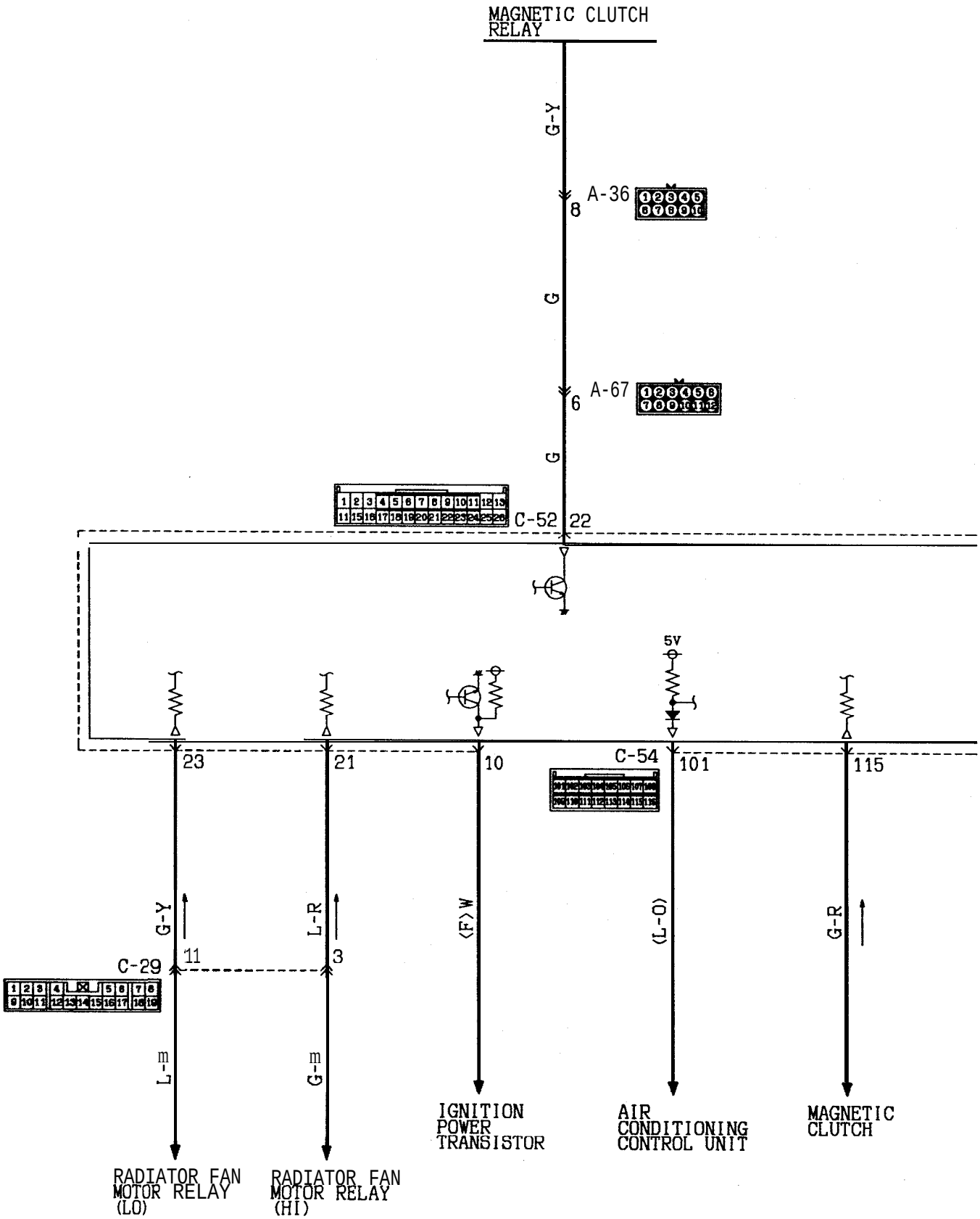
10

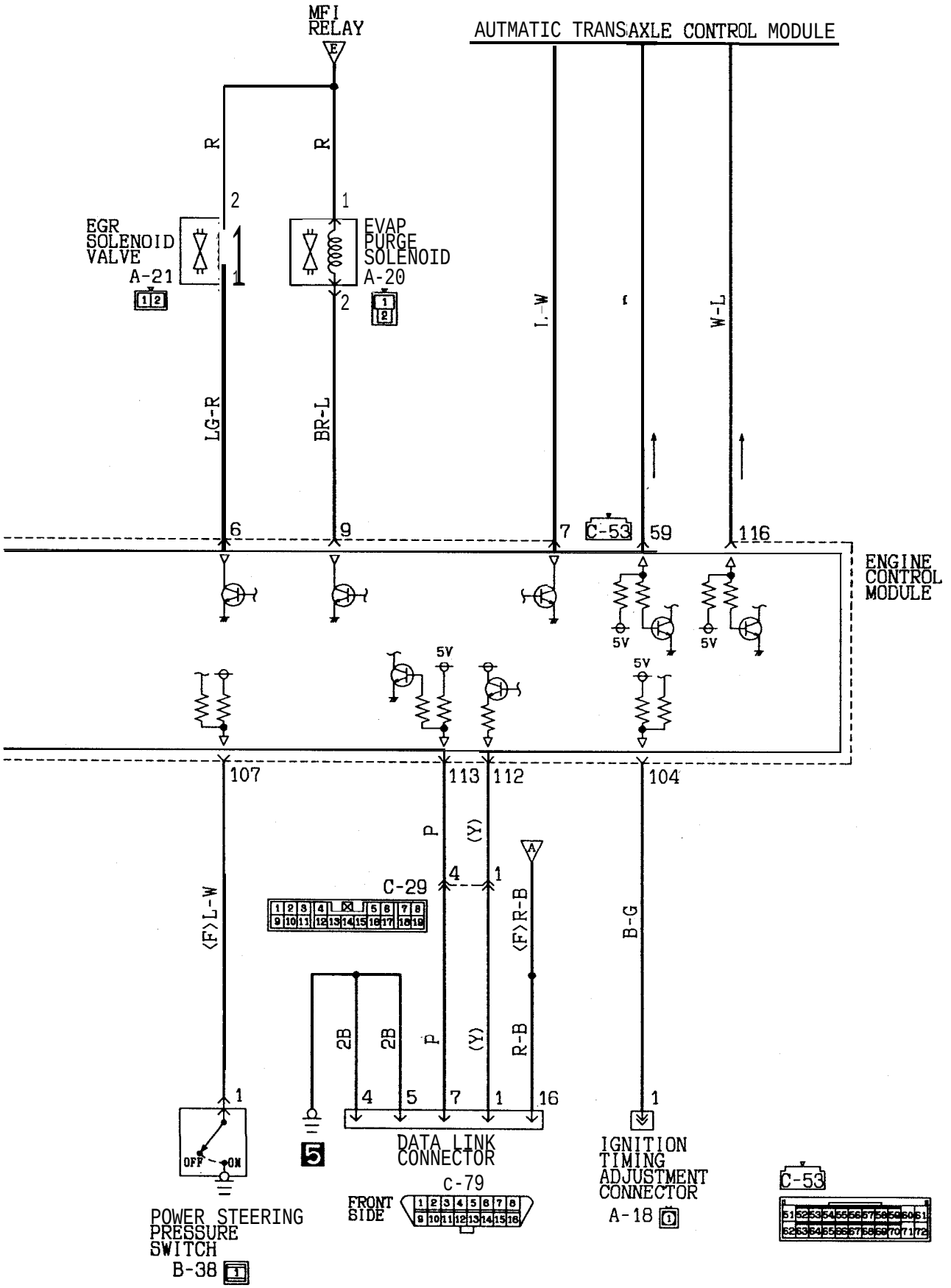
MFI CIRCUIT <SOHC> (FEDERAL AND CANADA) (CONTINUED)




MFI RELAY
B
① ⟨F⟩0.85R
② ⟨F⟩0.85R
⟨F⟩R
E
IDLE SPEED CONTROL MOTOR
B-35
⟨F⟩1.25R
⟨F⟩1.25R
⟨F⟩1.25R
⟨F⟩1.25R
⟨F⟩1.25R
⟨F⟩1.25R 1 1.25G
0.85Y
0.85R
1.25R
B-13
B-12
B-11
B-33
B-32
B-31
INJECTOR
INJECTOR
⟨F⟩GR
⟨F⟩G-B
⟨F⟩GR-L
⟨F⟩G-Y
⟨F⟩G
⟨F⟩0.85G-Y
⟨F⟩0.85G-B
0.85Y
0.85Y-R
0.85Y-B
⟨F⟩0.85G-W
⟨F⟩0.85G-R
⟨F⟩0.85Y-B
B-07
C-52
4 17 5 18
1 2 3
16 15 14

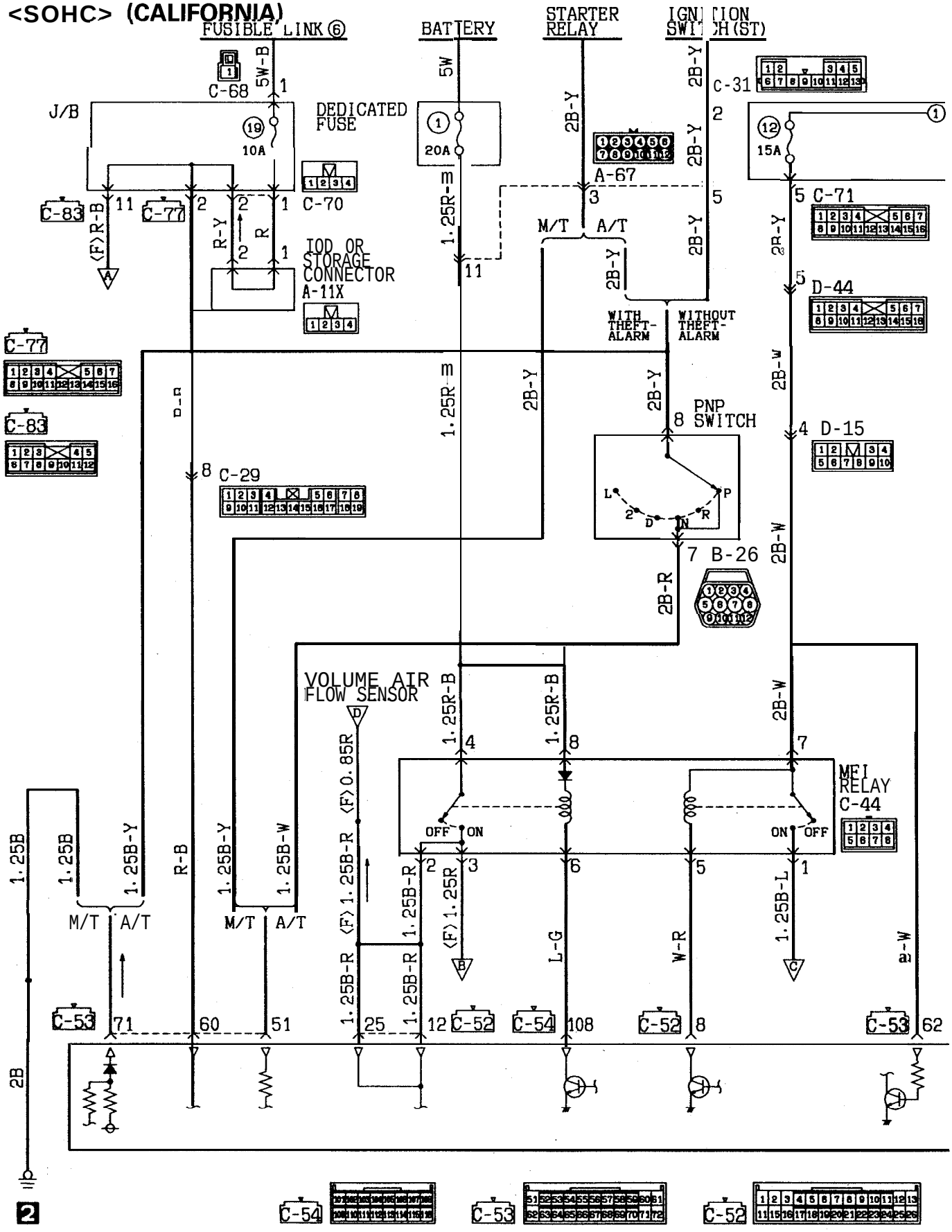
MFI CIRCUIT <SOHC> (FEDERAL AND CANADA) (CONTINUED)



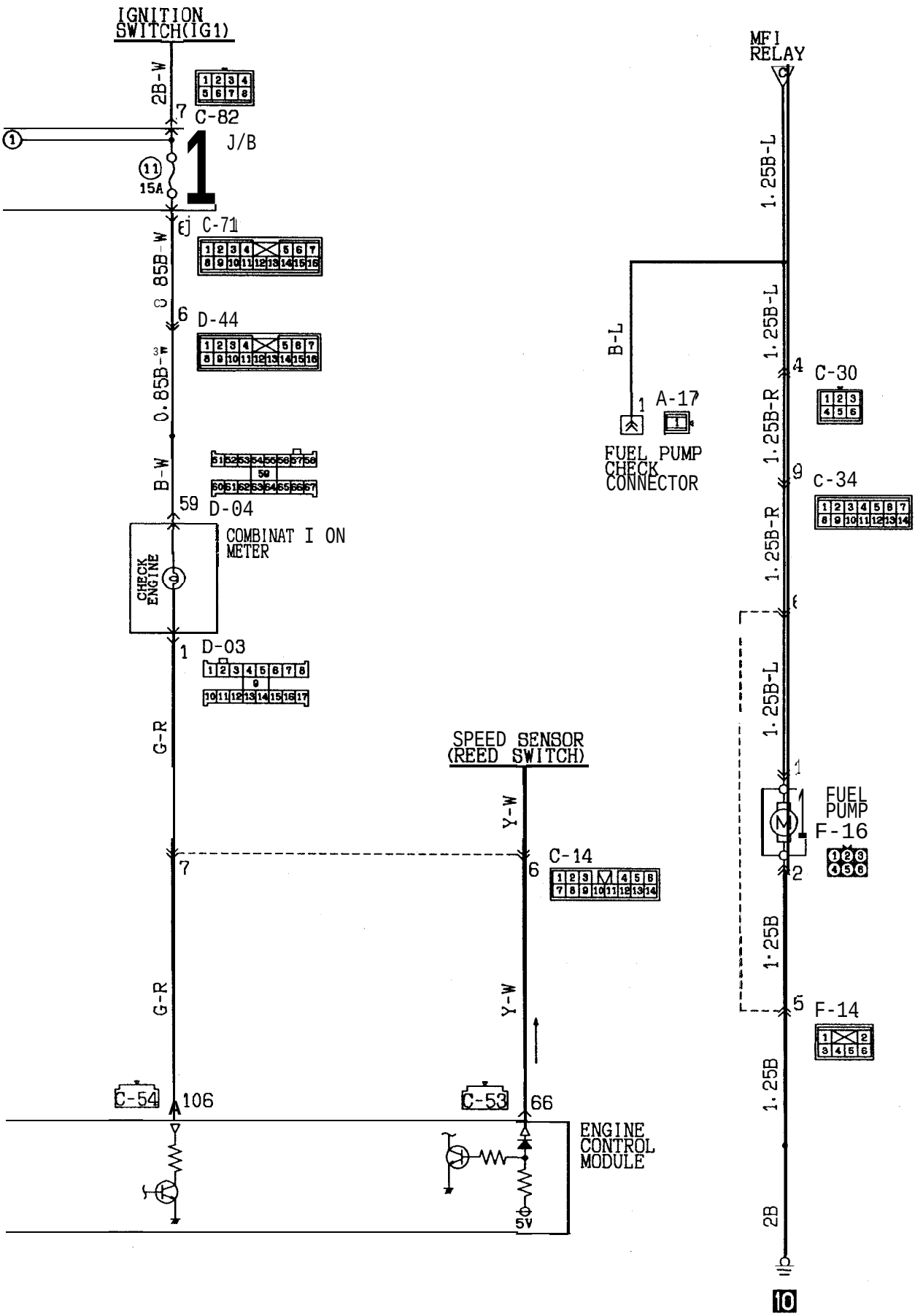

MFI RELAY
AUTMATIC TRANSAXLE CONTROL MODULE
EGR SOLENOID VALVE A-21
EVAP PURGE SOLENOID A-20
R
R
LG-R
BR-L
L-W
W-L
6
9
7
C-53
59
116
ENGINE CONTROL MODULE
5V
107
113
112
104
P
(Y)
C-29
<F>L-W
<F>R-B
B-G
2B
2B
R-B
4
5
7
1
16
OFF
ON
POWER STEERING PRESSURE SWITCH B-38
DATA LINK CONNECTOR
C-79
FRONT SIDE
IGNITION TIMING ADJUSTMENT CONNECTOR A-18
C-53

MFI CIRCUIT

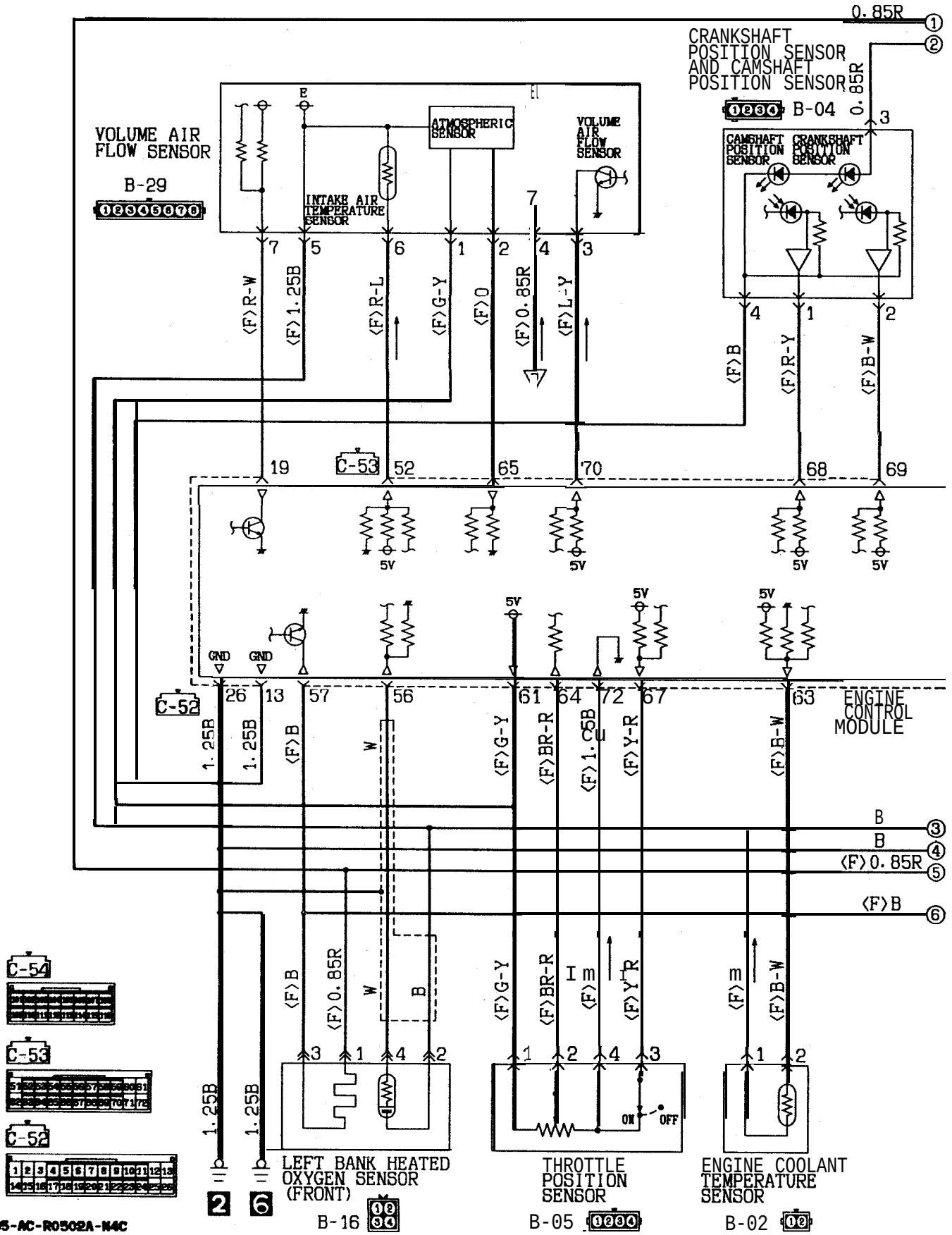
<SOHC> (CALIFORNIA)



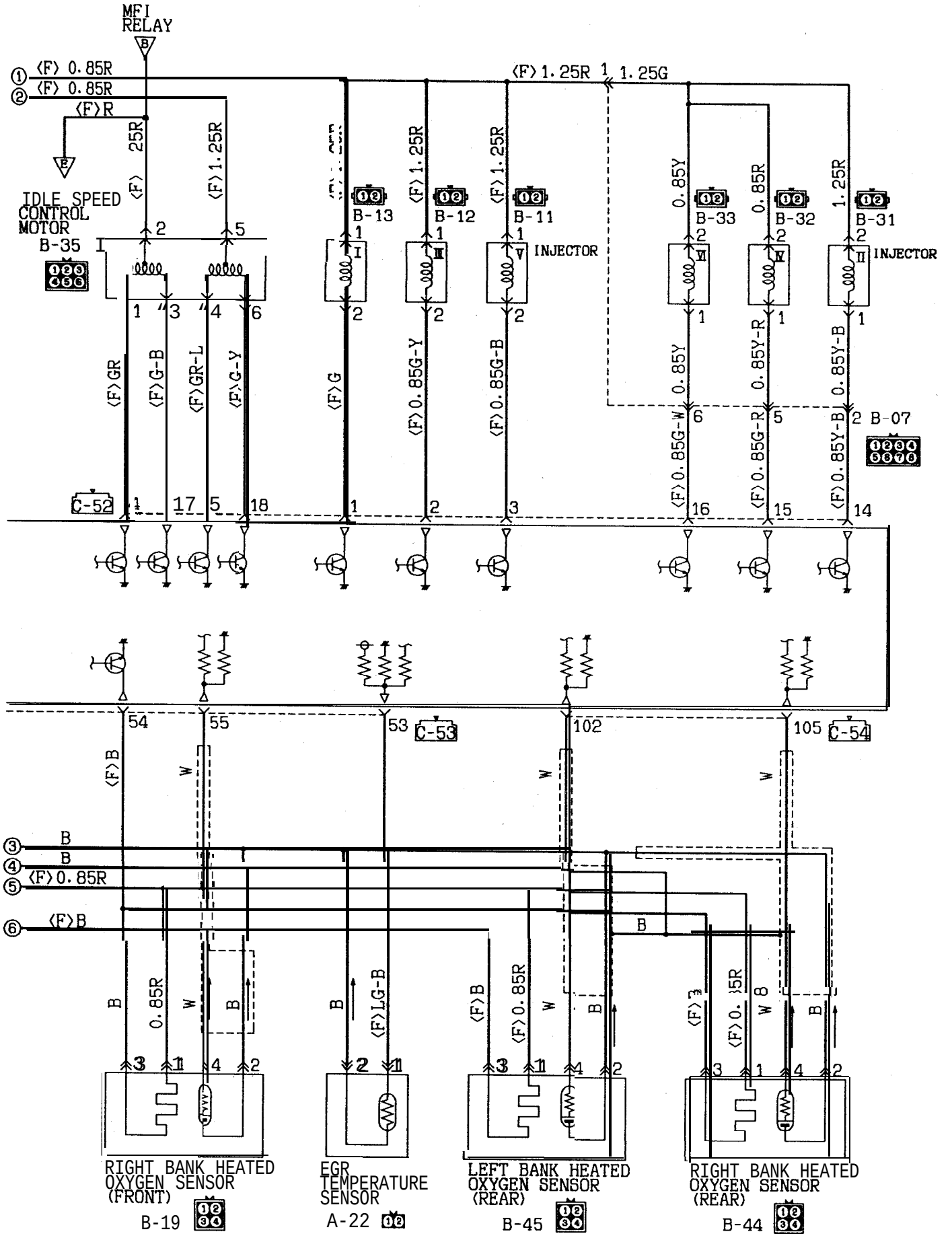
X35-AC-R0502-N4C


IGNITION SWITCH(IG1)
2B-W
7
C-82
J/B
1
11
15A
C-71
0.85B-W
6
D-44
0.85B-W
B-W
59
D-04
COMBINAT I ON METER
CHECK ENGINE
1
D-03
G-R
SPEED SENSOR (REED SWITCH)
Y-W
7
6
C-14
G-R
Y-W
C-54
106
C-53
66
ENGINE CONTROL MODULE
5V
B-L
A-17
FUEL PUMP CHECK CONNECTOR
MFI RELAY
1.25B-L
1.25B-L
4
C-30
1.25B-R
1.25B-R
9
c-34
1.25B-R
1.25B-L
FUEL PUMP
F-16
1.25B
5
F-14
1.25B
2B
10

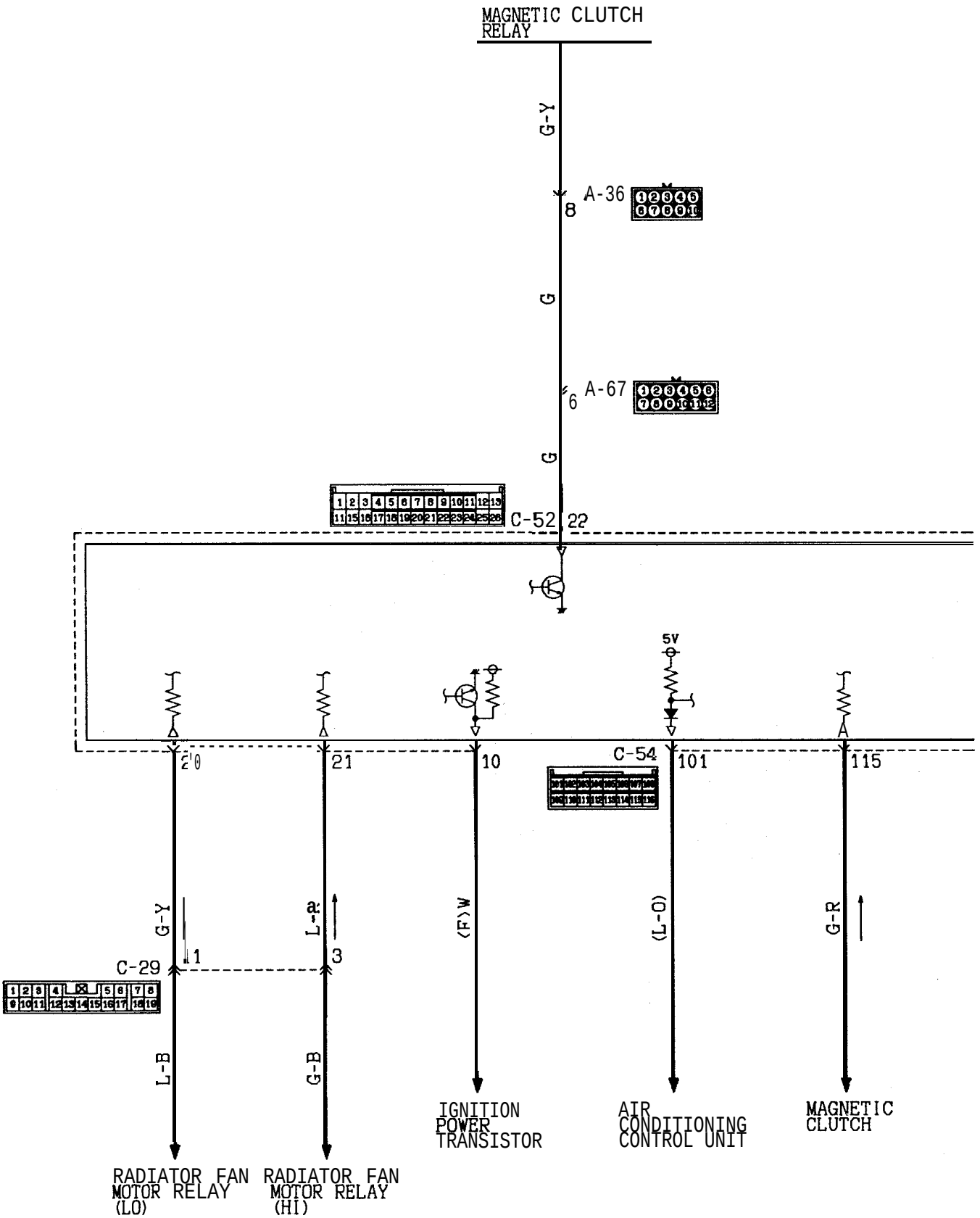
MFI CIRCUIT <SOHC> (CALIFORNIA) (CONTINUED)

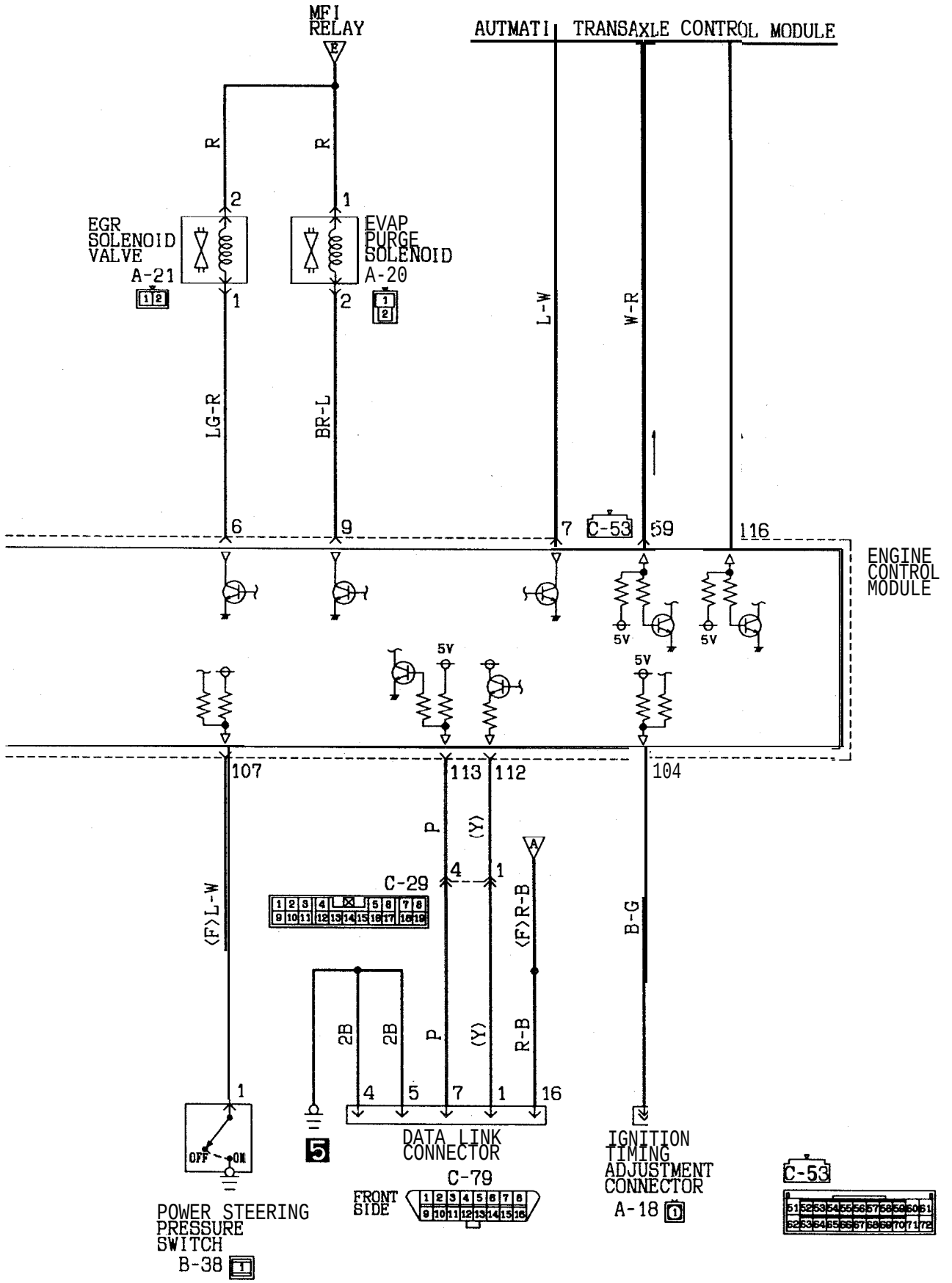


KX35-AC-R0502A-N4C


MFI RELAY
IDLE SPEED CONTROL MOTOR
B-35
INJECTOR
B-13
B-12
B-11
B-33
B-32
B-31
B-07
C-52
C-53
C-54
RIGHT BANK HEATED OXYGEN SENSOR (FRONT)
B-19
EGR TEMPERATURE SENSOR
A-22
LEFT BANK HEATED OXYGEN SENSOR (REAR)
B-45
RIGHT BANK HEATED OXYGEN SENSOR (REAR)
B-44

MFI CIRCUIT <SOHC> (CALIFORNIA) (CONTINUED)

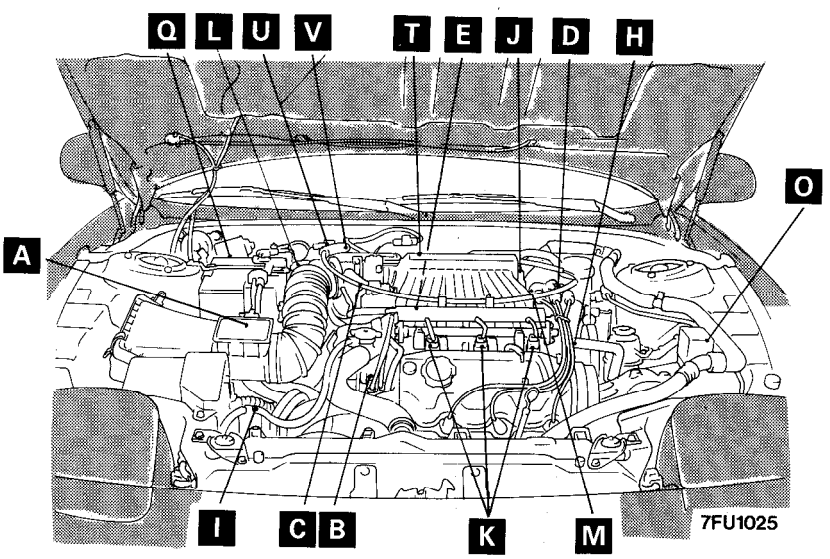


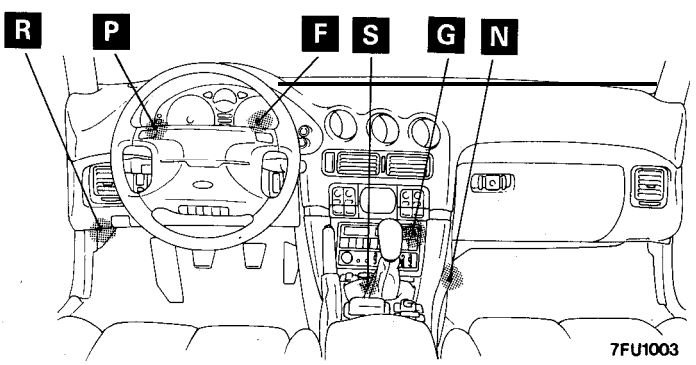

MFI RELAY
AUTMATI TRANSAXLE CONTROL MODULE
EGR SOLENOID VALVE A-21
EVAP PURGE SOLENOID A-20
R
R
L-W
W-R
LG-R
BR-L
ENGINE CONTROL MODULE
5V
C-53
C-29
C-79
(F)L-W
(F)R-B
B-G
P
(Y)
2B
R-B
DATA LINK CONNECTOR
FRONT SIDE
IGNITION TIMING ADJUSTMENT CONNECTOR A-18
POWER STEERING PRESSURE SWITCH B-38
OFF
ON

COMPONENT LOCATION
<SOHC>

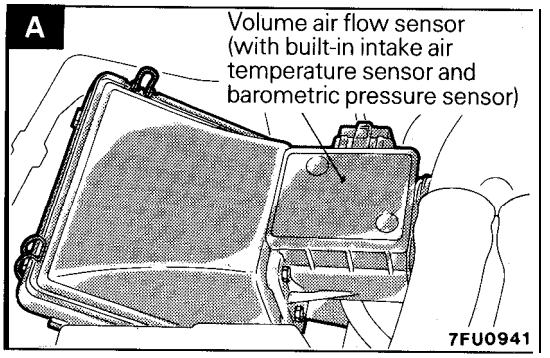
Name	Symbol	Name	Symbol
Air conditioning relay	O	Idle air control motor (stepper motor)	L
Air conditioning switch	G	Ignition coil (ignition power transistor)	M
Camshaft position sensor and crankshaft position sensor	D	Ignition timing adjusting terminal	Q
Check engine/malfunction indicator lamp	P	Injector	K
Diagnostic output terminal and diagnostic test mode control terminal	R	Multiport fuel injection (MFI) relay	N
EGR solenoid <California>	V	Park/Neutral position switch <A/T>	I
EGR temperature sensor <California>	T	Power steering pressure switch	H
Engine control module	S	Throttle position sensor (with built-in closed throttle position switch)	C
Engine coolant temperature sensor	B	Variable air intake control servo (DC motor) (with built-in air intake control valve position sensor)	J
Evaporative emission purge solenoid	U	Vehicle speed sensor (reed switch)	F
Heated oxygen sensor	E	Volume air flow sensor (with built-in intake air temperature sensor and barometric pressure sensor)	A

NOTE
The "Name" column is arranged in alphabetical order.

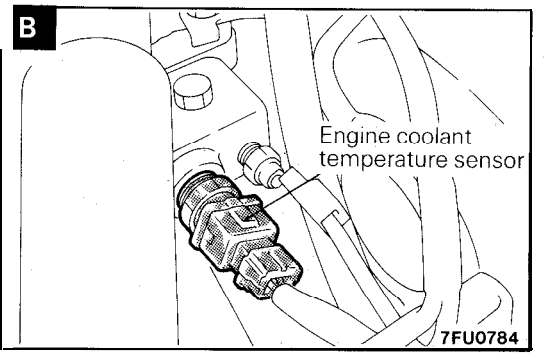




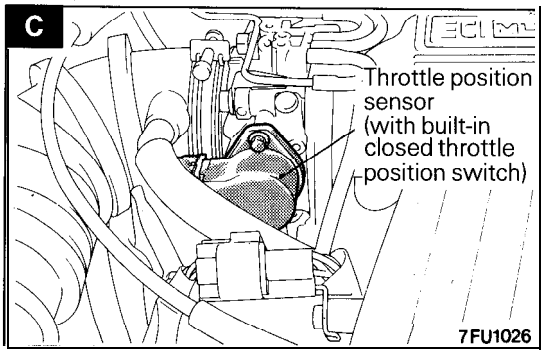
A



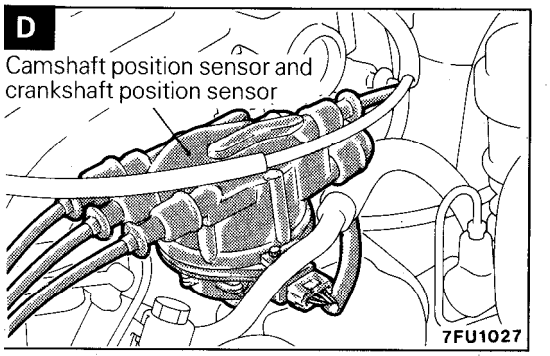
B



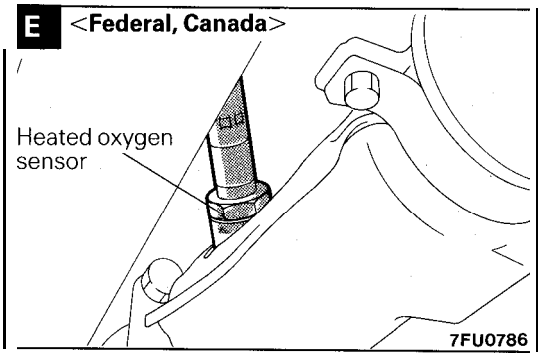
C



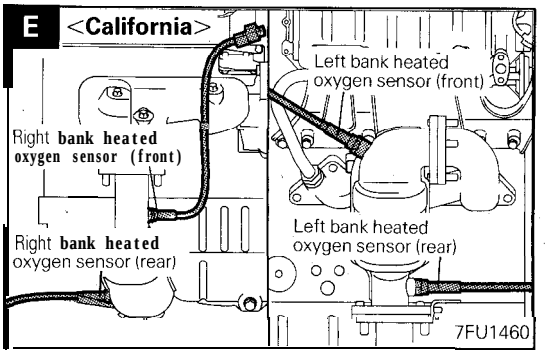
D



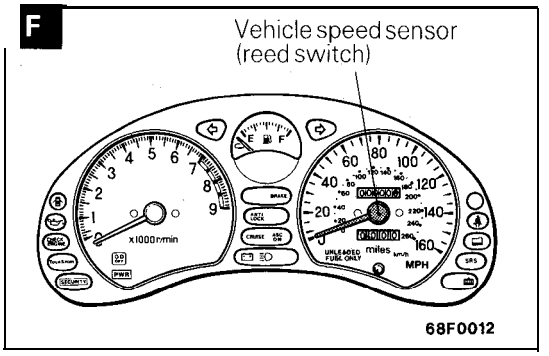
E <Federal, Canada>



E <California>



F



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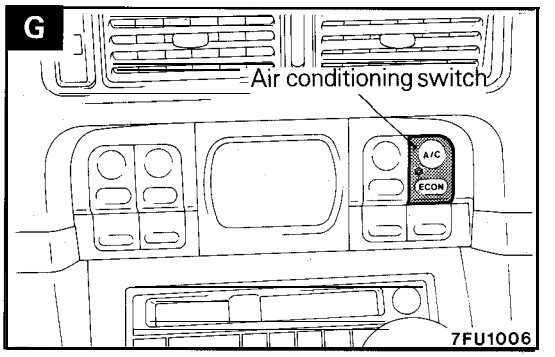
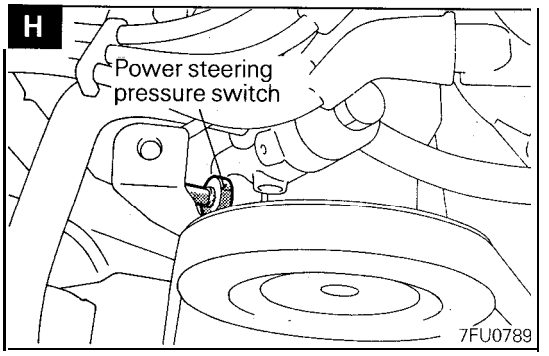
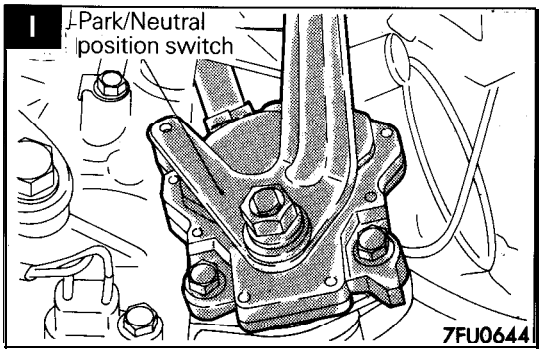
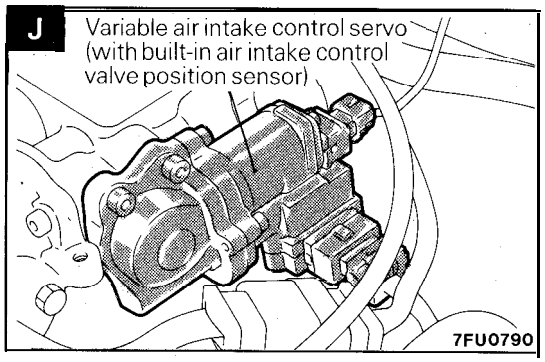


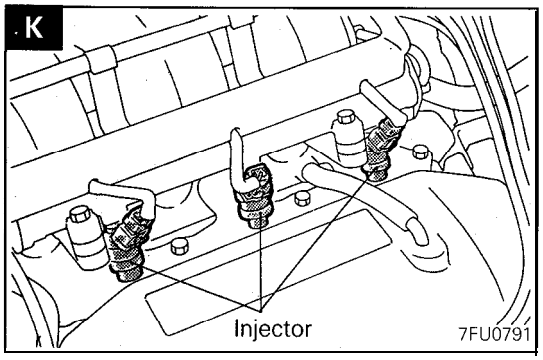
H

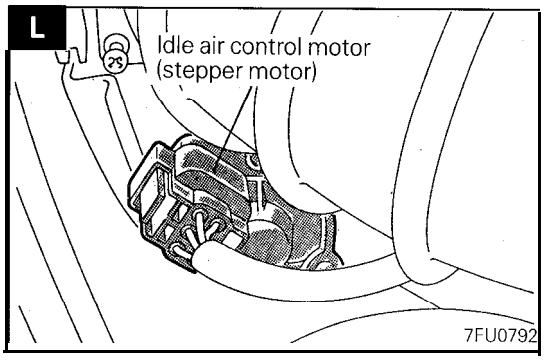


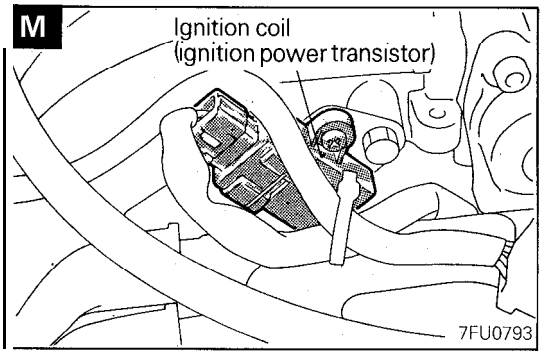
I

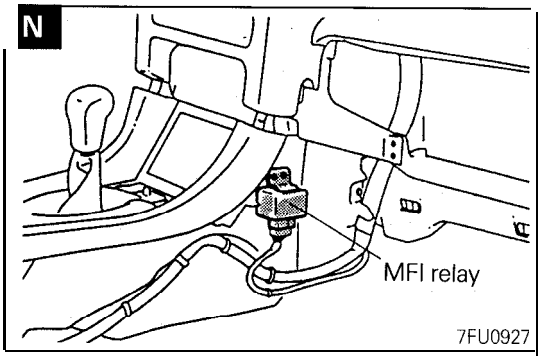


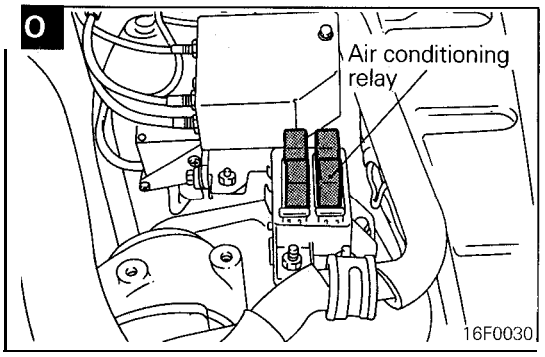
J

Variable air intake control servo
(with built-in air intake control
valve position sensor)
7FU0790

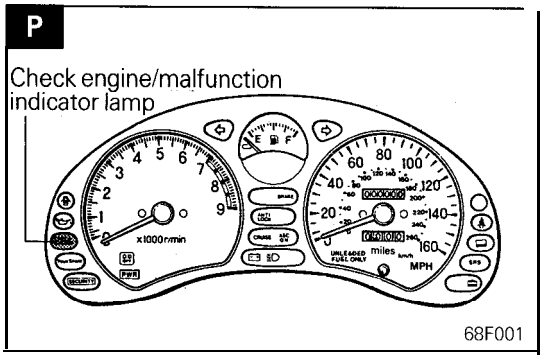
K

Injector
7FU0791

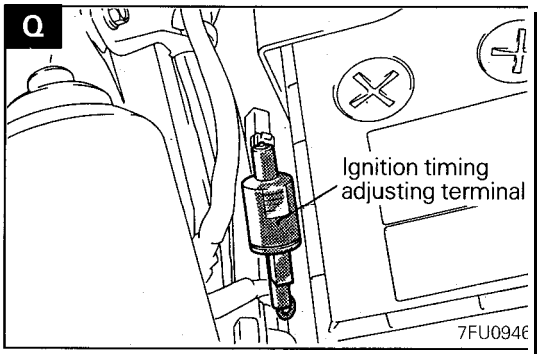
L

Idle air control motor
(stepper motor)
7FU0792

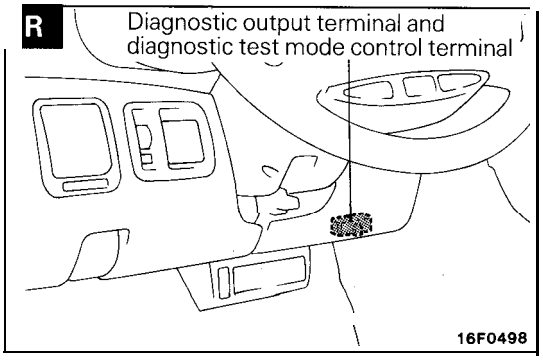
M

Ignition coil
(ignition power transistor)
7FU0793

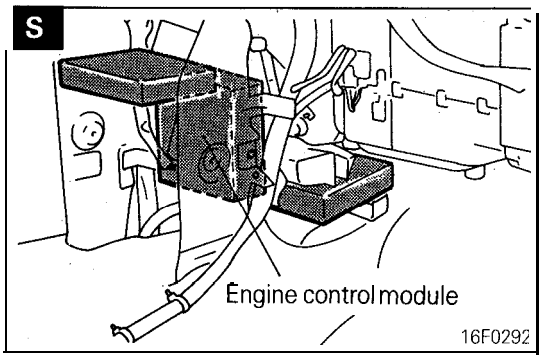
N

MFI relay
7FU0927

O

Air conditioning
relay
16F0030

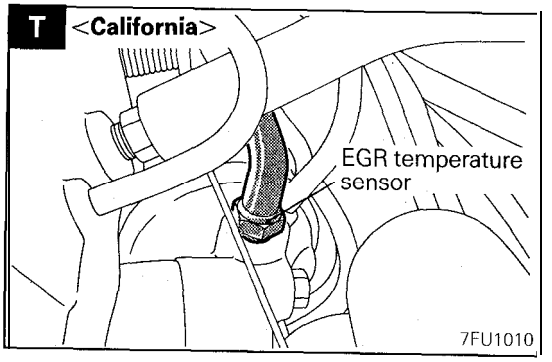
P

Check engine/malfunction
indicator lamp
68F001

Q

Ignition timing
adjusting terminal
7FU0946

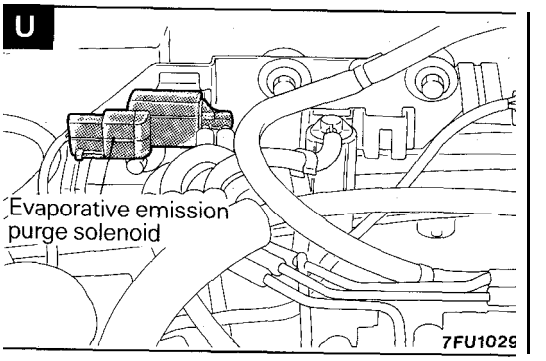
R

Diagnostic output terminal and
diagnostic test mode control terminal
16F0498

S

Engine control module
16F0292

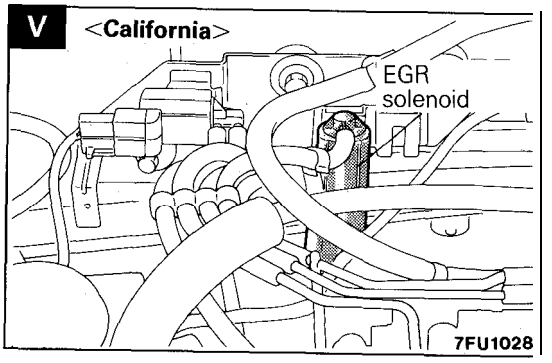
T <California>



U

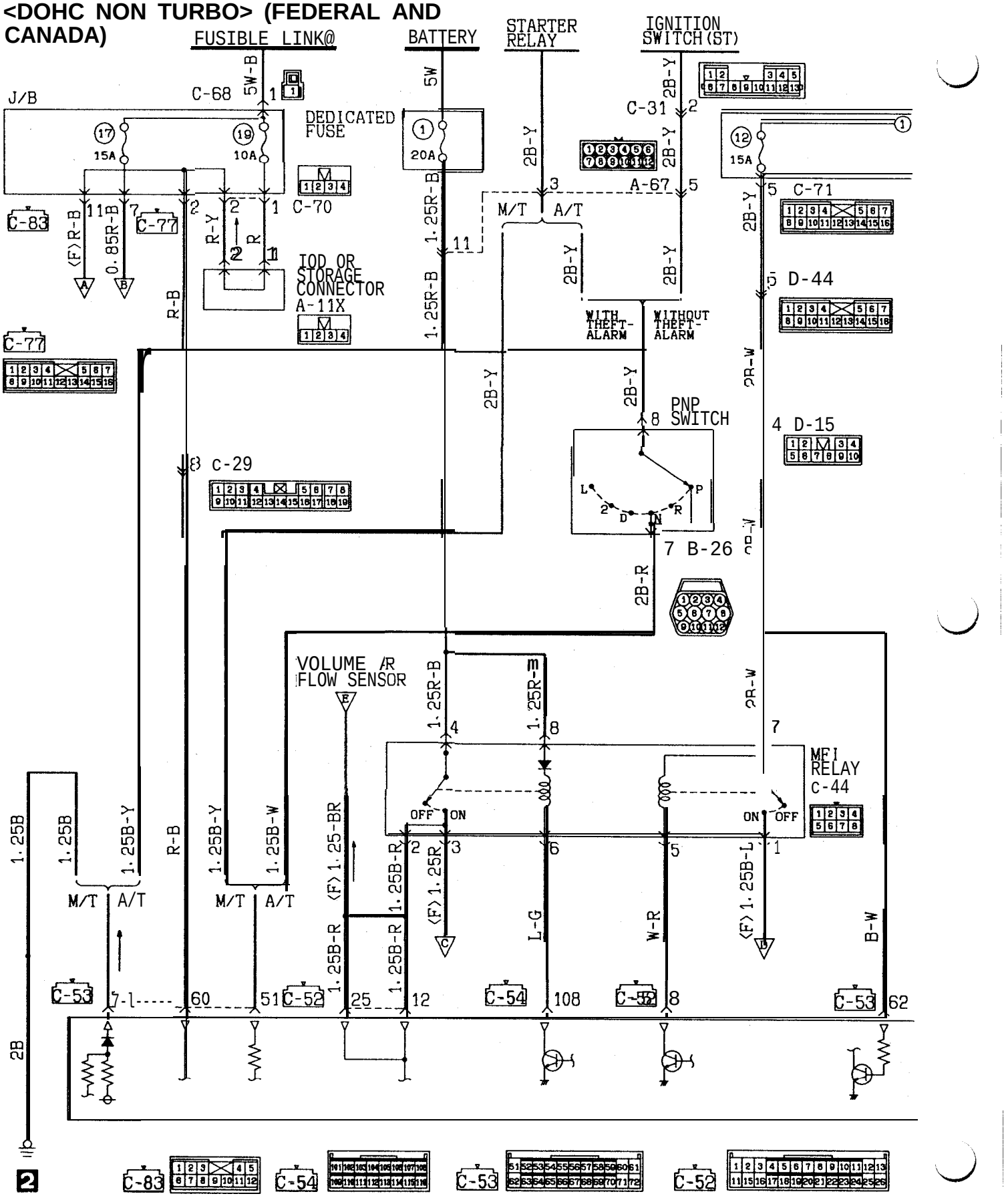


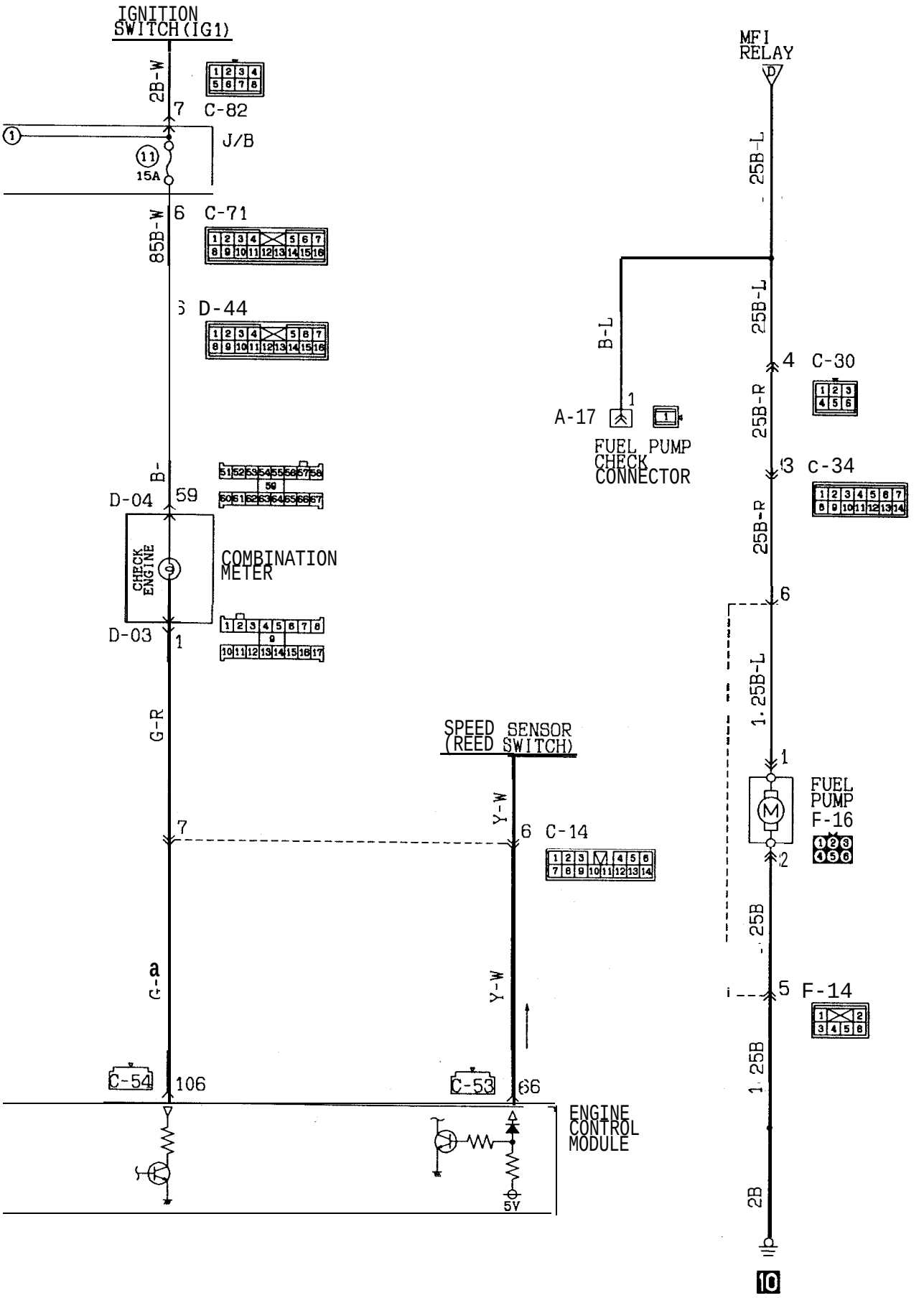
V <California>



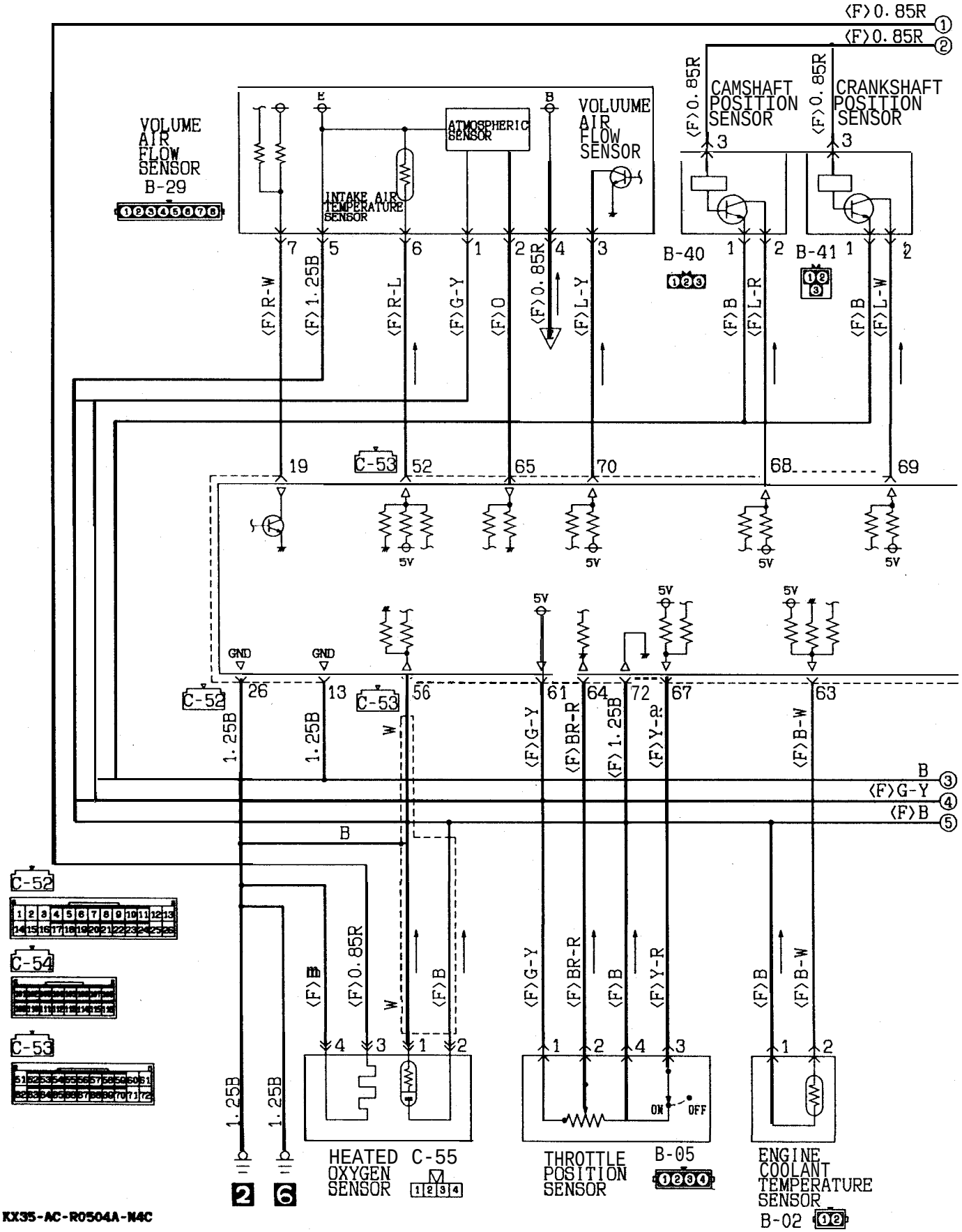
MFI CIRCUIT

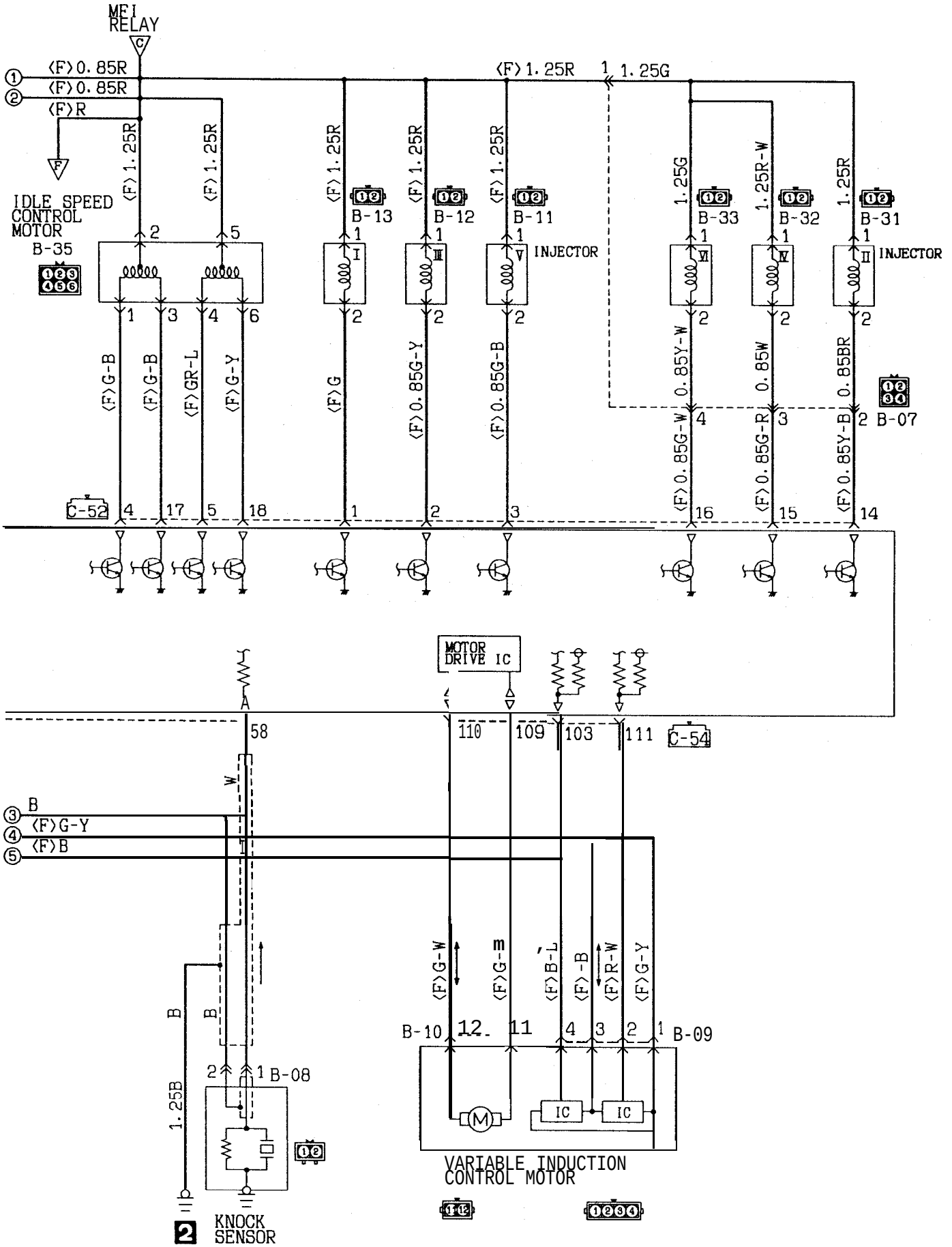
<DOHC NON TURBO> (FEDERAL AND CANADA)



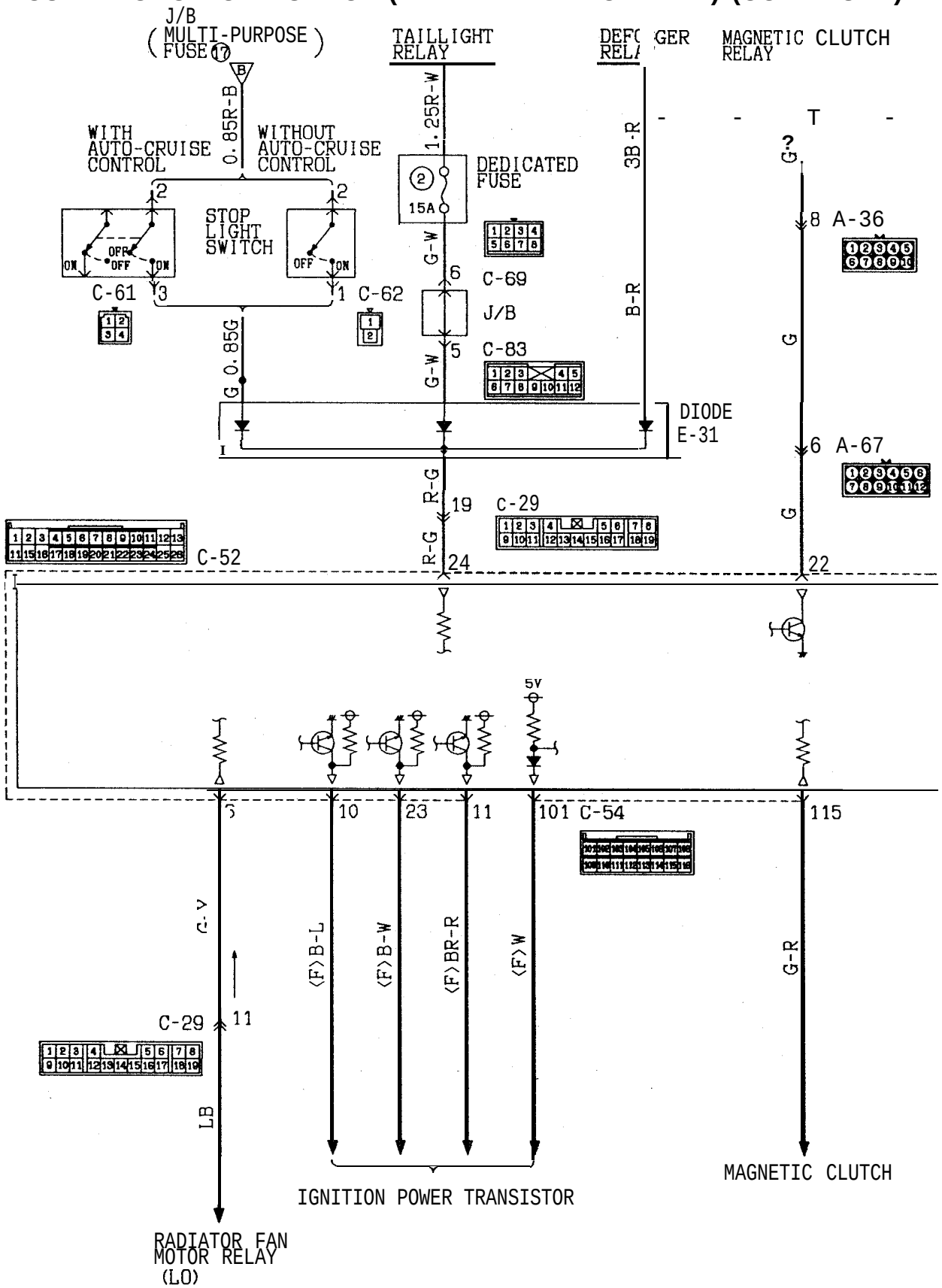

IGNITION SWITCH(IG1)
2B-W
7 C-82
J/B
15A
85B-W
6 C-71
D-44
B-
D-04 59
CHECK ENGINE
COMBINATION METER
D-03 1
G-R
SPEED SENSOR (REED SWITCH)
Y-W
7
6 C-14
G-
a
Y-W
C-54 106
C-53 66
ENGINE CONTROL MODULE
5V
MFI RELAY
25B-L
B-L
A-17 1
FUEL PUMP CHECK CONNECTOR
25B-L
4 C-30
25B-R
3 c-34
25B-R
6
1.25B-L
1
FUEL PUMP F-16
2
25B
5 F-14
1.25B
2B
10

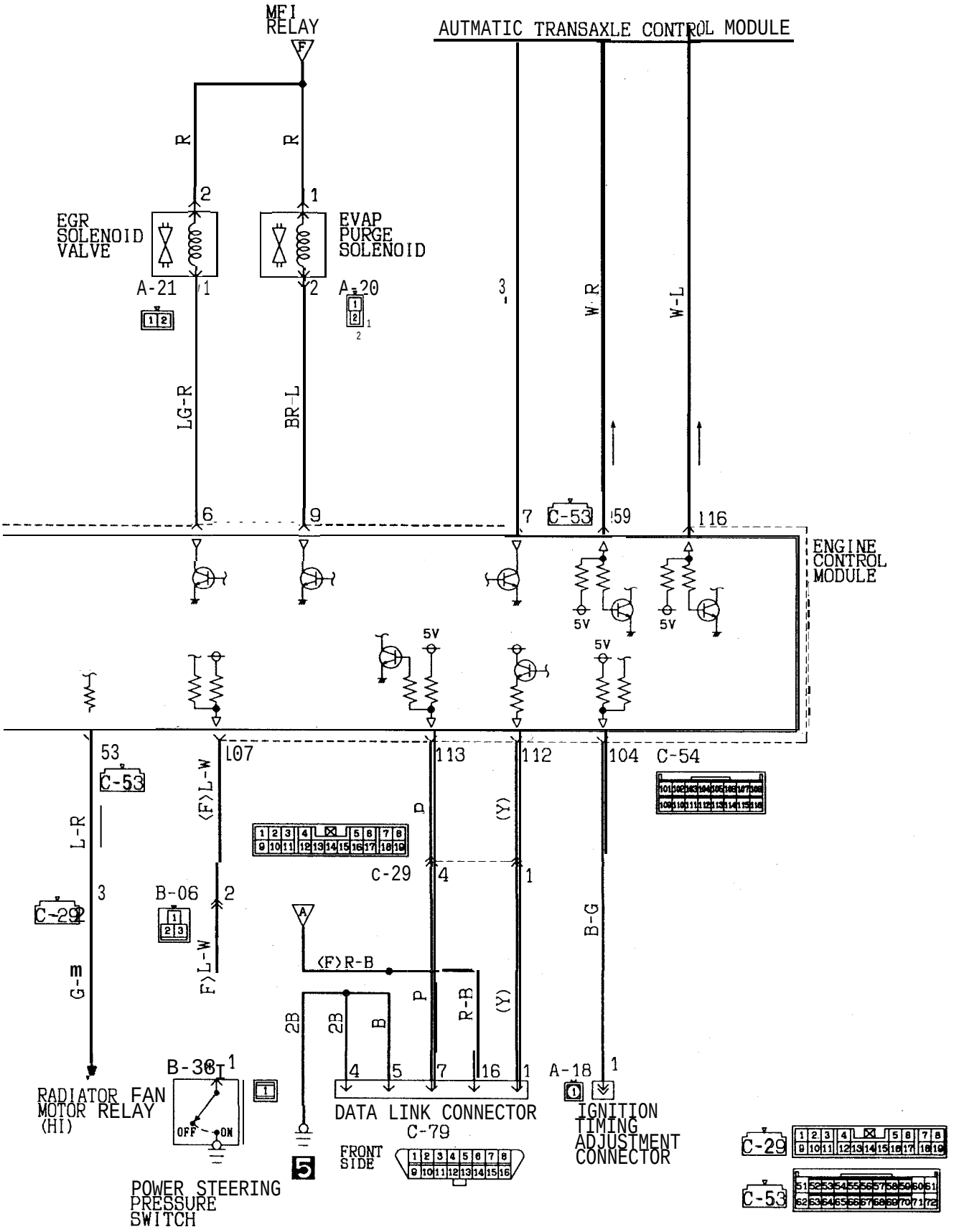
MFI CIRCUIT <DOHC NON TURBO> (FEDERAL AND CANADA) (CONTINUED)




MFI RELAY
C
① ⟨F⟩0.85R
② ⟨F⟩0.85R
⟨F⟩R
F
⟨F⟩1.25R
1.25G
IDLE SPEED CONTROL MOTOR
B-35
B-13
B-12
B-11
B-33
B-32
B-31
INJECTOR
⟨F⟩G-B
⟨F⟩GR-L
⟨F⟩G-Y
⟨F⟩G
⟨F⟩0.85G-Y
⟨F⟩0.85G-B
0.85Y-W
0.85W
0.85BR
0.85G-W
0.85G-R
⟨F⟩0.85Y-B
B-07
C-52
C-54
MOTOR DRIVE IC
58
110
109
103
111
③ B
④ ⟨F⟩G-Y
⑤ ⟨F⟩B
⟨F⟩G-W
⟨F⟩G-m
⟨F⟩B-L
⟨F⟩-B
⟨F⟩R-W
⟨F⟩G-Y
B-10
B-09
B-08
1.25B
KNOCK SENSOR
2
VARIABLE INDUCTION CONTROL MOTOR
IC

MFI CIRCUIT <DOHC NON TURBO> (FEDERAL AND CANADA) (CONTINUED)



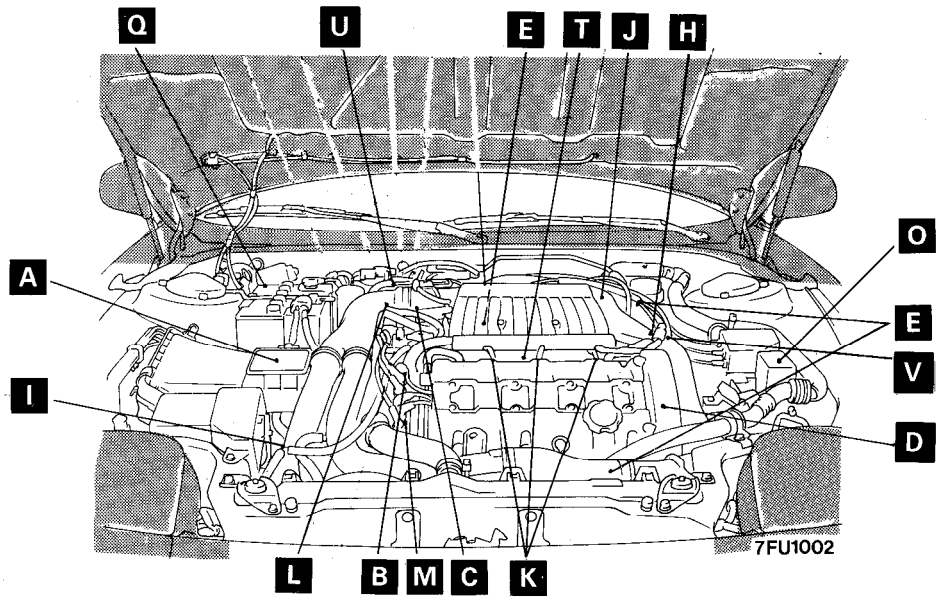

MFI RELAY
AUTMATIC TRANSAXLE CONTROL MODULE
EGR SOLENOID VALVE
EVAP PURGE SOLENOID
A-21
A-20
LG-R
BR-L
W-R
W-L
C-53
ENGINE CONTROL MODULE
5V
C-54
C-29
B-06
B-G
(F)L-W
(F)R-B
G-m
L-R
P
(Y)
R-B
B
2B
B-38
RADIATOR FAN MOTOR RELAY (HI)
OFF
ON
POWER STEERING PRESSURE SWITCH
DATA LINK CONNECTOR C-79
FRONT SIDE
A-18
IGNITION TIMING ADJUSTMENT CONNECTOR

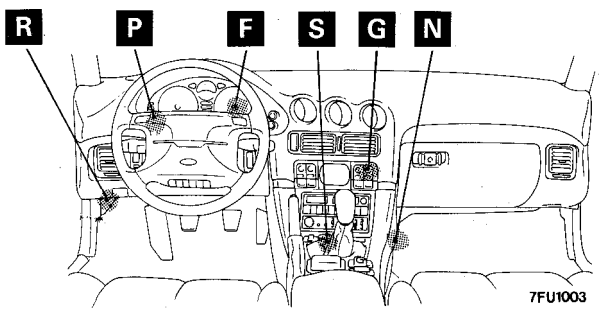
COMPONENT LOCATION

<DOHC NON TURBO> (FEDERAL AND CANADA)

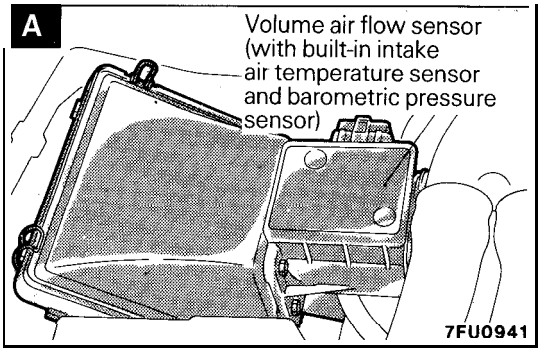
Name	Symbol	Name	Symbol
Air conditioning relay	O	Ignition coil (ignition power transistor)	M
Air conditioning switch	G	Ignition timing adjusting terminal	Q
Camshaft position sensor	V	Injector	K
Check engine/malfunction indicator lamp	P	Knock sensor	T
Crankshaft position sensor	D	Multiport fuel injection (MFI) relay	N
Diagnostic output terminal and diagnostic test mode control terminal	R	Park/Neutral position switch <A/T>	I
Engine control module	S	Power steering pressure switch	H
Engine coolant temperature sensor	B	Throttle position sensor (with built-in closed throttle position switch)	C
Evaporative emission purge solenoid	U	Variable induction control motor (DC motor) (with built-in induction control valve position sensor)	J
Heated oxygen sensor	E	Vehicle speed sensor	F
Idle air control motor (stepper motor)	L	Volume air flow sensor (with built-in intake air temperature sensor and barometric pressure sensor)	A

NOTE
The "Name" column is in alphabetical order

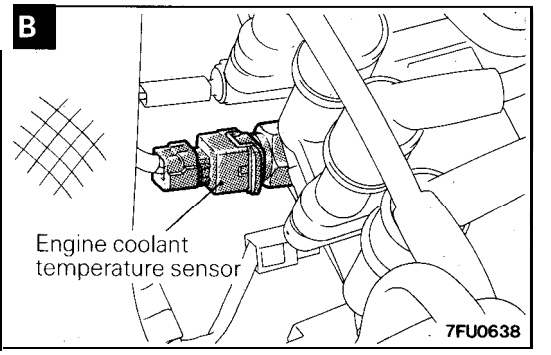




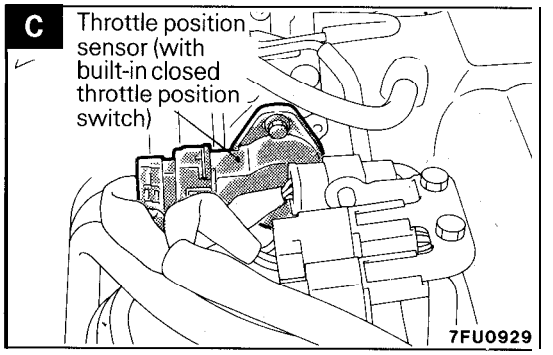
A


Volume air flow sensor
(with built-in intake
air temperature sensor
and barometric pressure
sensor)
7FU0941

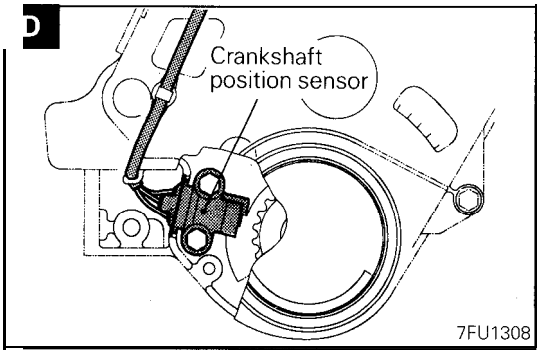
B


Engine coolant
temperature sensor
7FU0638

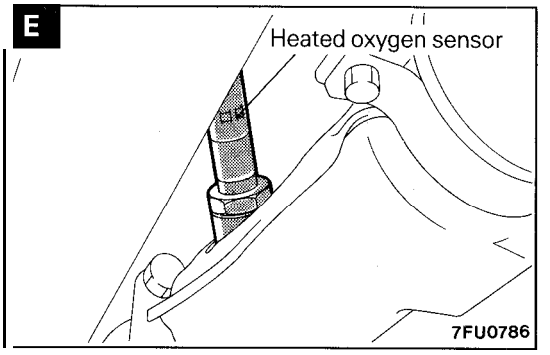
C


Throttle position
sensor (with
built-in closed
throttle position
switch)
7FU0929

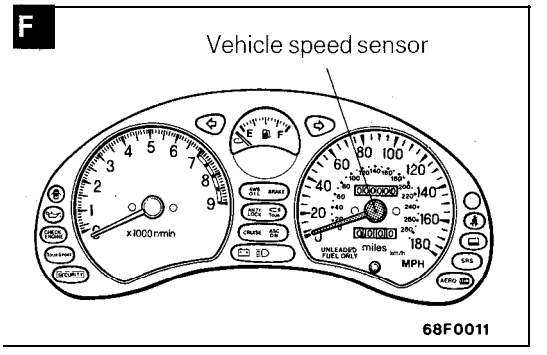
D


Crankshaft
position sensor
7FU1308

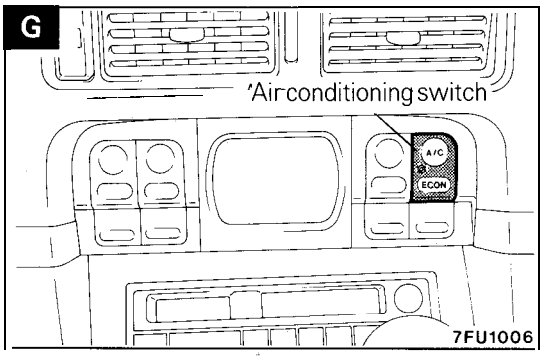
E


Heated oxygen sensor
7FU0786

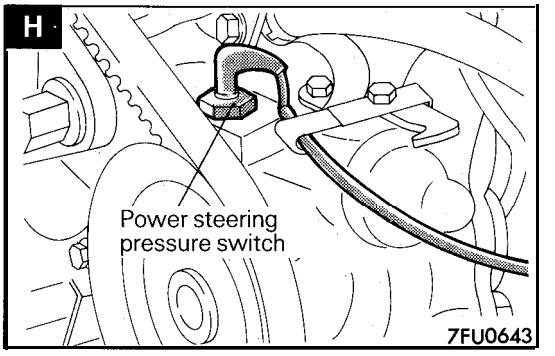
F


Vehicle speed sensor
x1000 r/min
MPH
68F0011

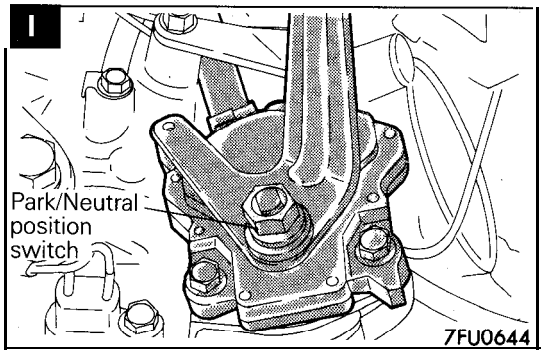
G


Air conditioning switch
A/C
ECON
7FU1006

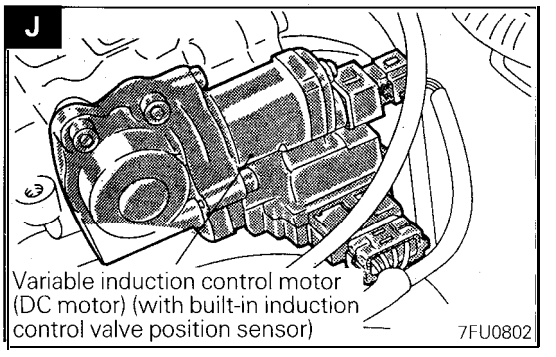
H


Power steering
pressure switch
7FU0643

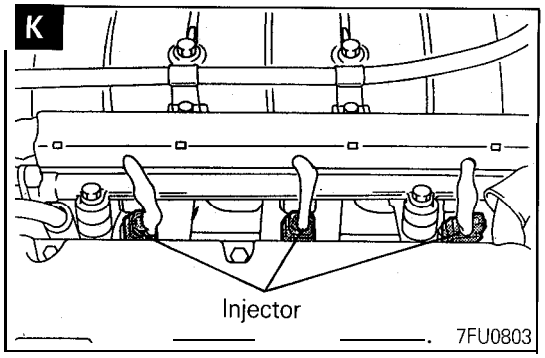
I


Park/Neutral
position
switch
7FU0644

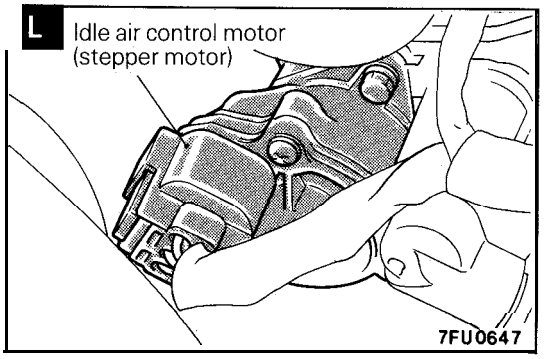
J


Variable induction control motor
(DC motor) (with built-in induction
control valve position sensor)
7FU0802

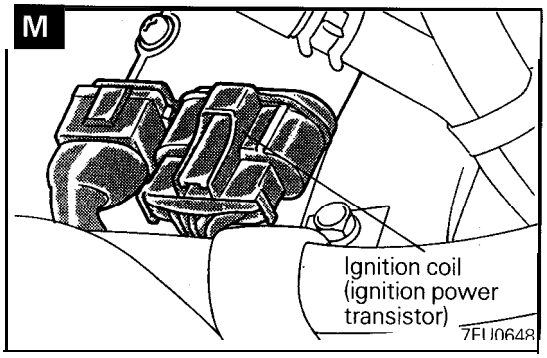
K


Injector
7FU0803

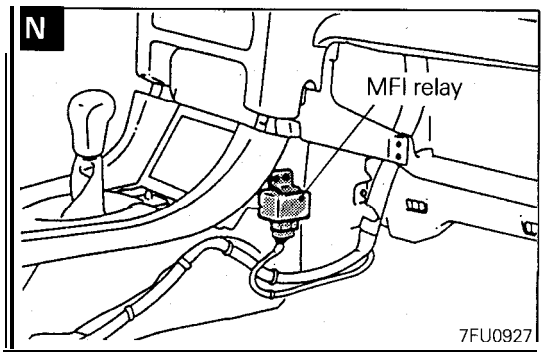
L


Idle air control motor
(stepper motor)
7FU0647

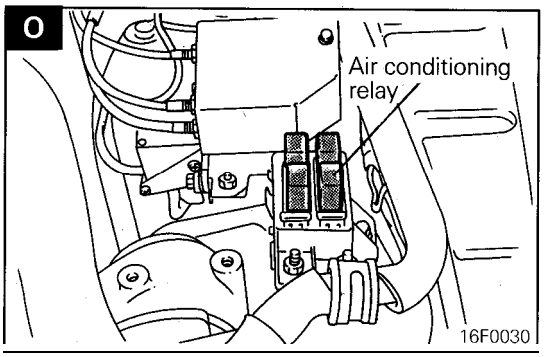
M


Ignition coil
(ignition power
transistor)
7FU0648

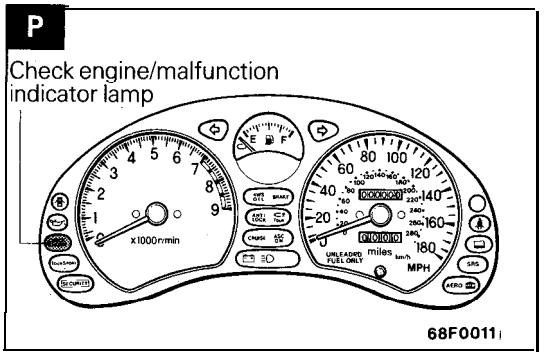
N


MFI relay
7FU0927

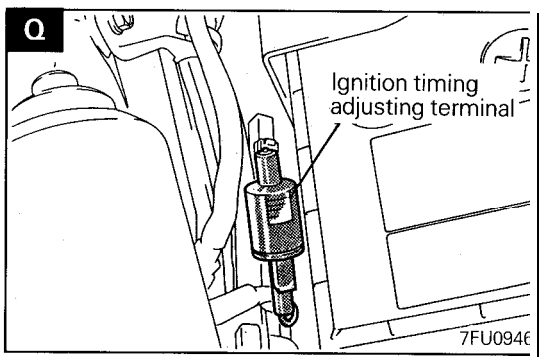
O


Air conditioning
relay
16F0030

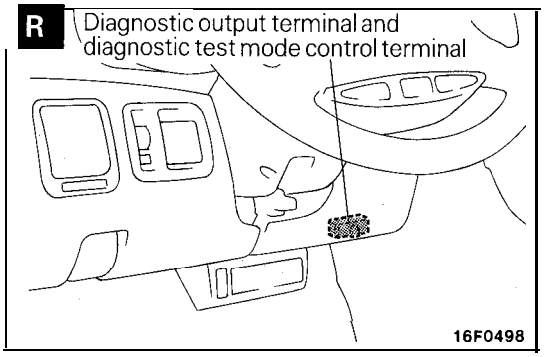
P


Check engine/malfunction
indicator lamp
68F0011

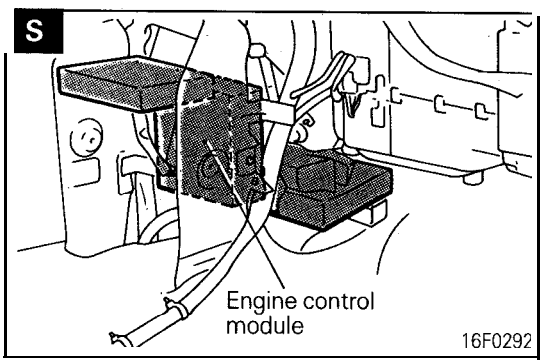
Q


Ignition timing
adjusting terminal
7FU0946

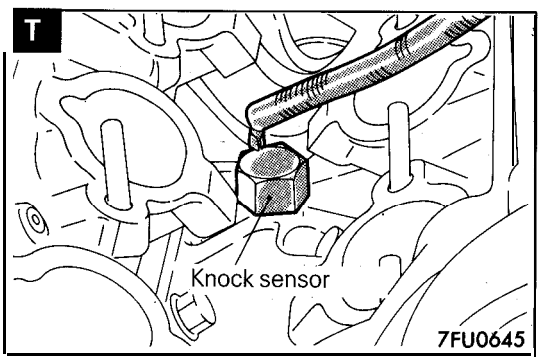
R


Diagnostic output terminal and
diagnostic test mode control terminal
16F0498

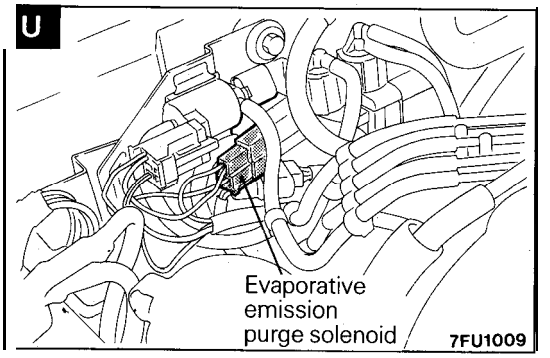
S


Engine control
module
16F0292

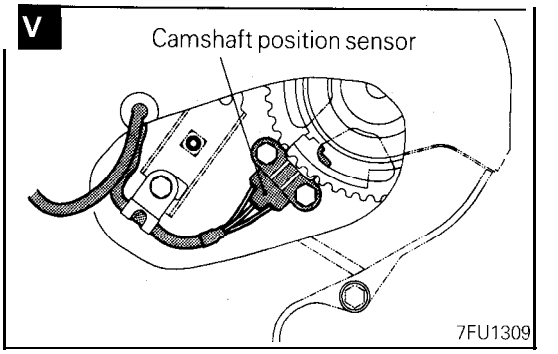
T


Knock sensor
7FU0645

U

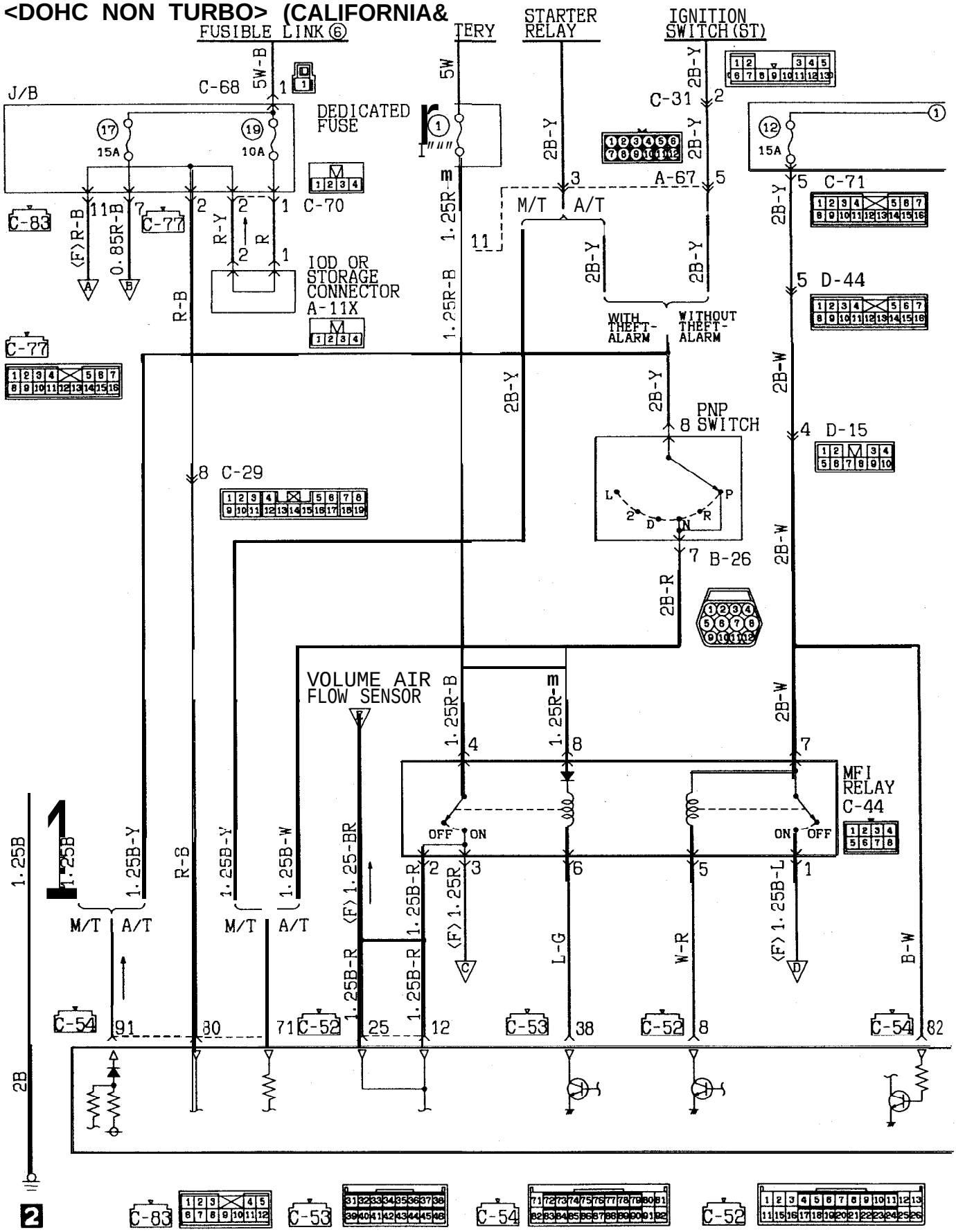

Evaporative
emission
purge solenoid
7FU1009

V

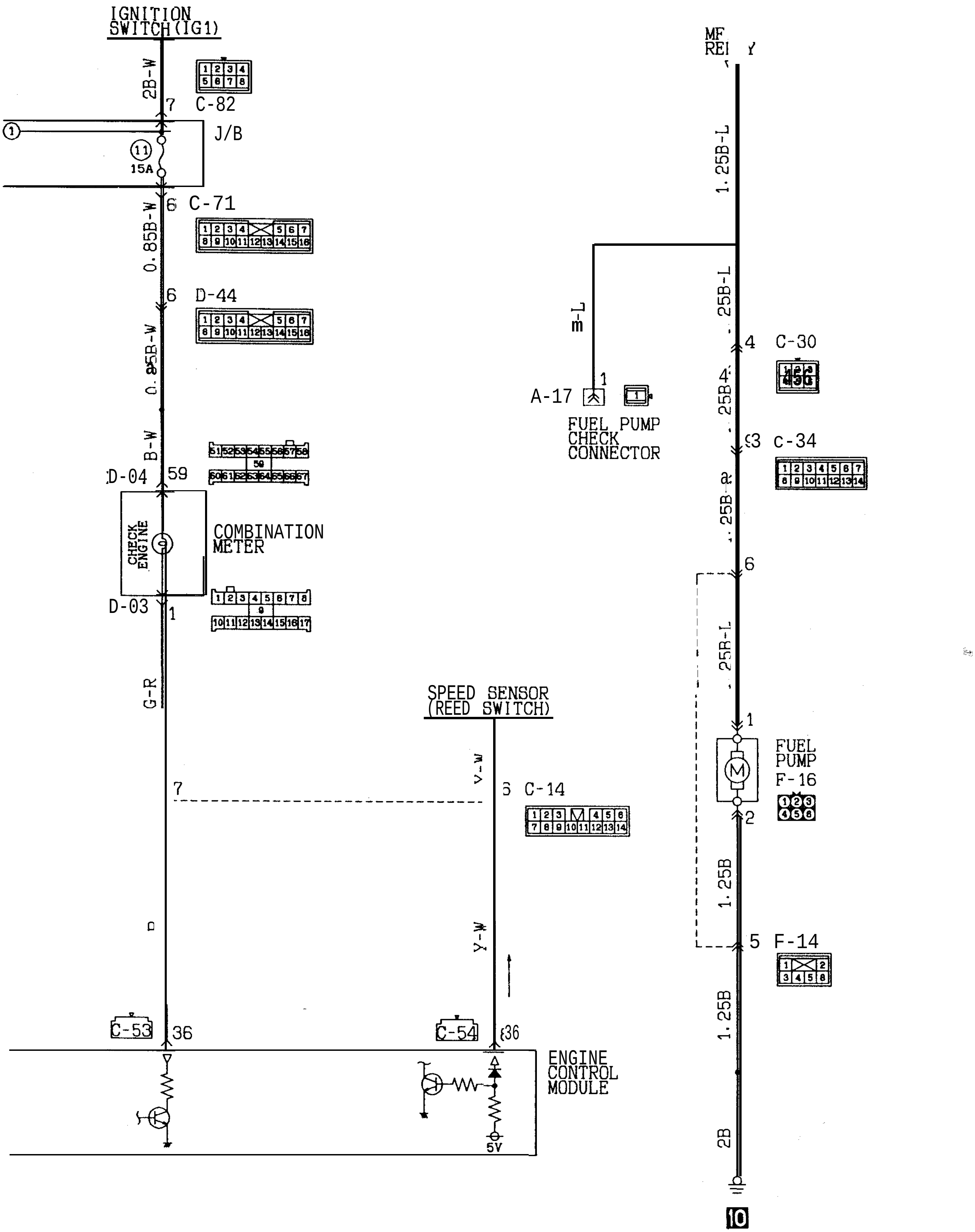

Camshaft position sensor
7FU1309

MFI CIRCUIT

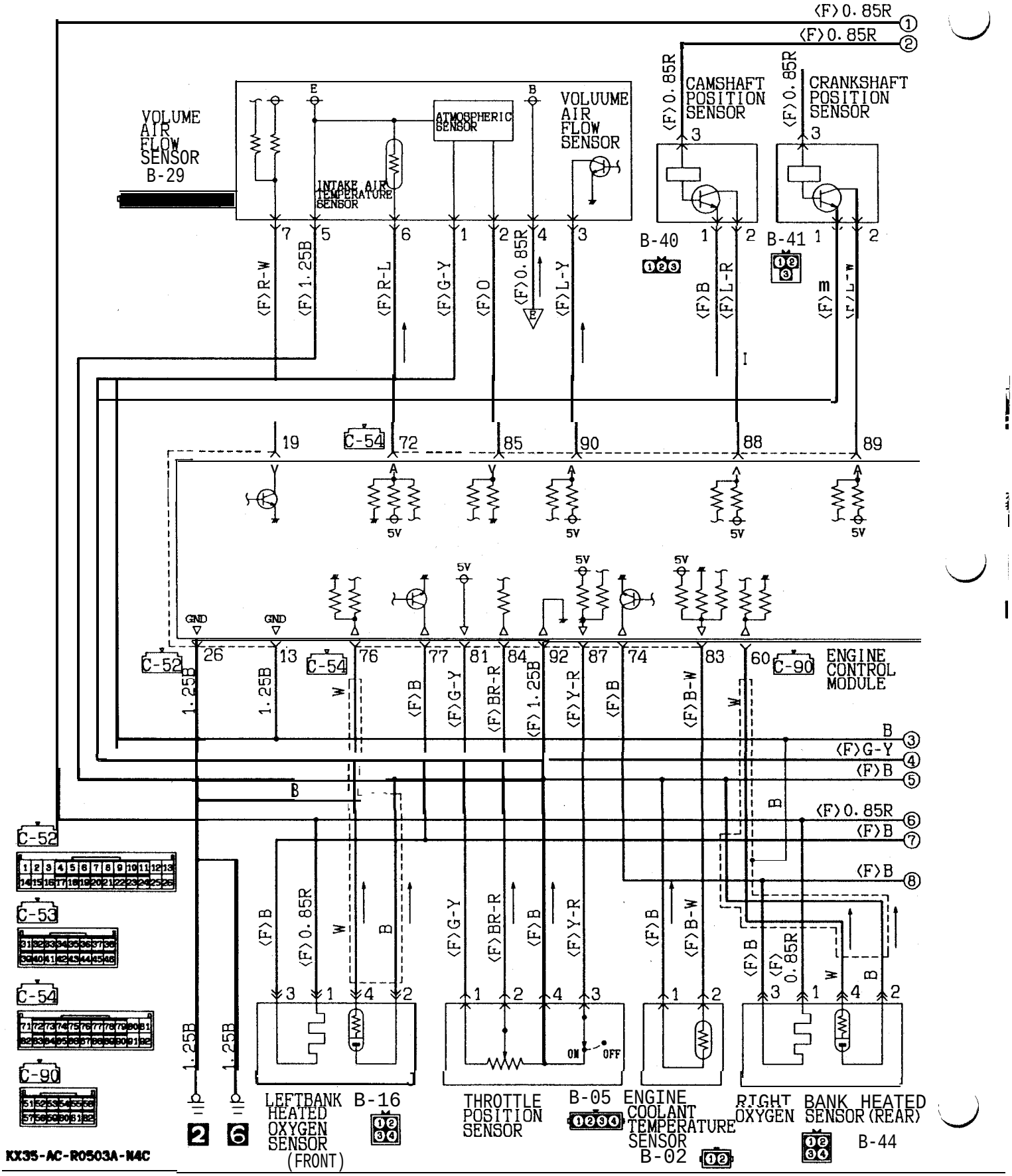
<DOHC NON TURBO> (CALIFORNIA&



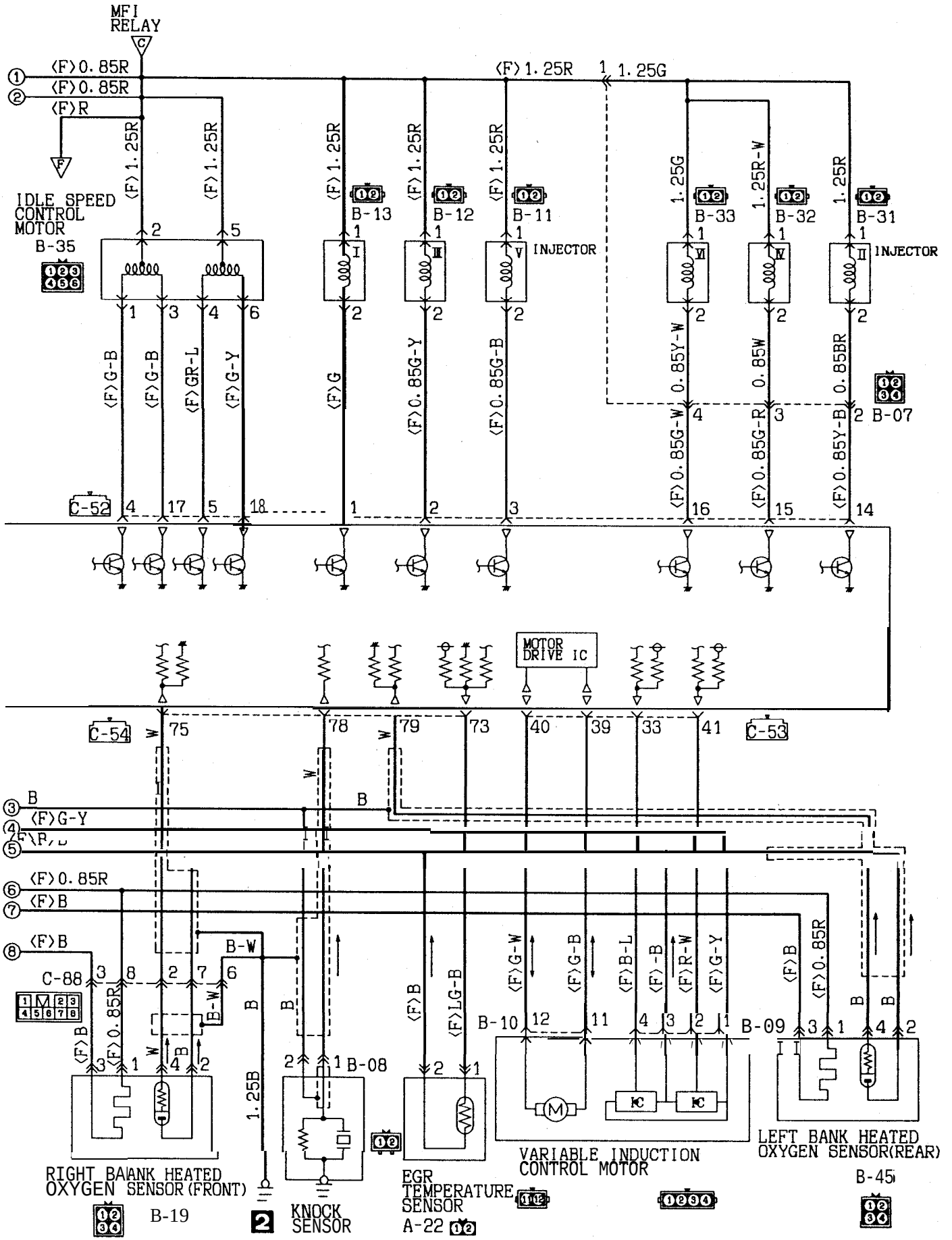
EX35-AC-R0503-N4C


IGNITION SWITCH (IG1)
2B-W
C-82
J/B
15A
C-71
0.85B-W
D-44
B-W
D-04
59
CHECK ENGINE
COMBINATION METER
D-03
G-R
SPEED SENSOR (REED SWITCH)
C-14
Y-W
C-53
36
C-54
ENGINE CONTROL MODULE
5V
1.25B-L
A-17
FUEL PUMP CHECK CONNECTOR
C-30
C-34
FUEL PUMP
F-16
F-14
1.25B
2B
10

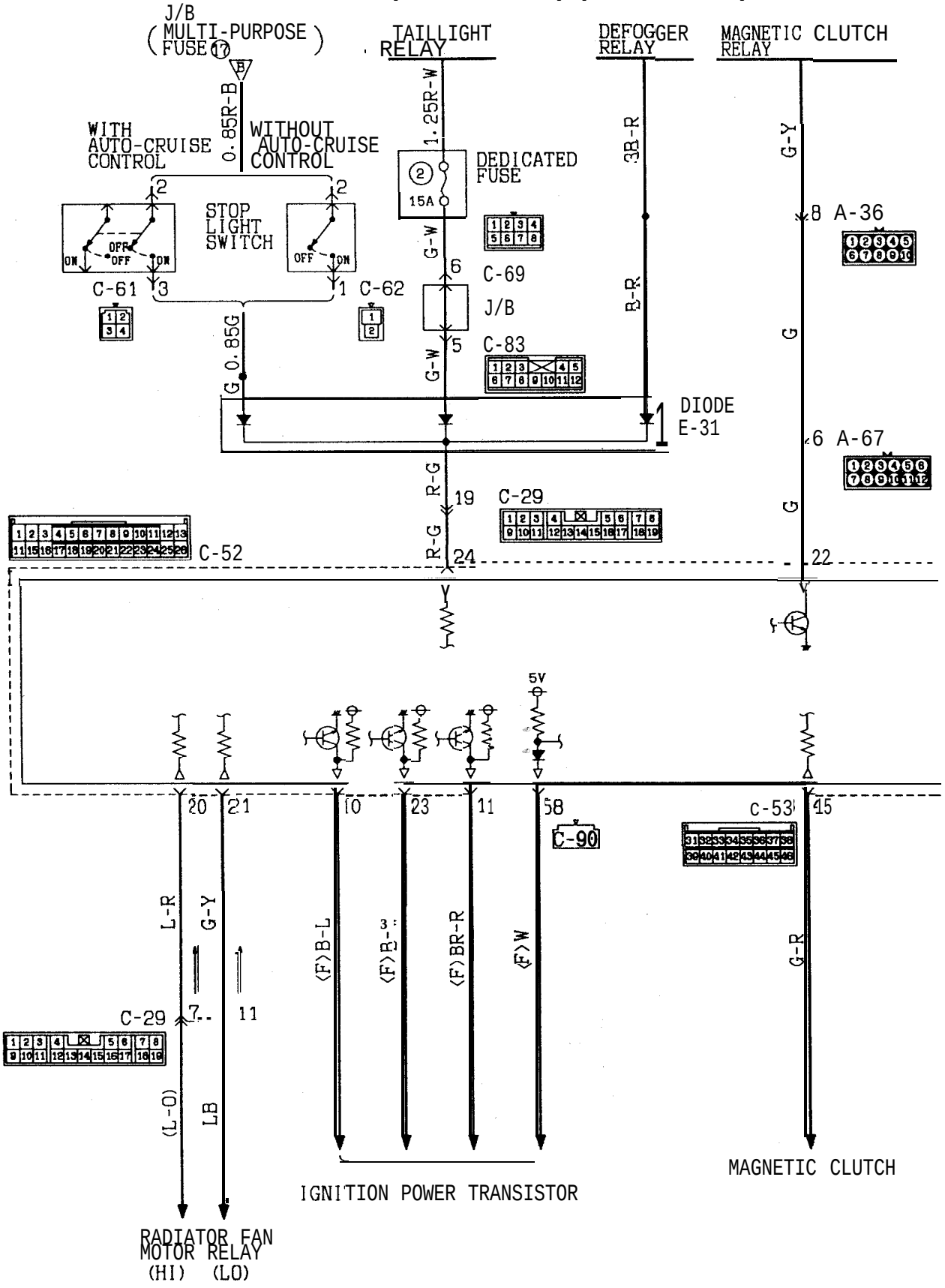
MFI CIRCUIT <DOHC NON TURBO> (CALIFORNIA) (CONTINUED)

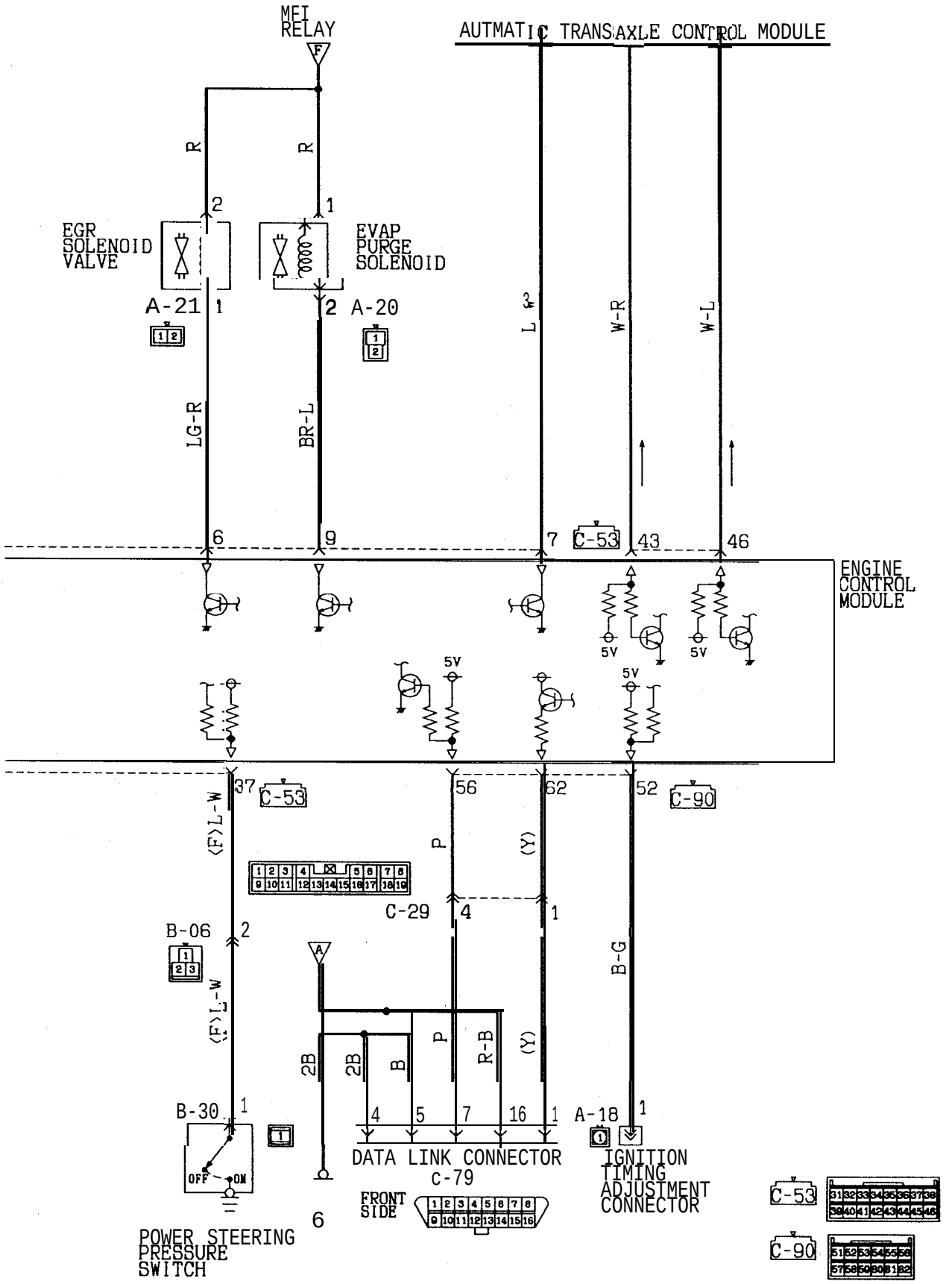


KX35-AC-R0503A-N4C


MFI RELAY
IDLE SPEED CONTROL MOTOR B-35
B-13
B-12
B-11
INJECTOR
B-33
B-32
B-31
INJECTOR
B-07
C-52
C-54
C-53
MOTOR DRIVE IC
C-88
B-10
B-09
B-08
RIGHT BANK HEATED OXYGEN SENSOR(FRONT) B-19
KNOCK SENSOR
EGR TEMPERATURE SENSOR A-22
VARIABLE INDUCTION CONTROL MOTOR
LEFT BANK HEATED OXYGEN SENSOR(REAR) B-45

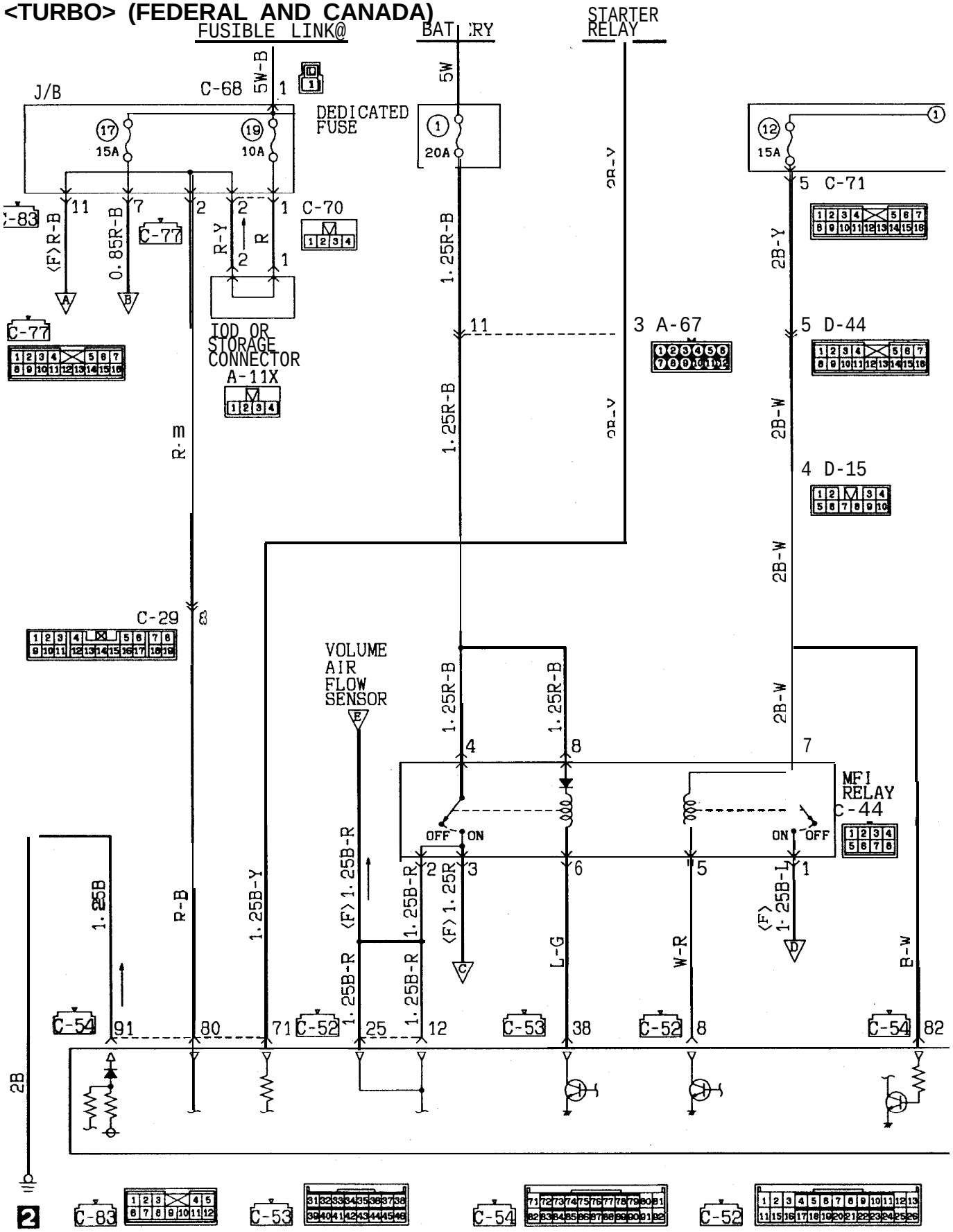
MFI CIRCUIT <DOHC NON TURBO> (CALIFORNIA) (CONTINUED)

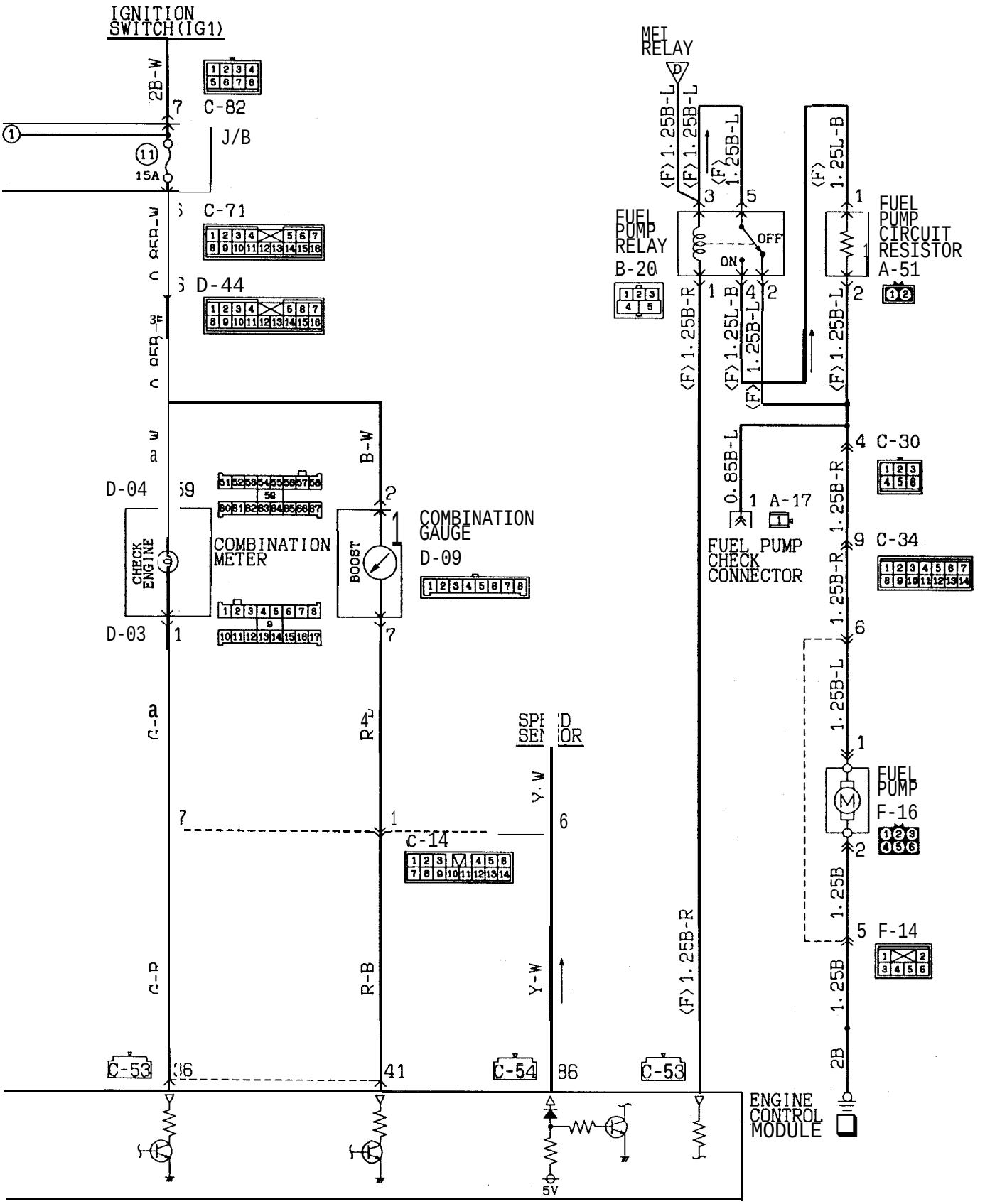



MFI RELAY
AUTMATIC TRANSAXLE CONTROL MODULE
EGR SOLENOID VALVE
EVAP PURGE SOLENOID
A-21
A-20
R
LG-R
BR-L
L
W-R
W-L
C-53
ENGINE CONTROL MODULE
5V
(F)L-W
P
(Y)
B-G
C-29
C-90
B-06
B-30
2B
B
R-B
OFF
ON
DATA LINK CONNECTOR
C-79
FRONT SIDE
A-18
IGNITION TIMING ADJUSTMENT CONNECTOR
POWER STEERING PRESSURE SWITCH

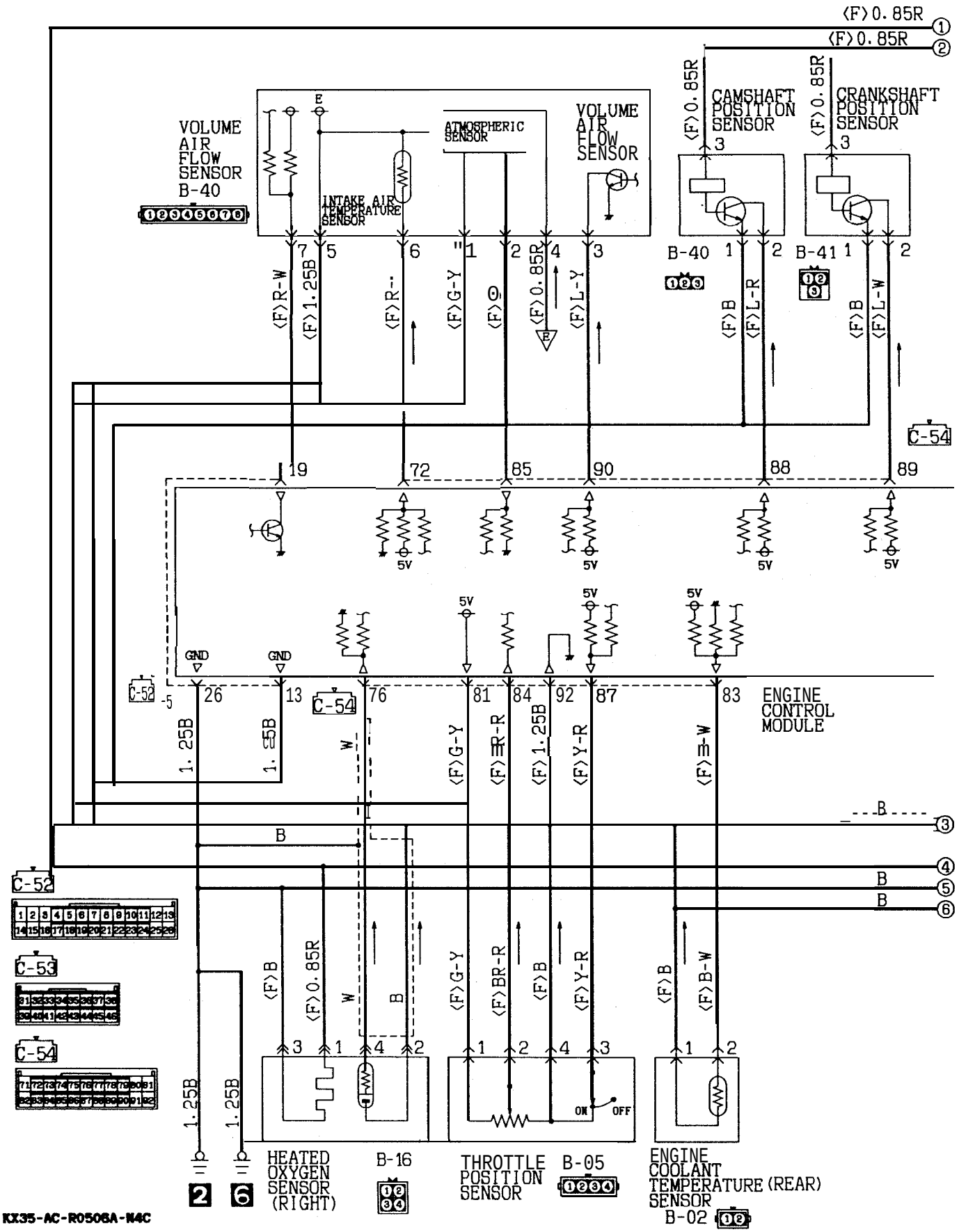
MFI CIRCUIT

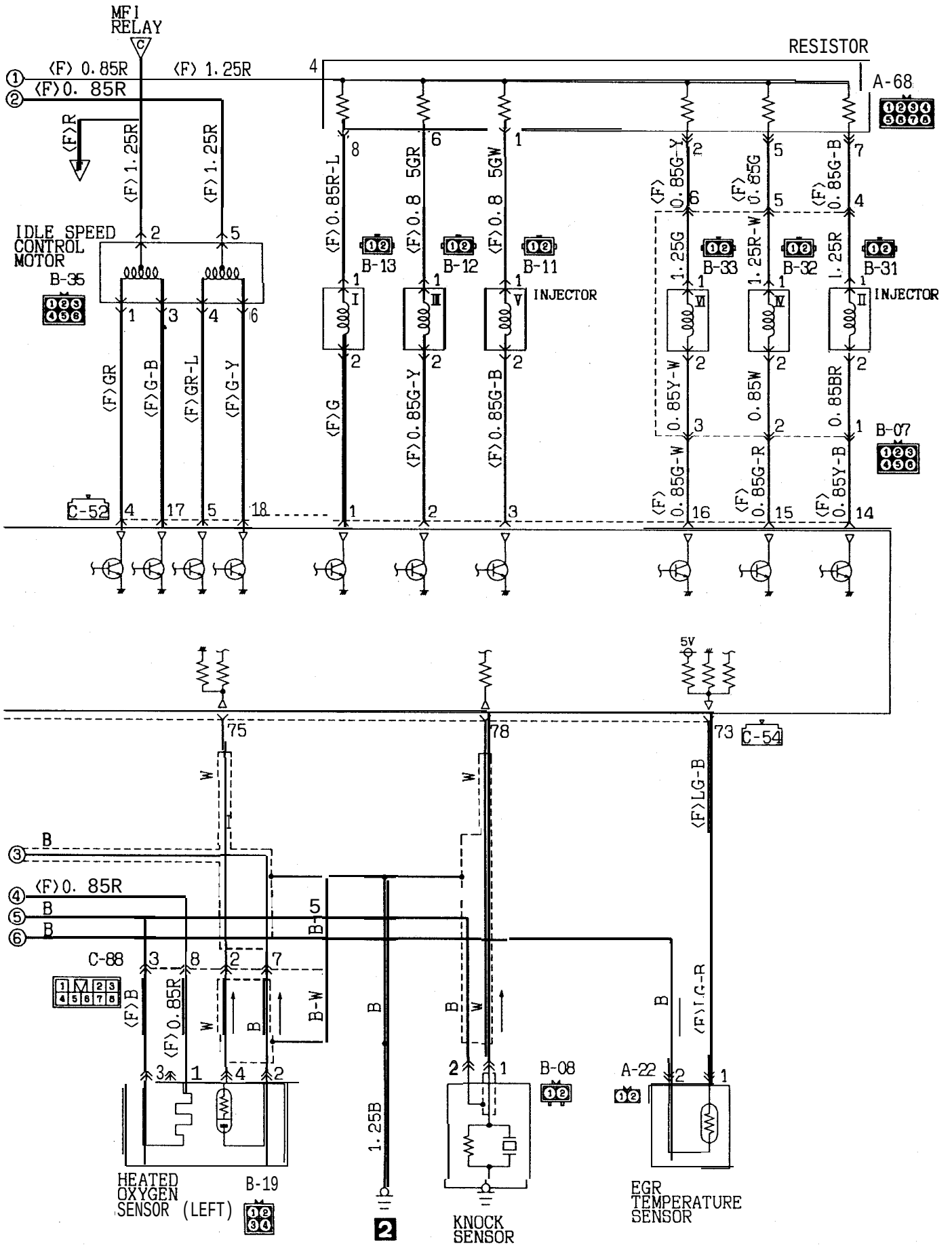
<TURBO> (FEDERAL AND CANADA)



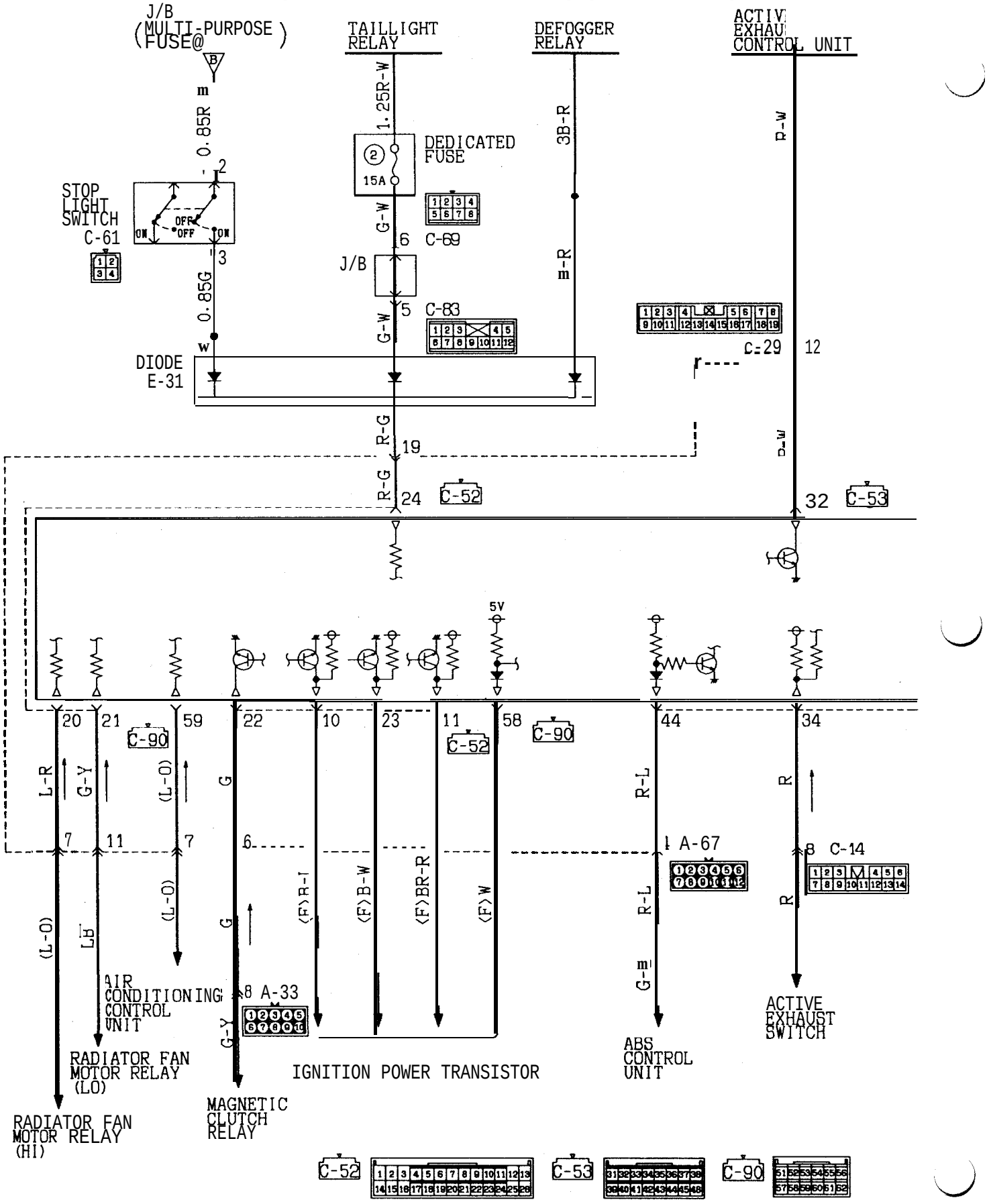

IGNITION SWITCH(IG1)
2B-W
C-82
J/B
15A
C-71
D-44
B-W
D-04
D-03
CHECK ENGINE
COMBINATION METER
BOOST
COMBINATION GAUGE
D-09
C-14
R-B
Y-W
C-53
C-54
ENGINE CONTROL MODULE
5V
MFI RELAY
FUEL PUMP RELAY
B-20
OFF
ON
FUEL PUMP CIRCUIT RESISTOR
A-51
0.85B-L
A-17
FUEL PUMP CHECK CONNECTOR
C-30
C-34
1.25B-L
1.25B-R
1.25B-B
FUEL PUMP
F-16
1.25B
F-14
2B

MFI CIRCUIT <TURBO> (FEDERAL AND CANADA) (CONTINUED)

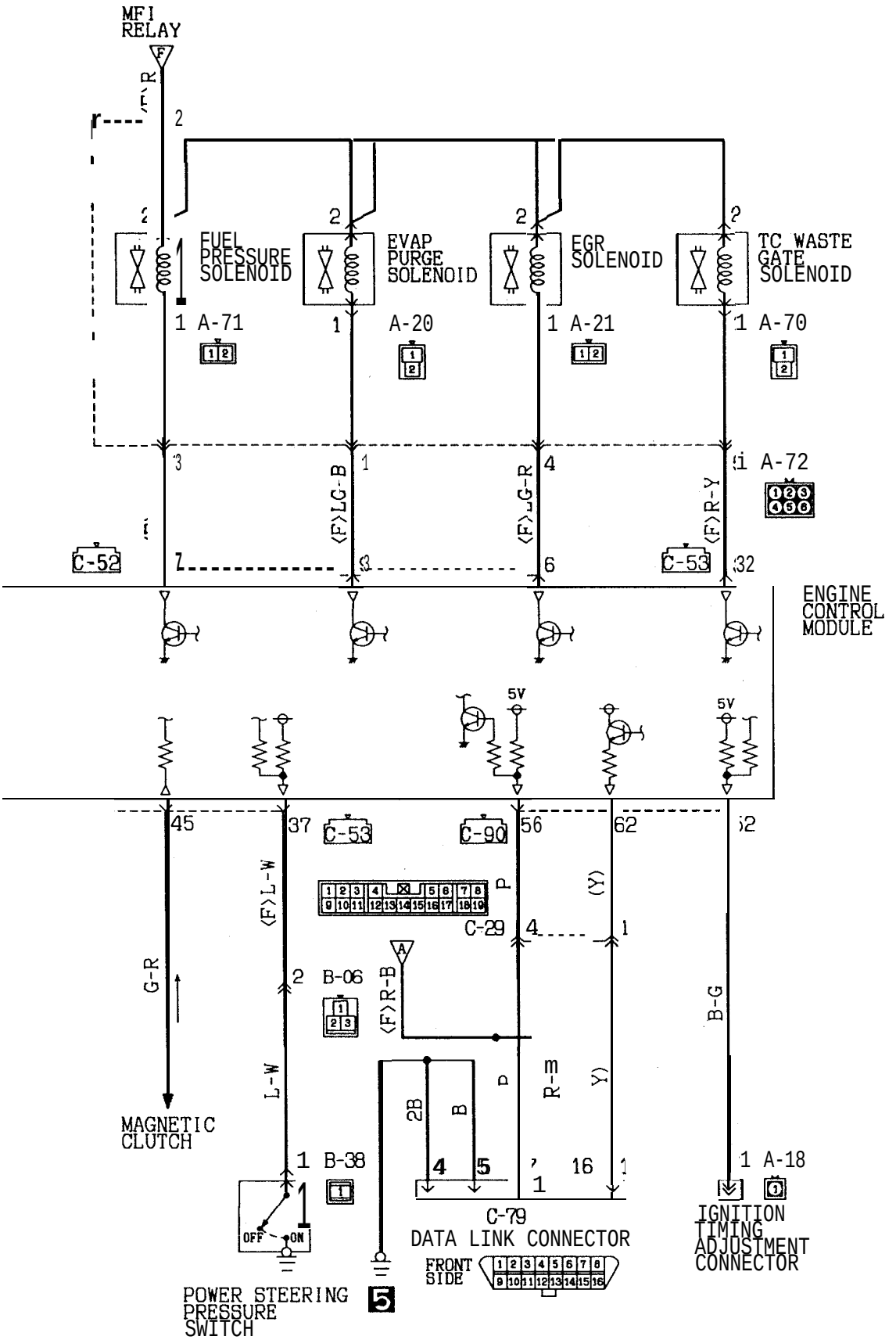



MFI RELAY
RESISTOR
A-68
IDLE SPEED CONTROL MOTOR
B-35
B-13
B-12
B-11
B-33
B-32
B-31
INJECTOR
B-07
C-52
C-54
C-88
B-19
B-08
A-22
HEATED OXYGEN SENSOR (LEFT)
KNOCK SENSOR
EGR TEMPERATURE SENSOR
5V

MFI CIRCUIT <TURBO> (FEDERAL AND CANADA) (CONTINUED)

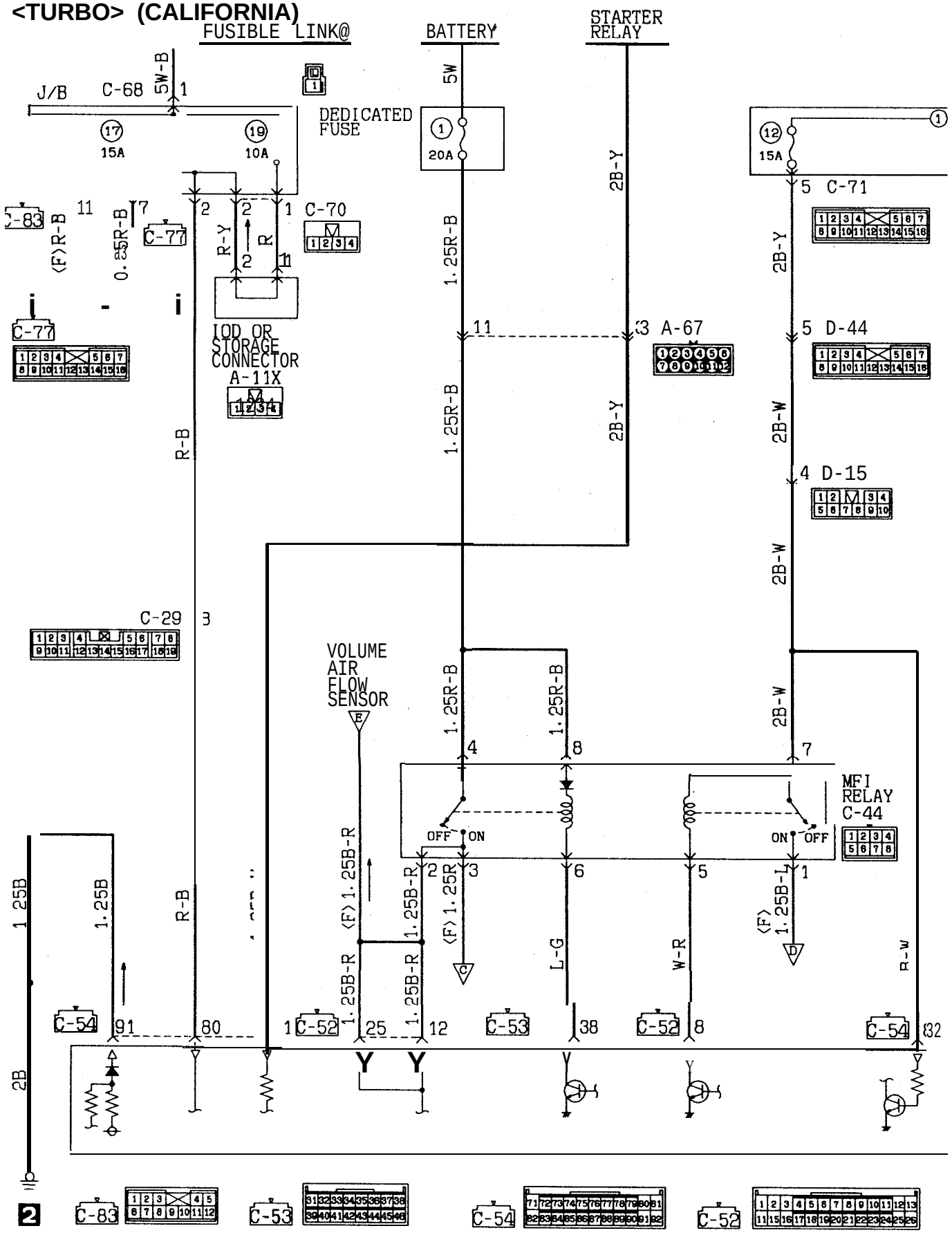


KX35-AC-R05068-N4C

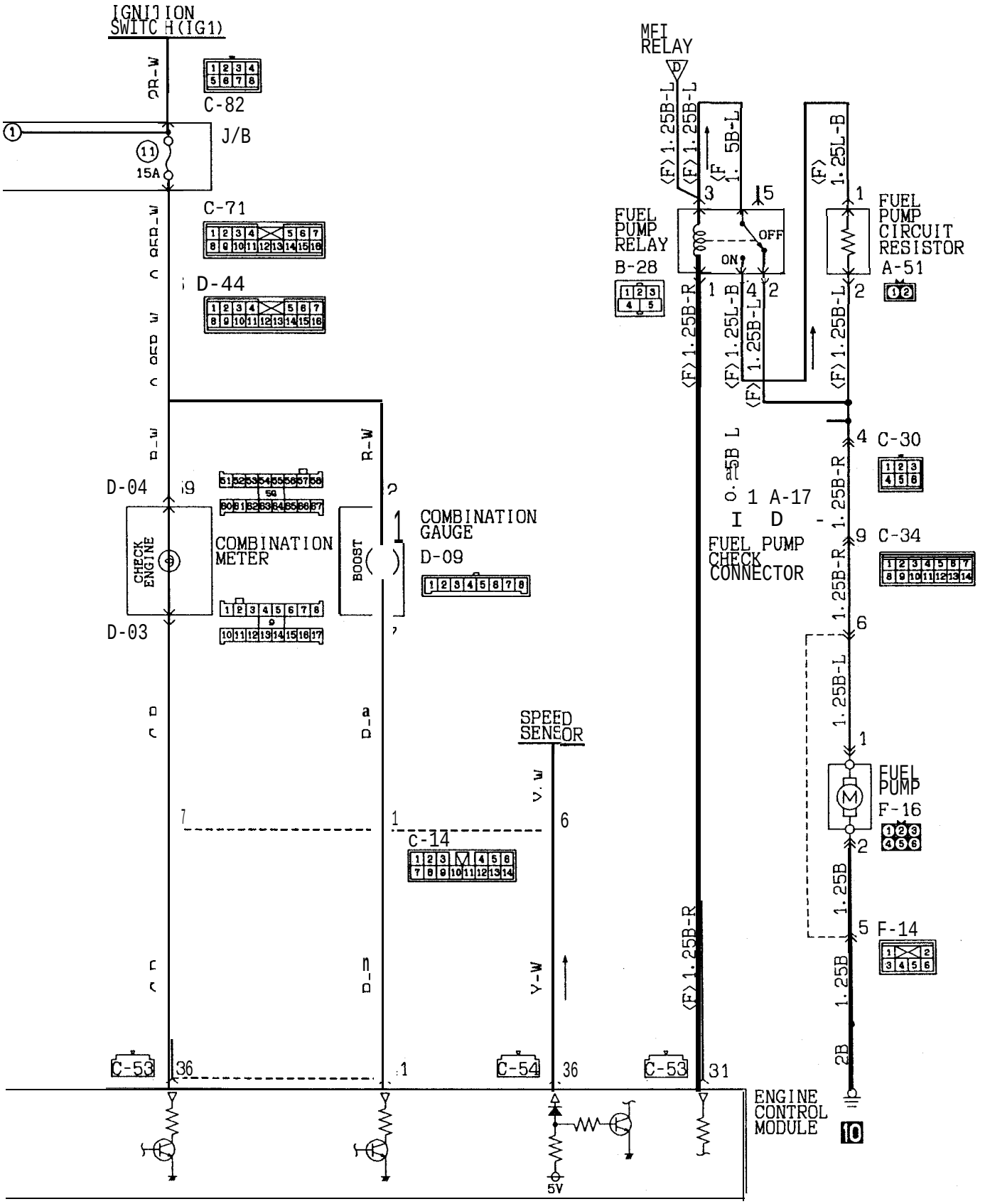

MFI RELAY
FUEL PRESSURE SOLENOID
EVAP PURGE SOLENOID
EGR SOLENOID
TC WASTE GATE SOLENOID
1 A-71
1 A-20
1 A-21
1 A-70
A-72
C-52
C-53
ENGINE CONTROL MODULE
5V
5V
C-90
C-29
B-06
MAGNETIC CLUTCH
1 B-38
OFF
ON
POWER STEERING PRESSURE SWITCH
C-79
DATA LINK CONNECTOR
FRONT SIDE
1 A-18
IGNITION TIMING ADJUSTMENT CONNECTOR

MFI CIRCUIT

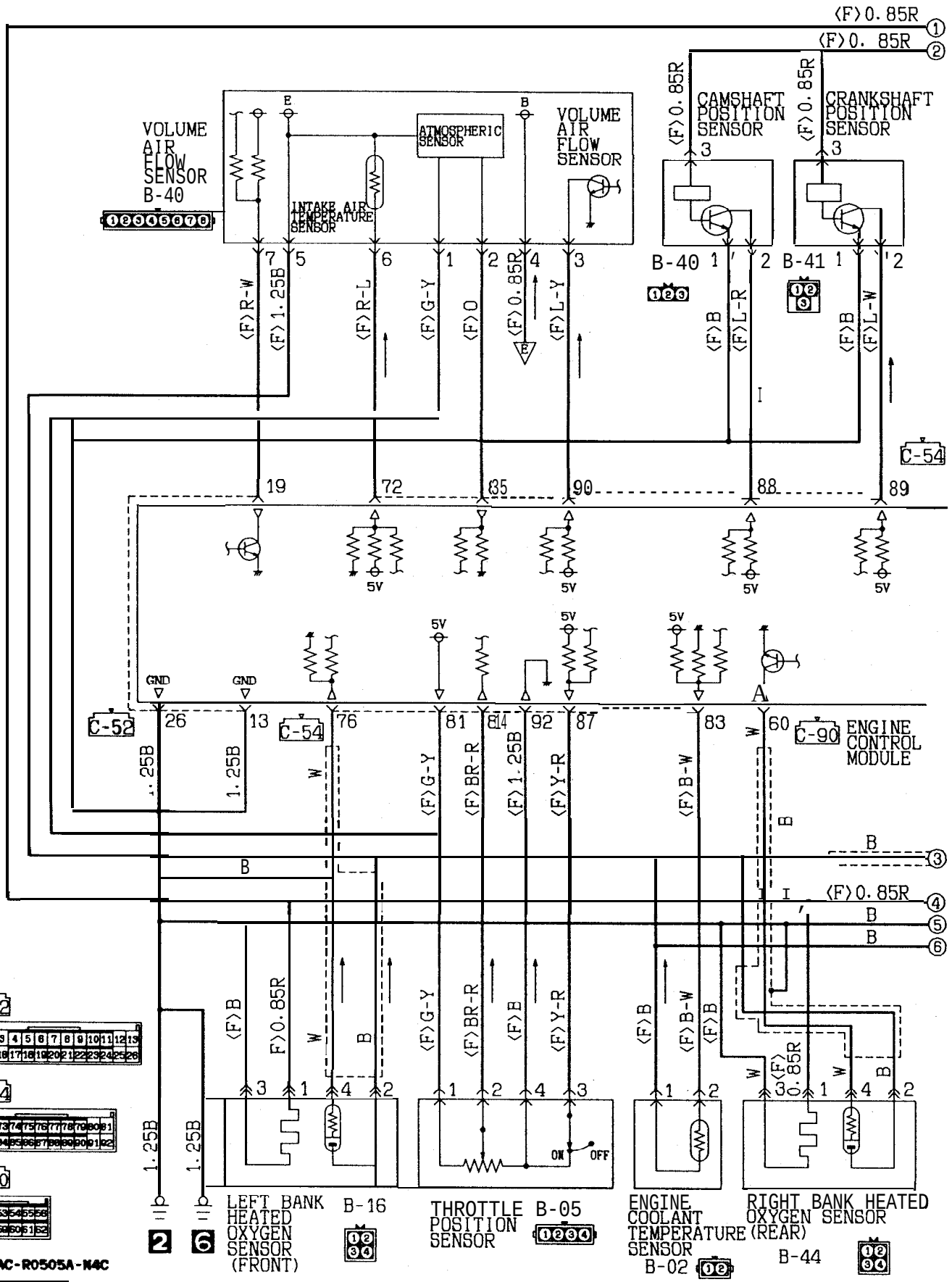
<TURBO> (CALIFORNIA)

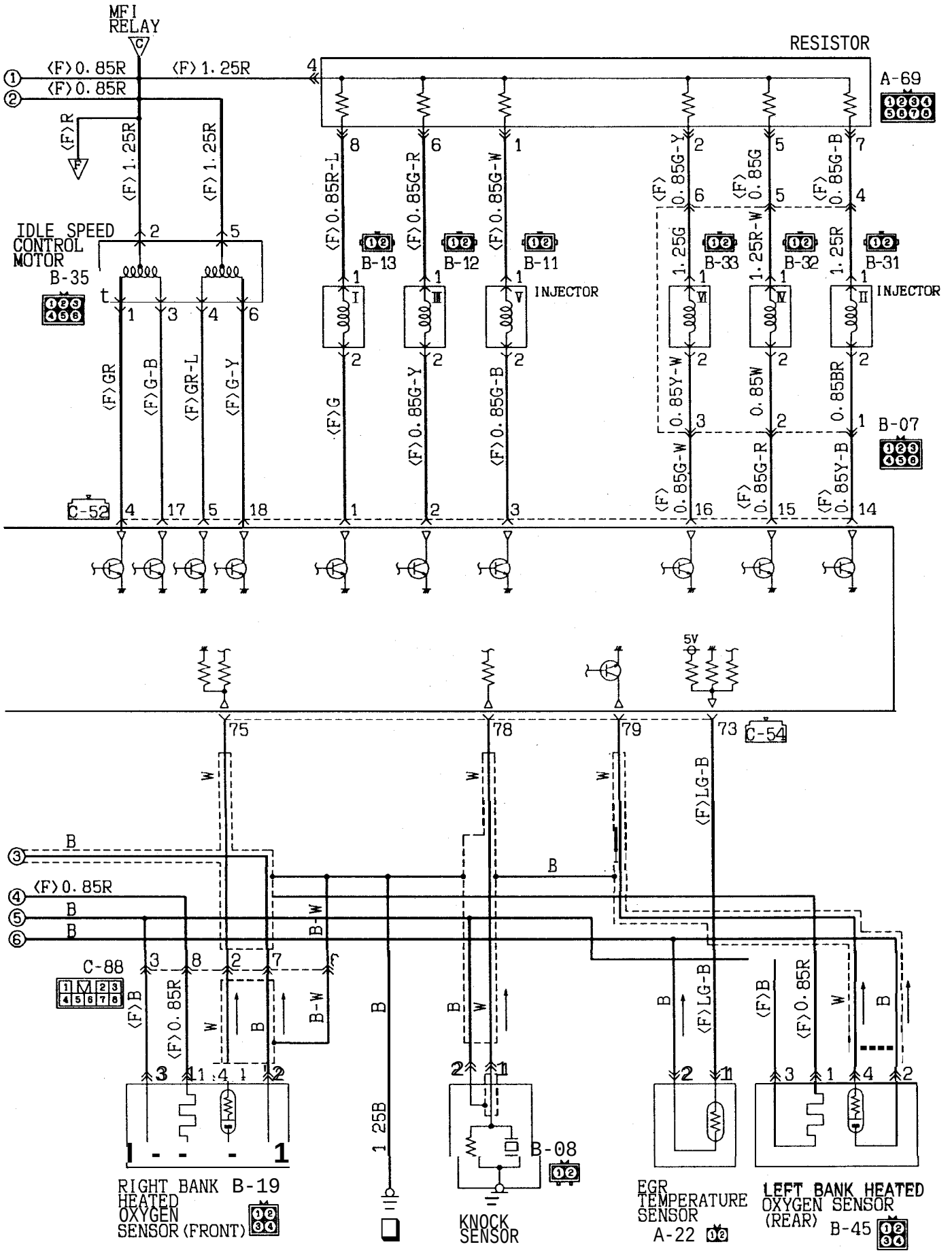


X35-AC-R0505-M4C

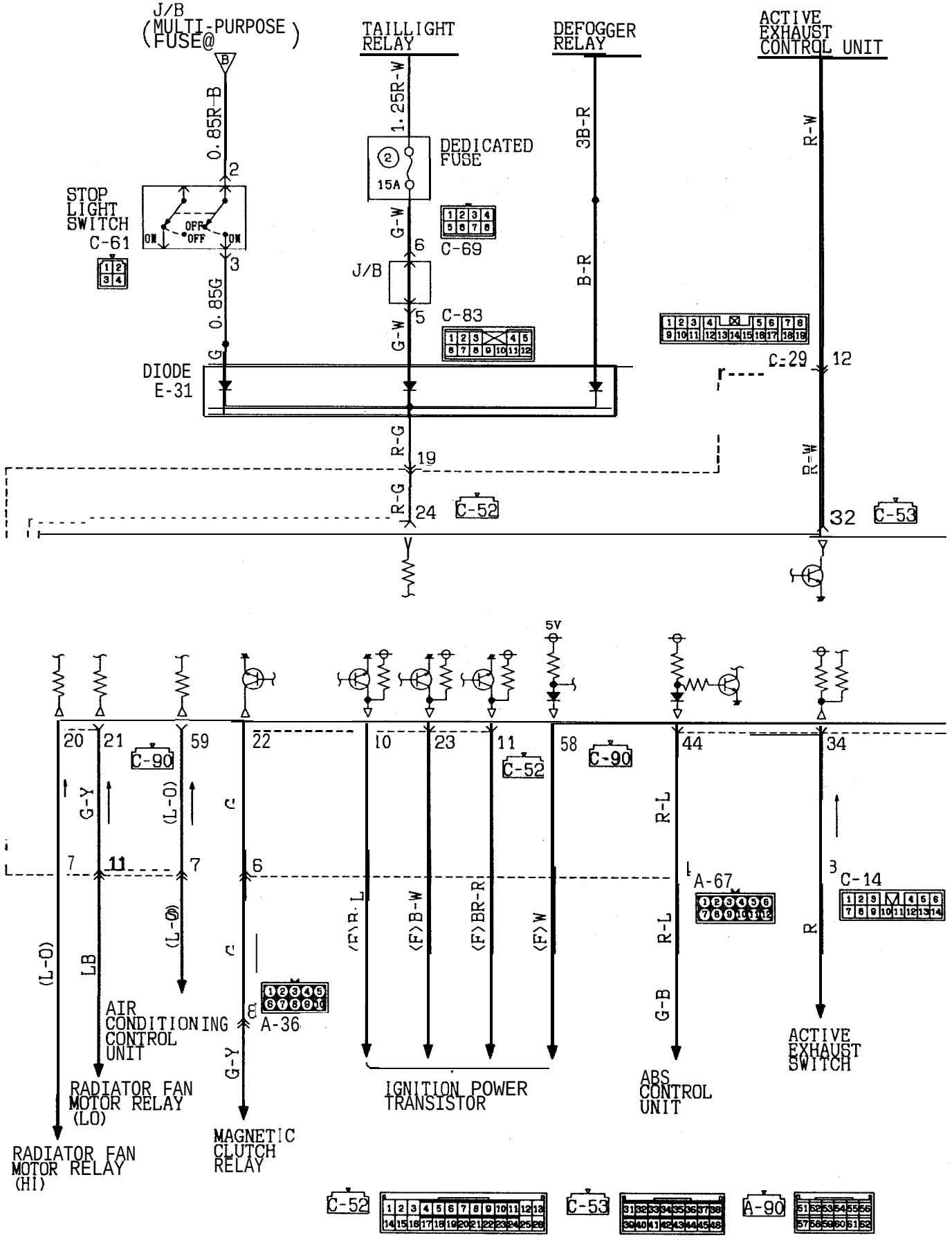

IGNITION SWITCH(IG1)
2R-W
C-82
J/B
15A
C-71
D-44
D-04
D-03
CHECK ENGINE
COMBINATION METER
BOOST
COMBINATION GAUGE
D-09
SPEED SENSOR
C-14
C-53
C-54
ENGINE CONTROL MODULE
5V
MFI RELAY
FUEL PUMP RELAY
B-28
OFF
ON
FUEL PUMP CIRCUIT RESISTOR
A-51
C-30
C-34
A-17
FUEL PUMP CHECK CONNECTOR
FUEL PUMP
F-16
F-14

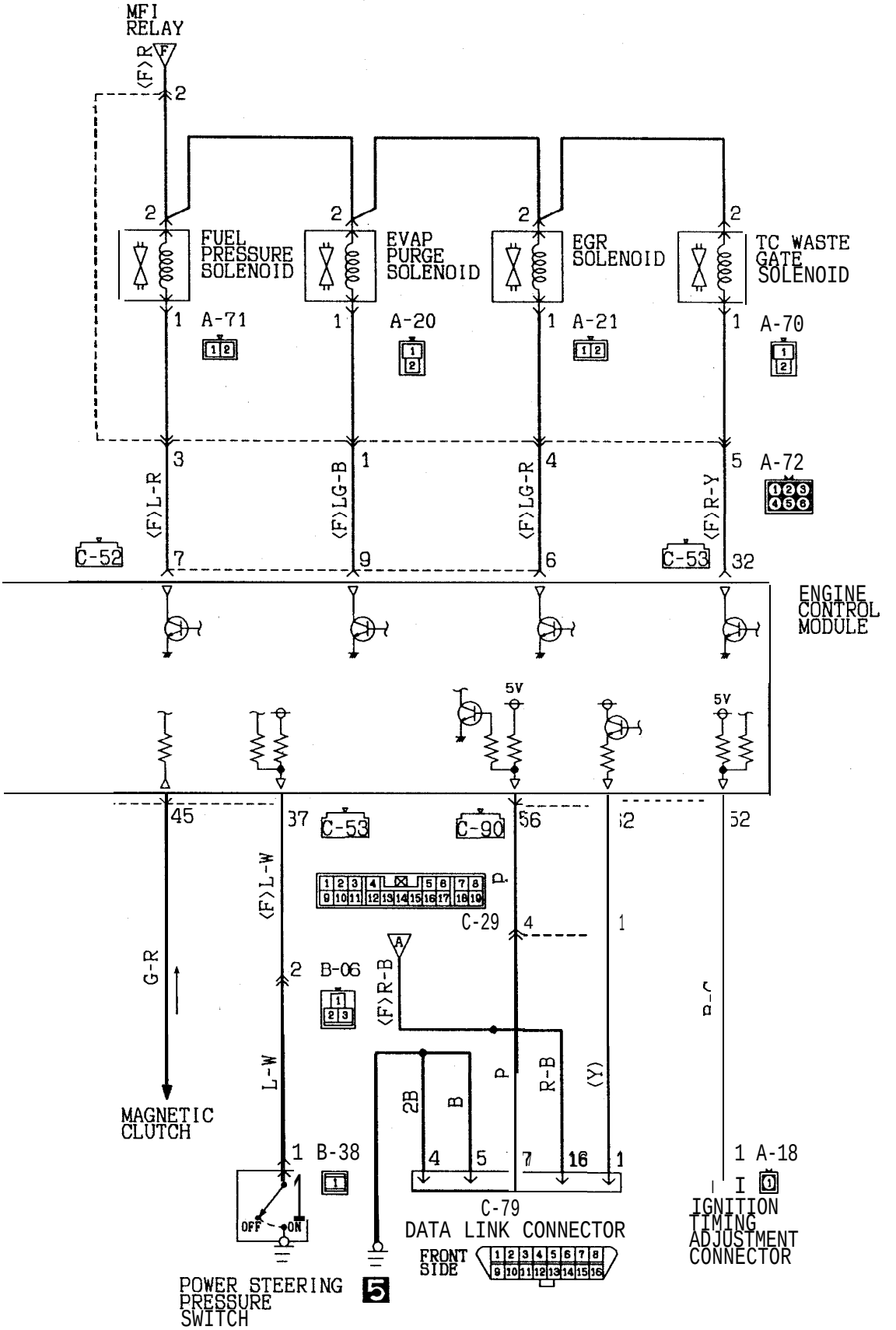
MFI CIRCUIT <TURBO> (CALIFORNIA) (CONTINUED)




MFI RELAY
RESISTOR
A-69
IDLE SPEED CONTROL MOTOR
B-35
B-13
B-12
B-11
B-33
B-32
B-31
INJECTOR
B-07
C-52
C-54
C-88
5V
B-08
KNOCK SENSOR
EGR TEMPERATURE SENSOR
A-22
RIGHT BANK HEATED OXYGEN SENSOR (FRONT)
B-19
LEFT BANK HEATED OXYGEN SENSOR (REAR)
B-45

MFI CIRCUIT <TURBO> (CALIFORNIA) (CONTINUED)

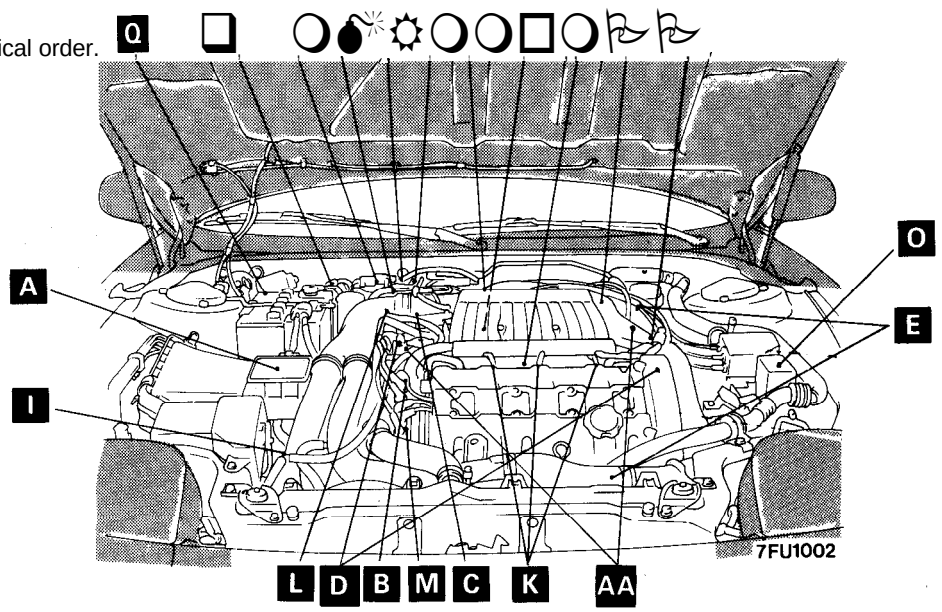


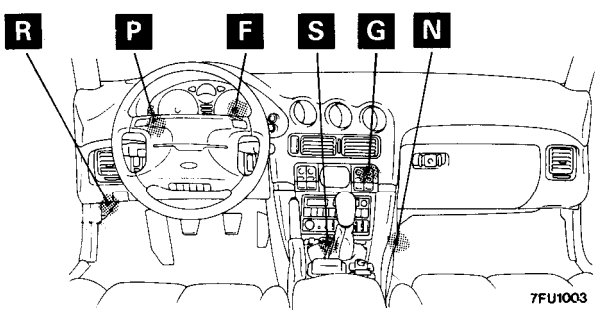

MFI RELAY
(F)R
FUEL PRESSURE SOLENOID
EVAP PURGE SOLENOID
EGR SOLENOID
TC WASTE GATE SOLENOID
A-71
A-20
A-21
A-70
A-72
(F)L-R
(F)LG-B
(F)LG-R
(F)R-Y
C-52
C-53
ENGINE CONTROL MODULE
5V
C-90
C-29
B-06
(F)L-W
(F)R-B
G-R
L-W
2B
B
P
R-B
(Y)
MAGNETIC CLUTCH
B-38
OFF
ON
POWER STEERING PRESSURE SWITCH
C-79
DATA LINK CONNECTOR
FRONT SIDE
A-18
IGNITION TIMING ADJUSTMENT CONNECTOR

COMPONENT LOCATION
<TURBO, DOHC NON TURBO (CALIFORNIA)>

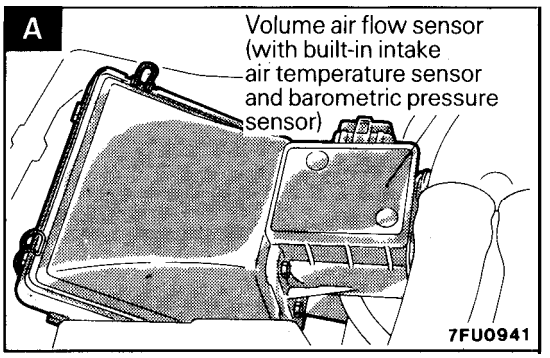
Name	Symbol	Name	Symbol
Air conditioning relay	O	Ignition coil (ignition power transistor)	M
Air conditioning switch	G	Ignition timing adjusting terminal	Q
Camshaft position sensor	AA	Injector	K
Check engine/malfunction indicator lamp	P	Knock sensor	T
Crankshaft position sensor	D	Multiport fuel injection (MFI) relay	N
Diagnostic output terminal and diagnostic test mode control terminal	R	Park/Neutral position switch <A/T>	I
EGR solenoid	Z	Power steering pressure switch	H
EGR temperature sensor	Y	Resistor <Turbo>	W
Engine control module	S	Throttle position sensor (with built-in closed throttle position switch)	C
Engine coolant temperature sensor	B	Turbocharger waste gate solenoid <Turbo>	U
Evaporative emission purge solenoid	X	Variable induction control motor (DC motor) (with built-in induction control valve position sensor) <Non Turbo>	J
Fuel pressure solenoid <Turbo>	V	Vehicle speed sensor (reed switch)	F
Heated oxygen sensor	E	Volume air flow sensor (with built-in intake air temperature sensor and barometric pressure sensor)	A
Idle air control motor (stepper motor)	L	–	–

NOTE
The "Name" column is in alphabetical order.





A



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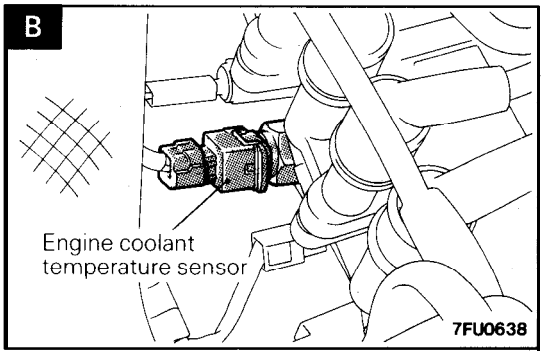

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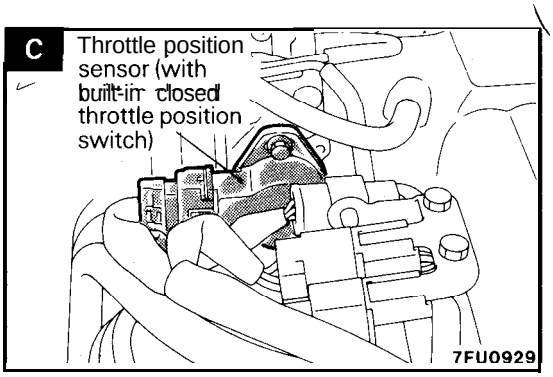

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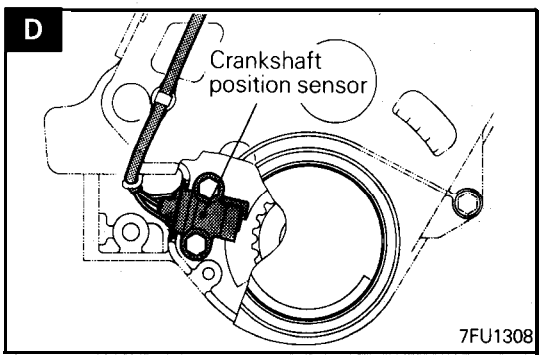
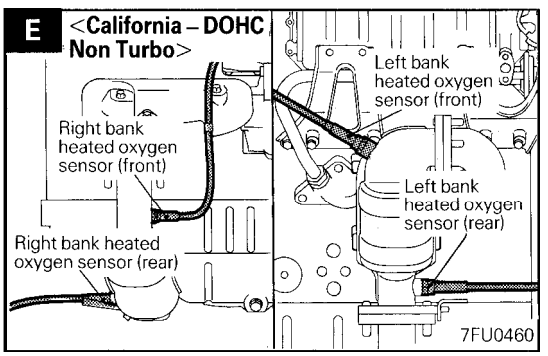
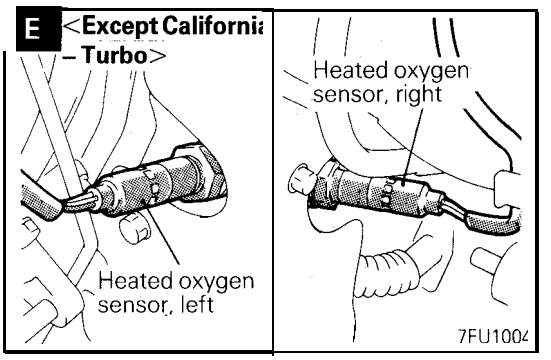


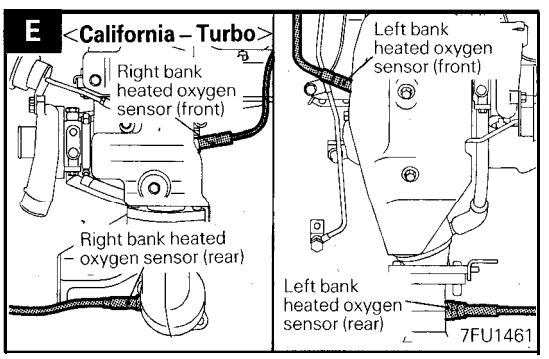
E <California – DOHC Non Turbo>



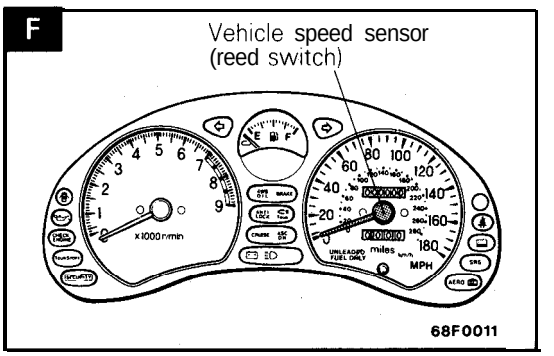
E <Except California – Turbo>



E <California – Turbo>



F



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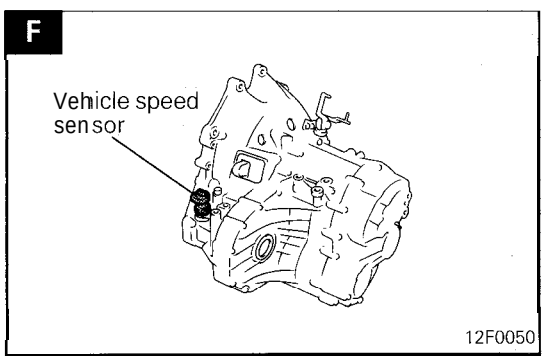

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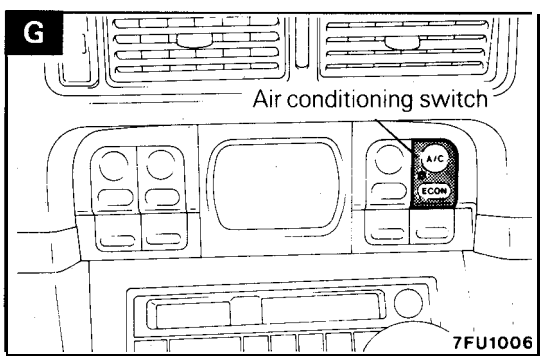
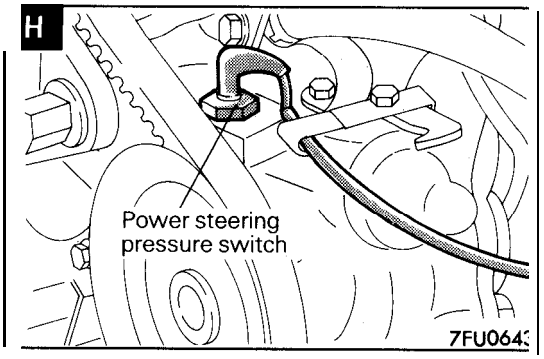


H



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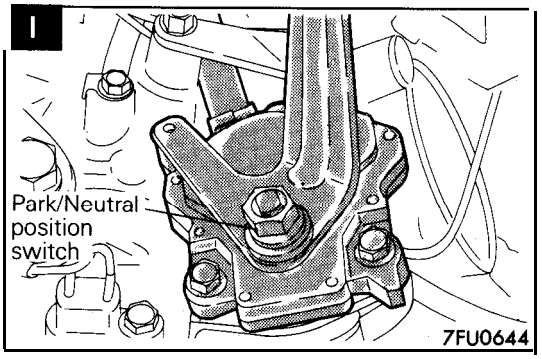
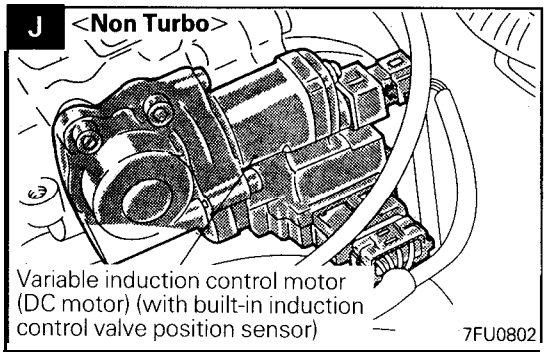
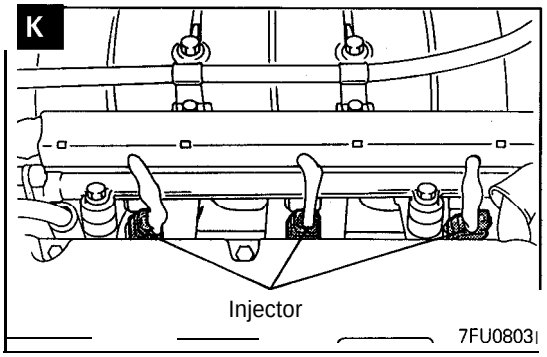


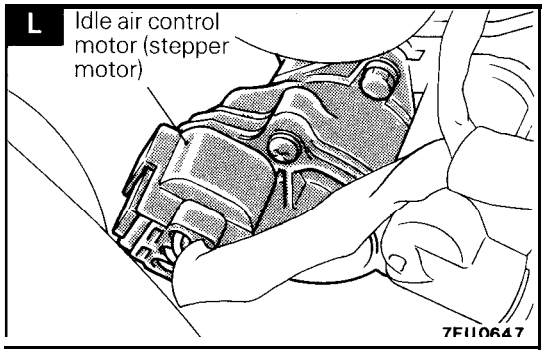
J <Non Turbo>



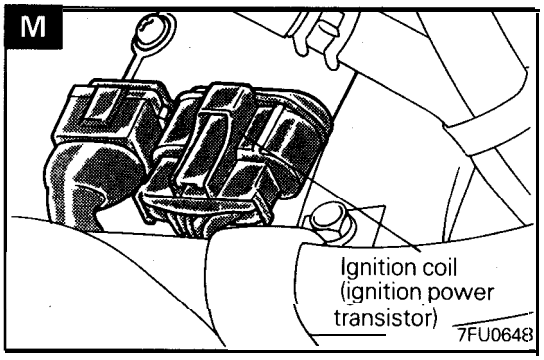
K



L



M



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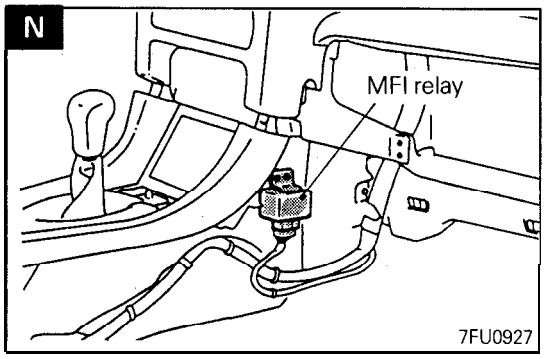

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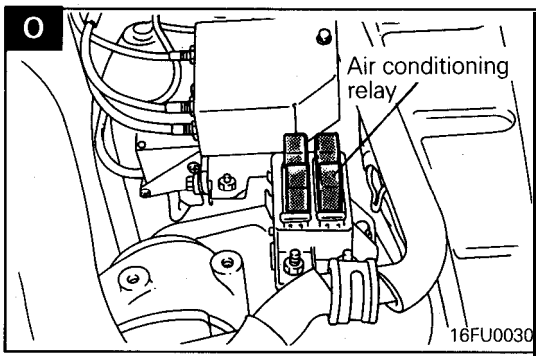

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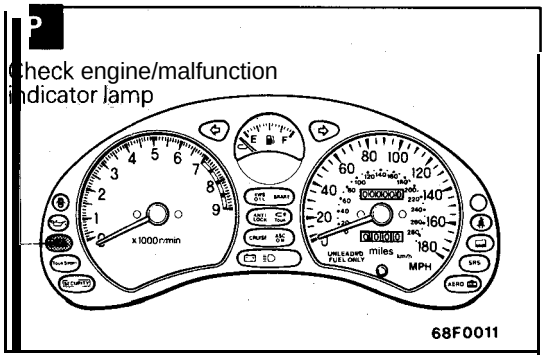

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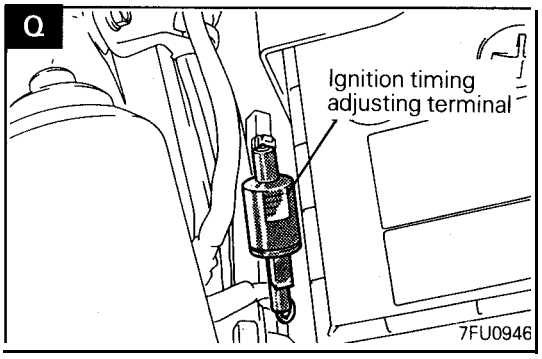

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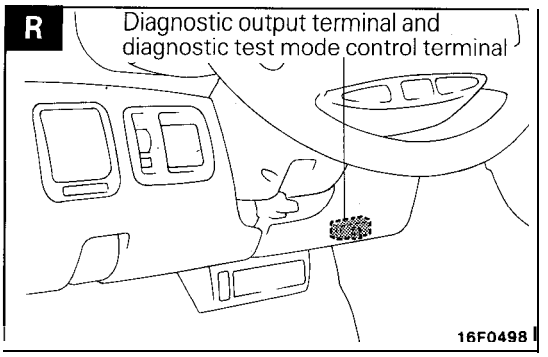

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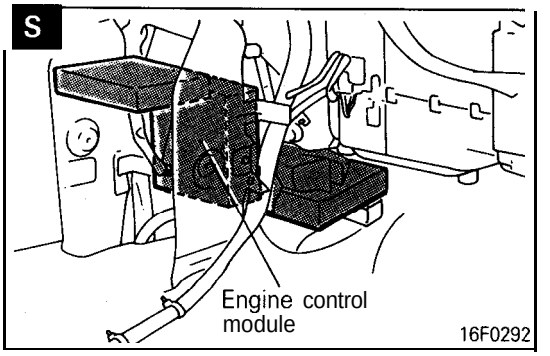

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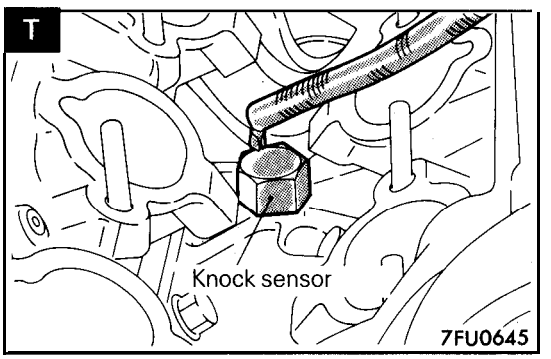

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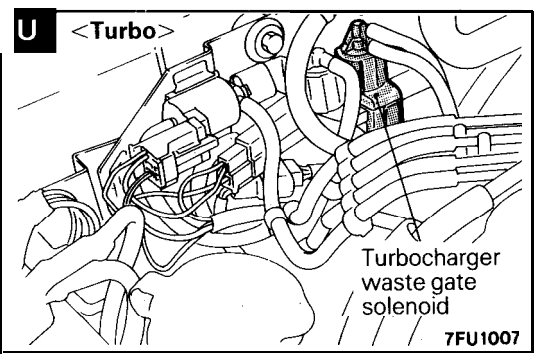

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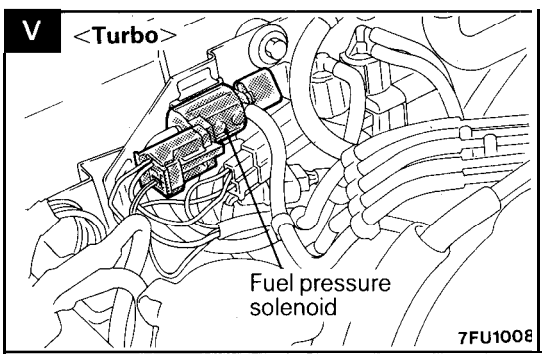

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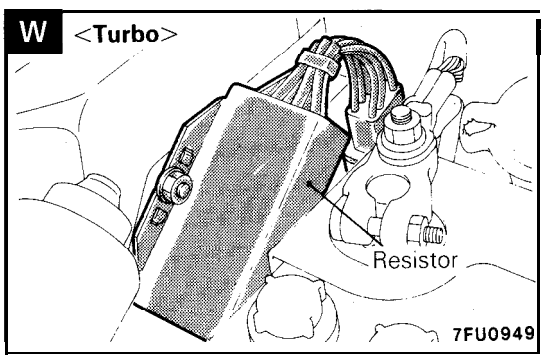

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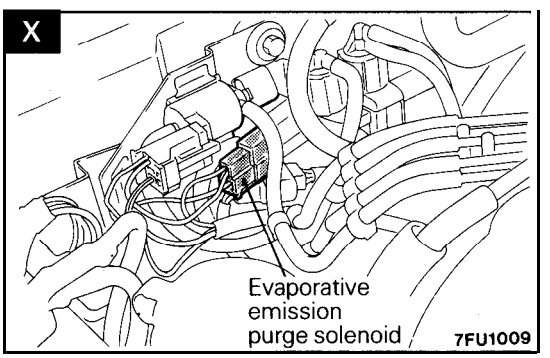

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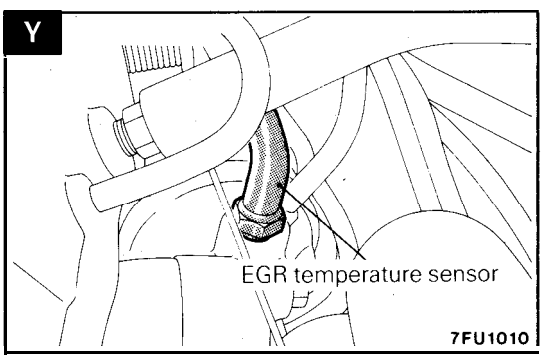

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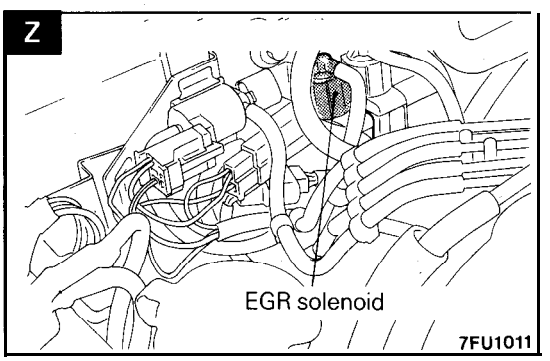

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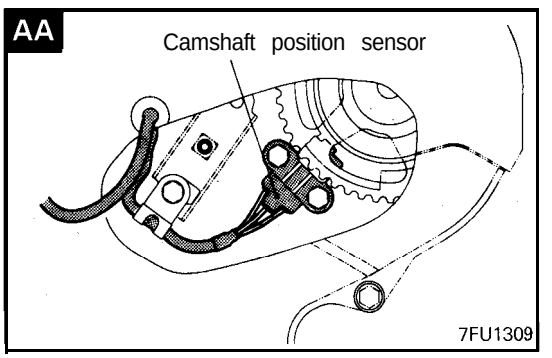
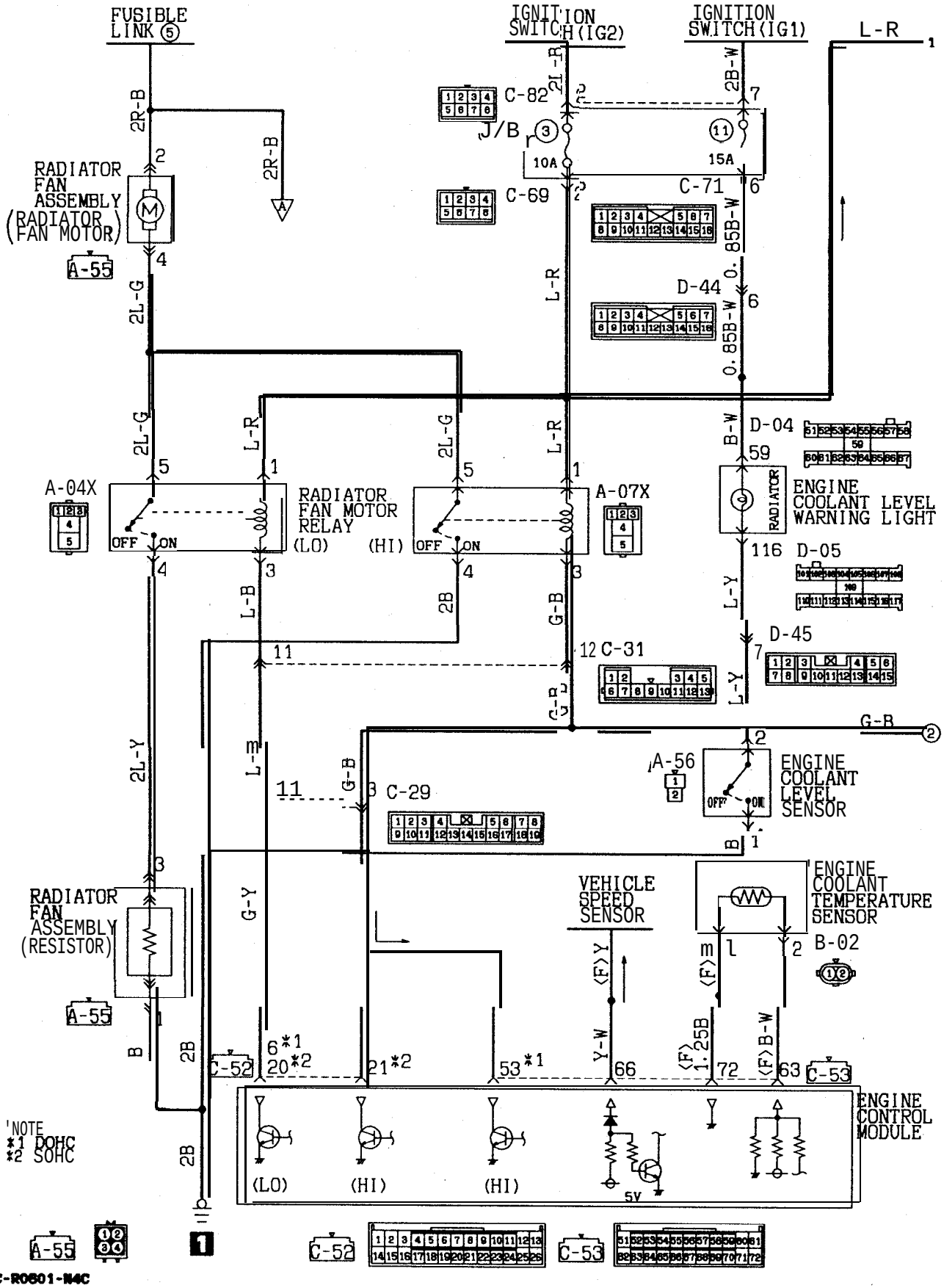
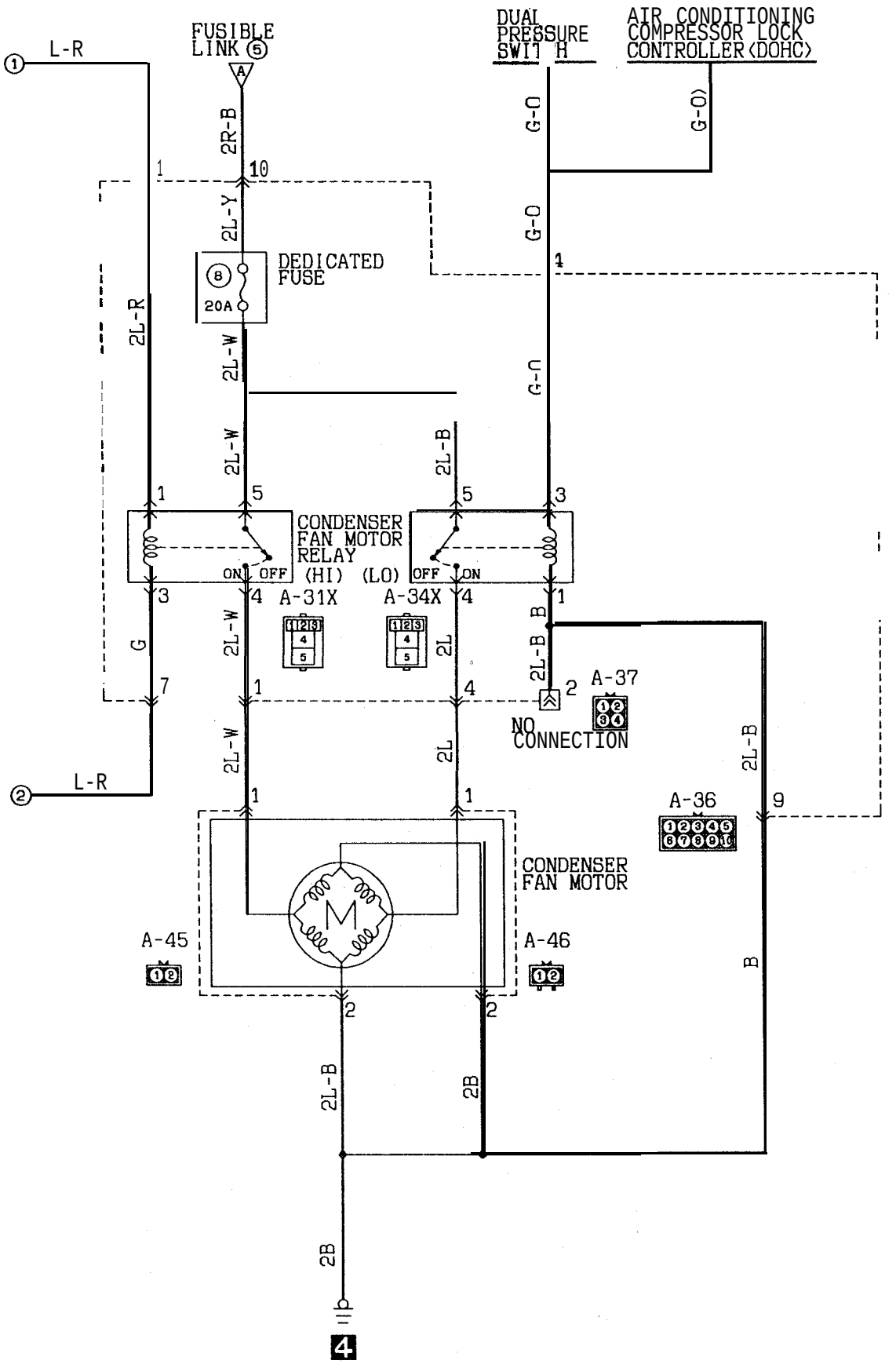


COOLING CIRCUIT

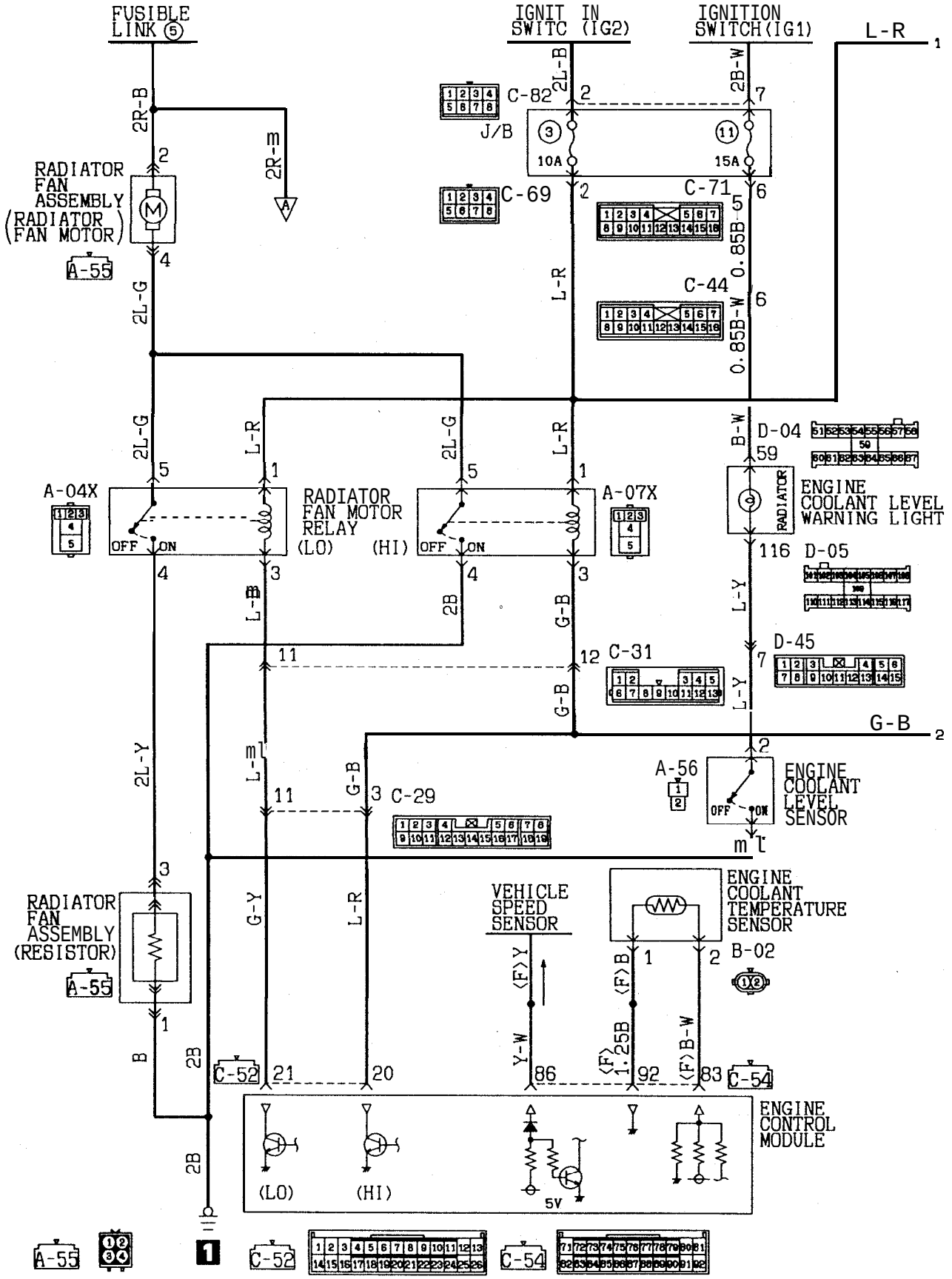
<NON TURBO> (FEDERAL AND CANADA)



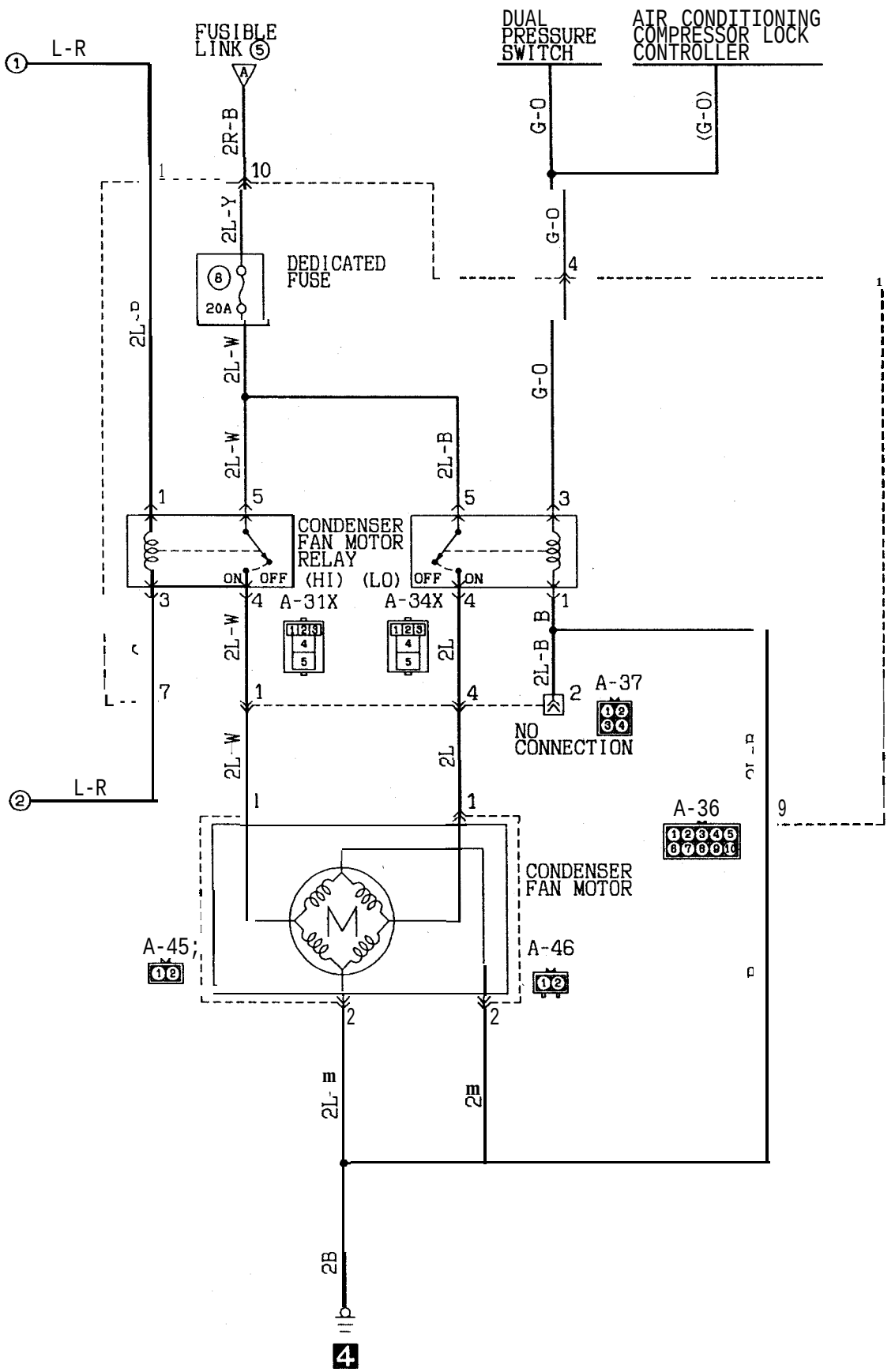

FUSIBLE LINK ⑤
DUAL PRESSURE SWITCH
AIR CONDITIONING COMPRESSOR LOCK CONTROLLER <DOHC>
L-R
2R-B
G-O
2L-Y
DEDICATED FUSE
20A
2L-R
2L-W
2L-B
CONDENSER FAN MOTOR RELAY
ON OFF (HI) (LO) OFF ON
A-31X
A-34X
G
2L
A-37
NO CONNECTION
A-36
CONDENSER FAN MOTOR
A-45
A-46
2B
4

COOLING CIRCUIT

<TURBO, NON TURBO (CALIFORNIA)>

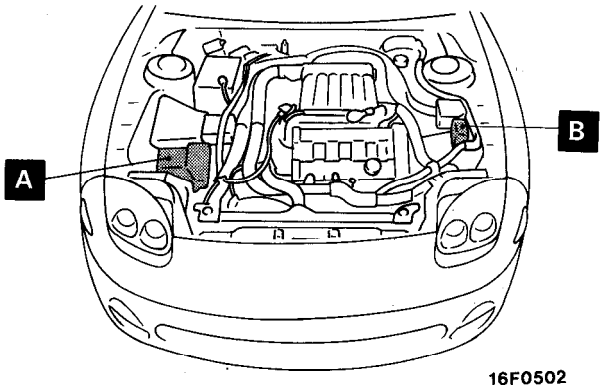


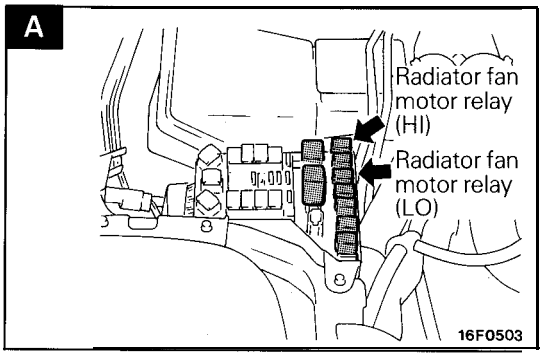
X35-AC-R0602-N4C

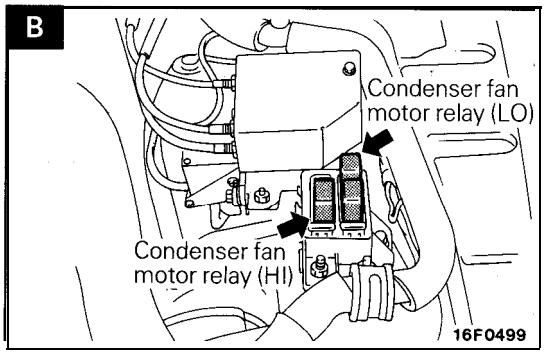

FUSIBLE LINK ⑤
DUAL PRESSURE SWITCH
AIR CONDITIONING COMPRESSOR LOCK CONTROLLER
L-R
2R-B
G-O
(G-O)
2L-Y
DEDICATED FUSE
20A
2L-W
2L-B
CONDENSER FAN MOTOR RELAY
(HI) (LO)
ON OFF
OFF ON
A-31X
A-34X
A-37
NO CONNECTION
A-36
CONDENSER FAN MOTOR
A-45
A-46
2B
4

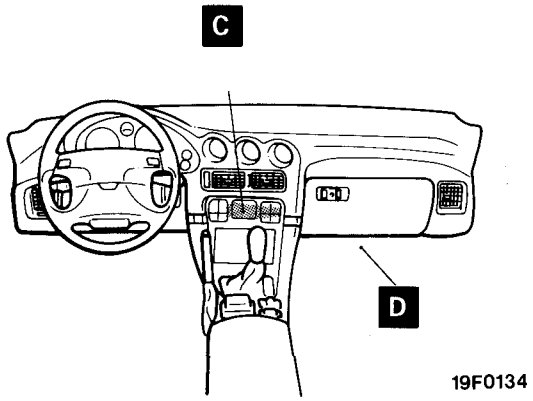
COMPONENT LOCATION

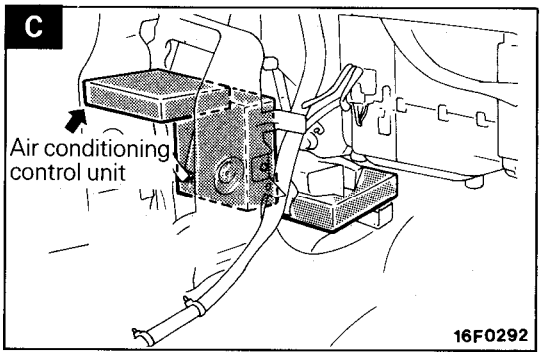
Name	Symbol	Name	Symbol
Air conditioning compressor lock controller	D	Condenser fan motor relay (LO)	B
Air conditioning control unit	C	Radiator fan motor relay (HI)	A
Condenser fan motor relay (HI)	B	Radiator fan motor relay (LO)	A

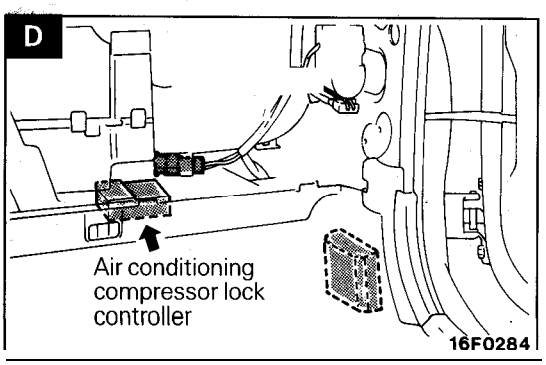




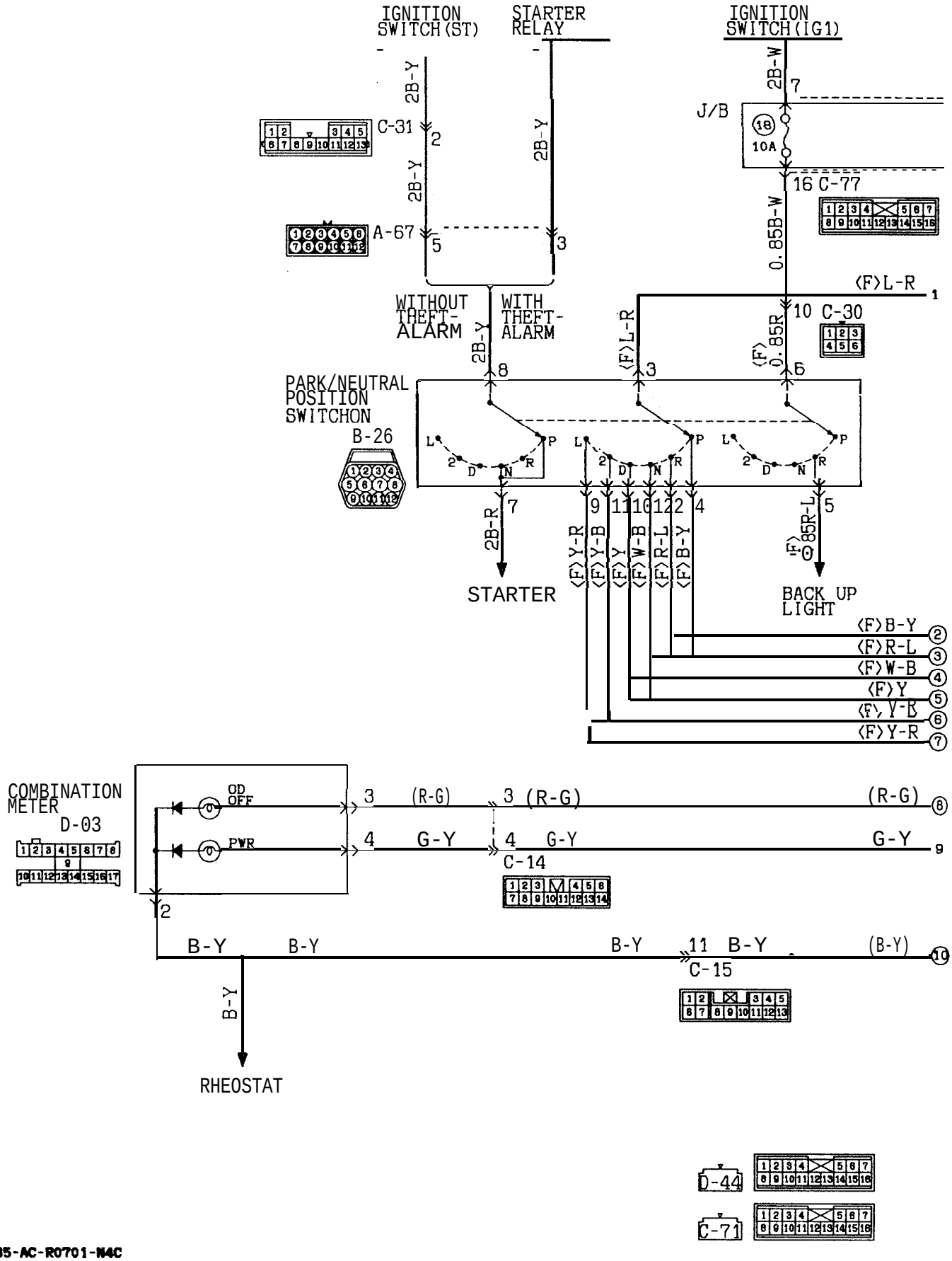






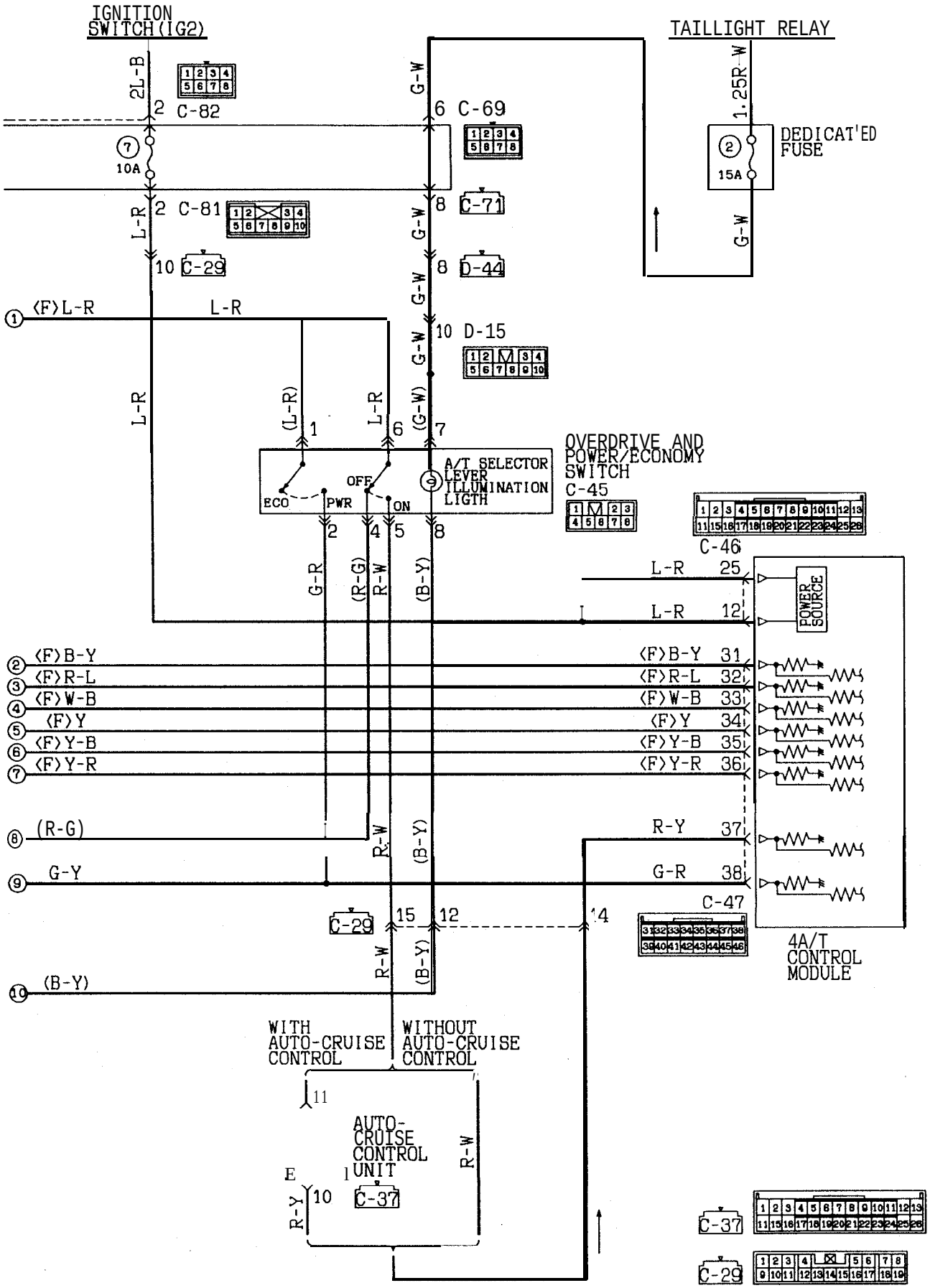


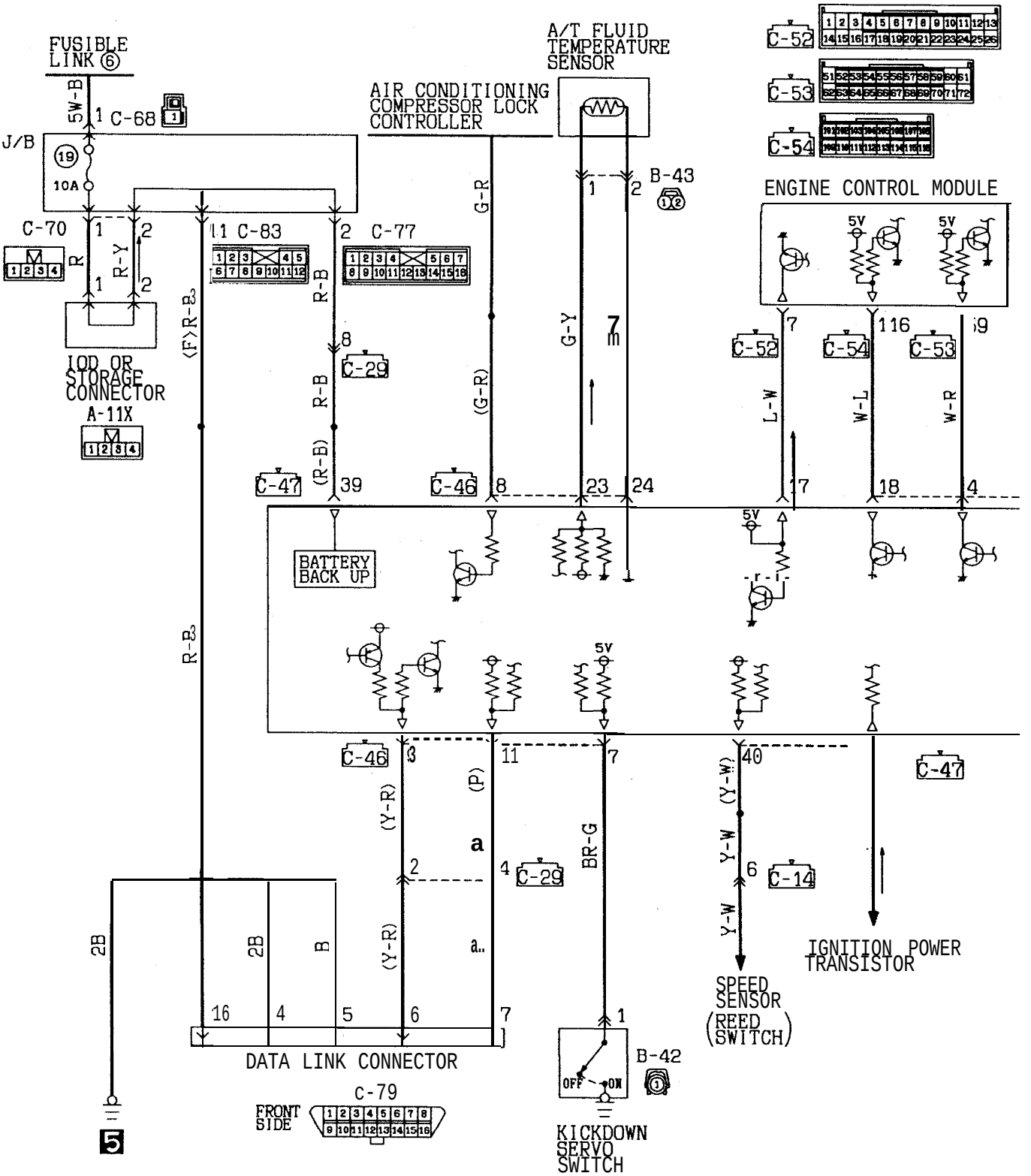
ELC-4 A/T CIRCUIT (FEDERAL AND CANADA)



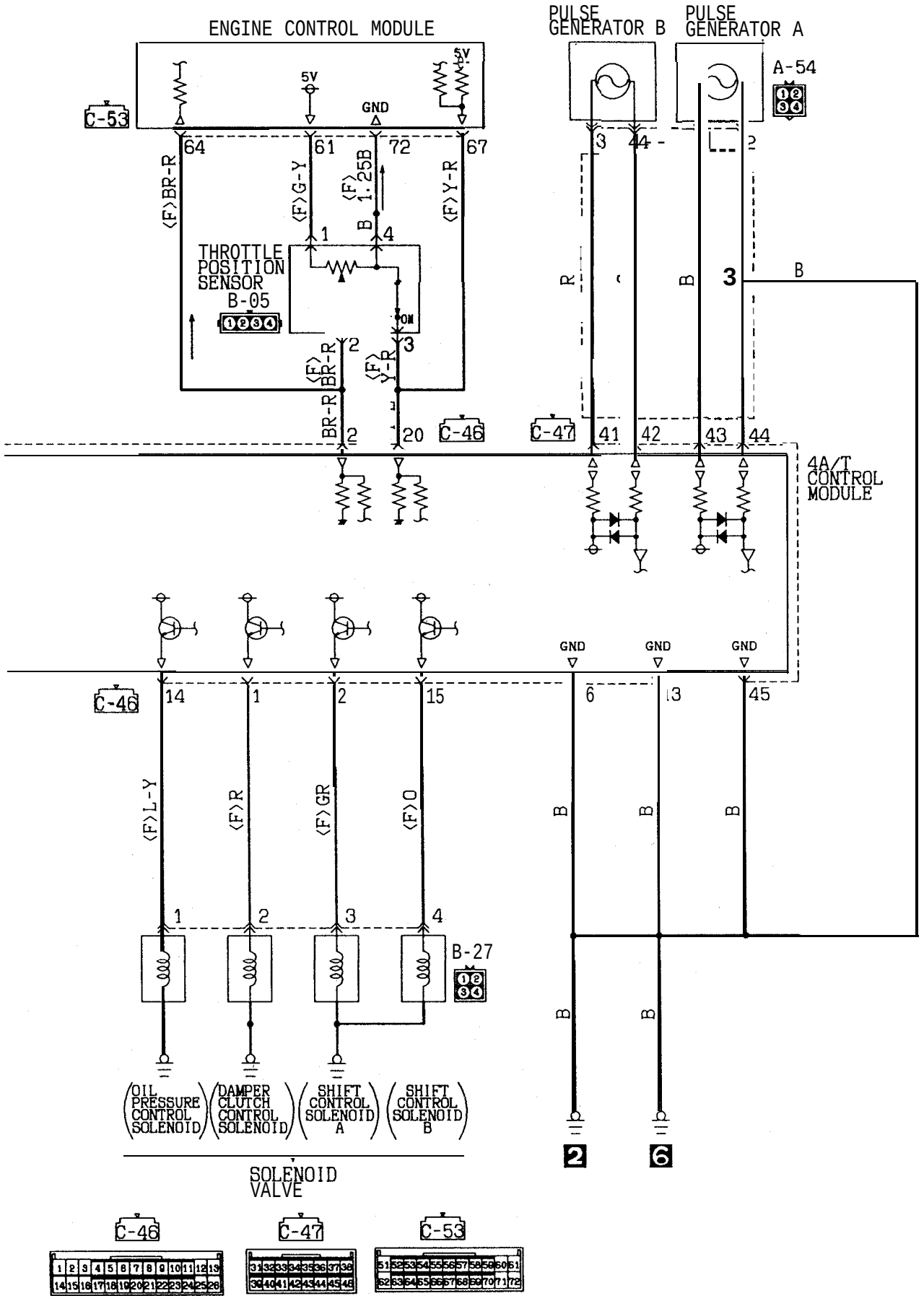
X35-AC-R0701-N4C

ELC-4 A/T CIRCUIT (FEDERAL AND CANADA) (CONTINUED)

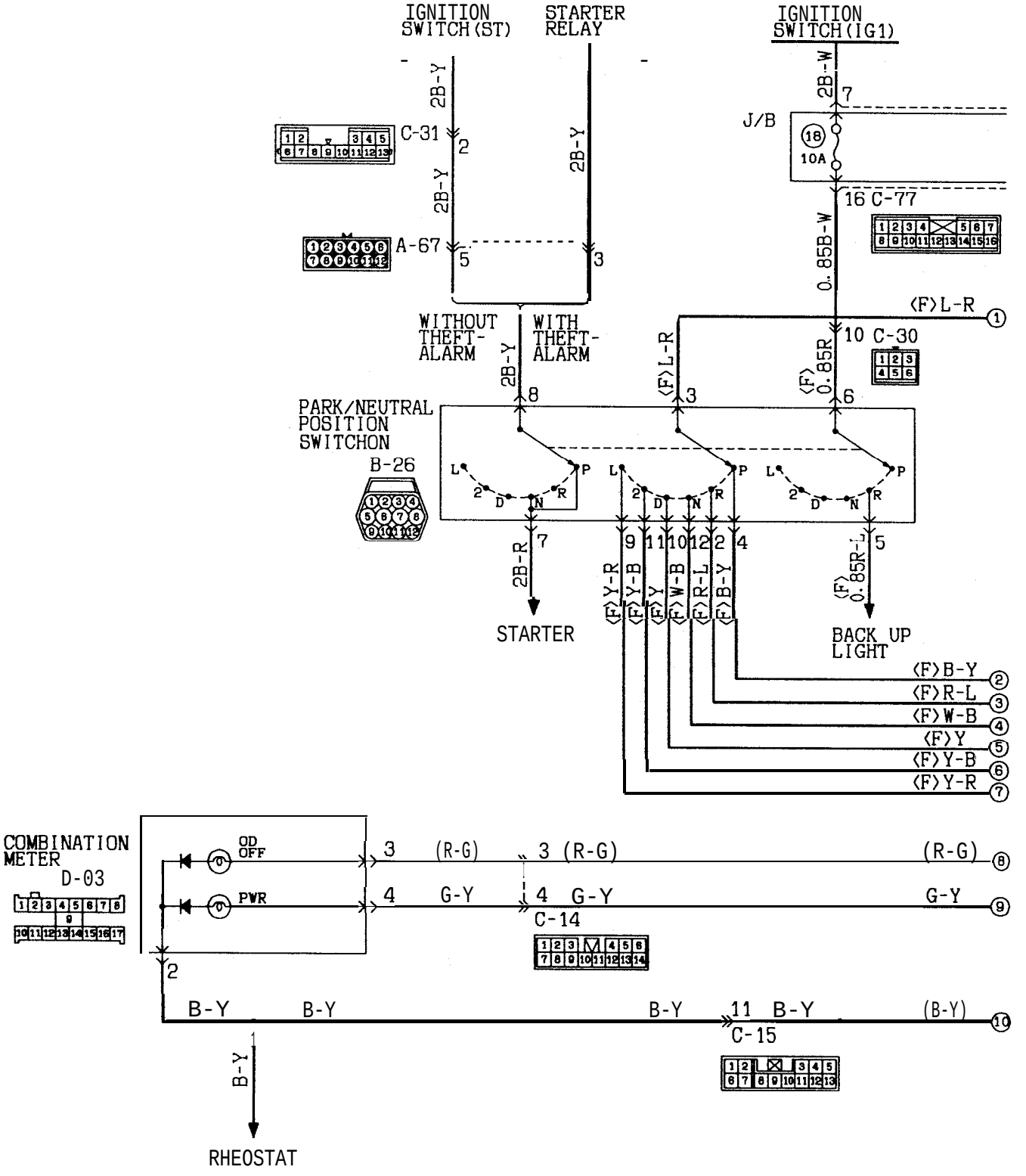



FUSIBLE LINK ⑥
5W-B
C-68
J/B
10A
C-70
R
R-Y
IOD OR STORAGE CONNECTOR A-11X
C-83
C-77
R-B
C-29
(F)R-B3
R-B3
(R-B)
C-47
39
BATTERY BACK UP
AIR CONDITIONING COMPRESSOR LOCK CONTROLLER
A/T FLUID TEMPERATURE SENSOR
G-R
G-Y
(G-R)
C-46
8
B-43
23
24
ENGINE CONTROL MODULE
5V
C-52
C-54
C-53
L-W
W-L
W-R
7
116
9
17
18
4
(Y-R)
(P)
a
2
4
BR-G
3
11
7
40
(Y-W)
Y-W
6
C-14
C-47
IGNITION POWER TRANSISTOR
SPEED SENSOR (REED SWITCH)
2B
B
a..
16
5
DATA LINK CONNECTOR
C-79
FRONT SIDE
B-42
OFF
ON
KICKDOWN SERVO SWITCH
5

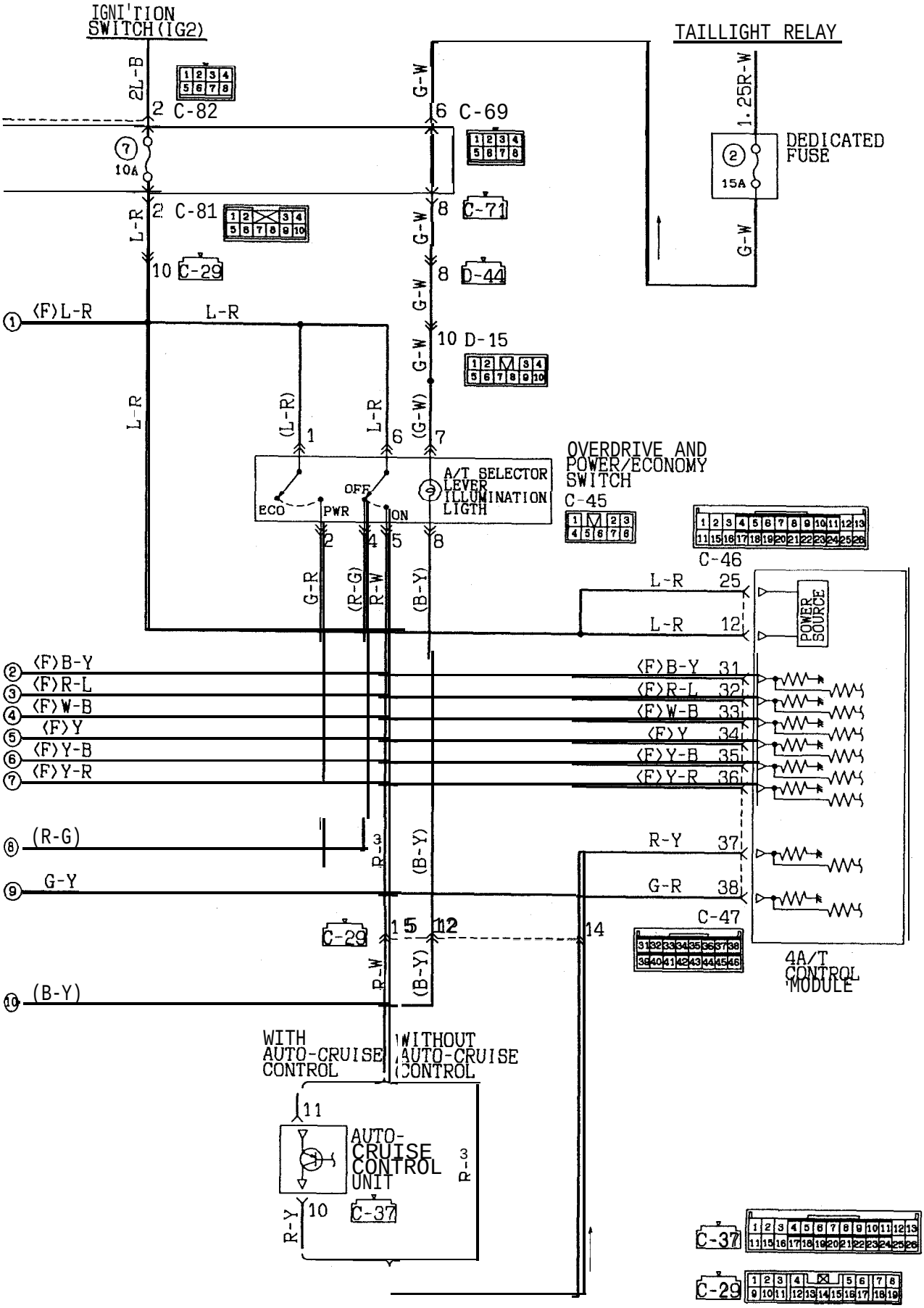
ELC-4 A/T CIRCUIT (FEDERAL AND CANADA) (CONTINUED)

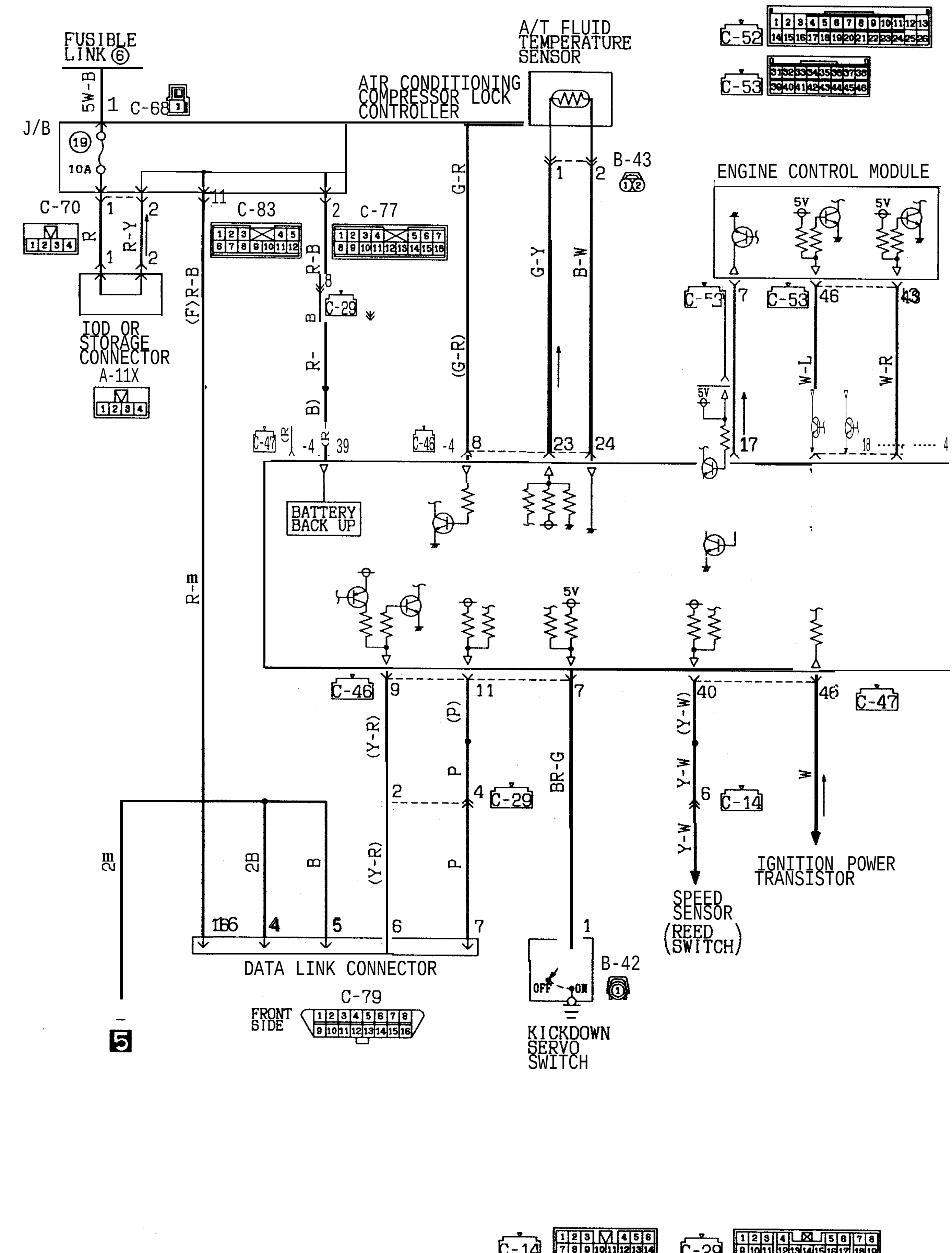


ELC-4 A/T CIRCUIT (CALIFORNIA)

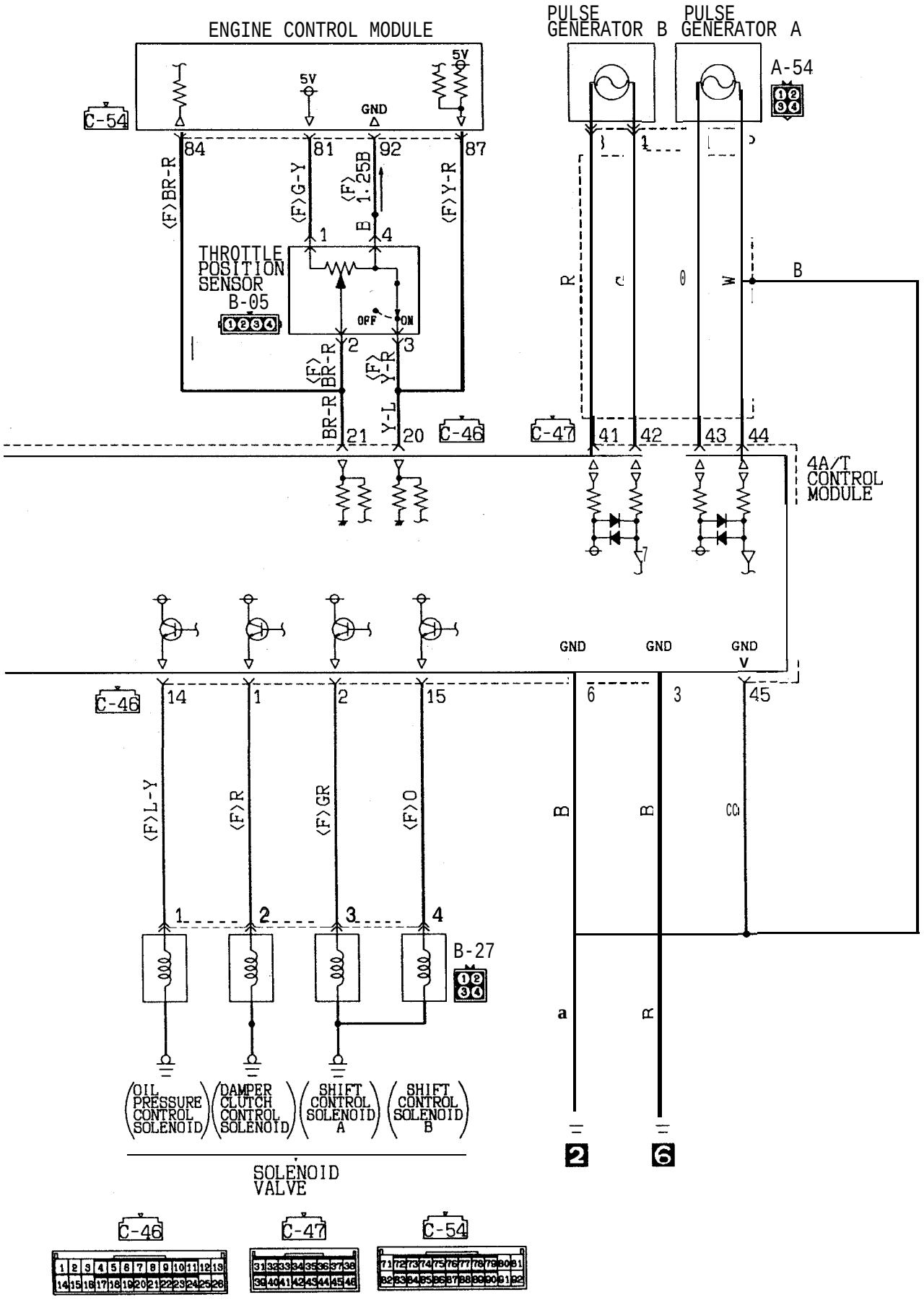


ELC-4 A/T CIRCUIT (CALIFORNIA) (CONTINUED)



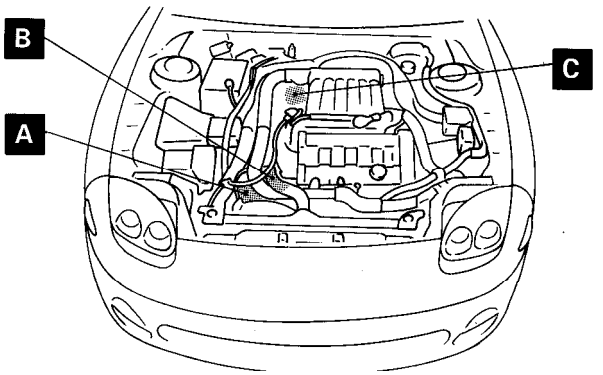

FUSIBLE LINK ⑥
J/B
10A
C-68
C-70
IOD OR STORAGE CONNECTOR
A-11X
C-83
C-77
AIR CONDITIONING COMPRESSOR LOCK CONTROLLER
A/T FLUID TEMPERATURE SENSOR
B-43
C-52
C-53
ENGINE CONTROL MODULE
C-29
C-47
C-46
BATTERY BACK UP
C-14
DATA LINK CONNECTOR
C-79
FRONT SIDE
KICKDOWN SERVO SWITCH
B-42
SPEED SENSOR (REED SWITCH)
IGNITION POWER TRANSISTOR

ELC-4 A/T CIRCUIT (CALIFORNIA) (CONTINUED)

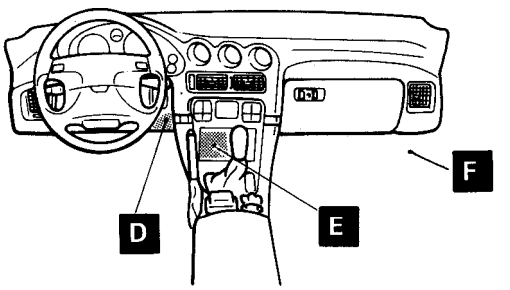


COMPONENT LOCATION

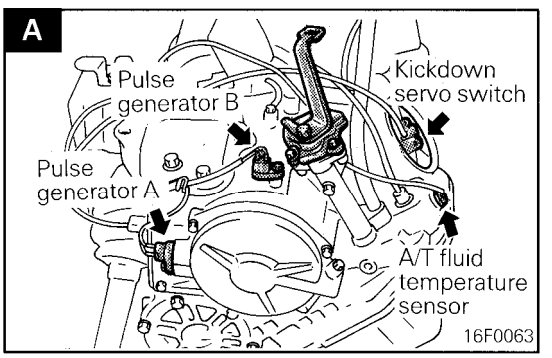
Name	Symbol	Name	Symbol
AA fluid temperature sensor	A	Engine control module	E
A/T solenoid valve assembly (within the valve body)	B	Kickdown servo switch	A
Auto-cruise control unit	F	Pulse generator	A
Data link connector	D	Throttle position sensor	C
ELC-4 AA control module	E	–	–

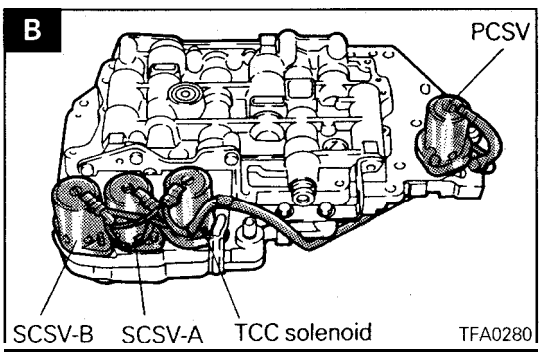


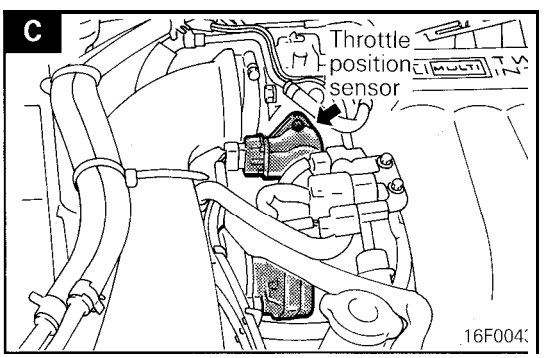
16F0502

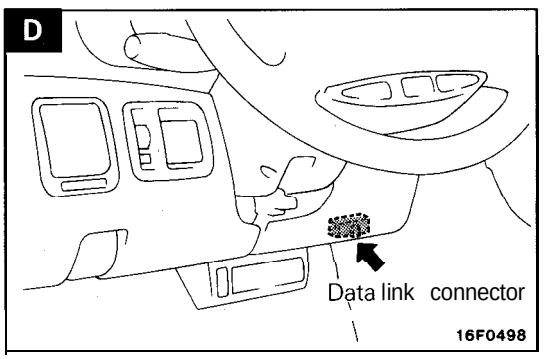


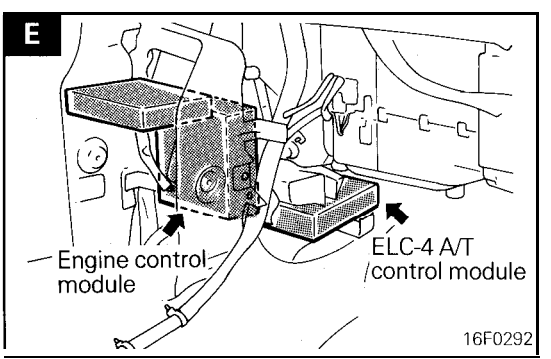
19F0134

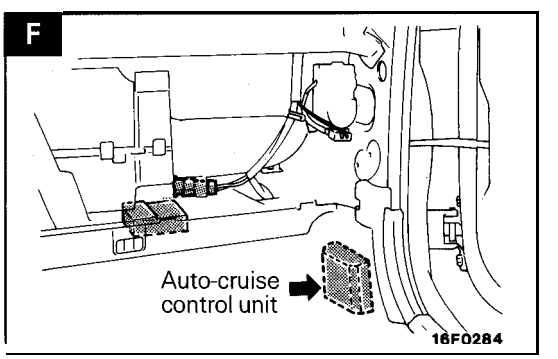




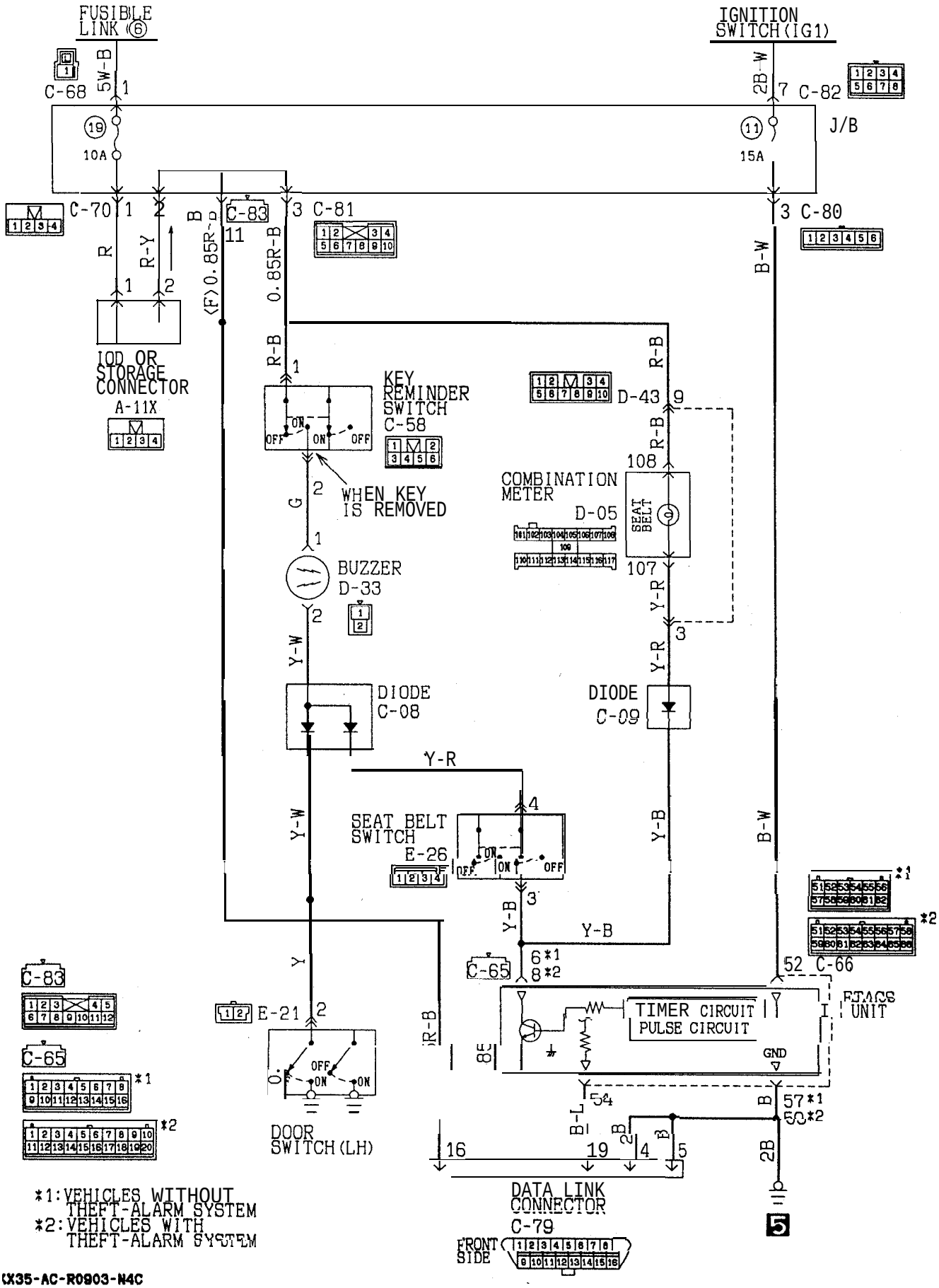








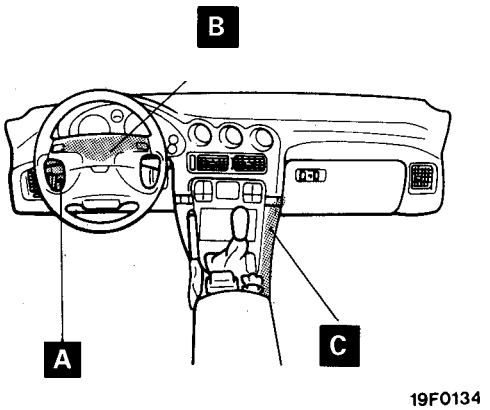
BUZZER CIRCUIT

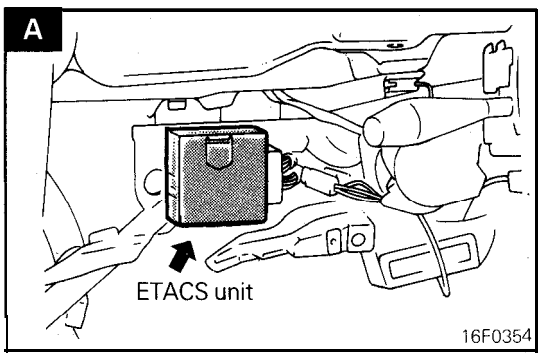


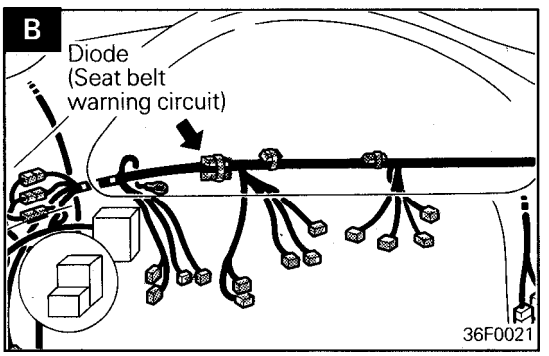
EX35-AC-R0903-N4C

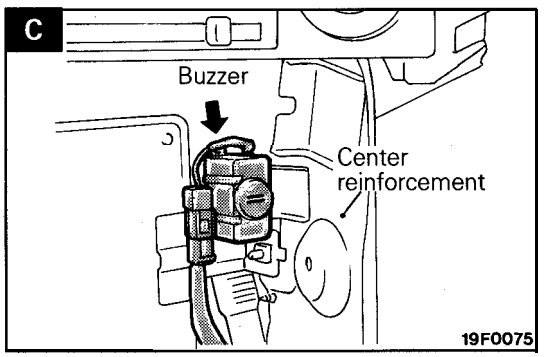
COMPONENT LOCATION

Name	Symbol	Name	Symbol
Buzzer	C	ETACS unit	A
Diode (seat belt warning)	B	–	

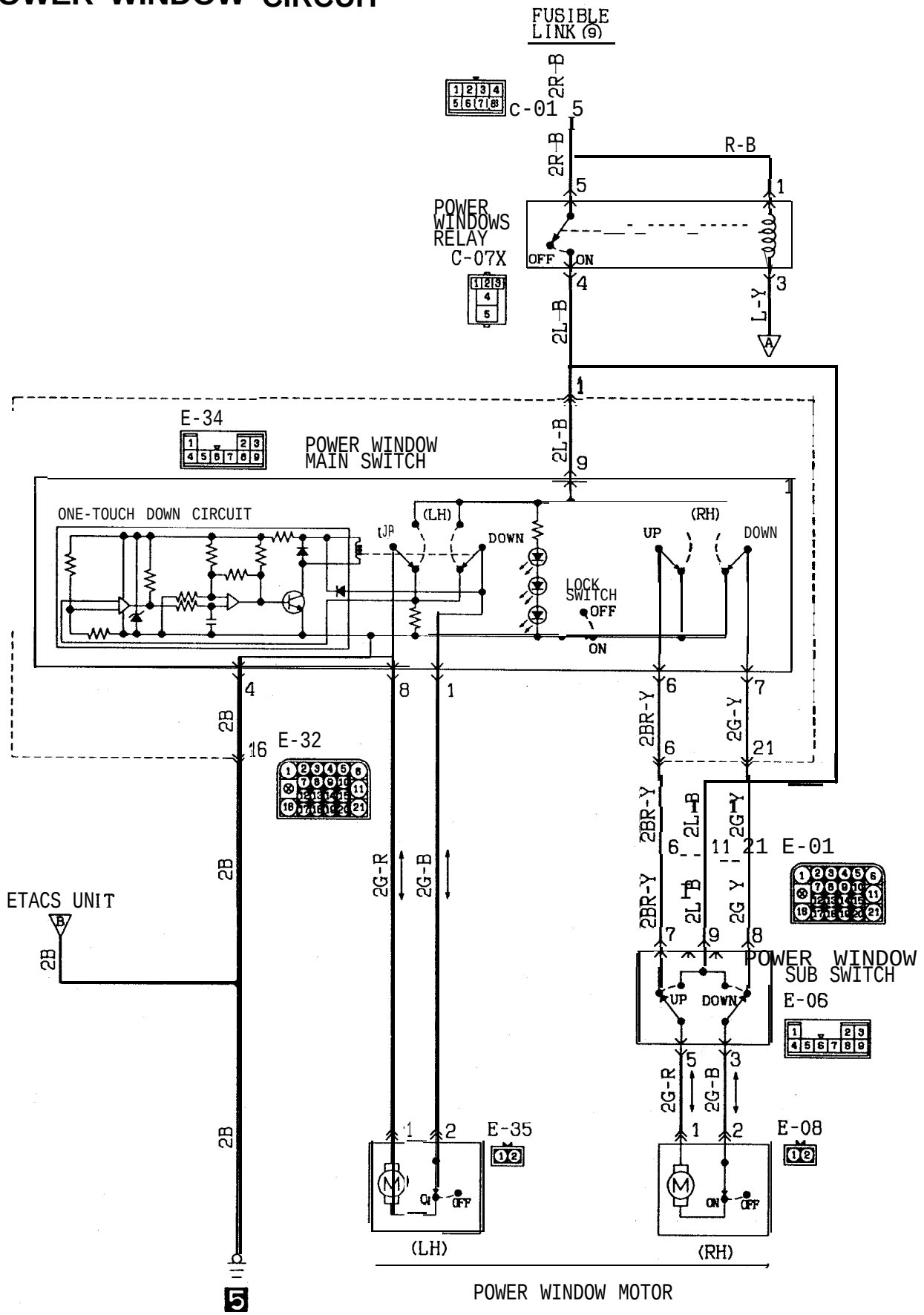




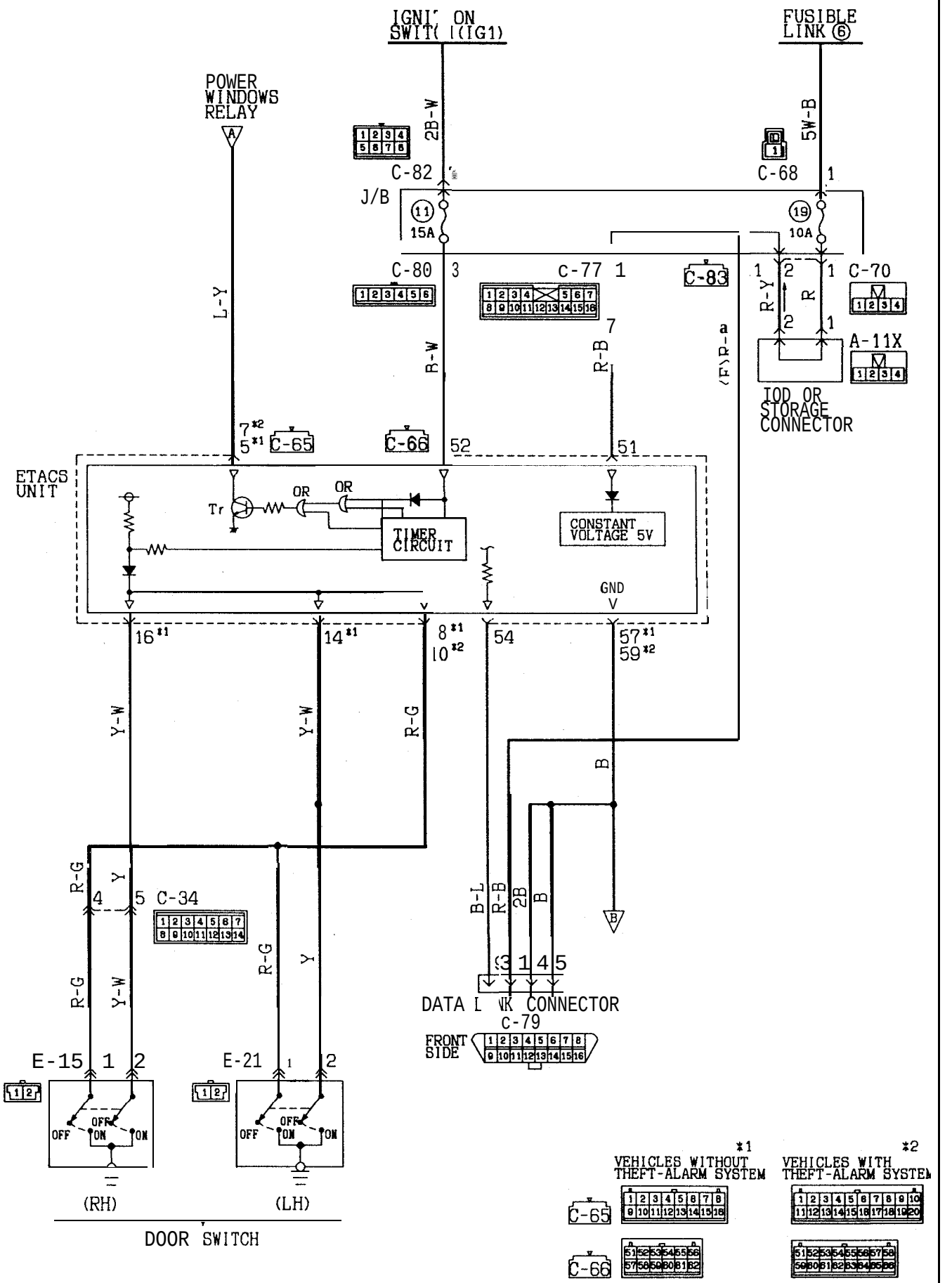




POWER WINDOW CIRCUIT

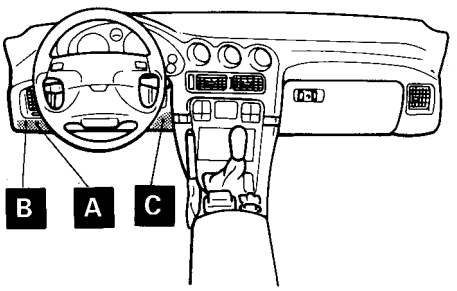


X35-AC-R1101-N4C

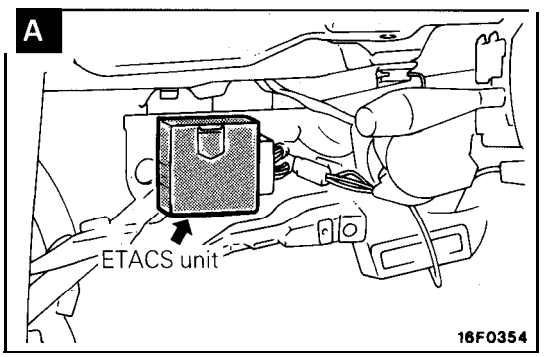

IGNITION SWITCH (IG1)
FUSIBLE LINK ⑥
POWER WINDOWS RELAY
2B-W
5W-B
C-82
C-68
J/B
15A
10A
C-80
C-77
C-83
C-70
A-11X
L-Y
R-W
R-B
R-Y
R
IOD OR STORAGE CONNECTOR
C-65
C-66
ETACS UNIT
Tr
OR
TIMER CIRCUIT
CONSTANT VOLTAGE 5V
GND
Y-W
R-G
B
B-L
2B
C-34
E-15
E-21
OFF
ON
(RH)
(LH)
DOOR SWITCH
DATA LINK CONNECTOR
C-79
FRONT SIDE
*1 VEHICLES WITHOUT THEFT-ALARM SYSTEM
*2 VEHICLES WITH THEFT-ALARM SYSTEM

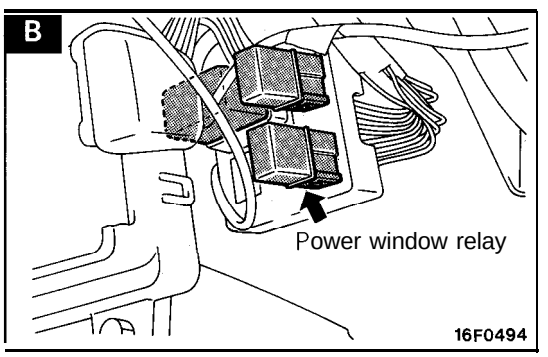
COMPONENT LOCATION

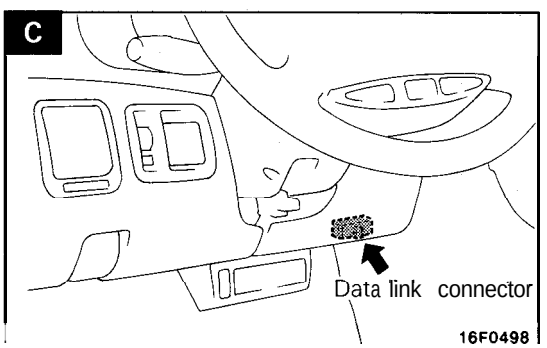
Name	Symbol	Name	Symbol
Data link connector	C	Power window relay	B
ETACS unit	A	–	–



19F0134

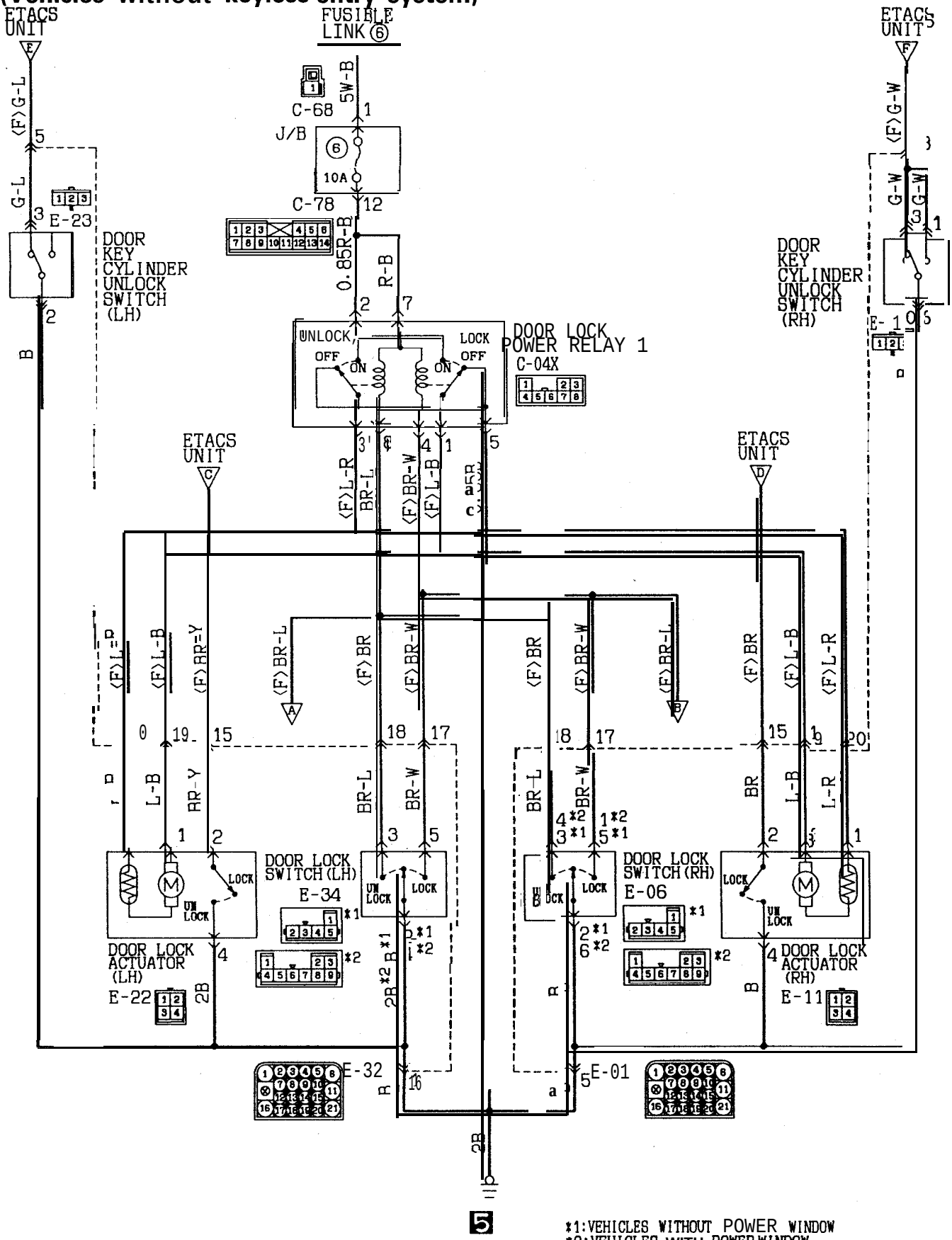






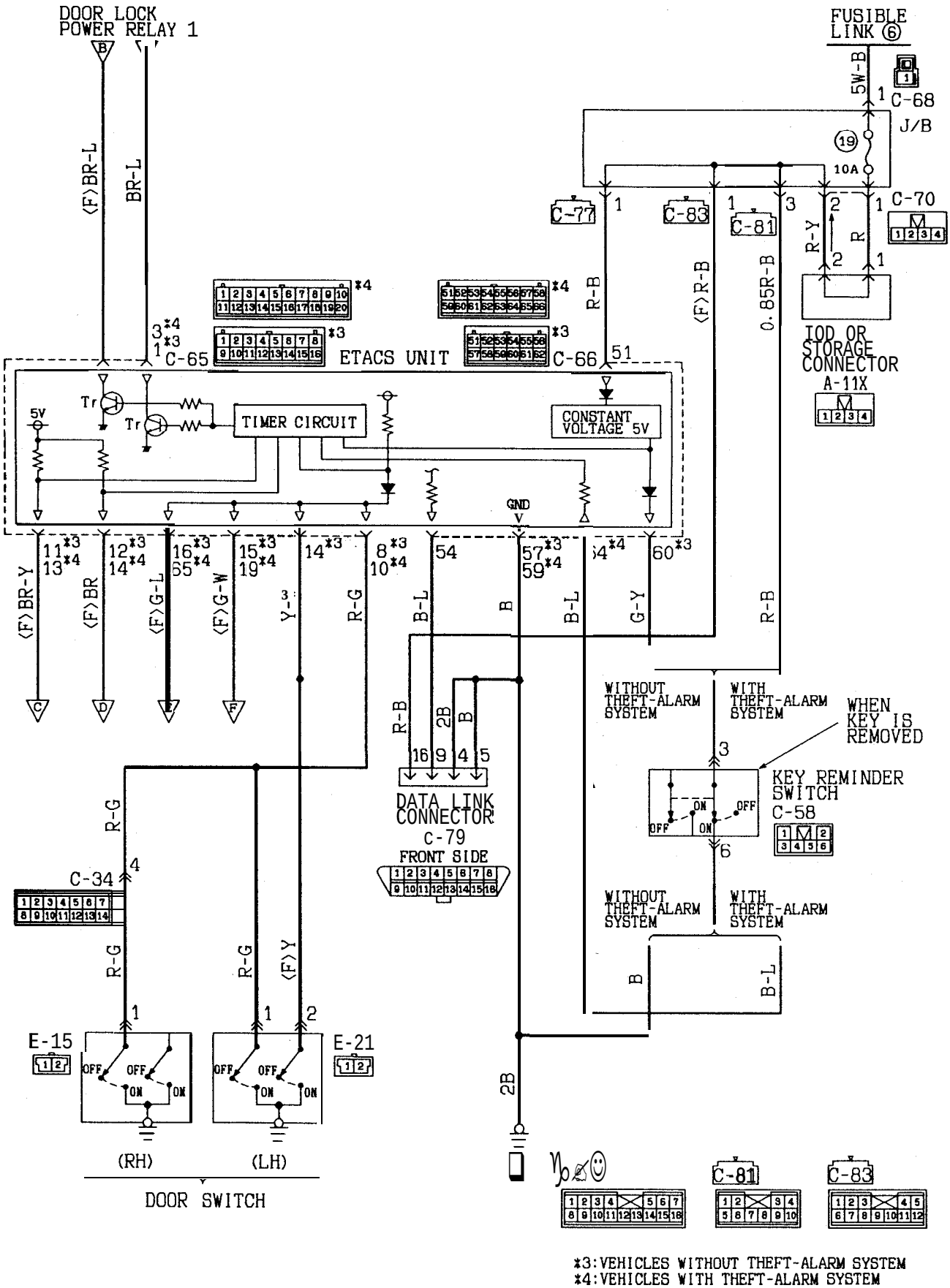
CENTRAL DOOR LOCKING CIRCUIT

(Vehicles without keyless entry system)



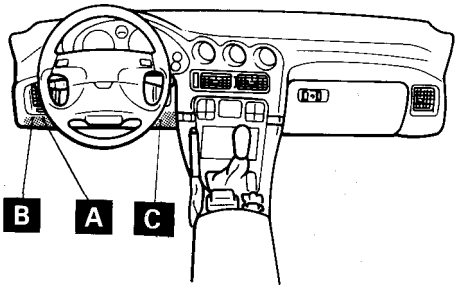
*1:VEHICLES WITHOUT POWER WINDOW
*2:VEHICLES WITH POWER WINDOW

CENTRAL DOOR LOCKING CIRCUIT (Vehicles without keyless entry system) (CONTINUED)

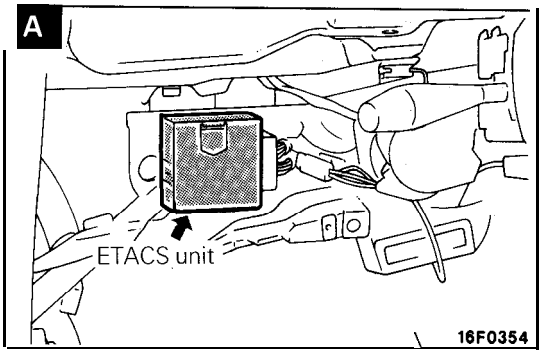


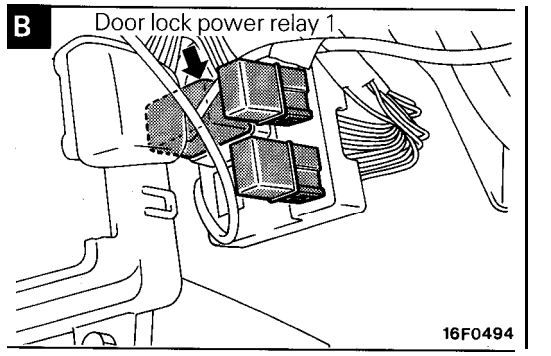
COMPONENT LOCATION

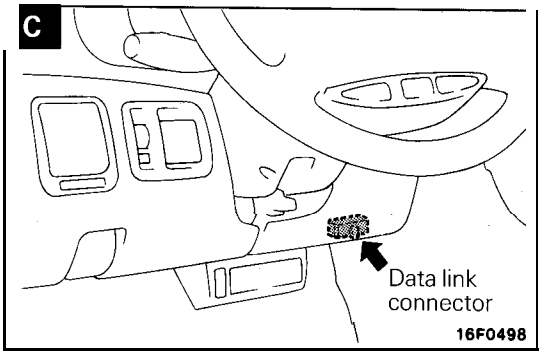
Name	Symbol	Name	Symbol
Data link connector	C	Door lock power relay 1	B
Door lock actuator	D	ETACS unit	A

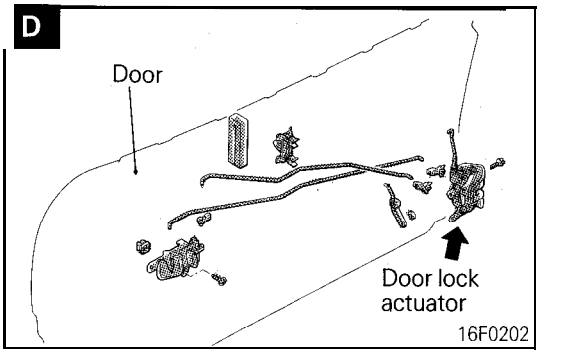


19F0134



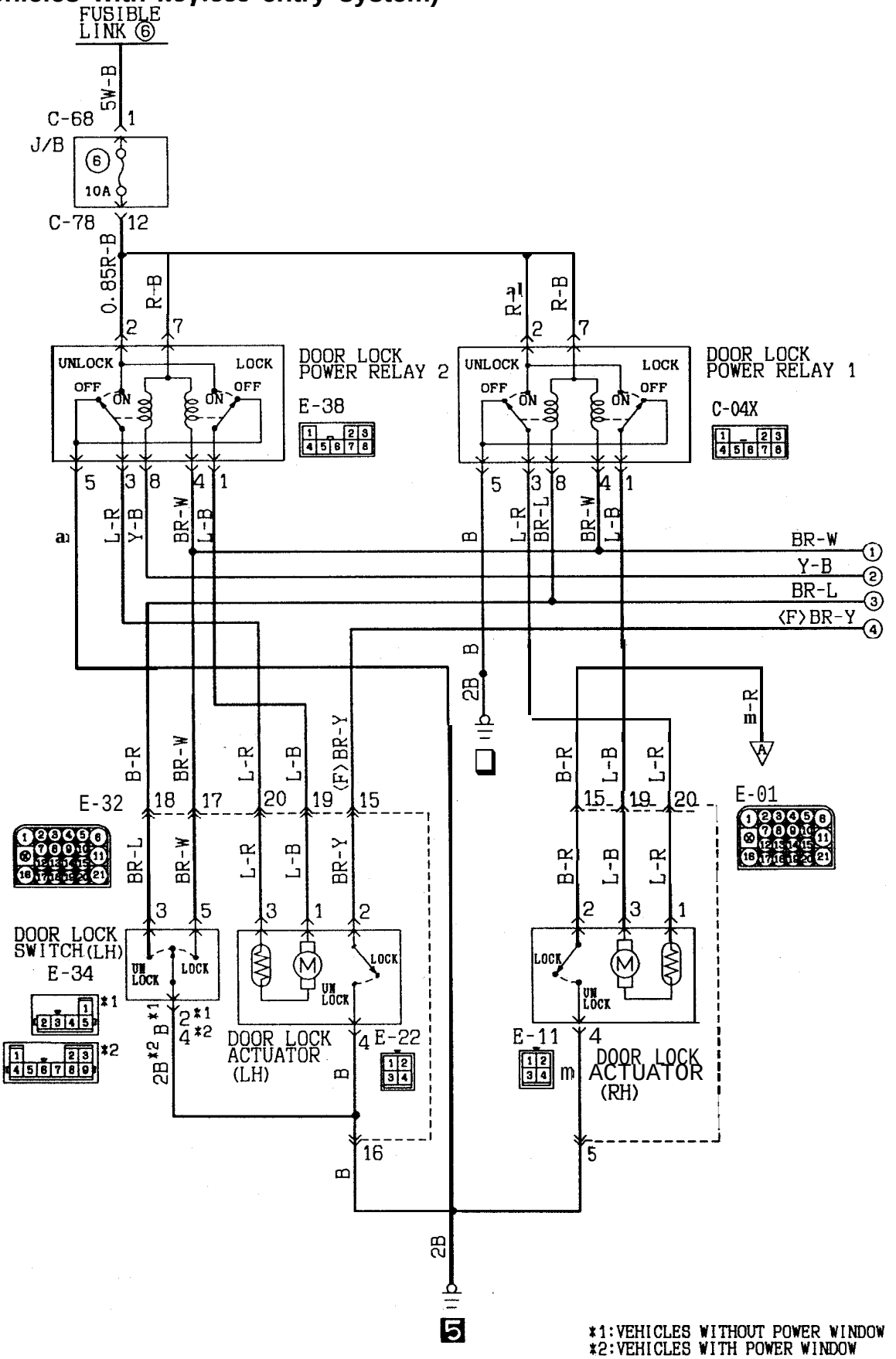




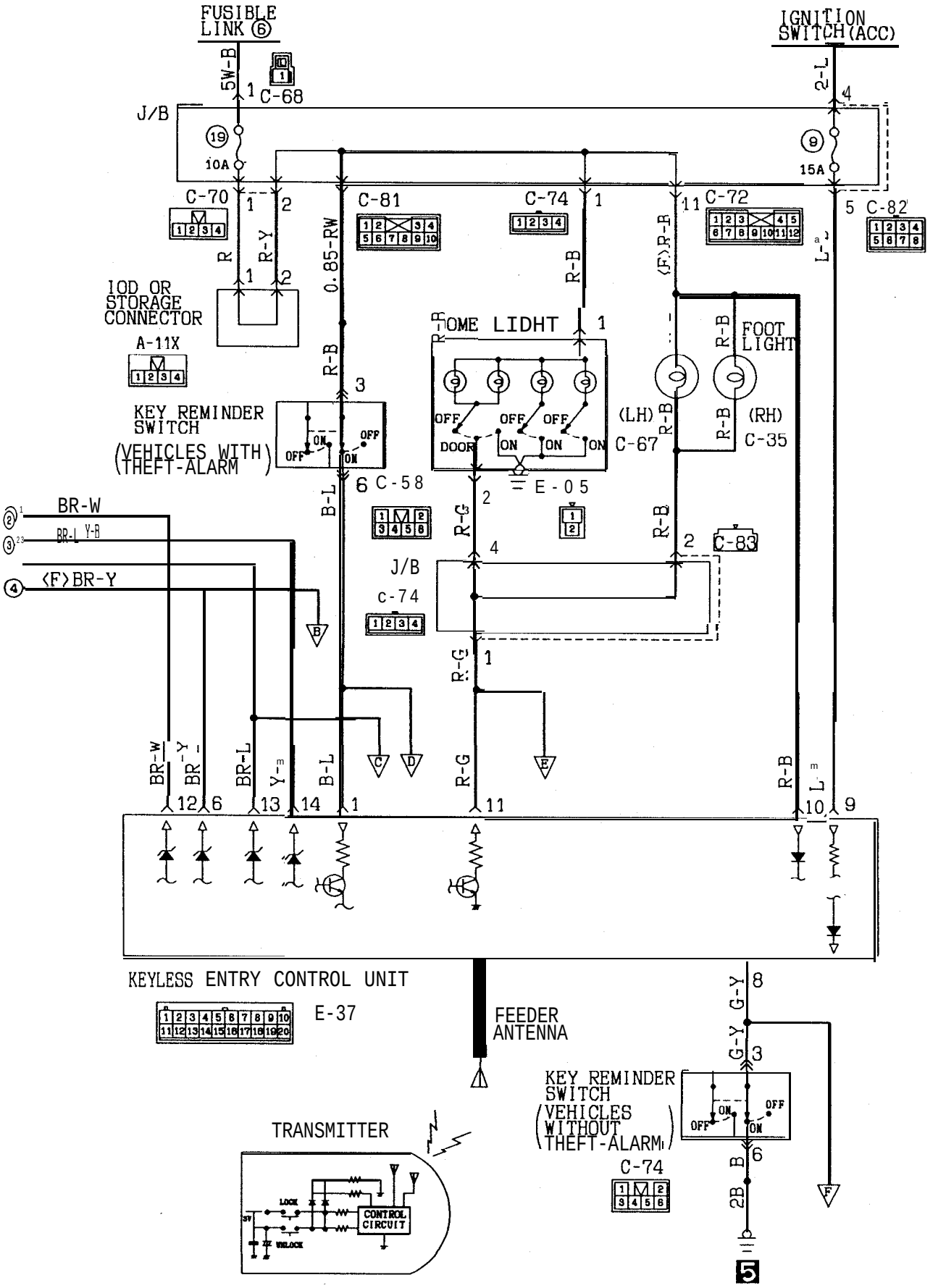


CENTRAL DOOR LOCKING CIRCUIT

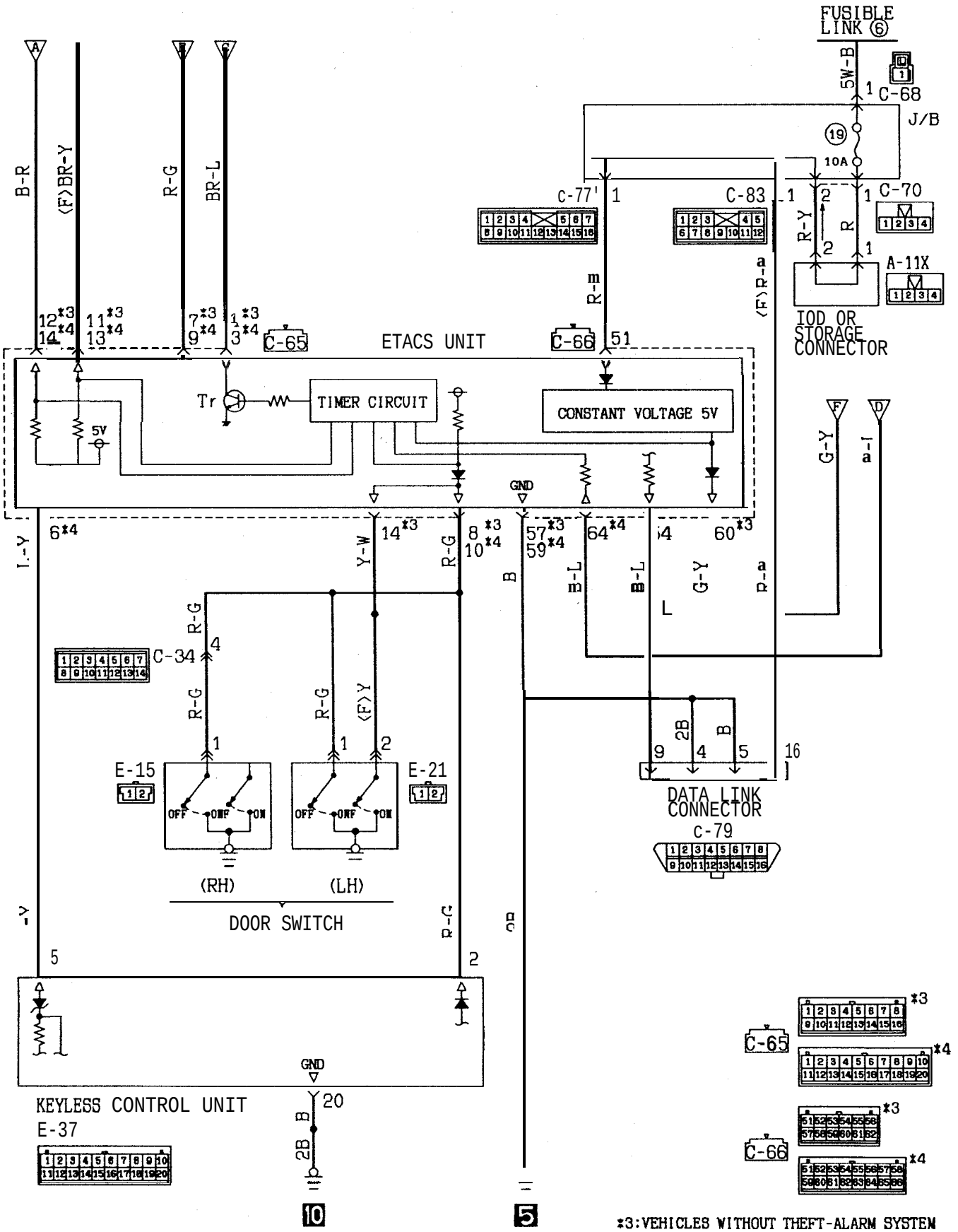
(Vehicles with keyless entry system)



CX35-AC-R1103-M4C


FUSIBLE LINK ⑥
IGNITION SWITCH (ACC)
5W-B
2-L
C-68
J/B
⑲
10A
⑨
15A
C-70
C-81
C-74
C-72
C-82
R
R-Y
0.85-RW
R-B
(F)R-B
L-a
IOD OR STORAGE CONNECTOR
A-11X
DOME LIDHT
FOOT LIGHT
KEY REMINDER SWITCH
(VEHICLES WITH THEFT-ALARM)
OFF
ON
DOOR
(LH)
(RH)
C-67
C-35
C-58
E-05
C-83
BR-W
BR-L
Y-B
⟨F⟩BR-Y
J/B
c-74
R-G
B-L
BR-W
BR-Y
BR-L
Y-R
B-L
R-G
R-B
L-a
KEYLESS ENTRY CONTROL UNIT
E-37
FEEDER ANTENNA
G-Y
KEY REMINDER SWITCH
(VEHICLES WITHOUT THEFT-ALARM)
C-74
2B
B
TRANSMITTER
LOCK
UNLOCK
CONTROL CIRCUIT
5V
5

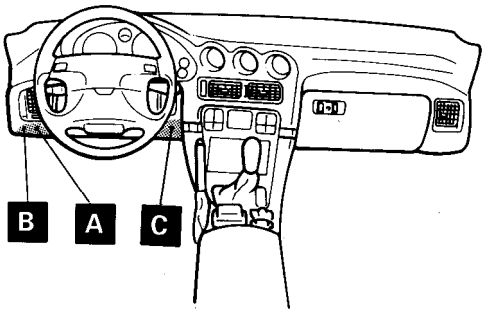
CENTRAL DOOR LOCKING CIRCUIT (Vehicles with keyless entry system) (CONTINUED)

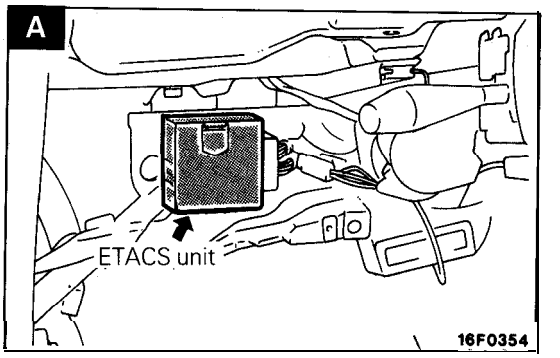


KX35-AC-R1103A-N4C

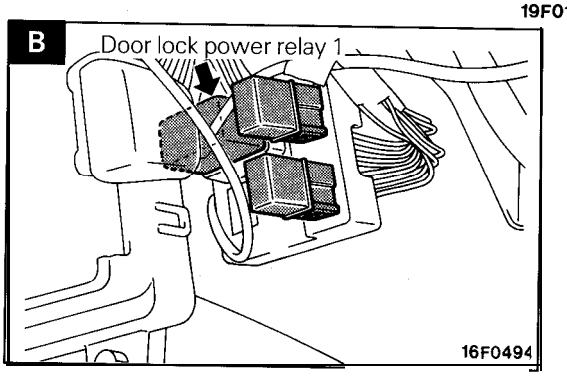
COMPONENT LOCATION

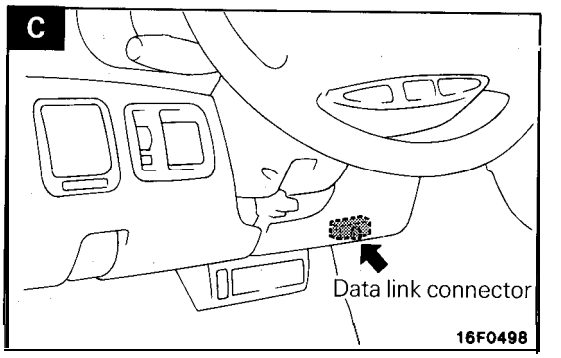
Name	Symbol	Name	Symbol
Data link connector	C	Door lock power relay 2 (keyless entry system)	E
Door lock actuator	D	ETACS unit	A
Door lock power relay 1	B	Keyless entry control unit	E

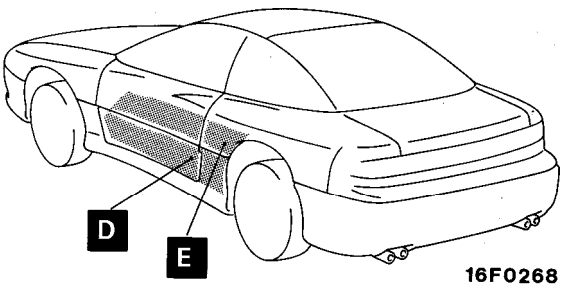


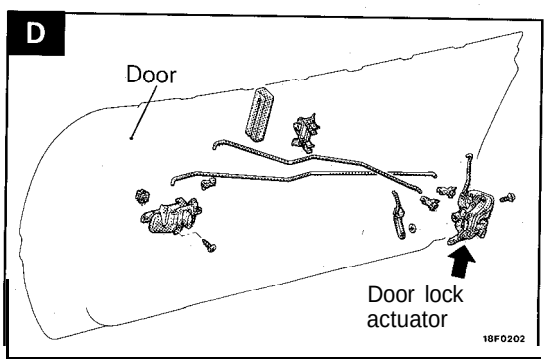


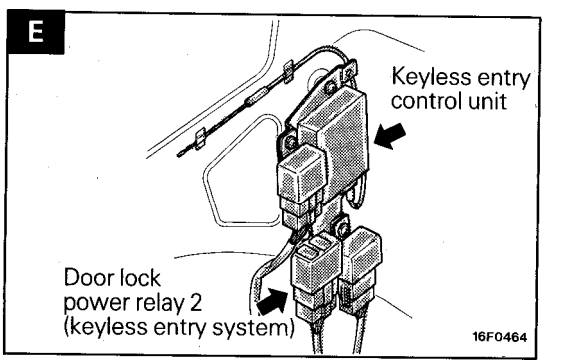
19F0134



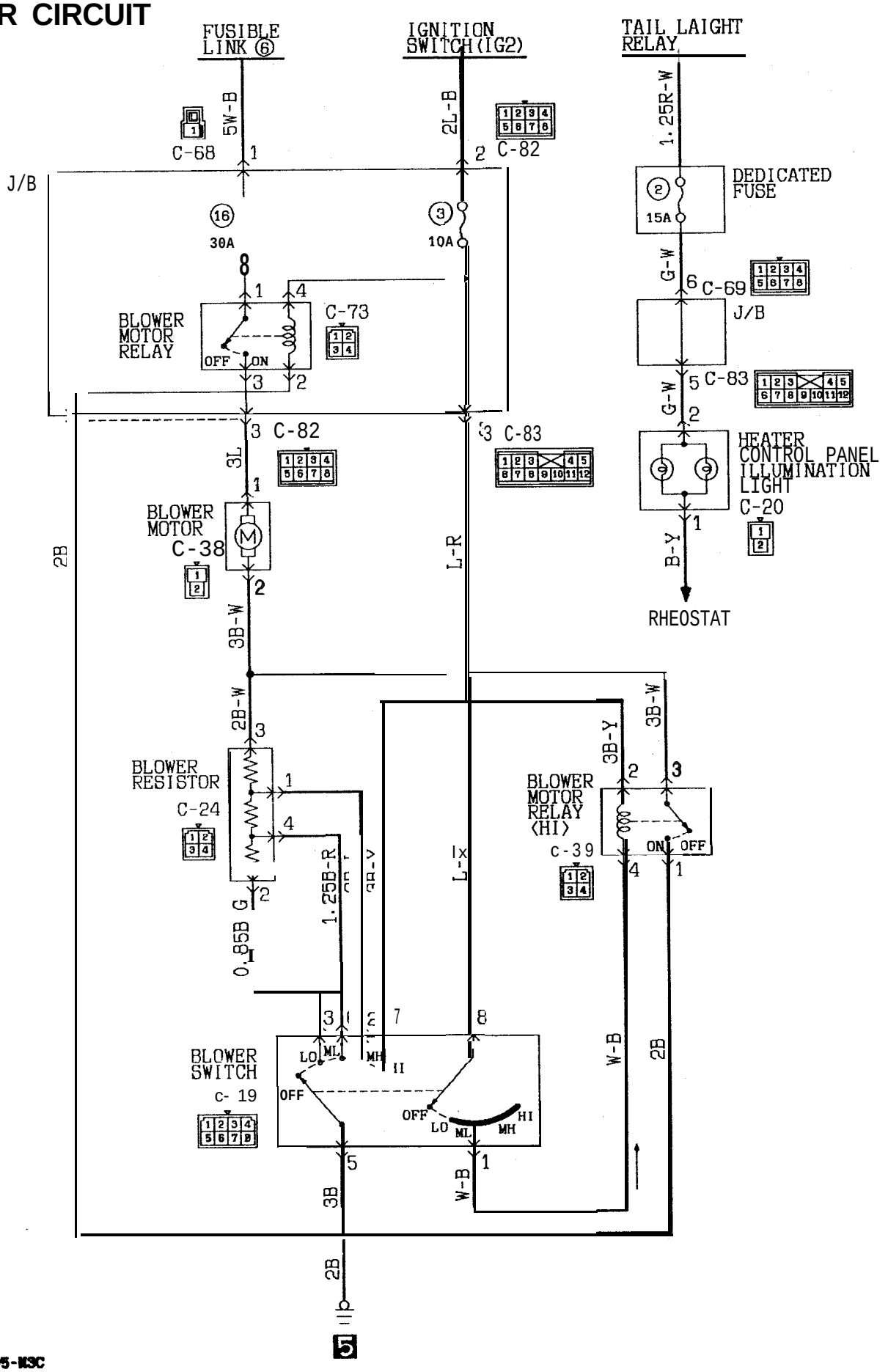






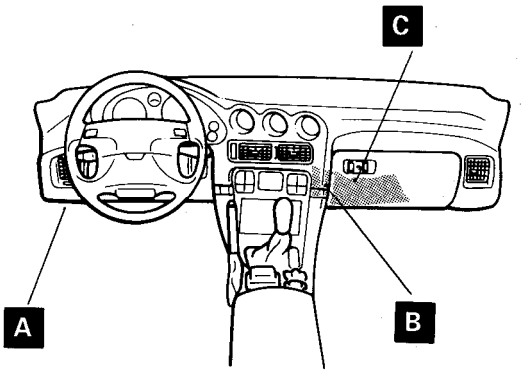


HEATER CIRCUIT

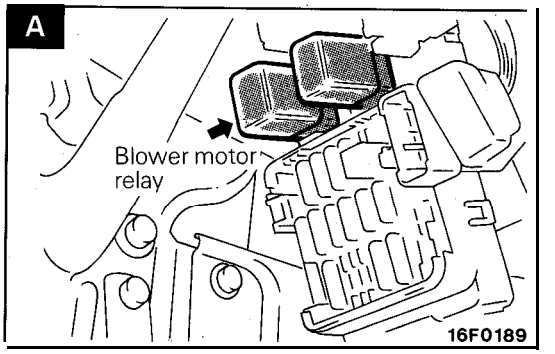


COMPONENT LOCATION

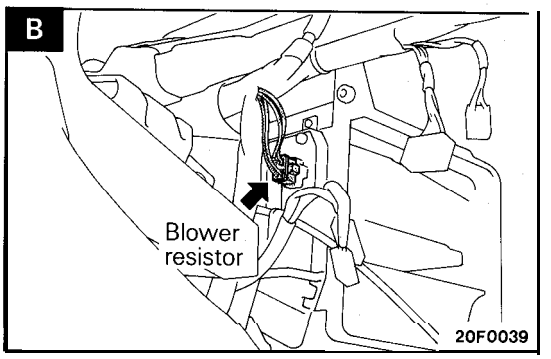
Name	Symbol	Name	Symbol
Blower motor relay	A	Blower resistor	B
Blower motor relay (HI)	C	–	–



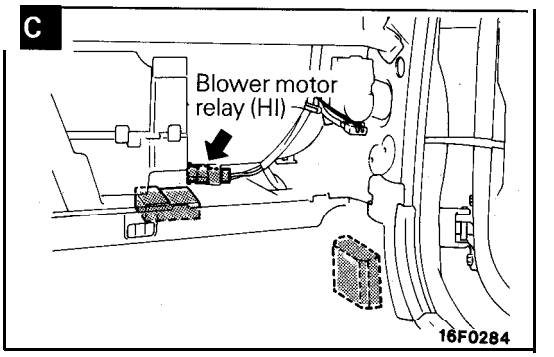
19F0134



16F0189



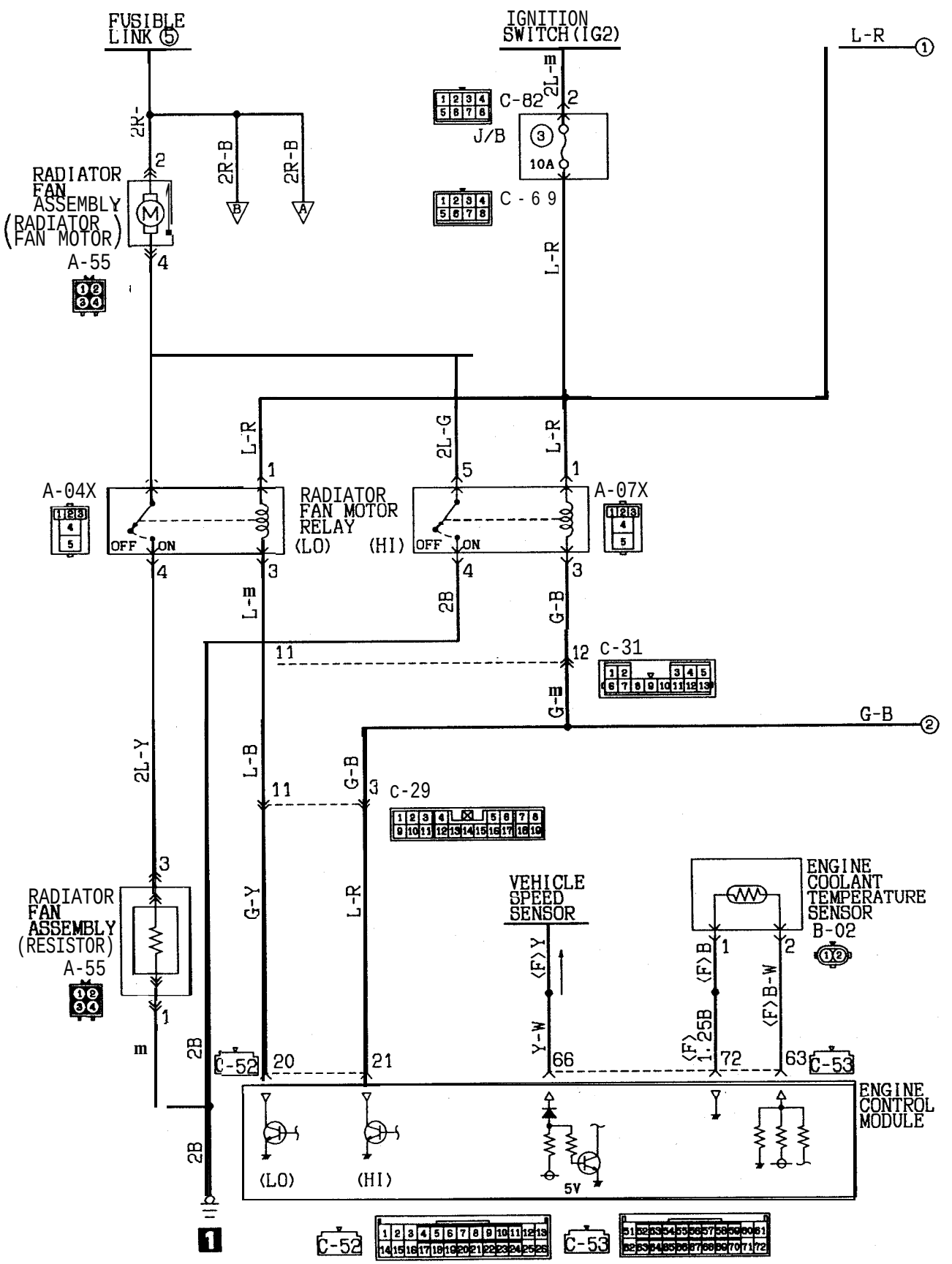
20F0039



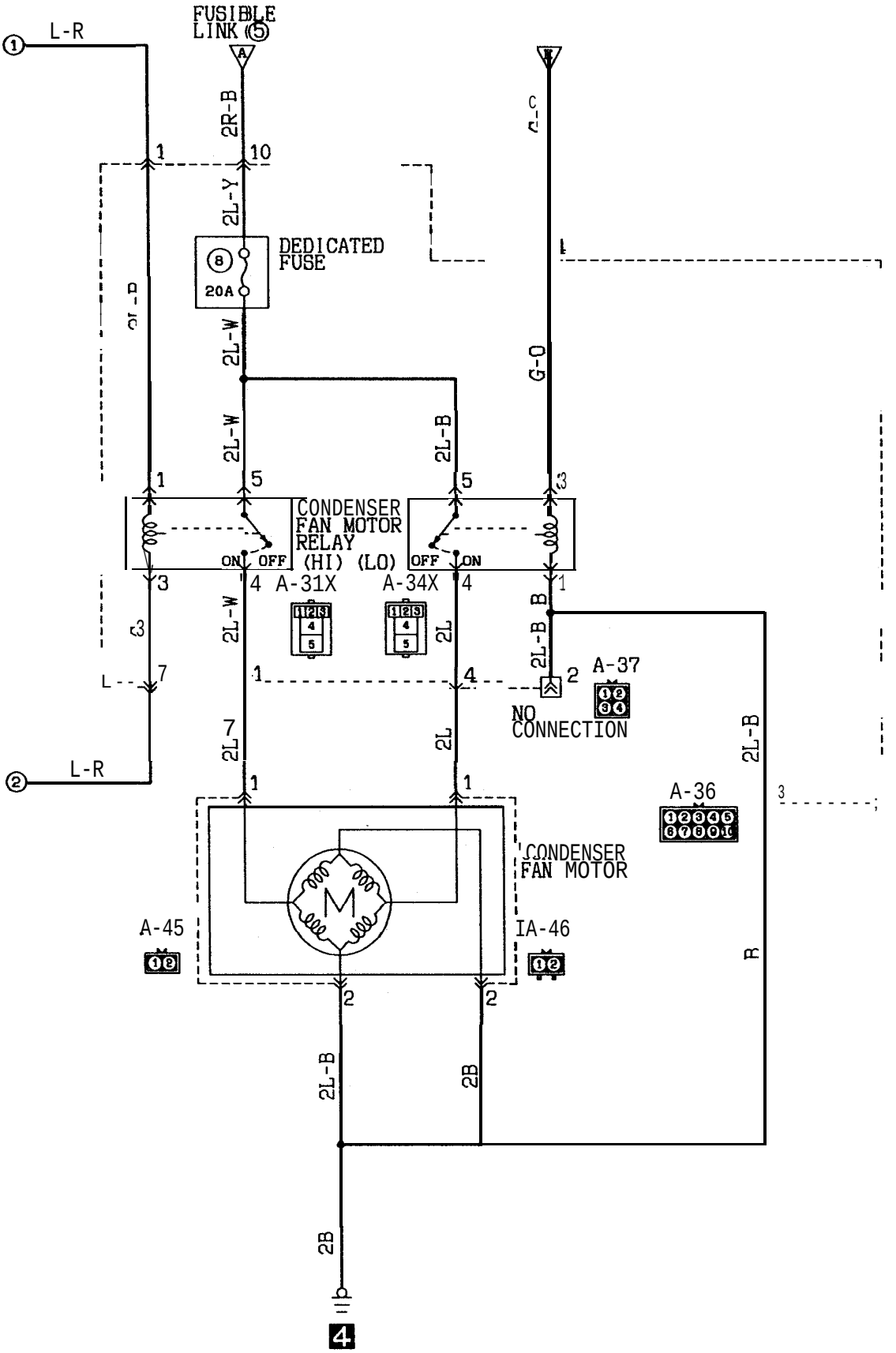
16F0284

MANUAL AIR CONDITIONING CIRCUIT

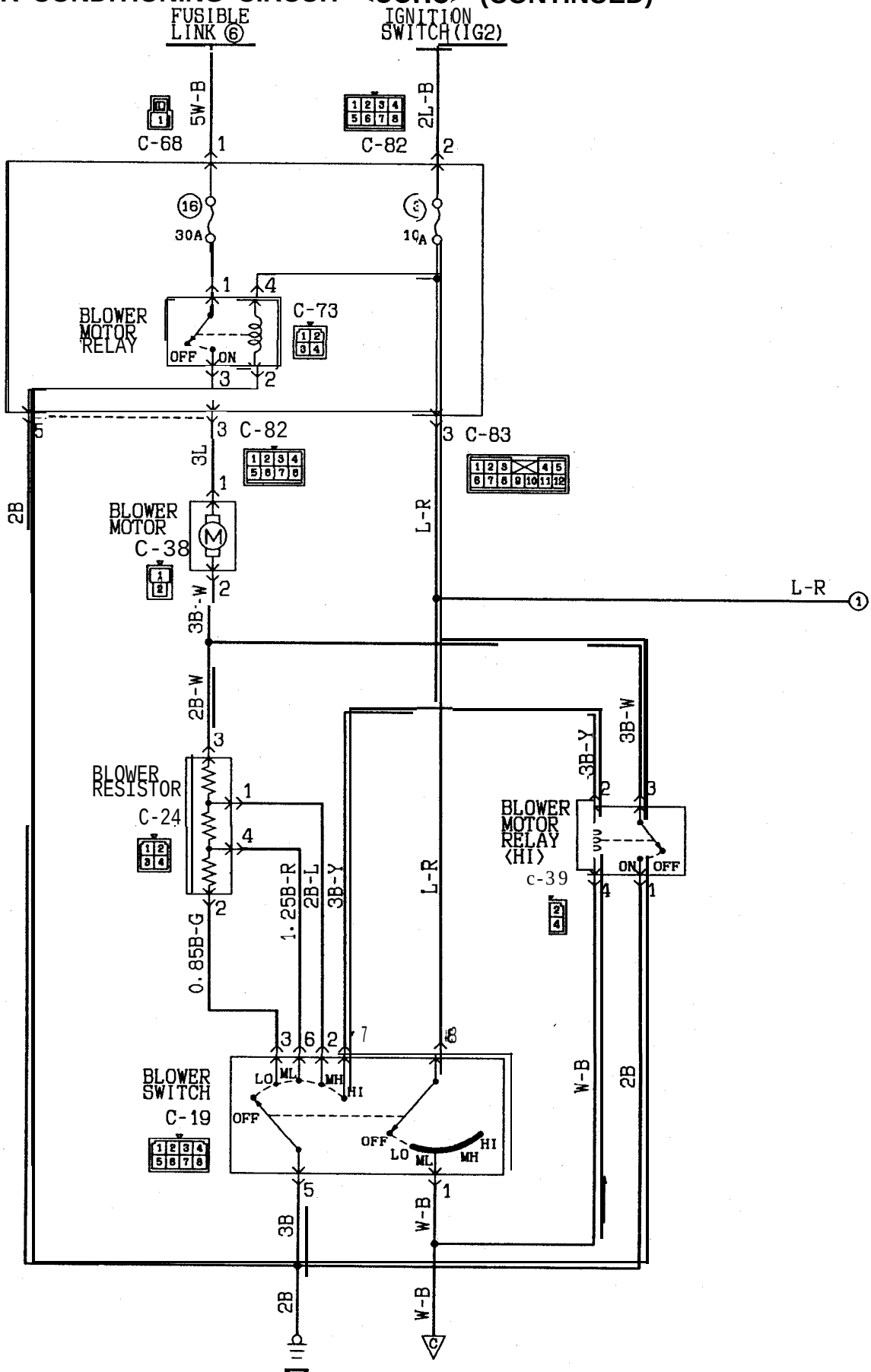
<SOHC>

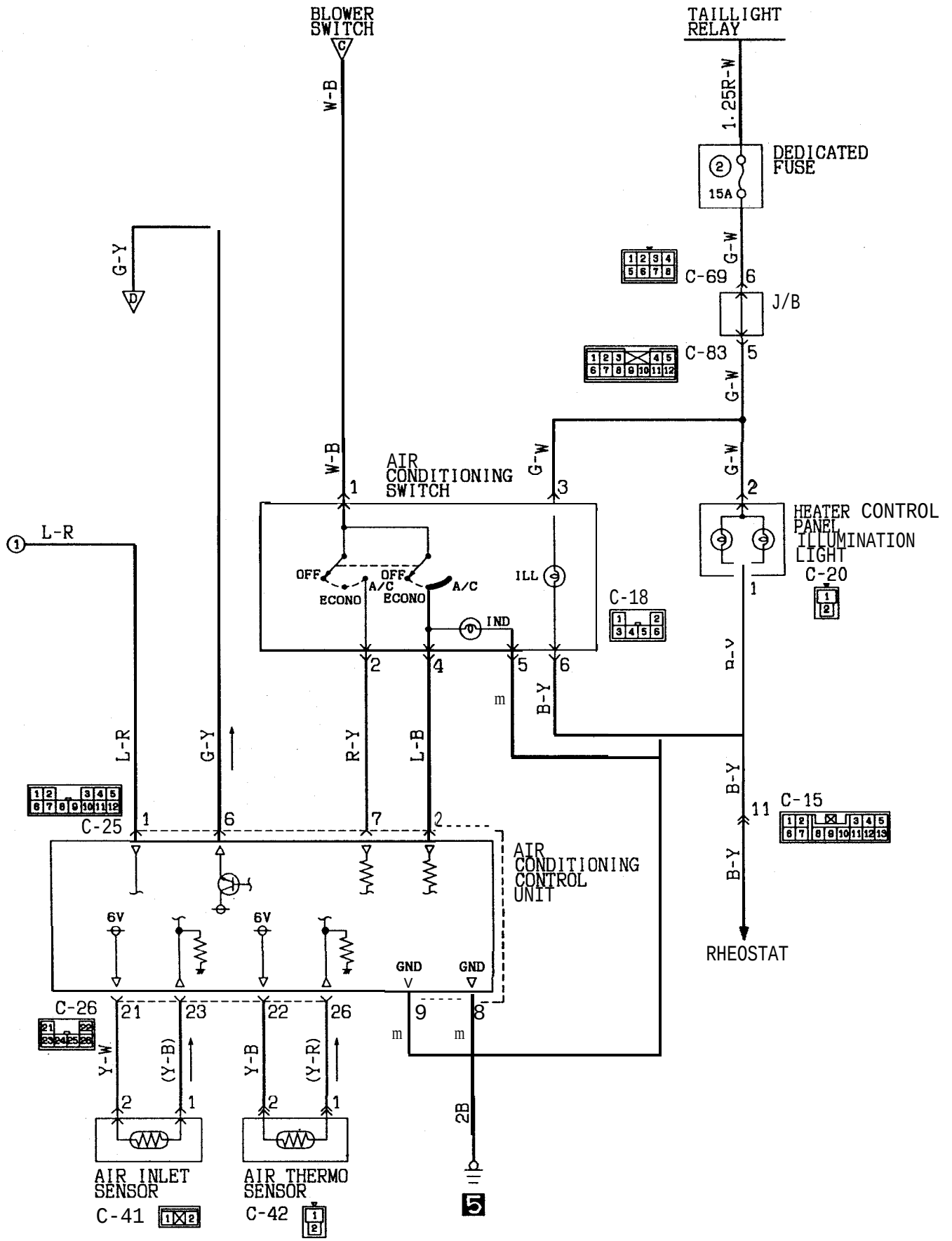


X35-AC-R1203-N4C

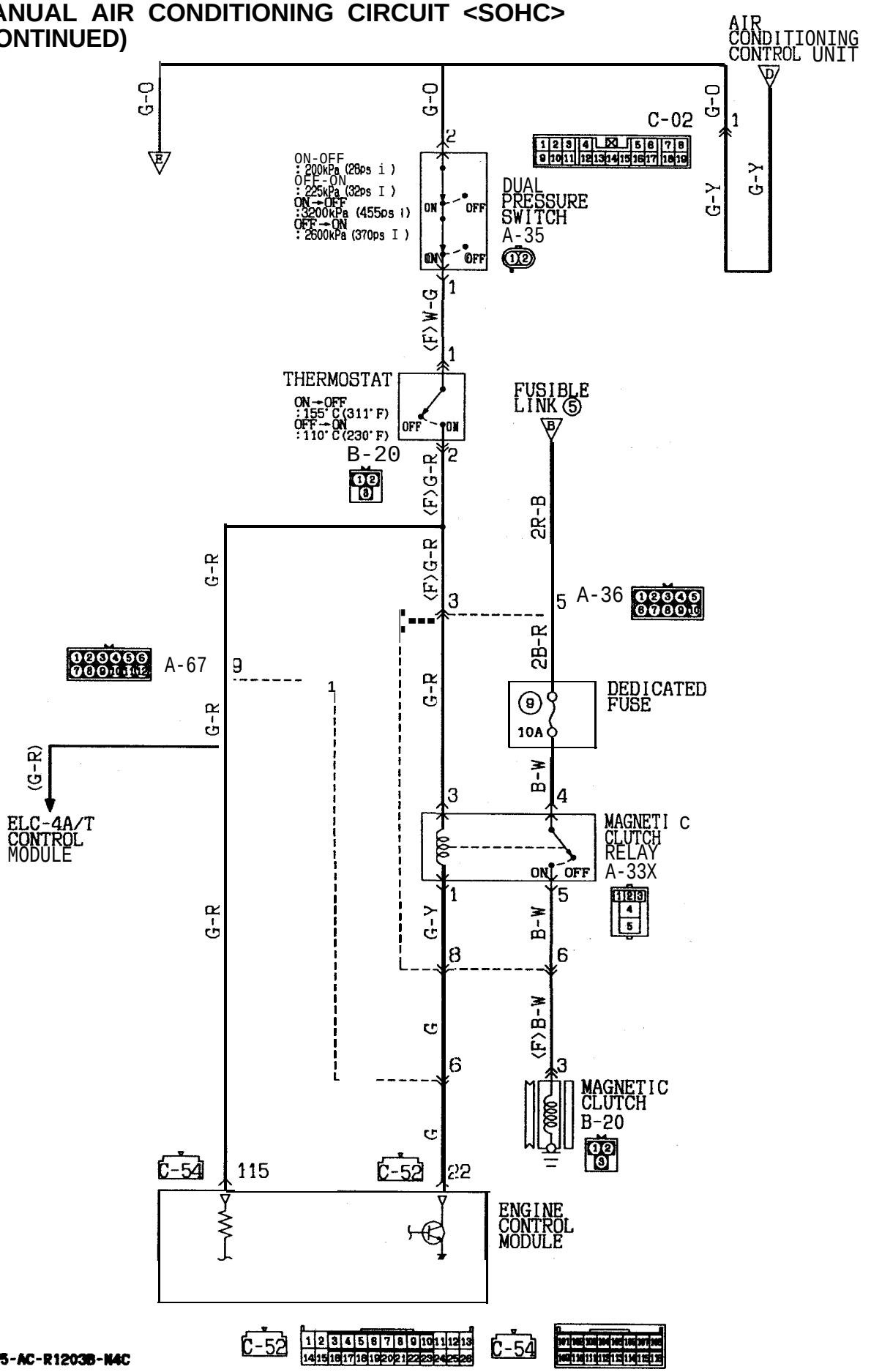

FUSIBLE LINK (5)
L-R
2R-B
2L-Y
DEDICATED FUSE
8
20A
2L-W
2L-B
G-O
CONDENSER FAN MOTOR RELAY
(HI) (LO)
ON OFF
OFF ON
A-31X
A-34X
A-37
NO CONNECTION
A-36
CONDENSER FAN MOTOR
A-45
IA-46
2B
4

MANUAL AIR CONDITIONING CIRCUIT <SOHC> (CONTINUED)




BLOWER SWITCH
C
W-B
TAILLIGHT RELAY
1.25R-W
DEDICATED FUSE
15A
G-Y
D
C-69
G-W
6
J/B
C-83
5
G-W
W-B
AIR CONDITIONING SWITCH
1
G-W
3
G-W
2
HEATER CONTROL PANEL ILLUMINATION LIGHT
C-20
L-R
OFF
ECONO
OFF
A/C
ECONO
A/C
ILL
IND
C-18
2
4
5
6
B-Y
L-R
G-Y
R-Y
L-B
C-25
1
6
7
2
AIR CONDITIONING CONTROL UNIT
6V
6V
GND
GND
B-Y
11
C-15
B-Y
RHEOSTAT
C-26
21
23
22
26
9
8
Y-W
(Y-B)
Y-B
(Y-R)
2B
AIR INLET SENSOR
C-41
AIR THERMO SENSOR
C-42
5

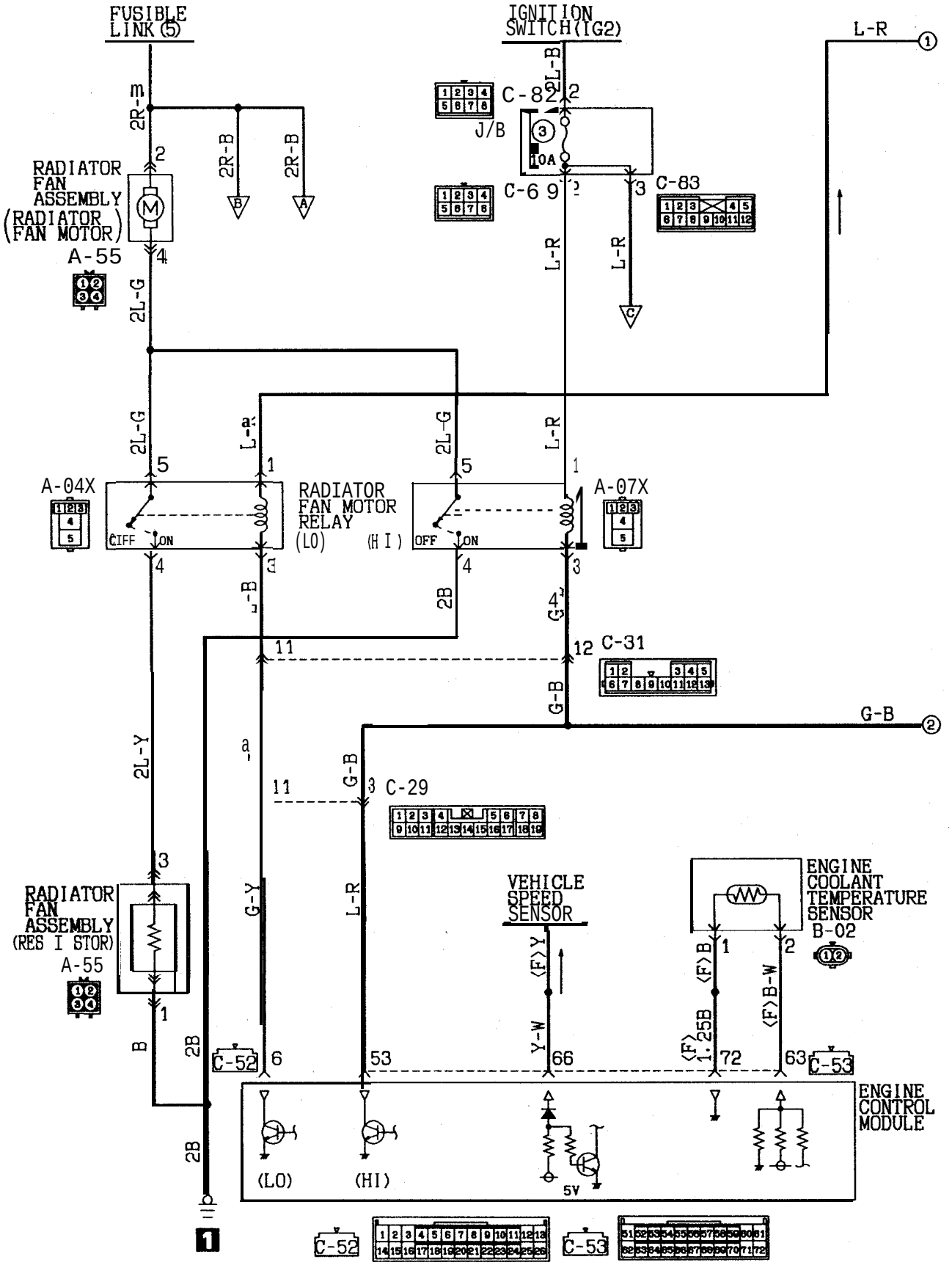
MANUAL AIR CONDITIONING CIRCUIT <SOHC> (CONTINUED)



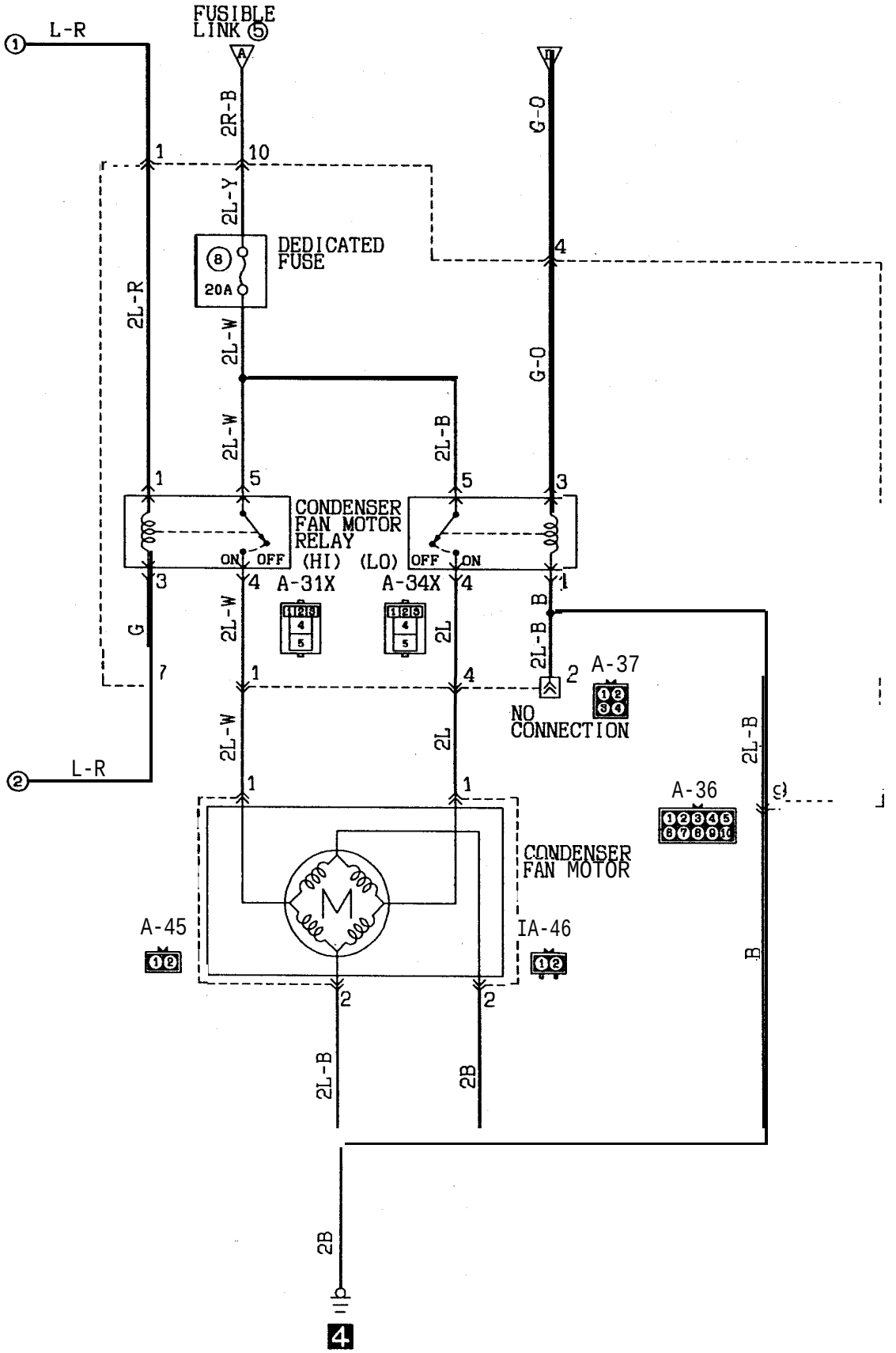
KX35-AC-R1203B-M4C

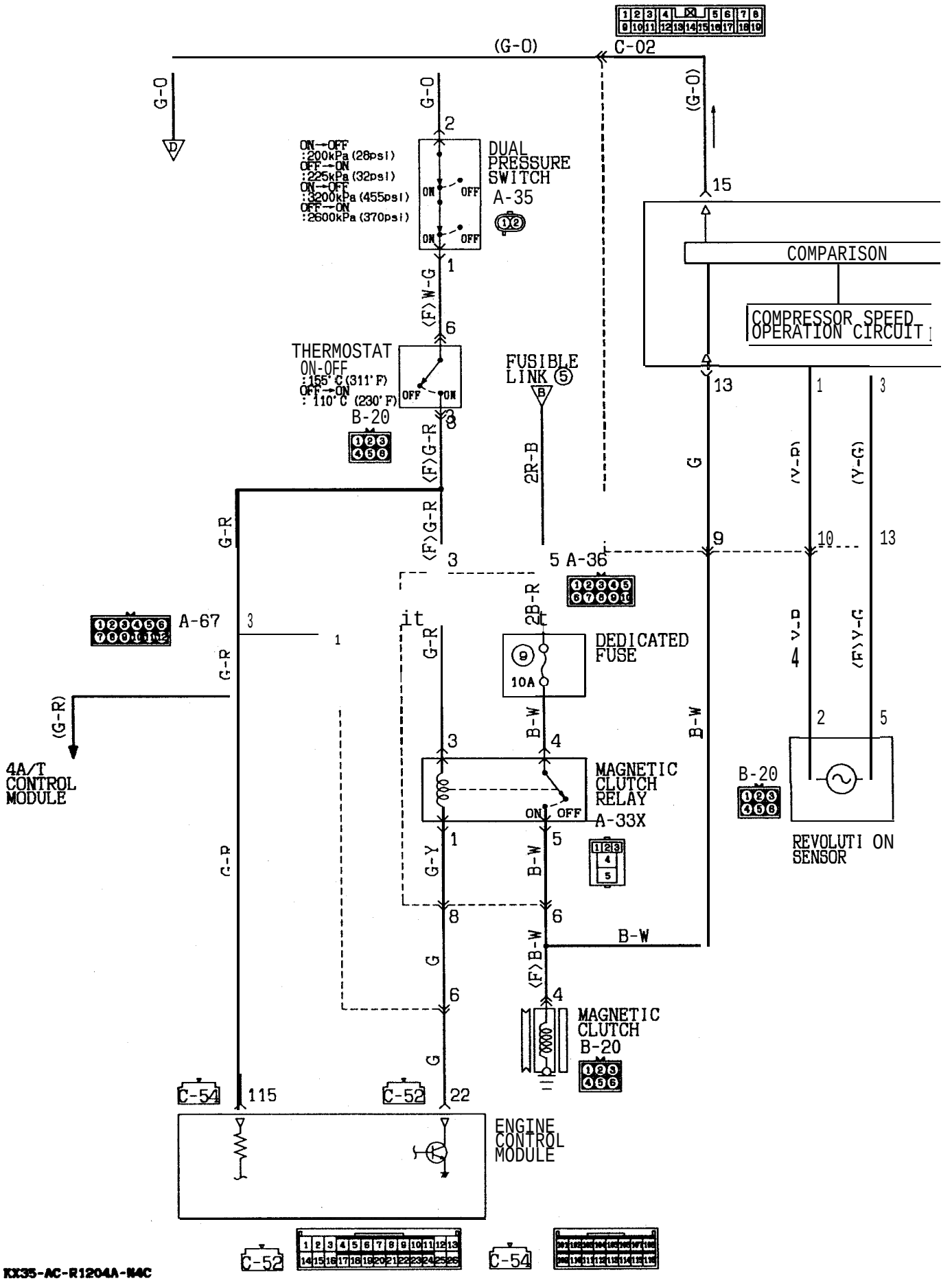
MANUAL AIR CONDITIONING CIRCUIT

<DOHC NON TURBO> (FEDERAL AND CANADA)

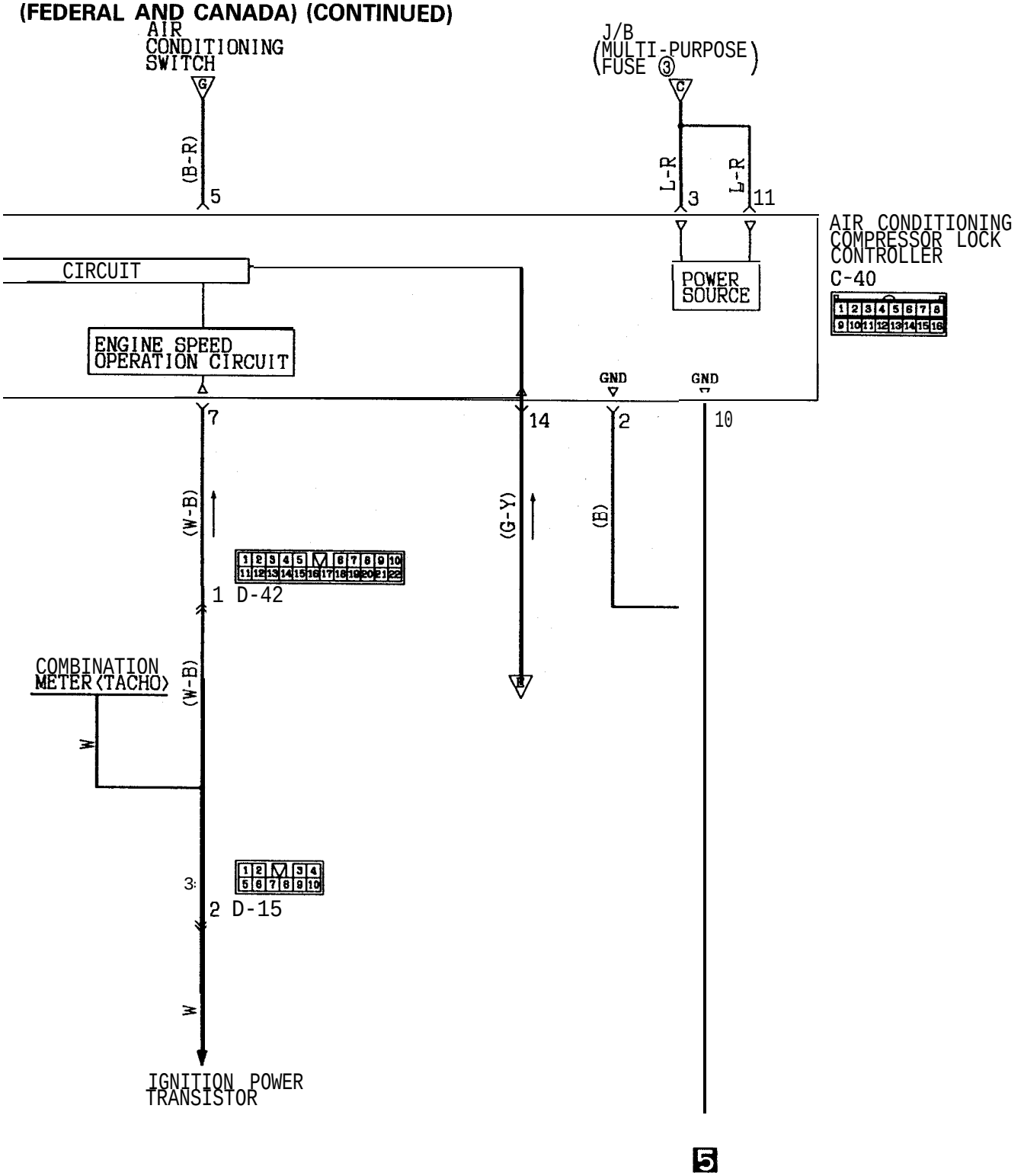


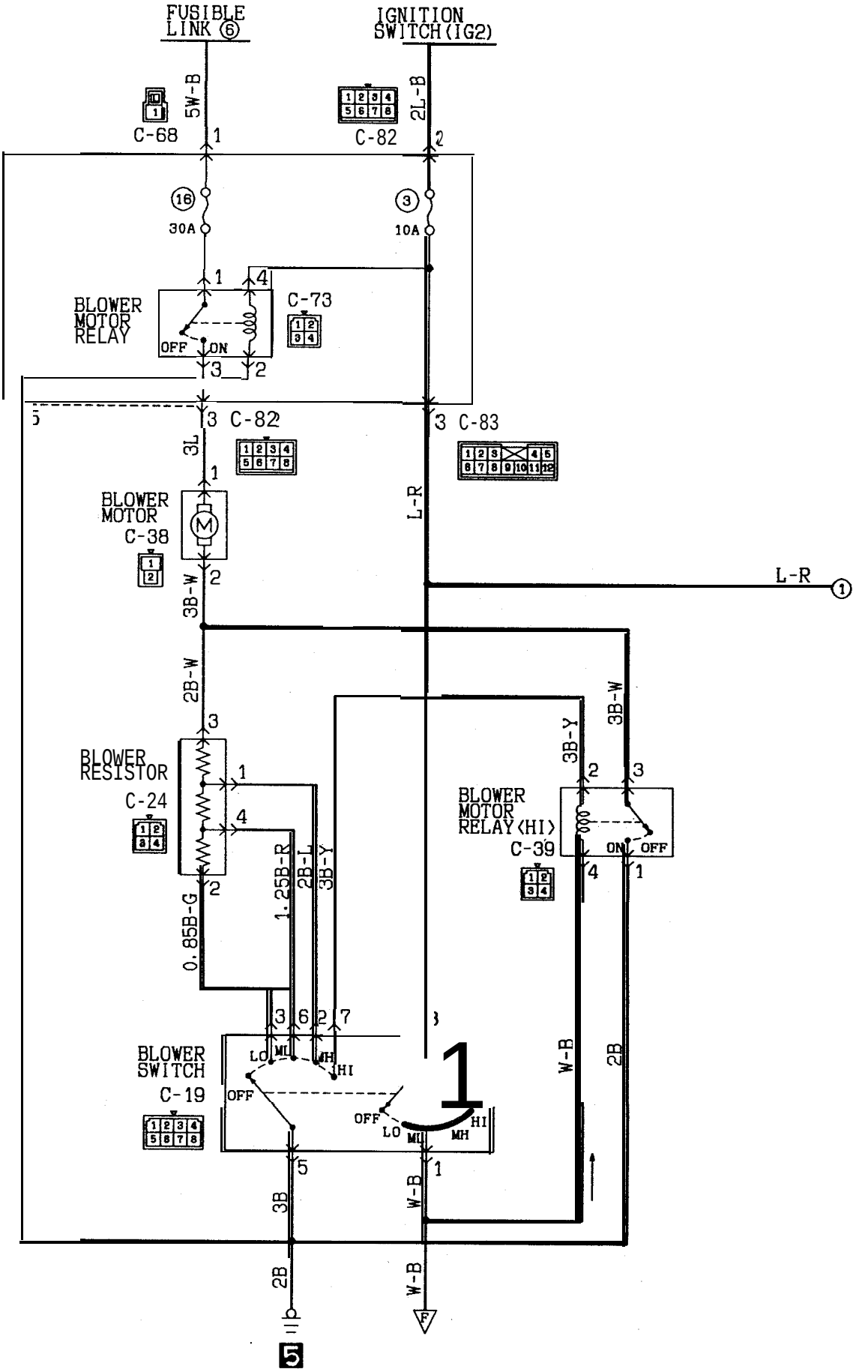
MANUAL AIR CONDITIONING CIRCUIT <DOHC NON TURBO> (FEDERAL AND CANADA) (CONTINUED)




C-02
(G-O)
G-O
DUAL PRESSURE SWITCH
A-35
ON→OFF :200kPa (28psi)
OFF→ON :225kPa (32psi)
ON→OFF :3200kPa (455psi)
OFF→ON :2600kPa (370psi)
COMPARISON
COMPRESSOR SPEED OPERATION CIRCUIT
THERMOSTAT
ON-OFF :155°C (311°F)
OFF→ON : 110°C (230°F)
B-20
FUSIBLE LINK ⑤
2R-B
(F)W-G
(F)G-R
G-R
G
(Y-R)
(Y-G)
A-36
A-67
DEDICATED FUSE
10A
B-W
G-Y
(G-R)
4A/T CONTROL MODULE
MAGNETIC CLUTCH RELAY
A-33X
REVOLUTI ON SENSOR
MAGNETIC CLUTCH
B-20
C-54
C-52
115
22
ENGINE CONTROL MODULE
KX35-AC-R1204A-M4C

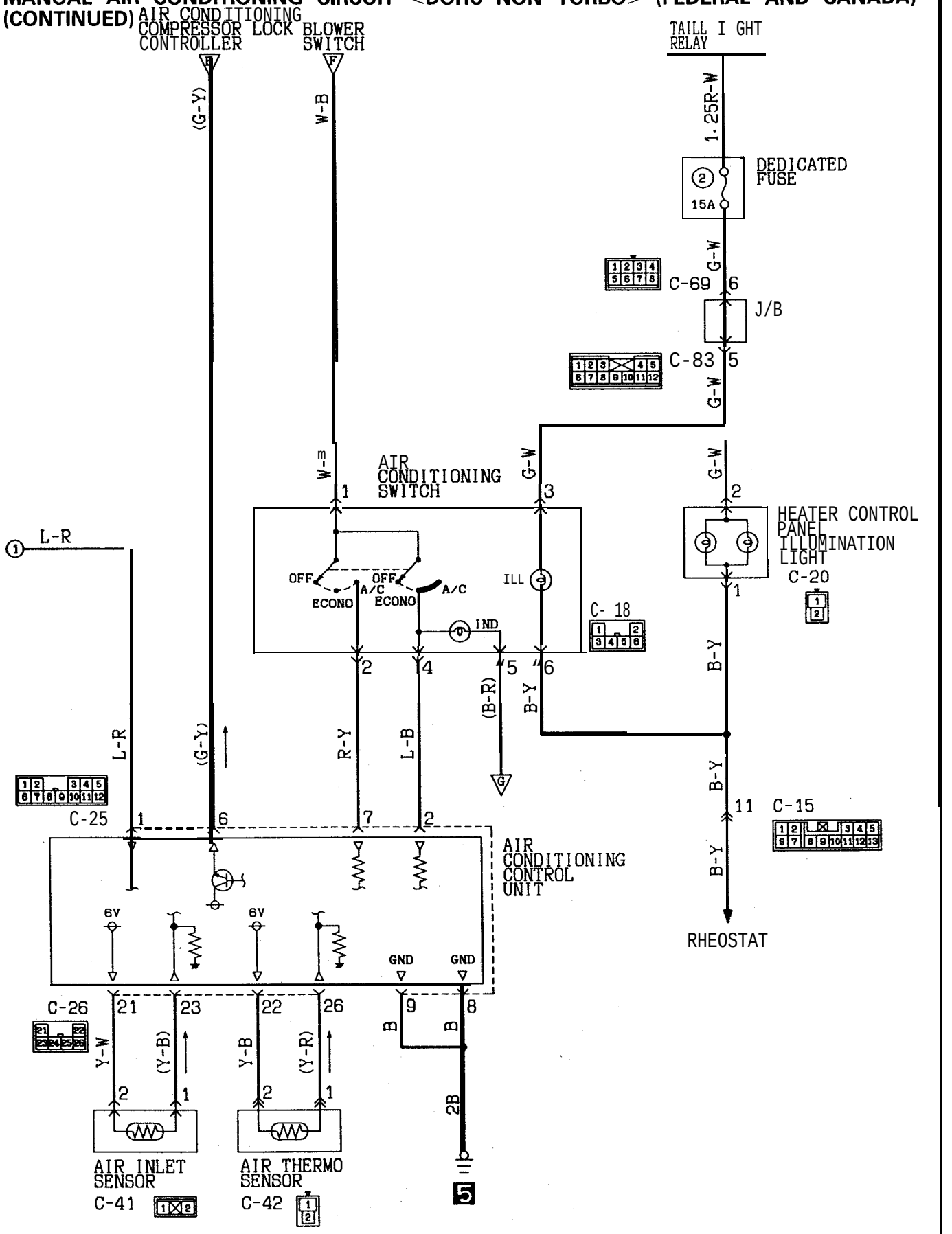
MANUAL AIR CONDITIONING CIRCUIT <DOHC NON TURBO> (FEDERAL AND CANADA) (CONTINUED)





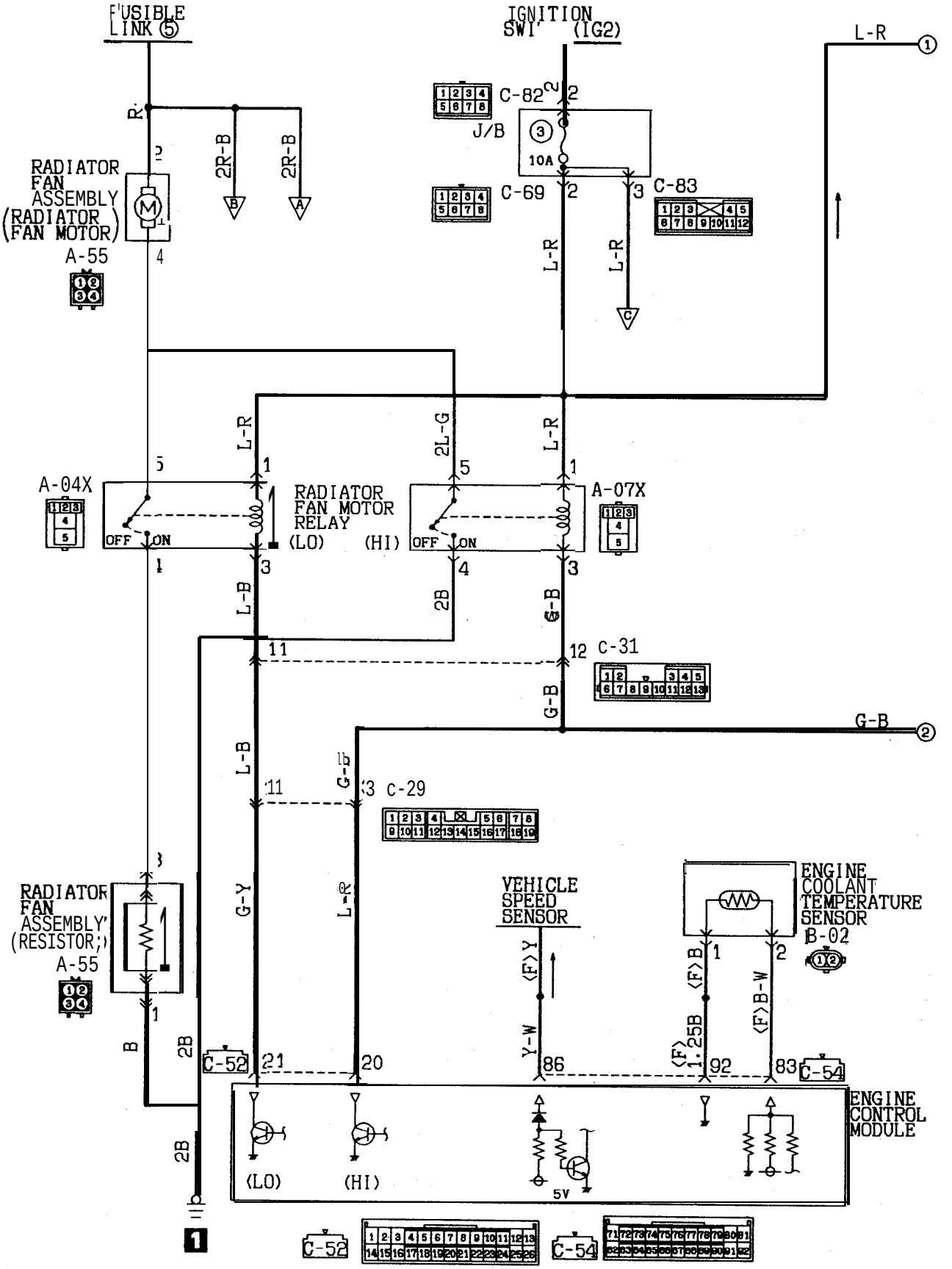
KX35-AC-R1204B-N4C

MANUAL AIR CONDITIONING CIRCUIT <DOHC NON TURBO> (FEDERAL AND CANADA) (CONTINUED)



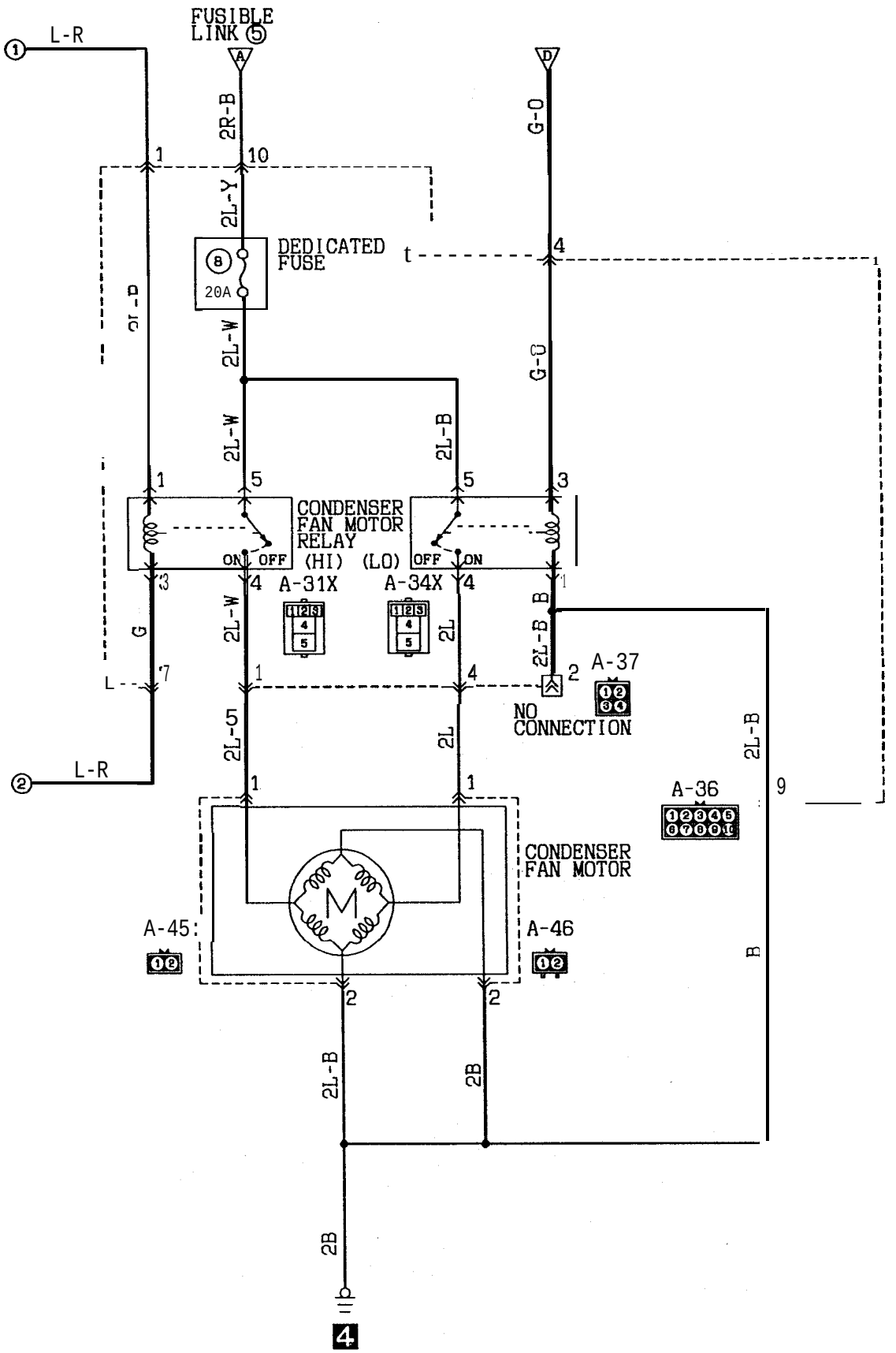
MANUAL AIR CONDITIONING CIRCUIT

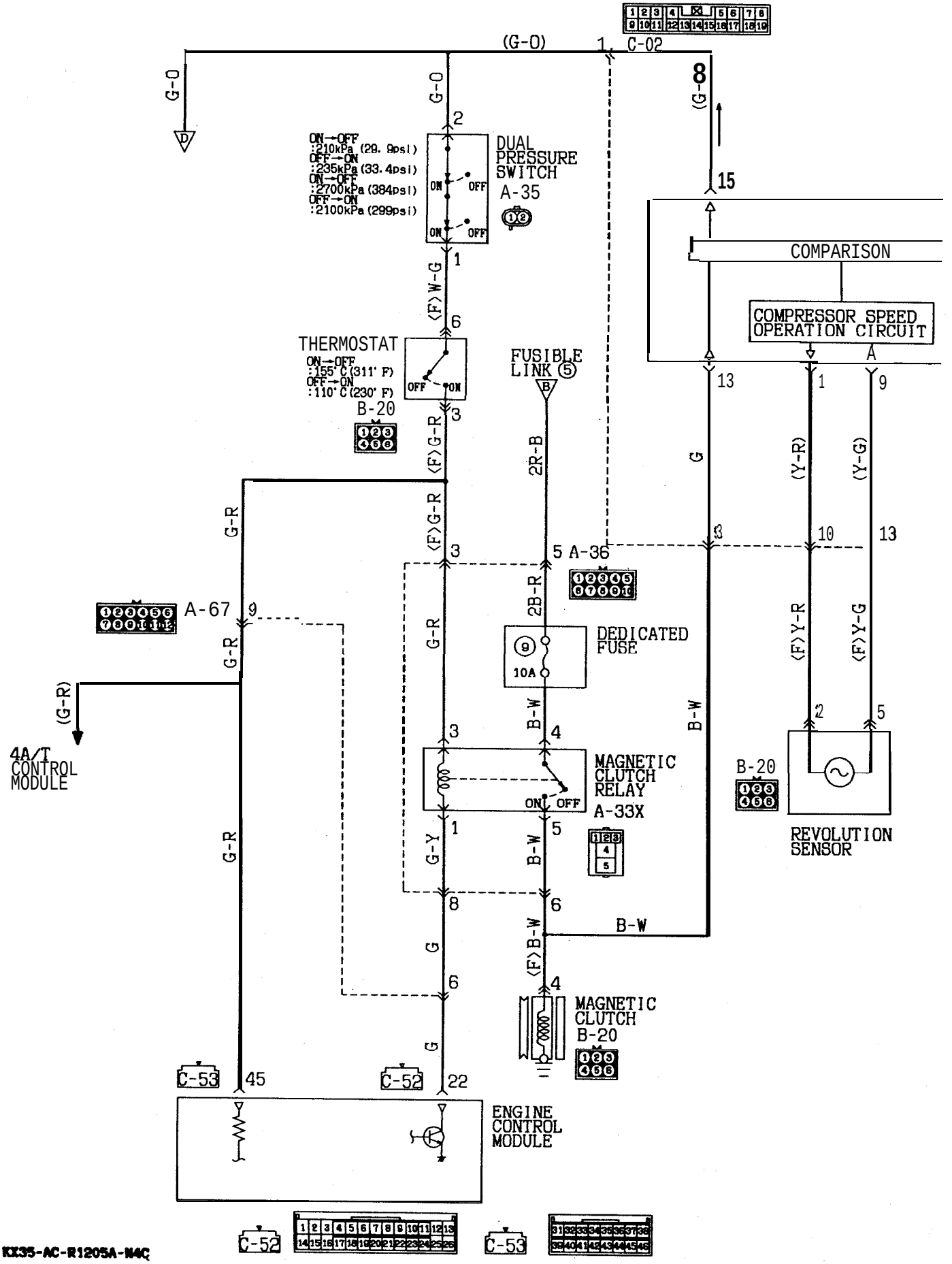
<TURBO, DOHC NON TURBO (CALIFORNIA)>



X35-AC-R1205-N4C

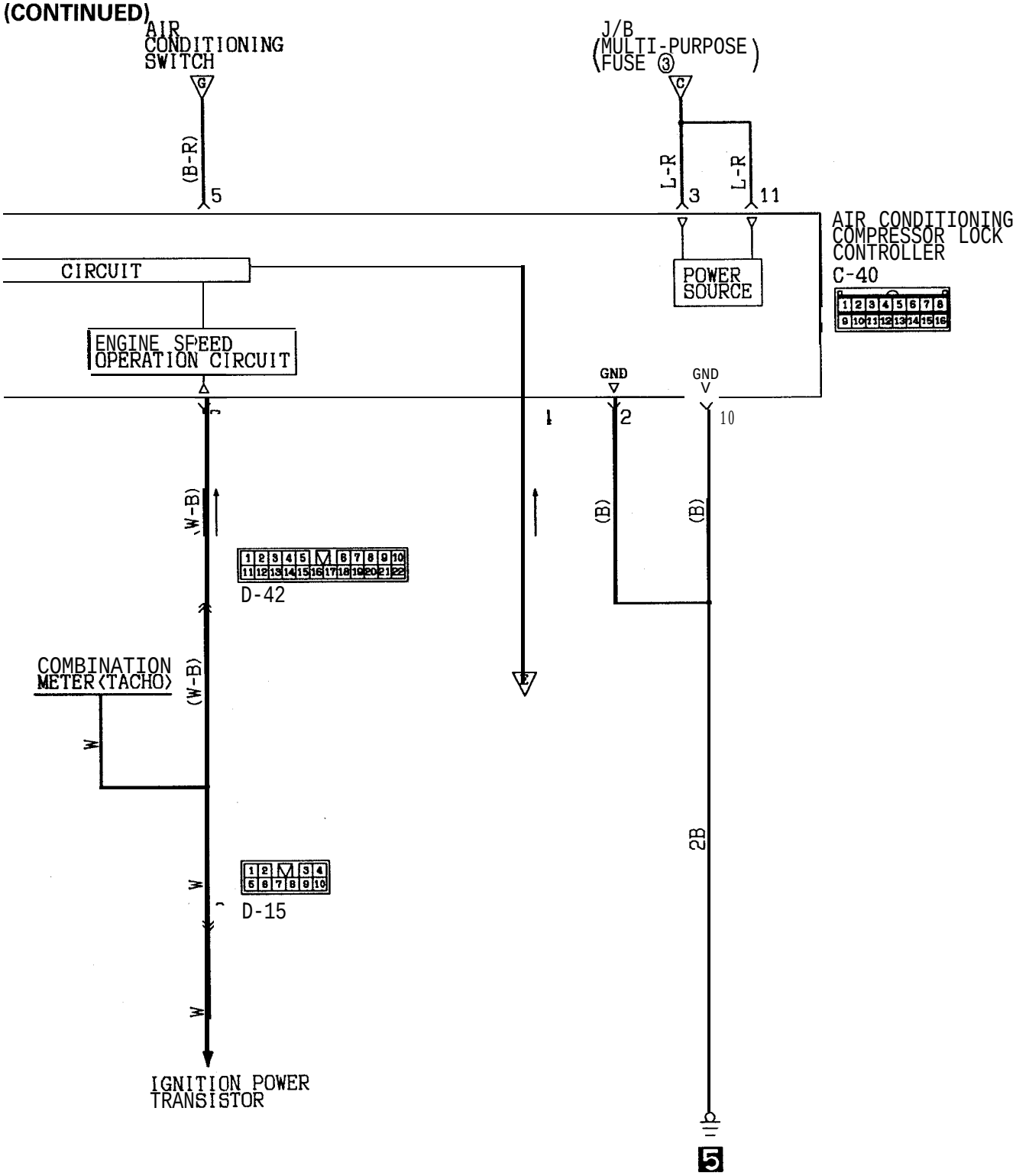
MANUAL AIR CONDITIONING CIRCUIT <TURBO, DOHC NON TURBO (CALIFORNIA)> (CONTINUED)

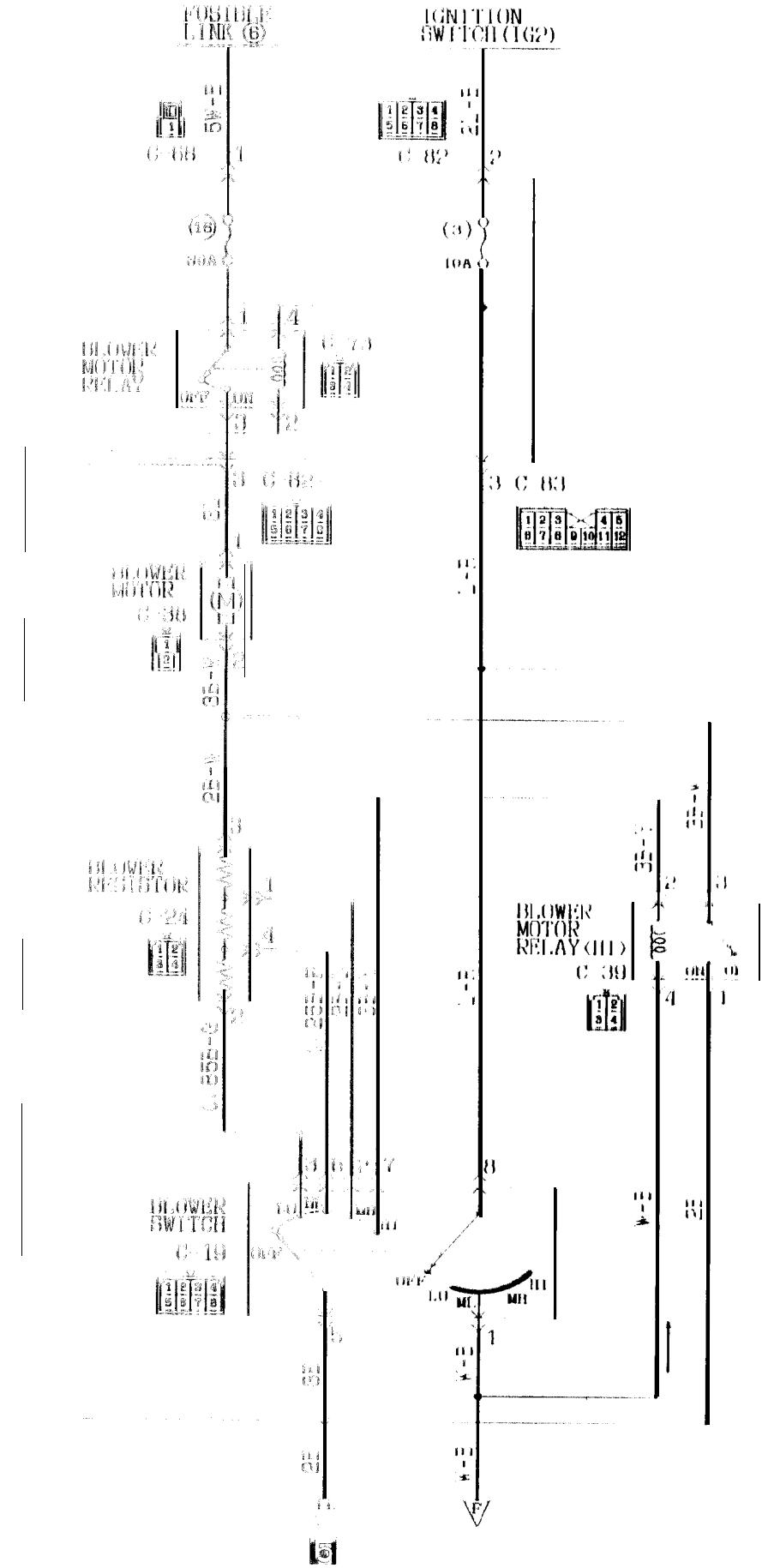




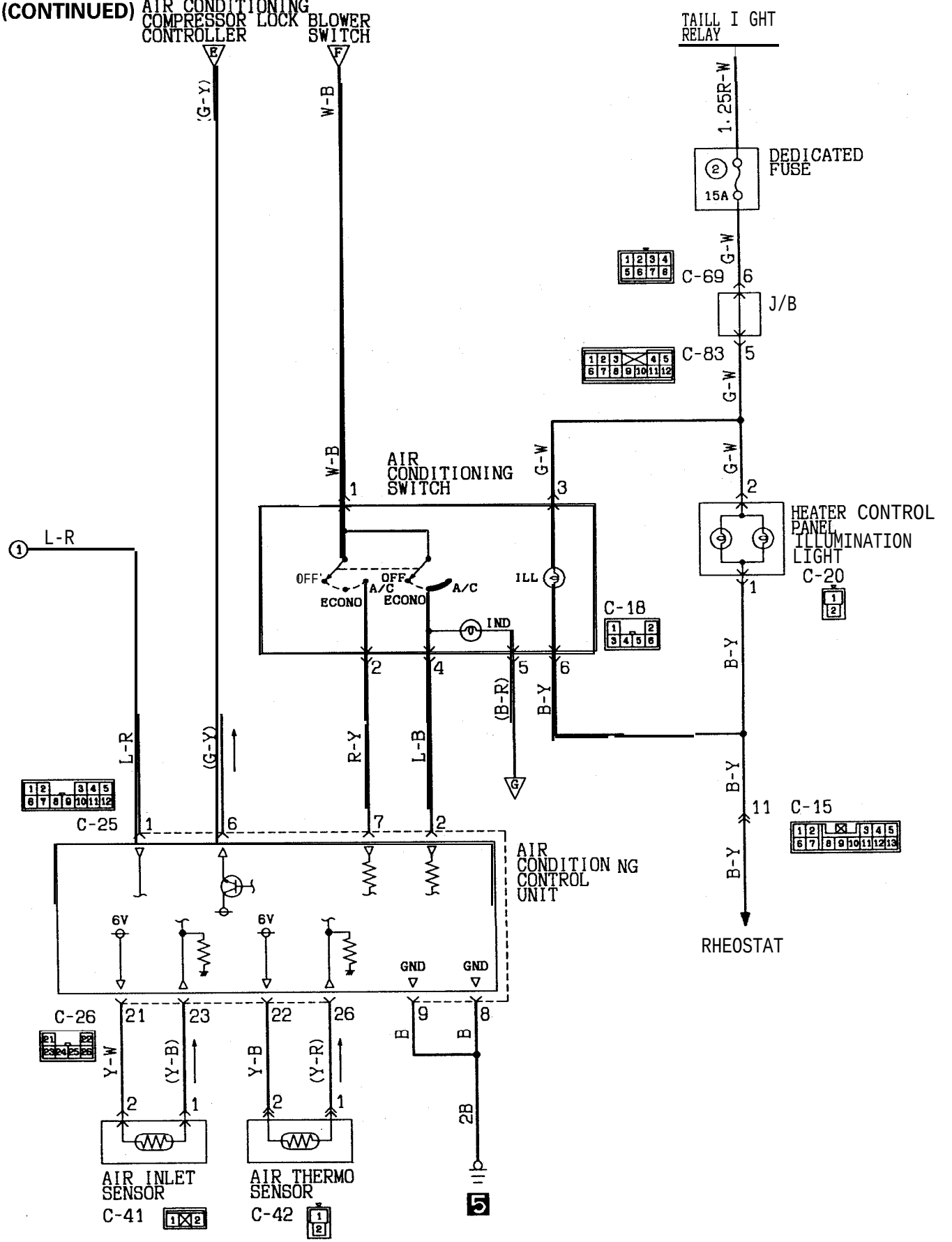
KX35-AC-R1205A-M4C

MANUAL AIR CONDITIONING CIRCUIT <TURBO, DOHC NON TURBO (CALIFORNIA)> (CONTINUED)



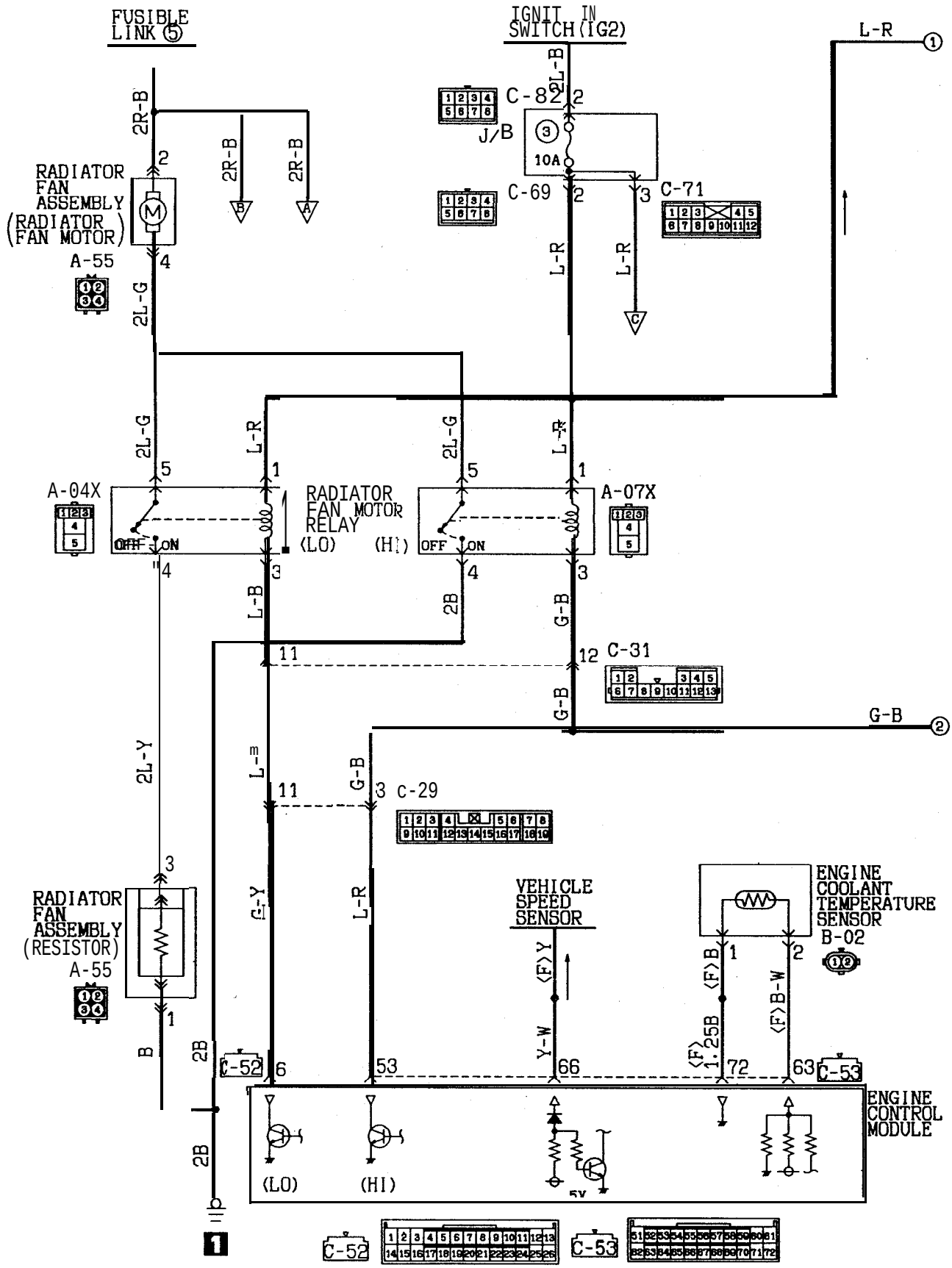

FUSIBLE LINK (6)
IGNITION SWITCH (IG2)
C-68
C-82
(18)
30A
(3)
10A
BLOWER MOTOR RELAY
C-73
C-82
C-83
BLOWER MOTOR
C-30
BLOWER RESISTOR
C-24
BLOWER MOTOR RELAY (HI)
C-39
BLOWER SWITCH
C-19
OFF
LO
MI
MH
HI

MANUAL AIR CONDITIONING CIRCUIT <TURBO, DOHC NON TURBO (CALIFORNIA)> (CONTINUED)



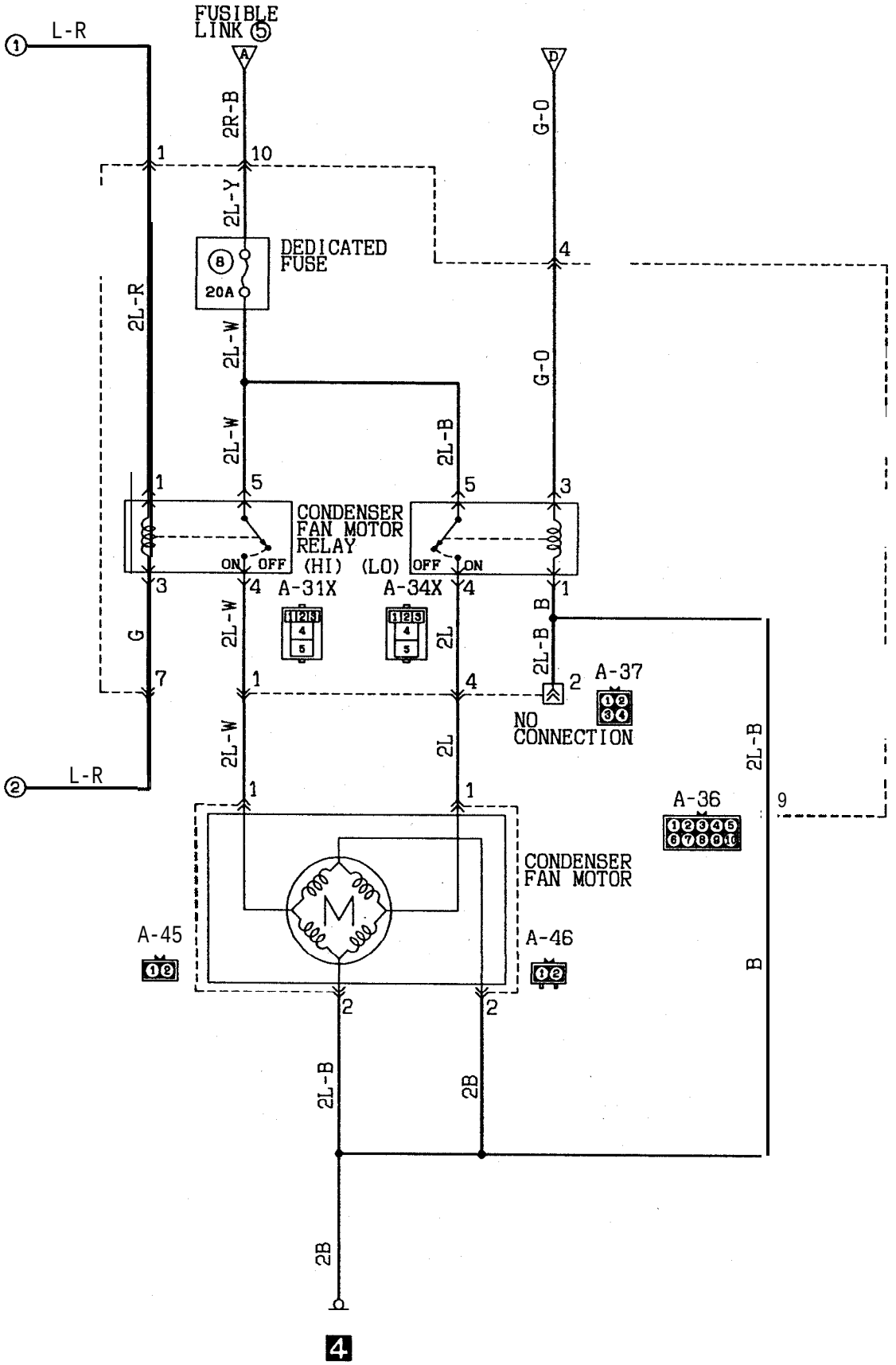
FULL AUTO 'AIR CONDITIONING CIRCUIT

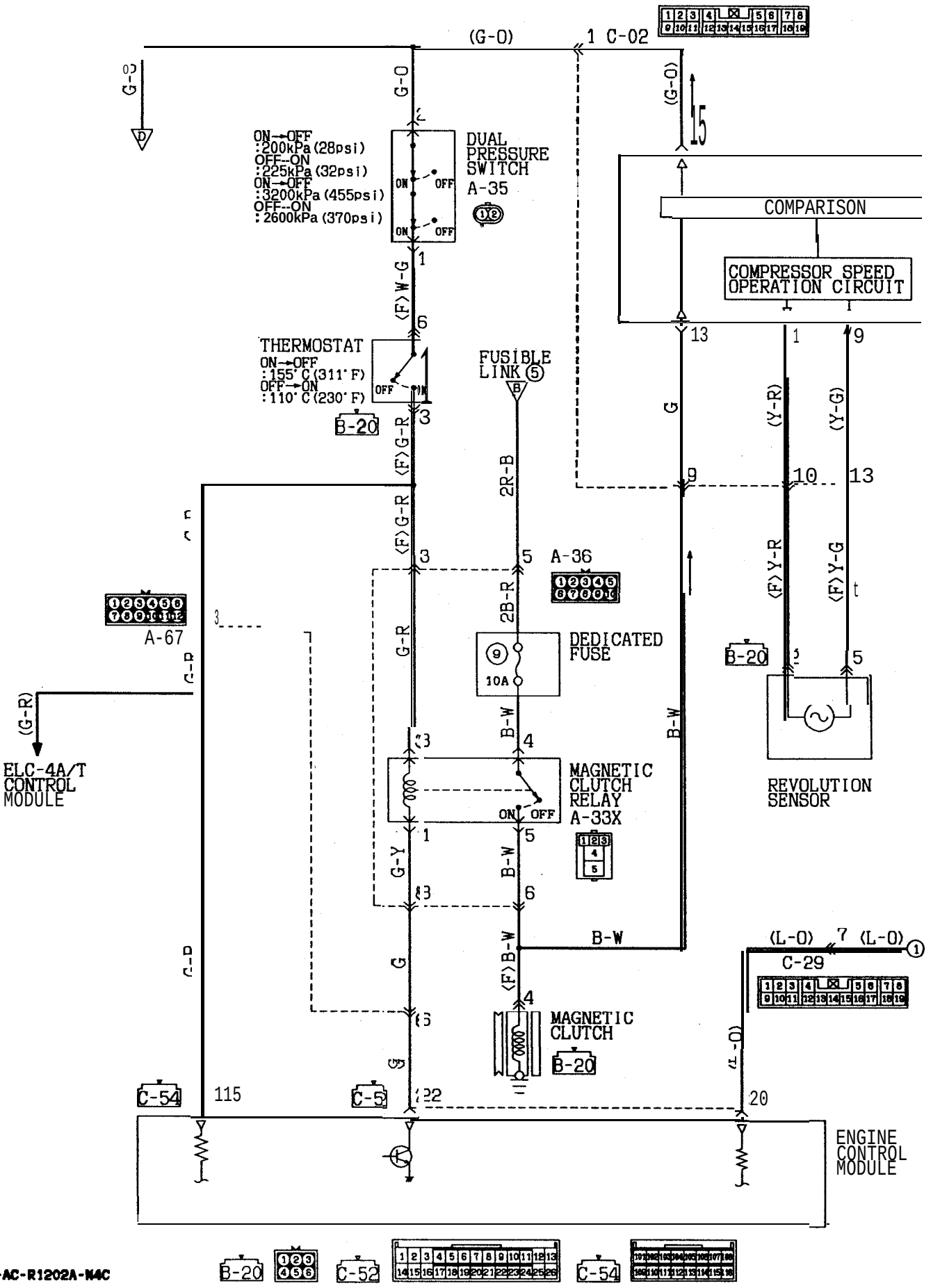
<DOHC NON TURBO> (FEDERAL AND CANADA)



KX35-AC-R1202-N4C

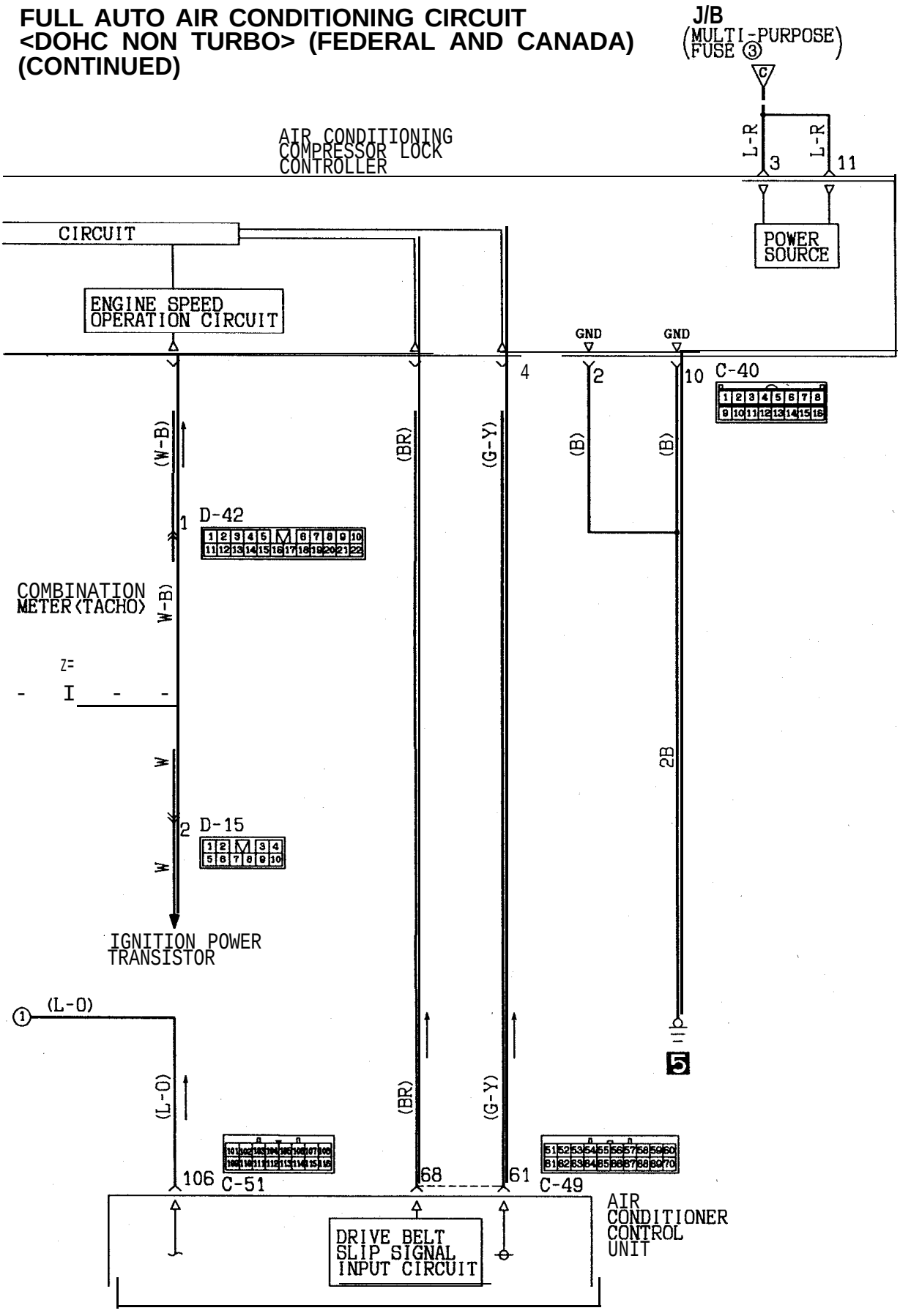
FULL AUTO AIR CONDITIONING CIRCUIT <DOHC NON TURBO> (FEDERAL AND CANADA) (CONTINUED)

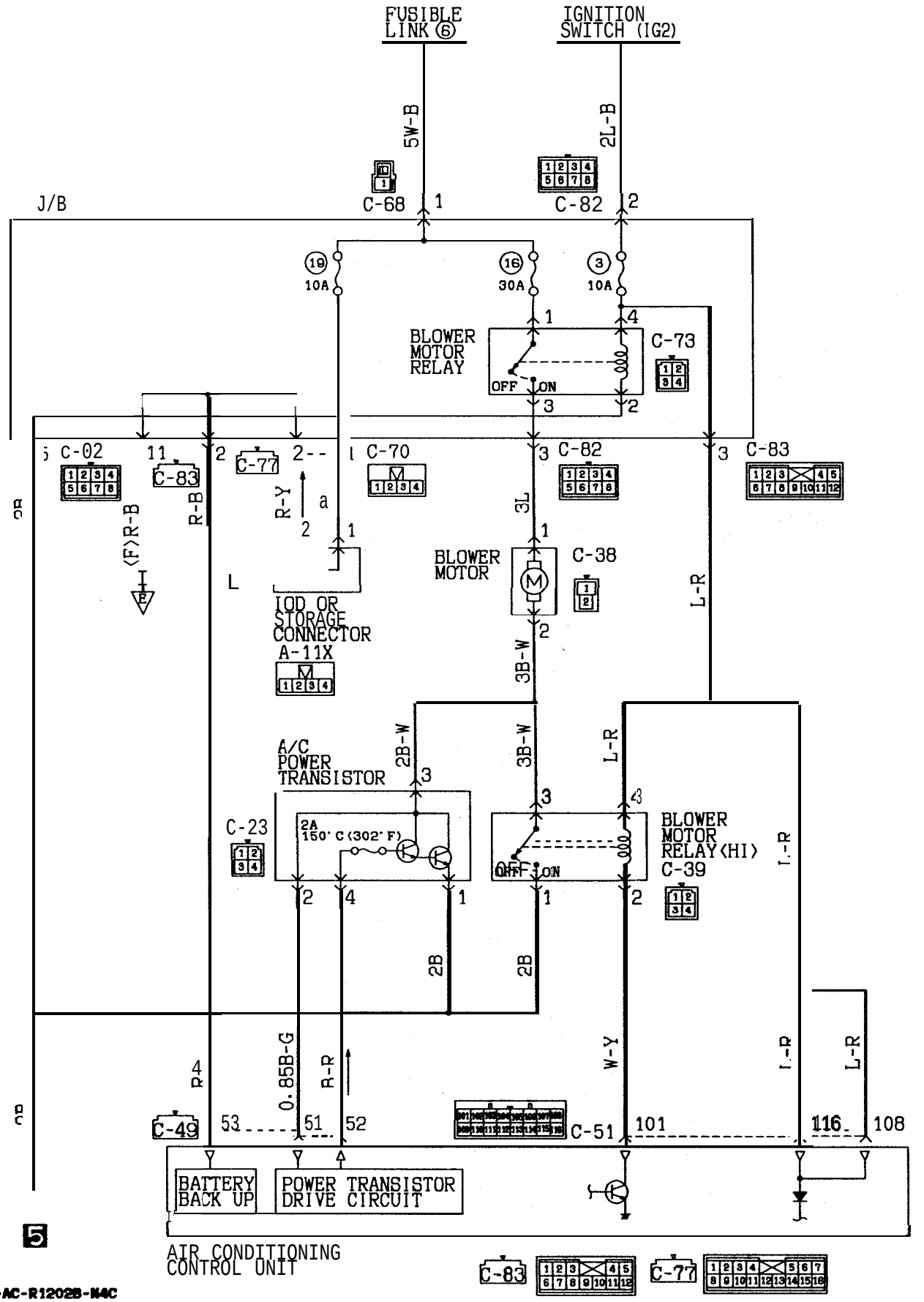




KX35-AC-R1202A-N4C

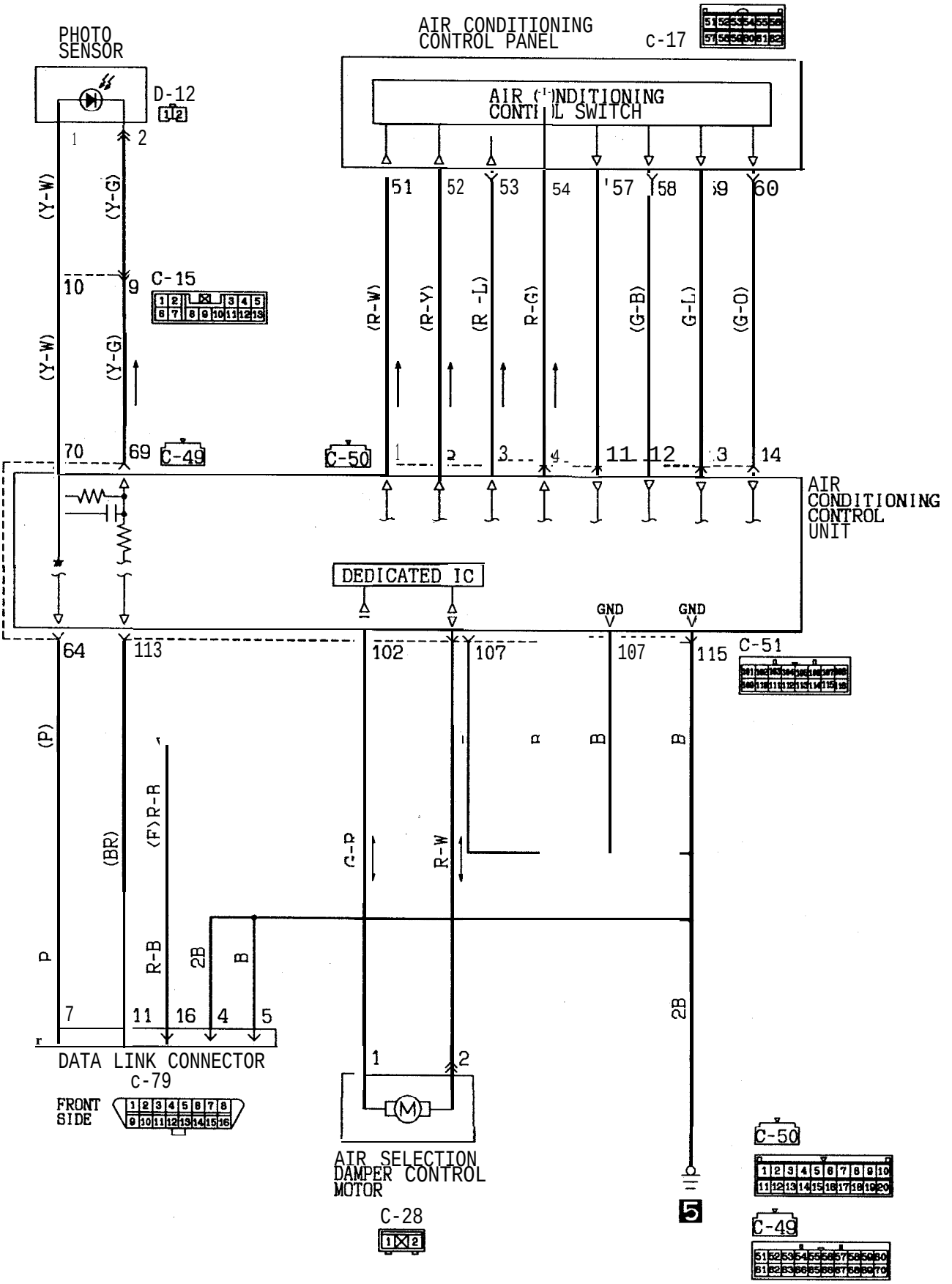
FULL AUTO AIR CONDITIONING CIRCUIT <DOHC NON TURBO> (FEDERAL AND CANADA) (CONTINUED)

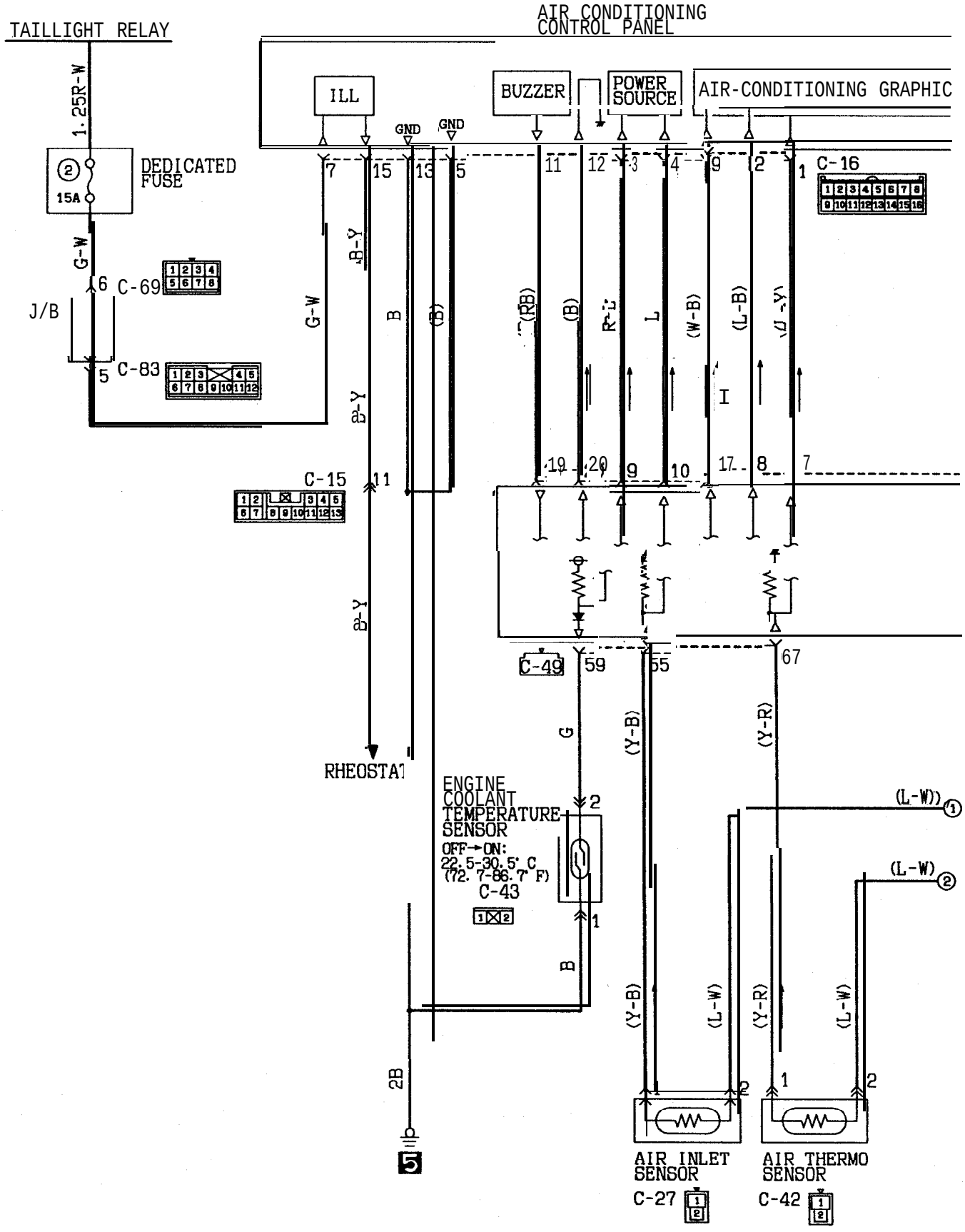




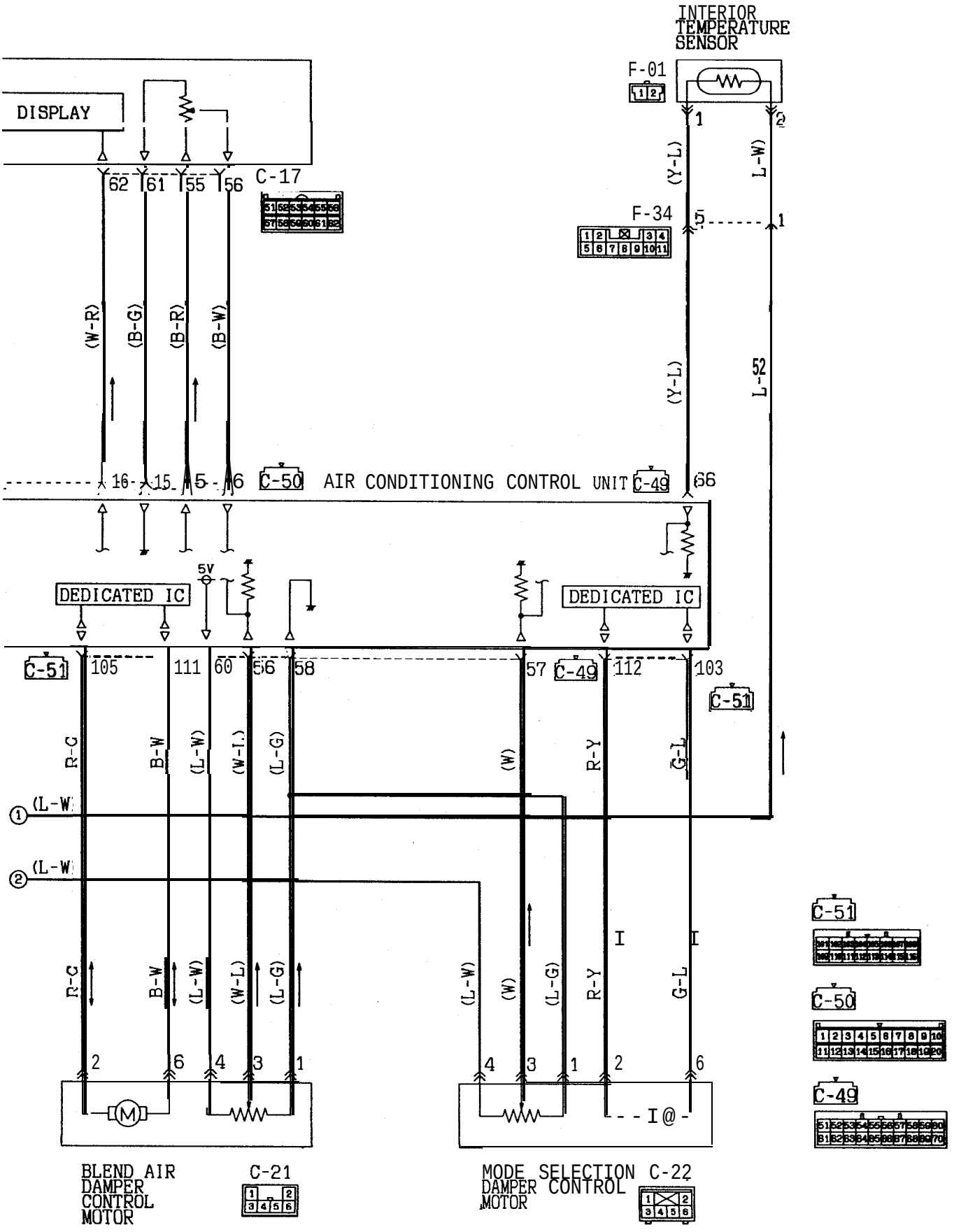
KX35-AC-R1202B-M4C

FULL AUTO AIR CONDITIONING. CIRCUIT <DOHC NON TURBO> (FEDERAL AND CANADA) (CONTINUED)



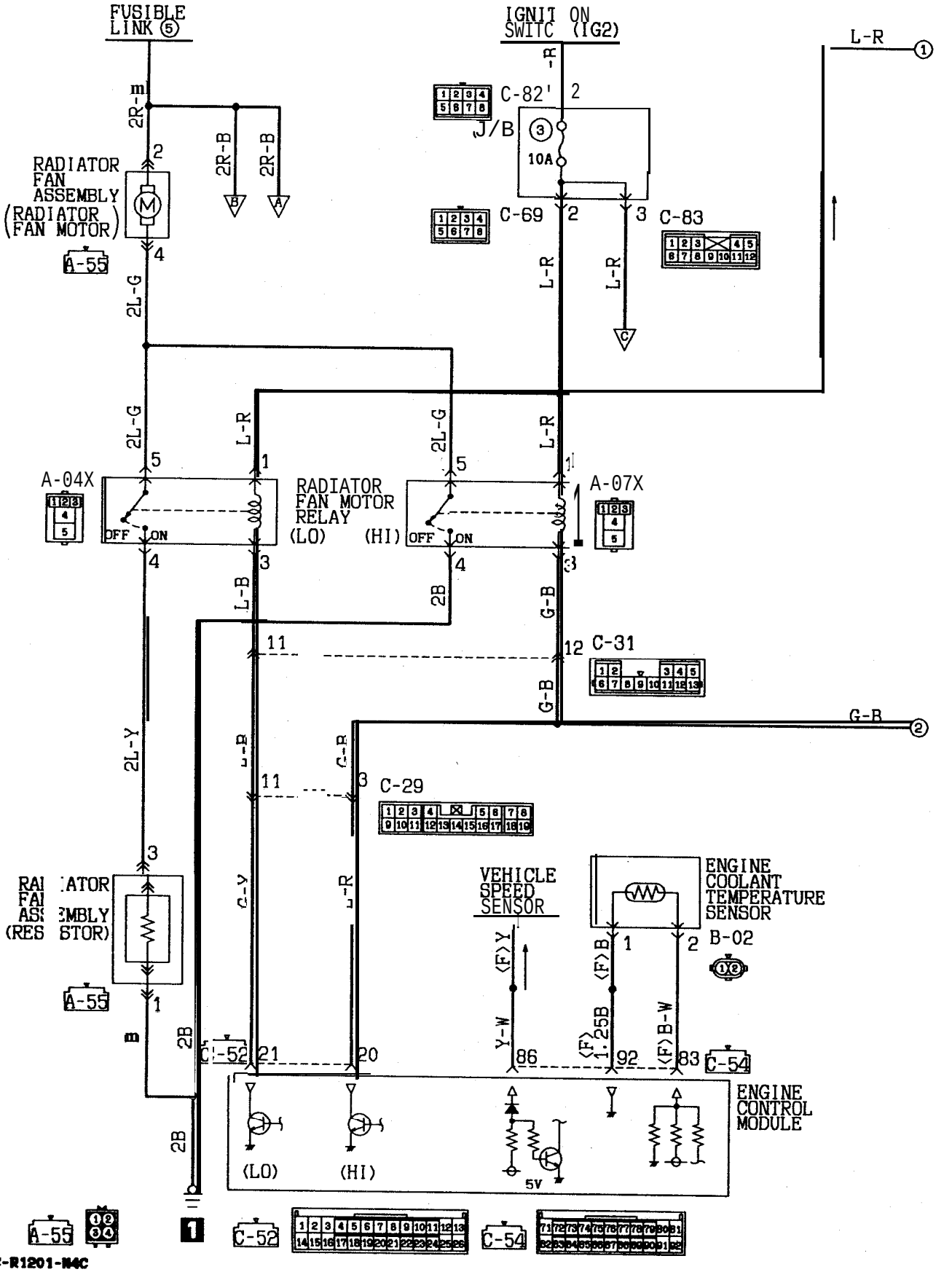

TAILLIGHT RELAY
AIR CONDITIONING CONTROL PANEL
ILL
BUZZER
POWER SOURCE
AIR-CONDITIONING GRAPHIC
GND
GND
1.25R-W
DEDICATED FUSE
15A
G-W
J/B
C-69
C-83
C-16
C-15
C-49
B-Y
B
(B)
(RB)
L
(W-B)
(L-B)
(Y-R)
RHEOSTAT
ENGINE COOLANT TEMPERATURE SENSOR
OFF→ON:
22.5-30.5°C
(72.7-86.7°F)
C-43
G
(Y-B)
(L-W)
2B
AIR INLET SENSOR
C-27
AIR THERMO SENSOR
C-42

FULL AUTO AIR CONDITIONING CIRCUIT <DOHC NON TURBO> (FEDERAL AND CANADA) (CONTINUED)

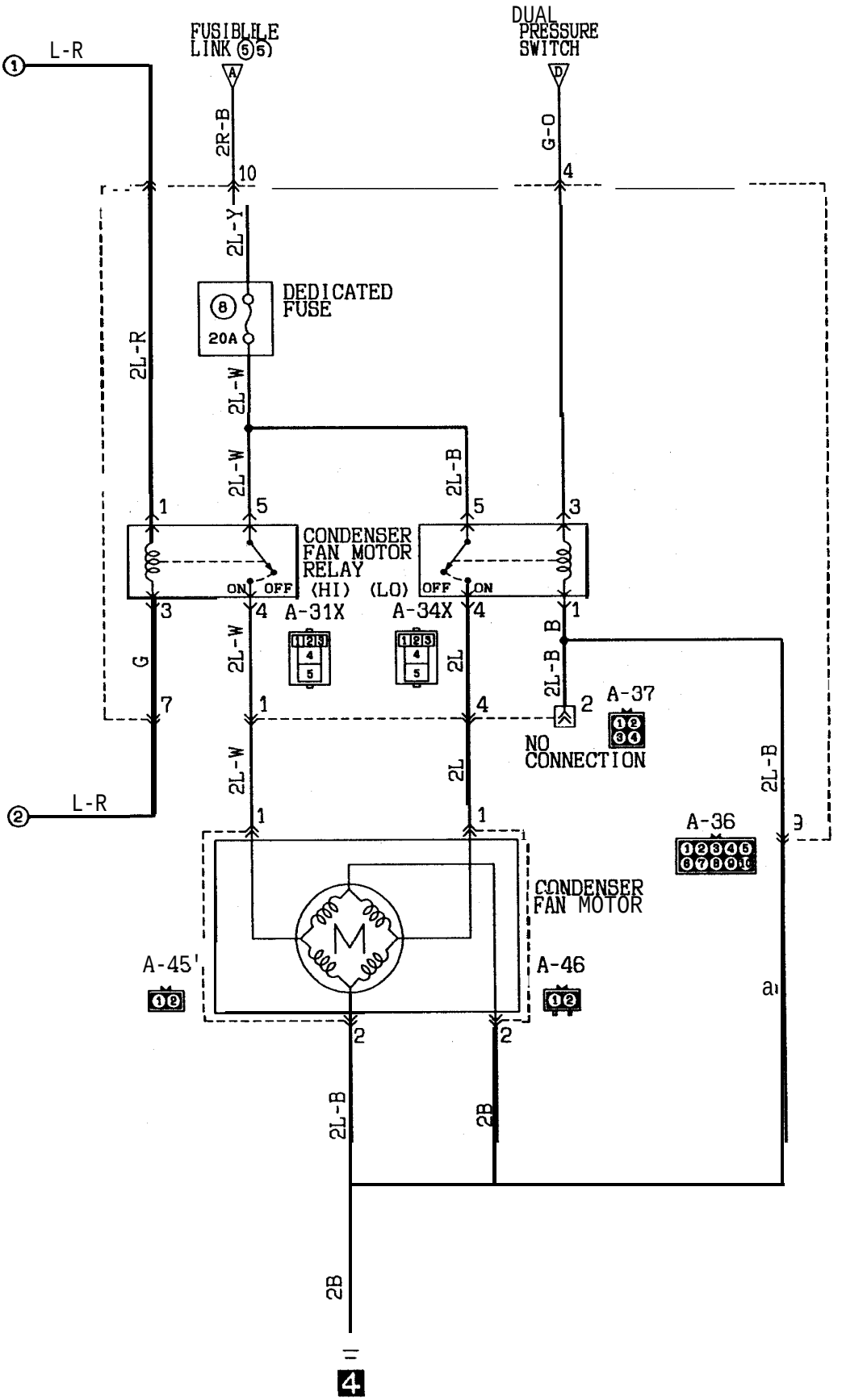


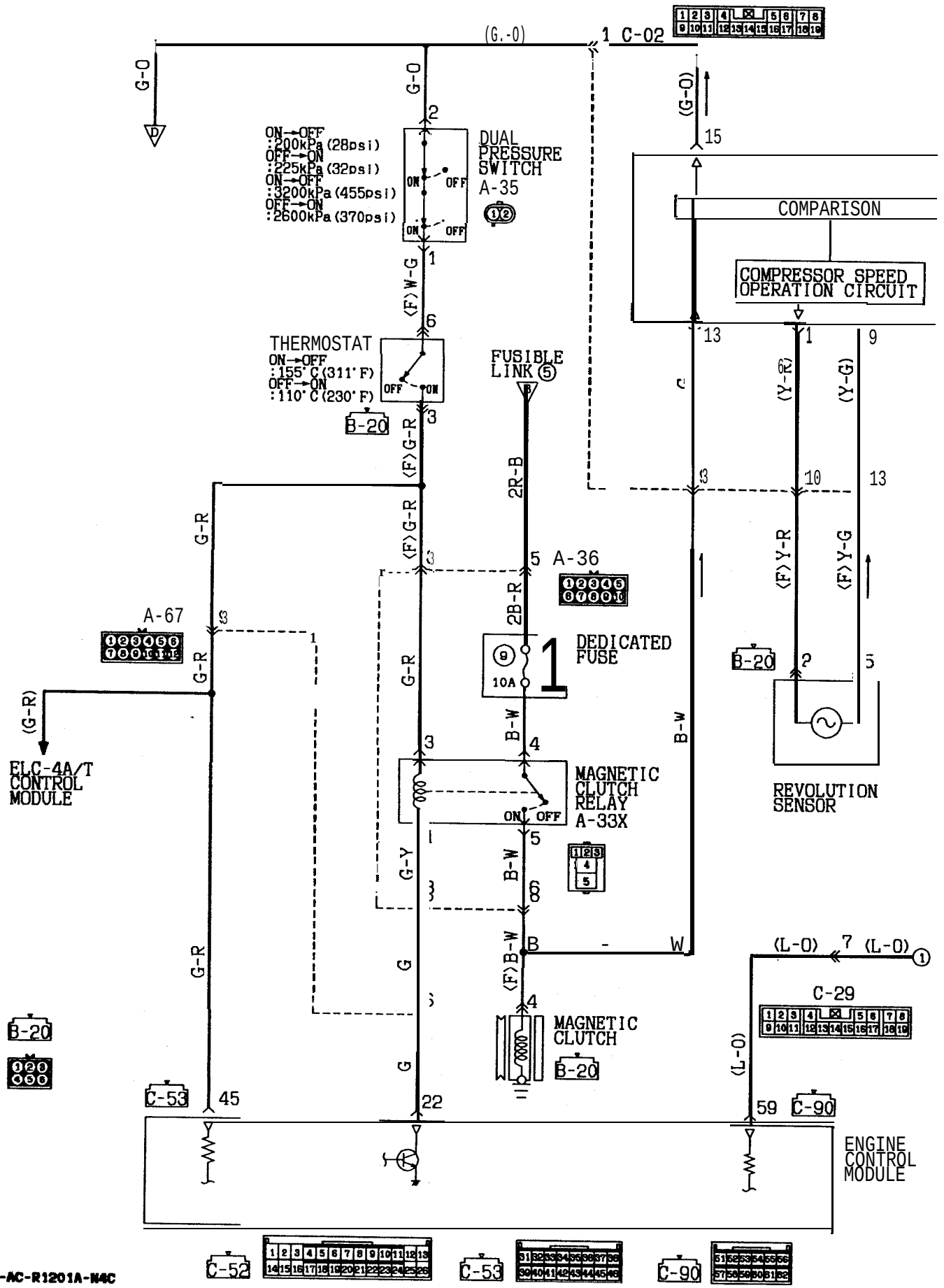
FULL AUTO AIR CONDITIONING CIRCUIT

<TURBO, DOHC NON TURBO (CALIFORNIA)>



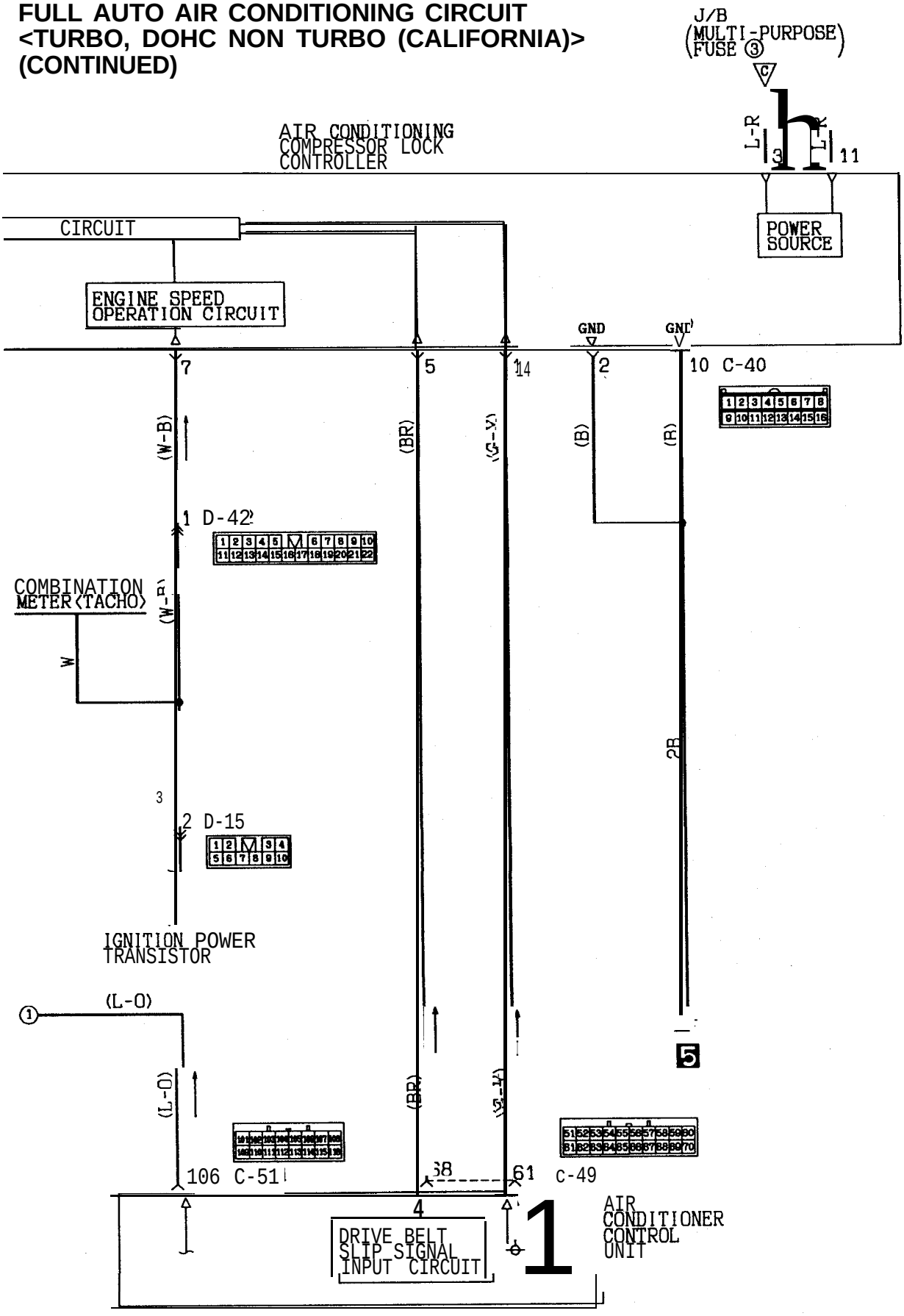
FULL AUTO AIR CONDITIONING CIRCUIT <TURBO, DOHC NON TURBO (CALIFORNIA)> (CONTINUED)

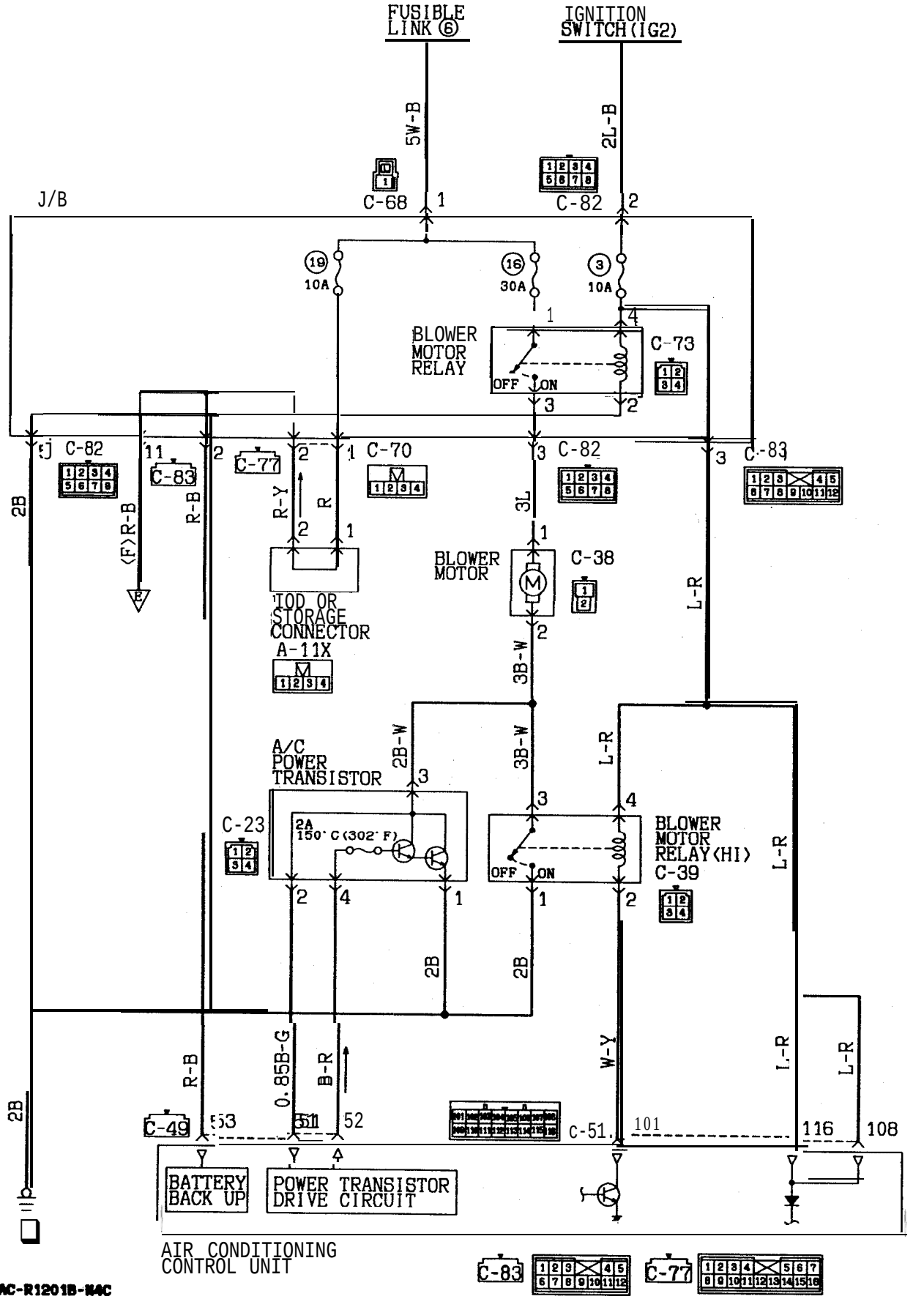




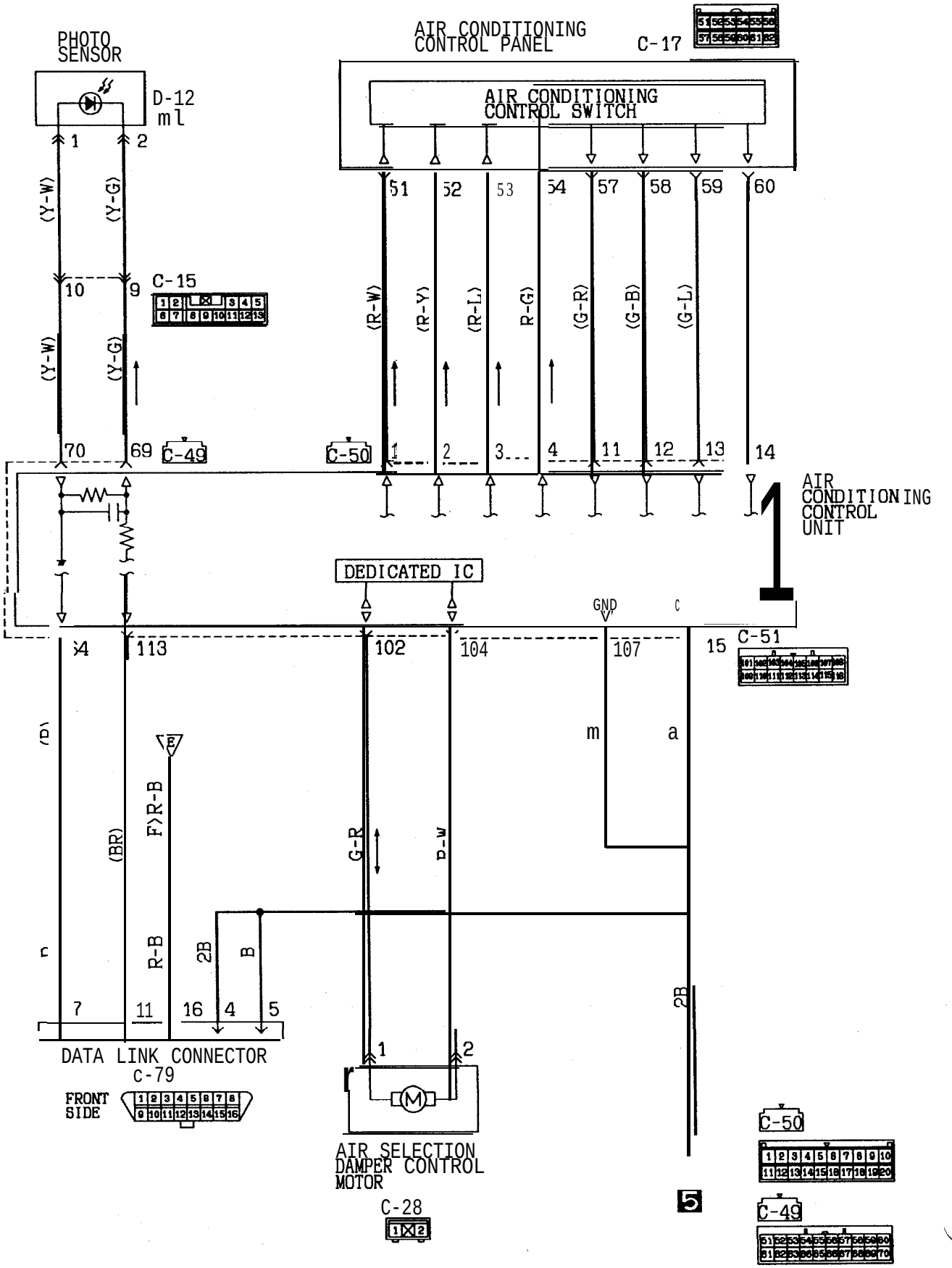
KX35-AC-R1201A-N4C

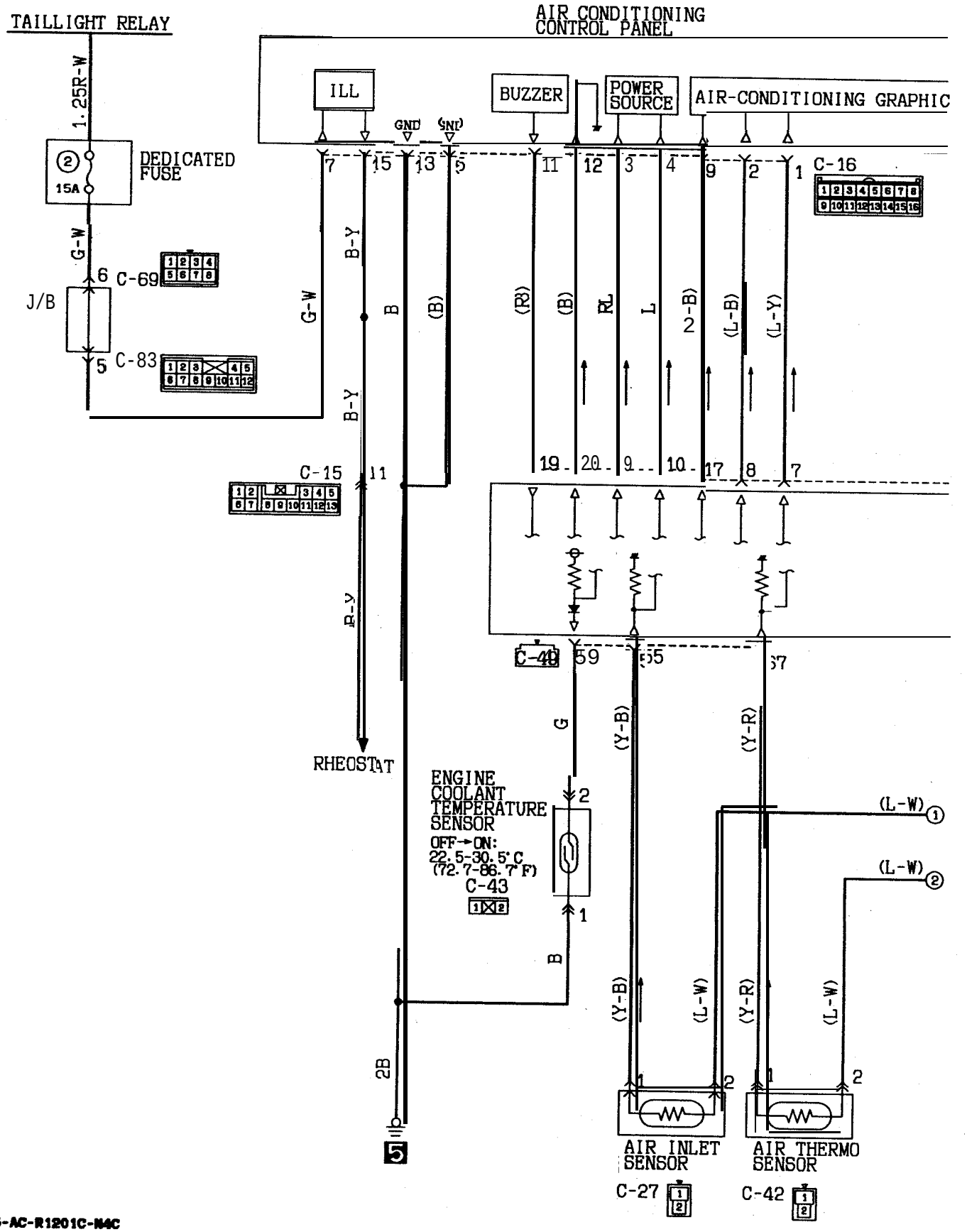
FULL AUTO AIR CONDITIONING CIRCUIT <TURBO, DOHC NON TURBO (CALIFORNIA)> (CONTINUED)



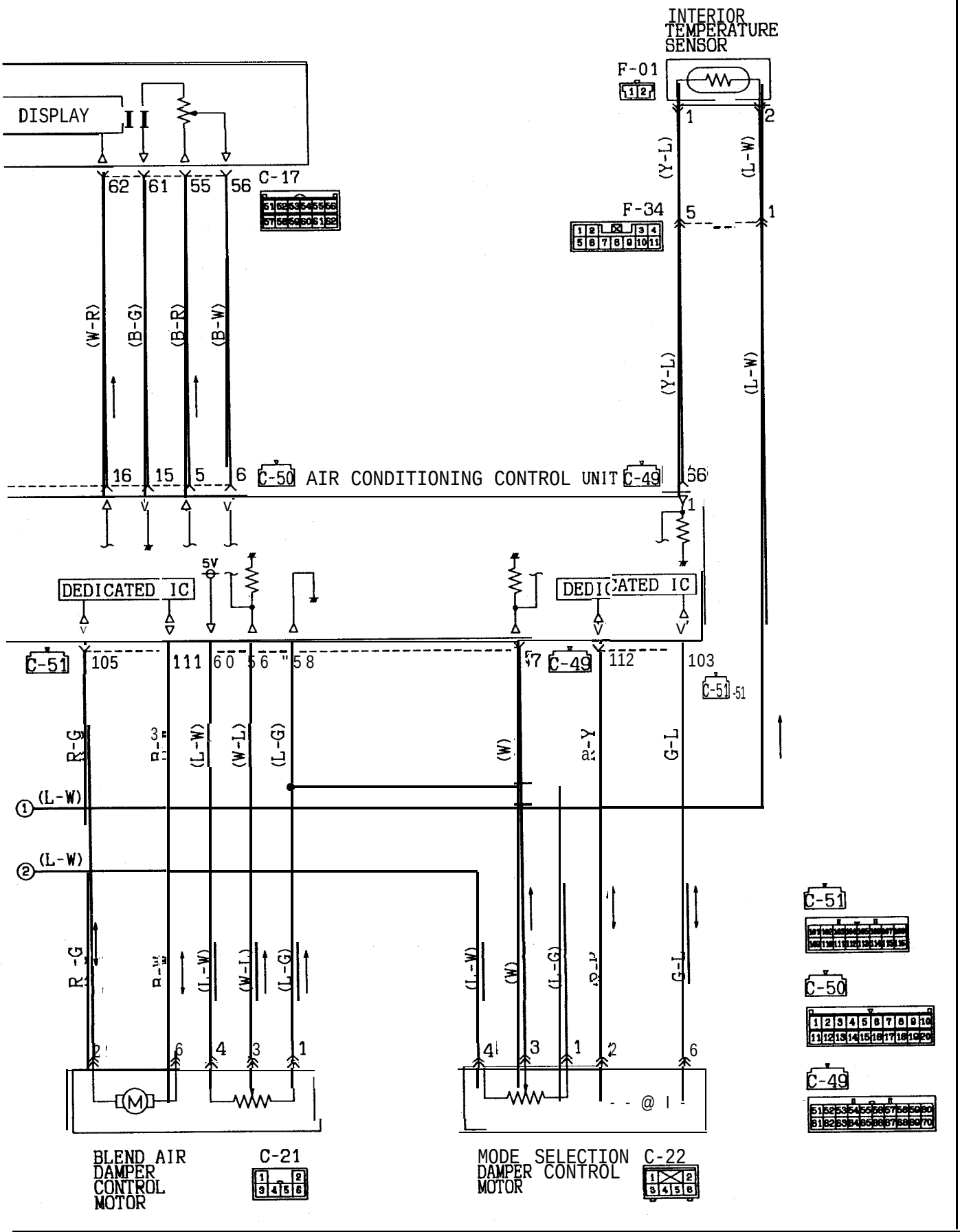

FUSIBLE LINK ⑥
IGNITION SWITCH(IG2)
5W-B
2L-B
J/B
C-68
C-82
19
10A
16
30A
3
10A
BLOWER MOTOR RELAY
OFF
ON
C-73
C-82
C-83
C-77
C-70
2B
(F)R-B
R-B
R-Y
R
3L
TOD OR STORAGE CONNECTOR A-11X
BLOWER MOTOR
C-38
L-R
3B-W
A/C POWER TRANSISTOR
2B-W
C-23
2A
150° C(302° F)
BLOWER MOTOR RELAY(HI)
C-39
0.85B-G
B-R
W-Y
C-49
53
51
52
C-51
101
116
108
BATTERY BACK UP
POWER TRANSISTOR DRIVE CIRCUIT
AIR CONDITIONING CONTROL UNIT
KX35-AC-R1201B-N4C

FULL AUTO AIR CONDITIONING CIRCUIT <TURBO, DOHC NON TURBO (CALIFORNIA)> (CONTINUED)



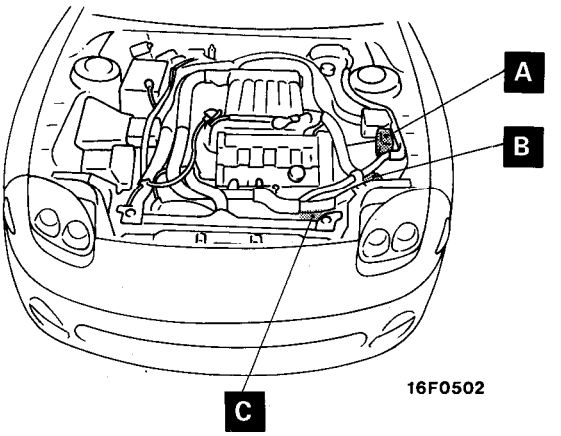

TAILLIGHT RELAY
AIR CONDITIONING CONTROL PANEL
1.25R-W
DEDICATED FUSE
15A
G-W
6
C-69
J/B
5
C-83
ILL
BUZZER
POWER SOURCE
AIR-CONDITIONING GRAPHIC
GND
SNT
7
15
13
5
11
12
3
4
9
2
1
C-16
B-Y
G-W
B
(B)
(R)
(B)
RL
L
2-B
(L-B)
(L-Y)
C-15
11
19
20
9
10
17
8
7
B-Y
RHEOSTAT
C-40
59
55
57
G
(Y-B)
(Y-R)
ENGINE COOLANT TEMPERATURE SENSOR
OFF→ON:
22.5-30.5°C
(72.7-86.7°F)
C-43
2
1
B
(L-W)
(L-W)
2B
5
(Y-B)
(L-W)
(Y-R)
(L-W)
AIR INLET SENSOR
C-27
AIR THERMO SENSOR
C-42

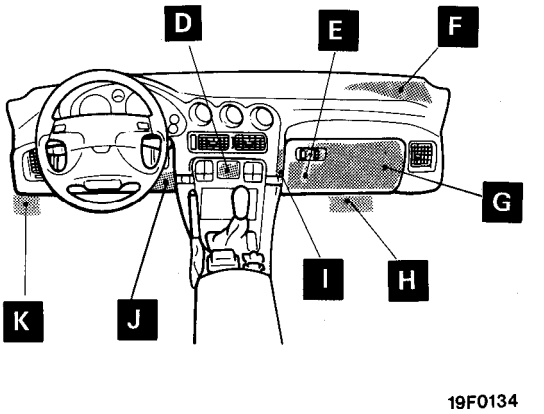
FULL AUTO AIR CONDITIONING CIRCUIT <TURBO, DOHC NON TURBO (CALIFORNIA)> (CONTINUED)

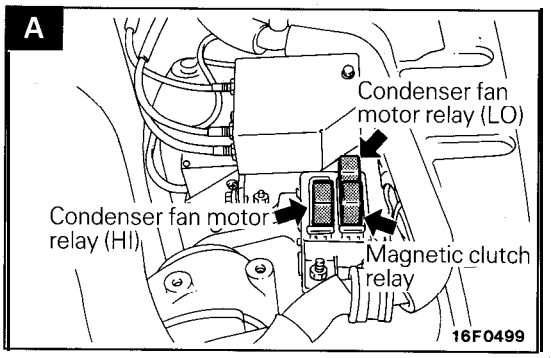


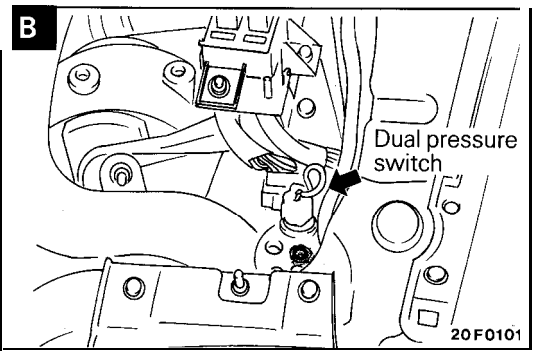
COMPONENT LOCATION

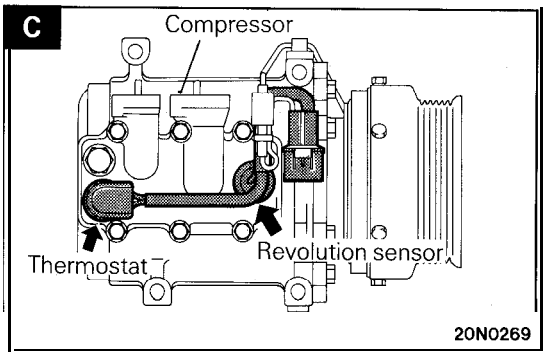
Name	Symbol	Name	Symbol
Air conditioning compressor lock controller	H	Dual pressure switch	B
Air conditioning control unit	D	ELC-4 AA control module	D
Air-inlet sensor	G	Engine control module	D
Air-thermo sensor	E	Engine coolant temperature sensor	I
Blower motor relay	K	Interior temperature sensor	L
Blower motor relay (HI)	H	Magnetic clutch relay	A
Condenser fan motor relay (HI)	A	Photo sensor	F
Condenser fan motor relay (LO)	A	Revolution sensor	C
Data link connector	J	Thermostat	C

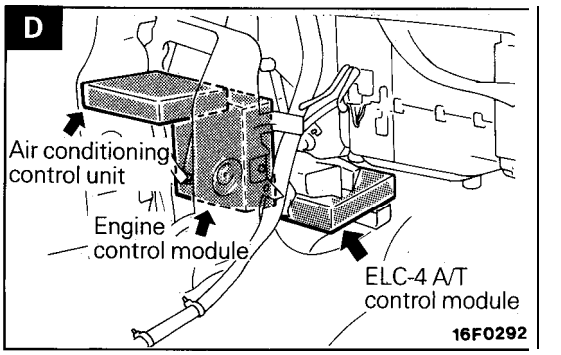




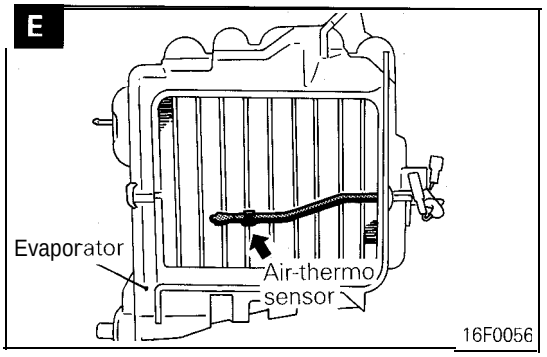








E


Evaporator
Air-thermo sensor
16F0056

F

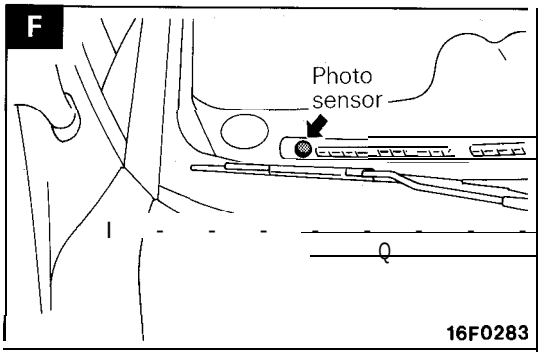
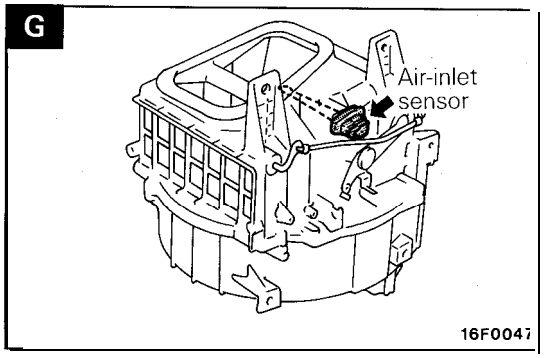
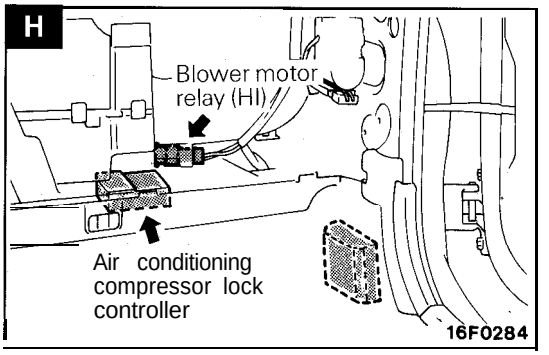


Photo sensor
16F0283

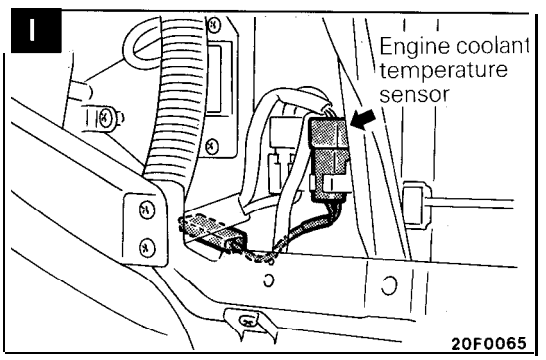
G


Air-inlet sensor
16F0047

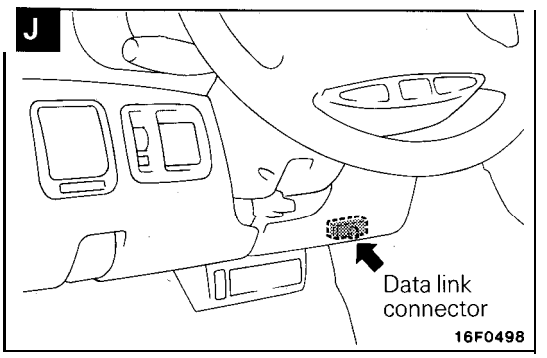
H


Blower motor relay (HI)
Air conditioning compressor lock controller
16F0284

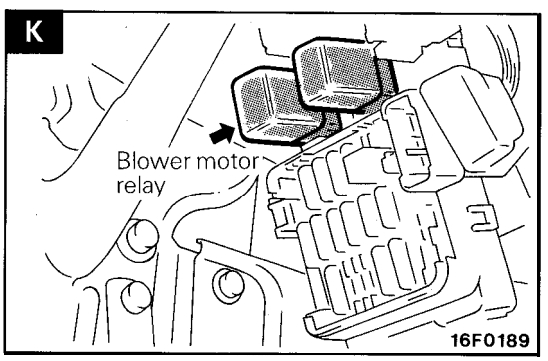
I


Engine coolant temperature sensor
20F0065

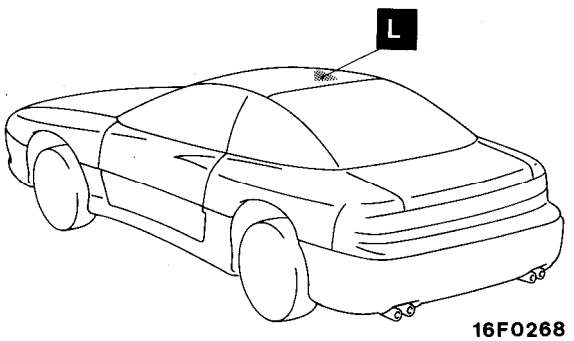
J


Data link connector
16F0498

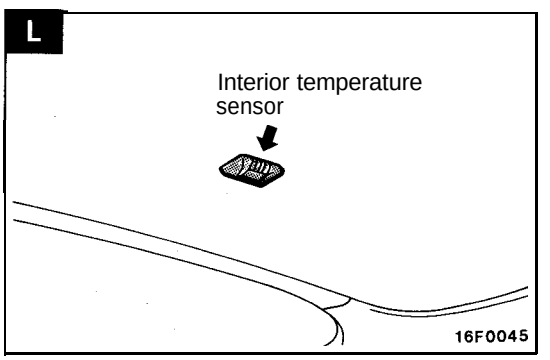
K


Blower motor relay
16F0189

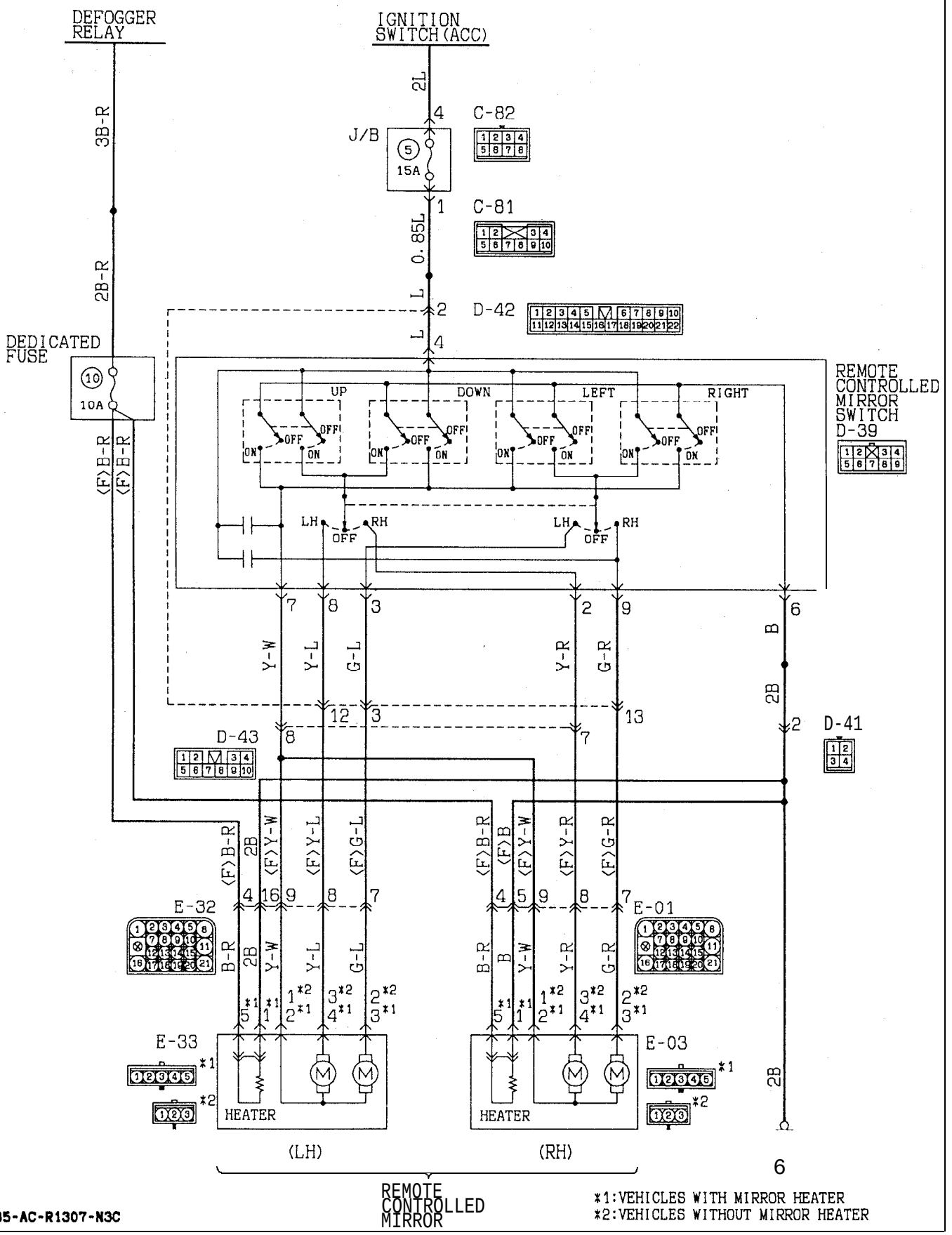
L


16F0268

L

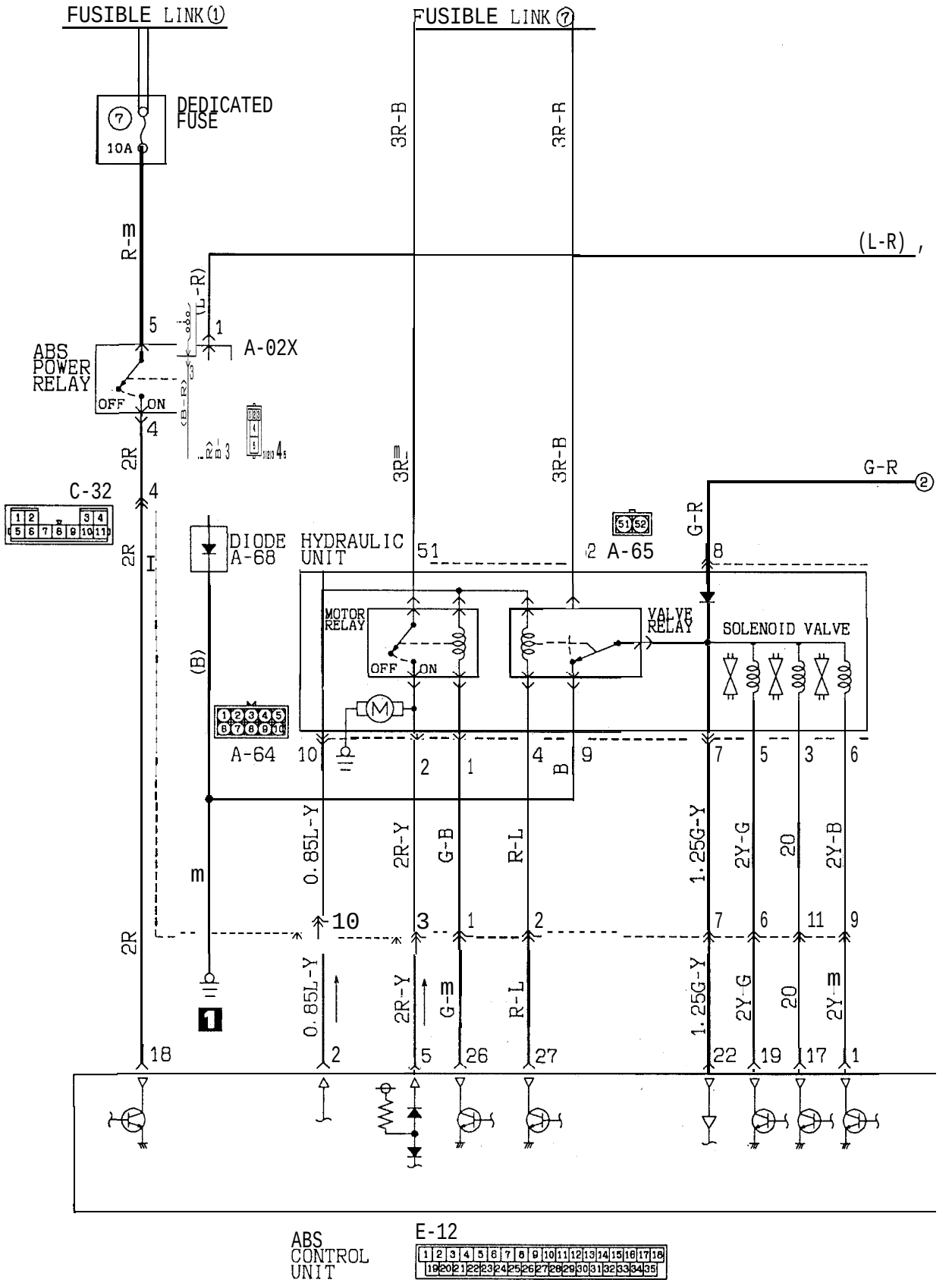

Interior temperature sensor
16F0045

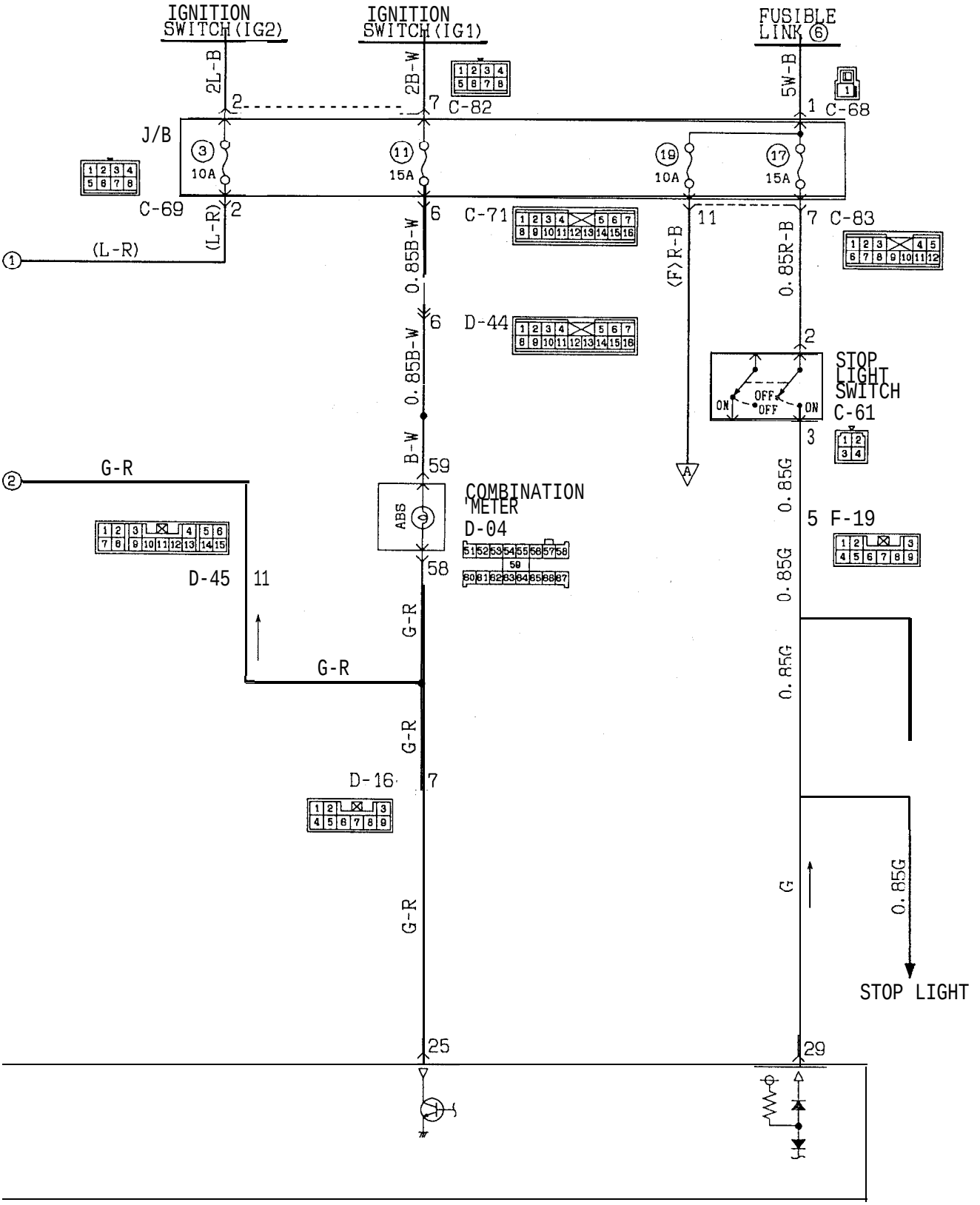
REMOTE CONTROLLED MIRROR CIRCUIT



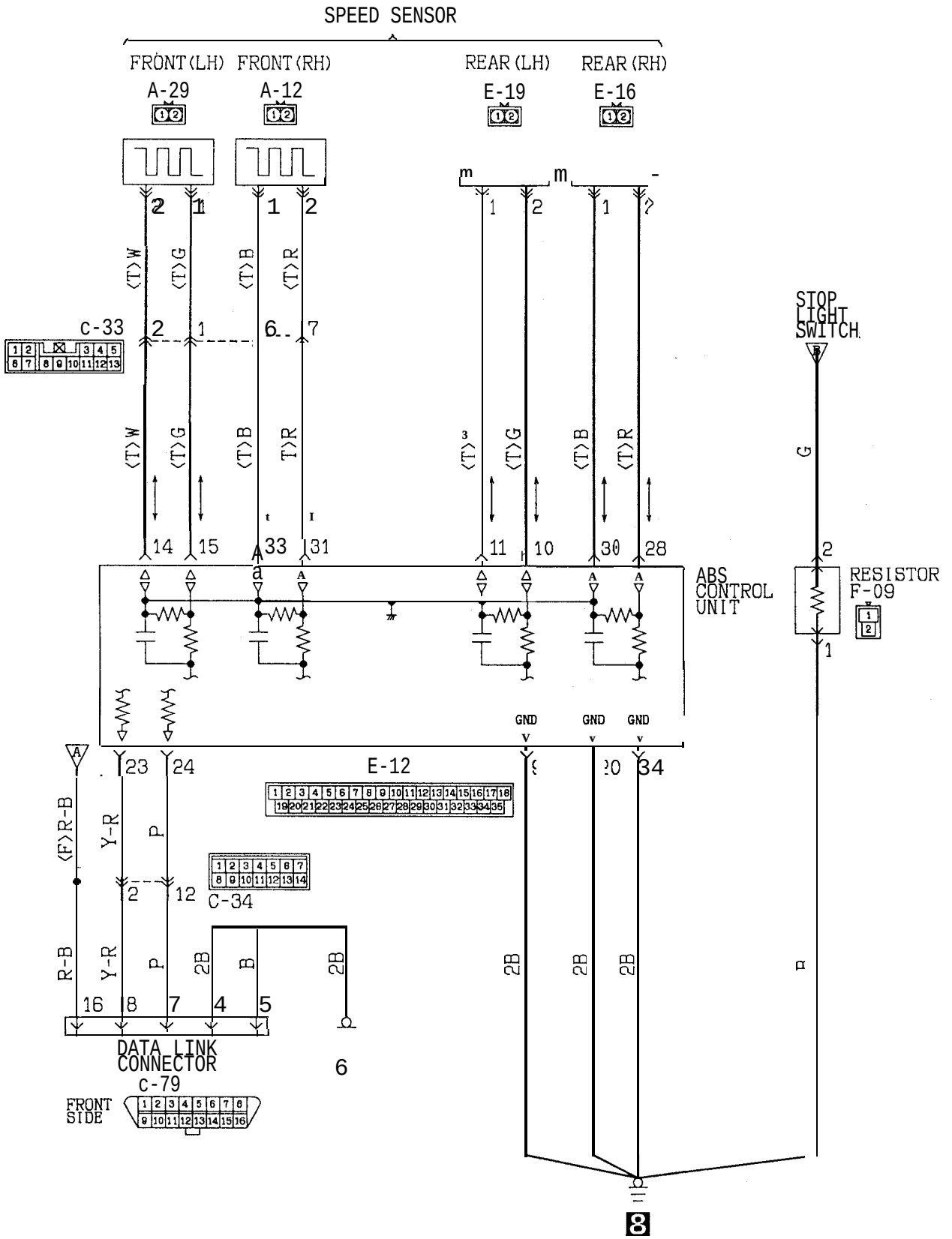
ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT

<FWD>



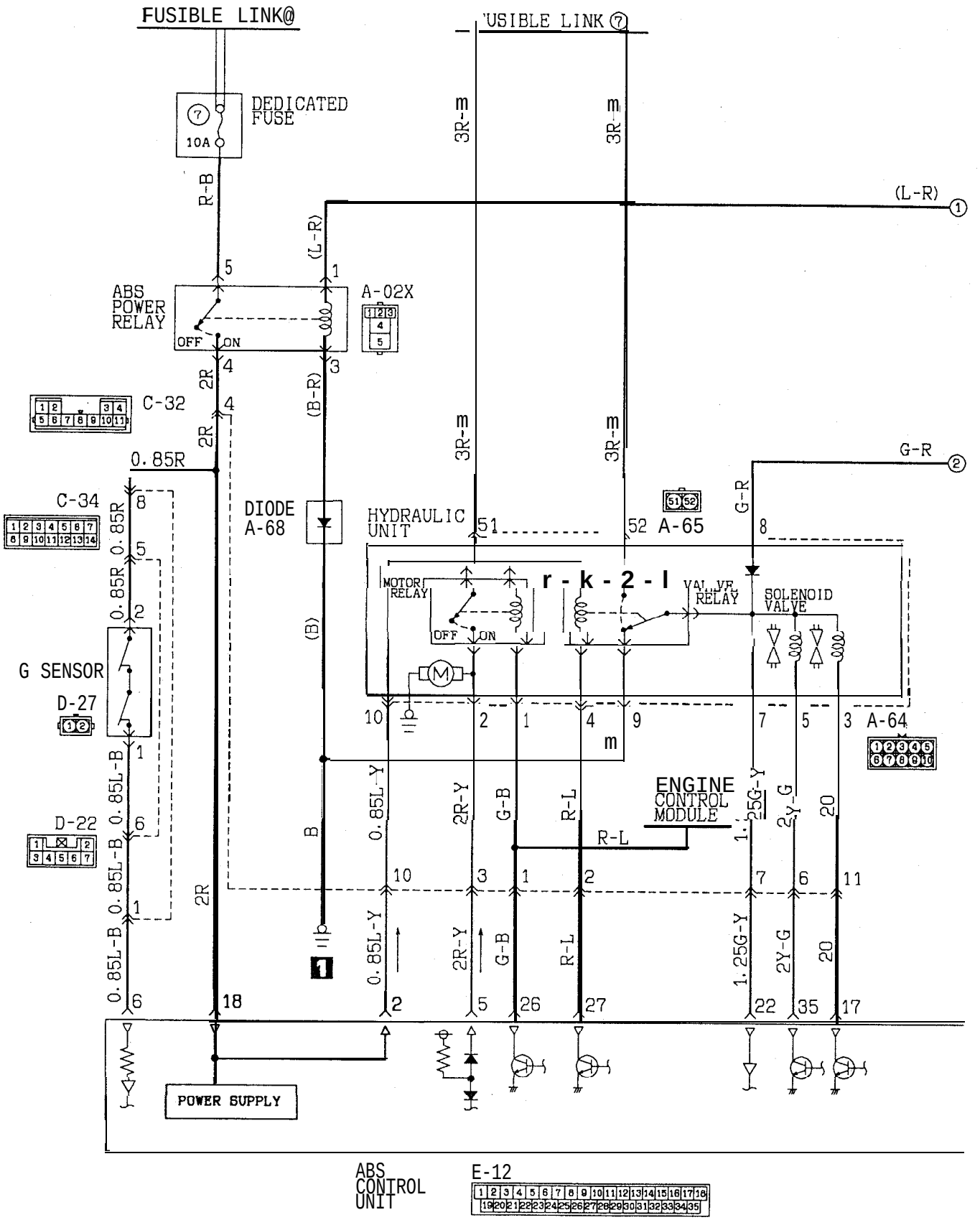

IGNITION SWITCH(IG2)
IGNITION SWITCH(IG1)
FUSIBLE LINK ⑥
2L-B
2B-W
5W-B
2
7 C-82
1 C-68
J/B
③ 10A
⑪ 15A
⑲ 10A
⑰ 15A
C-69
2
(L-R)
(L-R)
6
C-71
0.85B-W
11
7 C-83
(F)R-B
0.85R-B
6
D-44
0.85B-W
2
STOP LIGHT SWITCH C-61
ON OFF OFF ON
3
B-W
59
G-R
ABS ⑨
COMBINATION METER D-04
5 F-19
0.85G
D-45
11
58
G-R
G-R
0.85G
G-R
D-16
7
G
0.85G
STOP LIGHT
G-R
25
29

ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT <FWD> (CONTINUED)



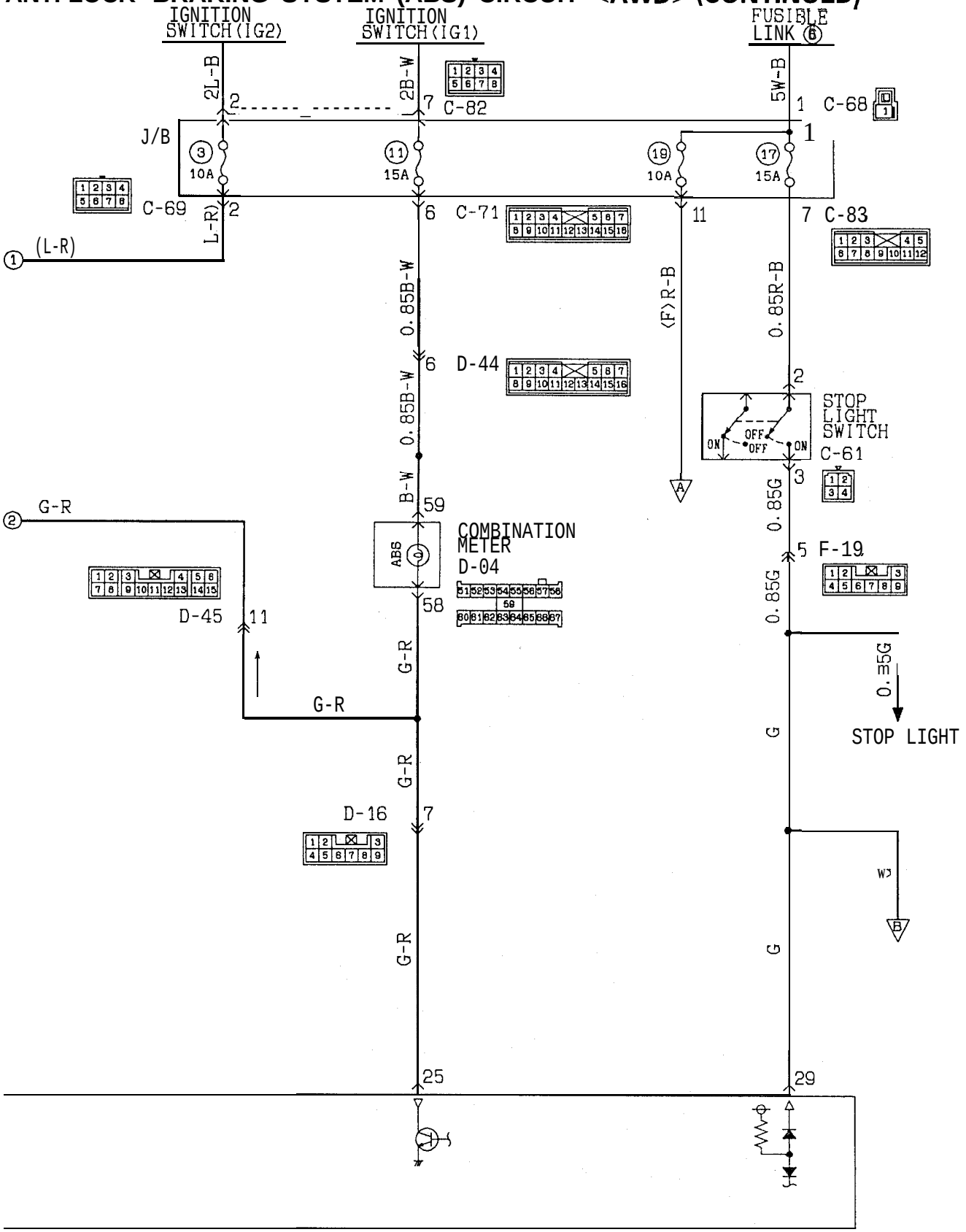
ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT

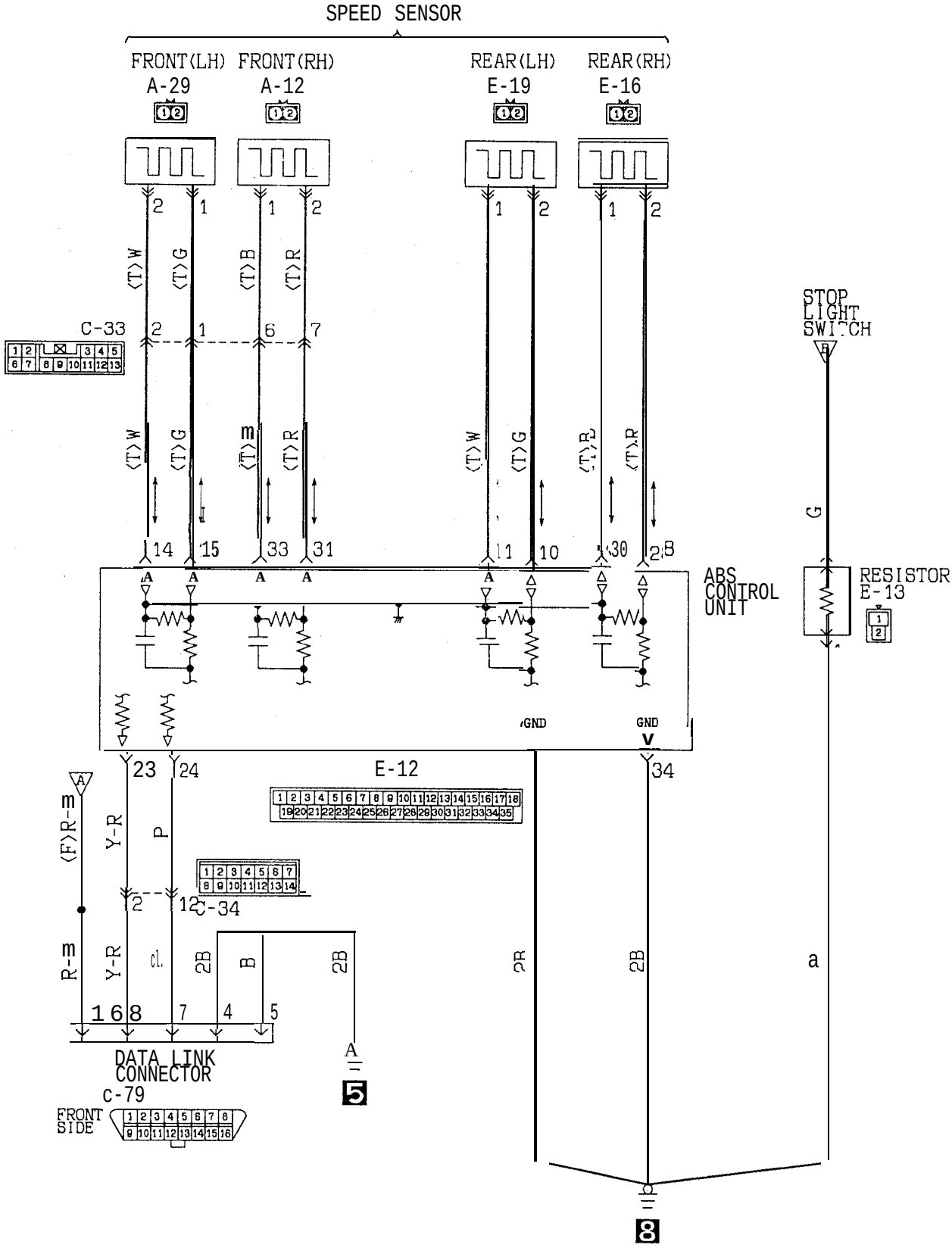
<AWD>



KX35-AC-R150Q-N4C

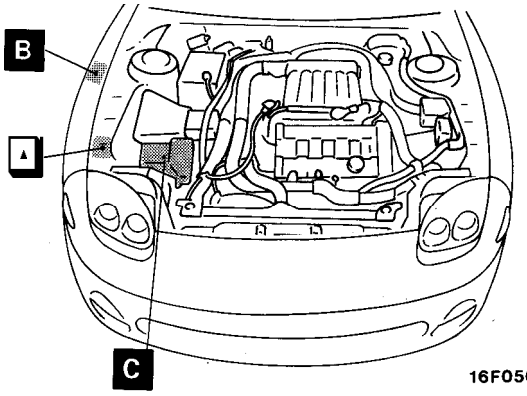
ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT <AWD> (CONTINUED)



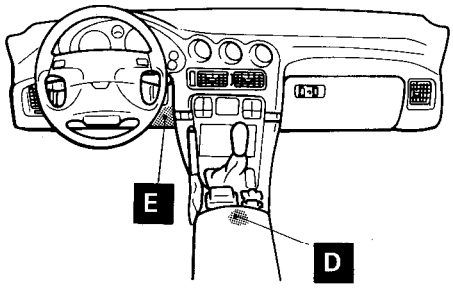

SPEED SENSOR
FRONT(LH)
A-29
FRONT(RH)
A-12
REAR(LH)
E-19
REAR(RH)
E-16
C-33
ABS CONTROL UNIT
STOP LIGHT SWITCH
RESISTOR E-13
E-12
C-34
DATA LINK CONNECTOR
C-79
FRONT SIDE
GND
5
8

COMPONENT LOCATION

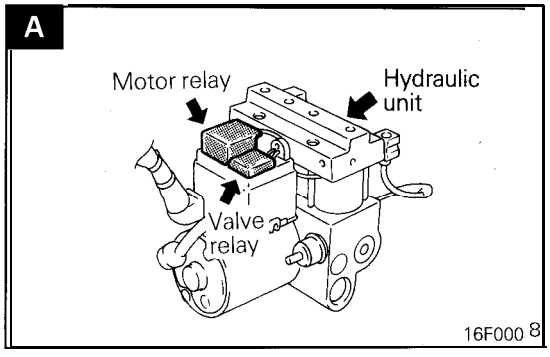
Name	Symbol	Name	Symbol
ABS control unit	F	G sensor	D
ABS power relay	C	Hydraulic unit	A
Data link connector	E	Motor relay	A
Diode	B	Rear speed sensor	H
Front speed sensor	G	Valve relay	A



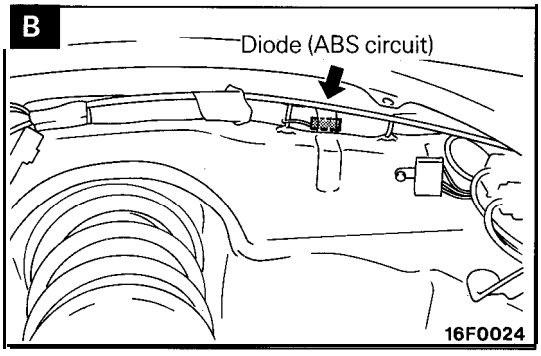
16F0502



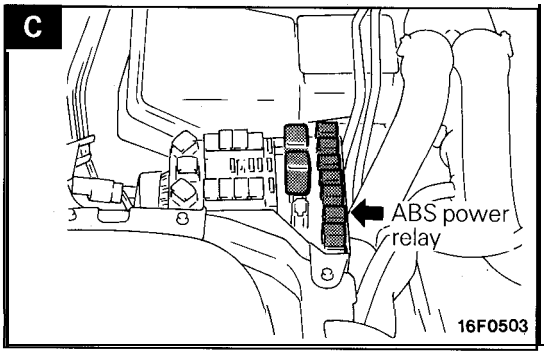
19F0134



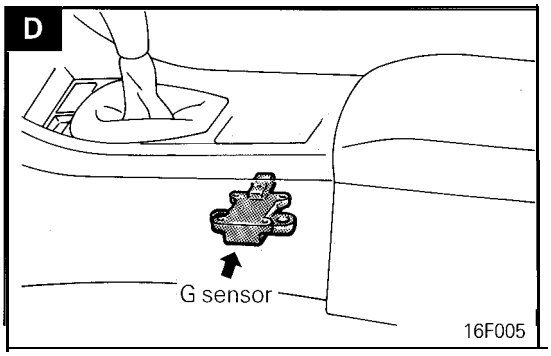
16F0008



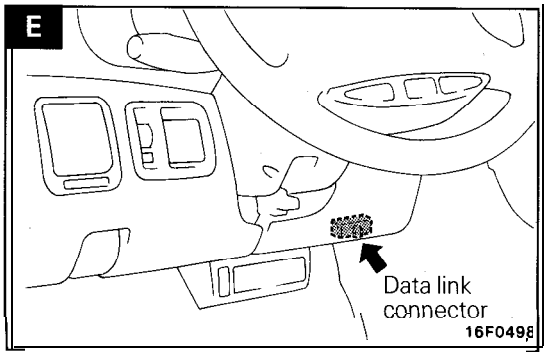
16F0024



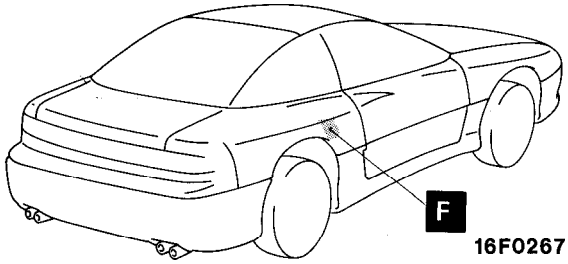
16F0503

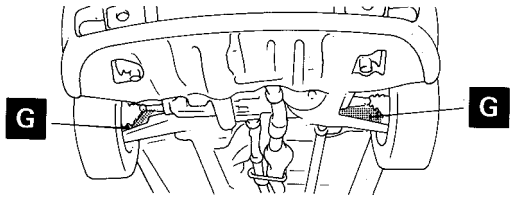


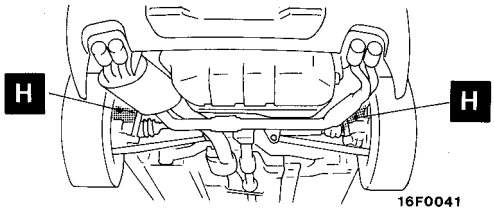
16F005

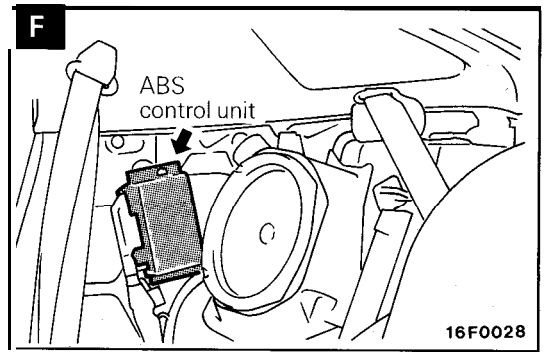


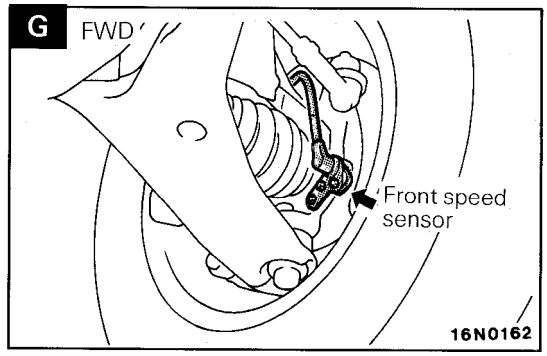
16F0498

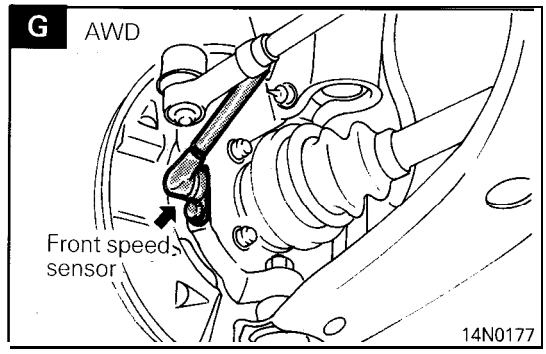

F
16F0267

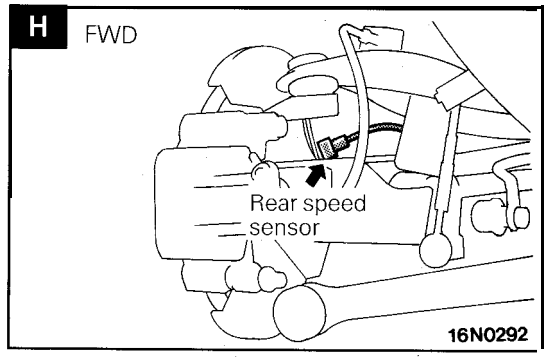

G
G
16F0040

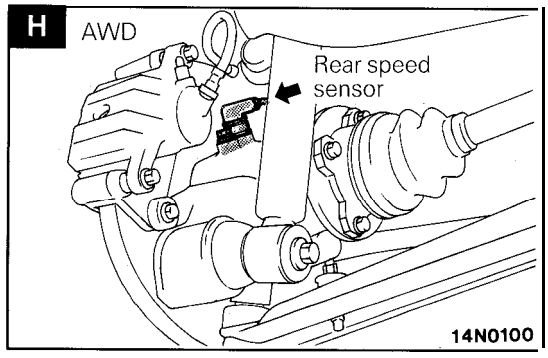

H
H
16F0041


F
ABS
control unit
16F0028

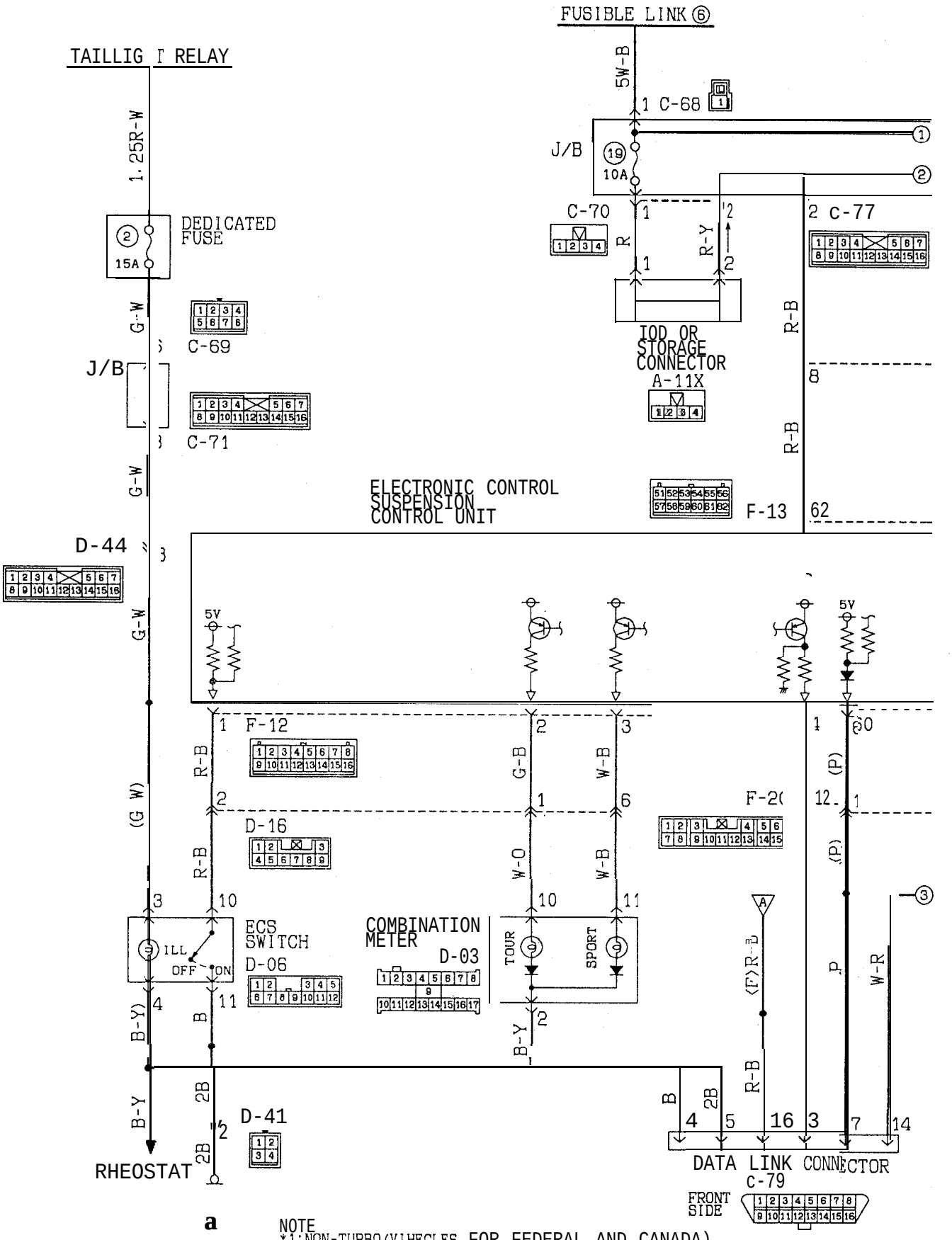

G
FWD
Front speed
sensor
16N0162


G
AWD
Front speed
sensor
14N0177


H
FWD
Rear speed
sensor
16N0292


H
AWD
Rear speed
sensor
14N0100

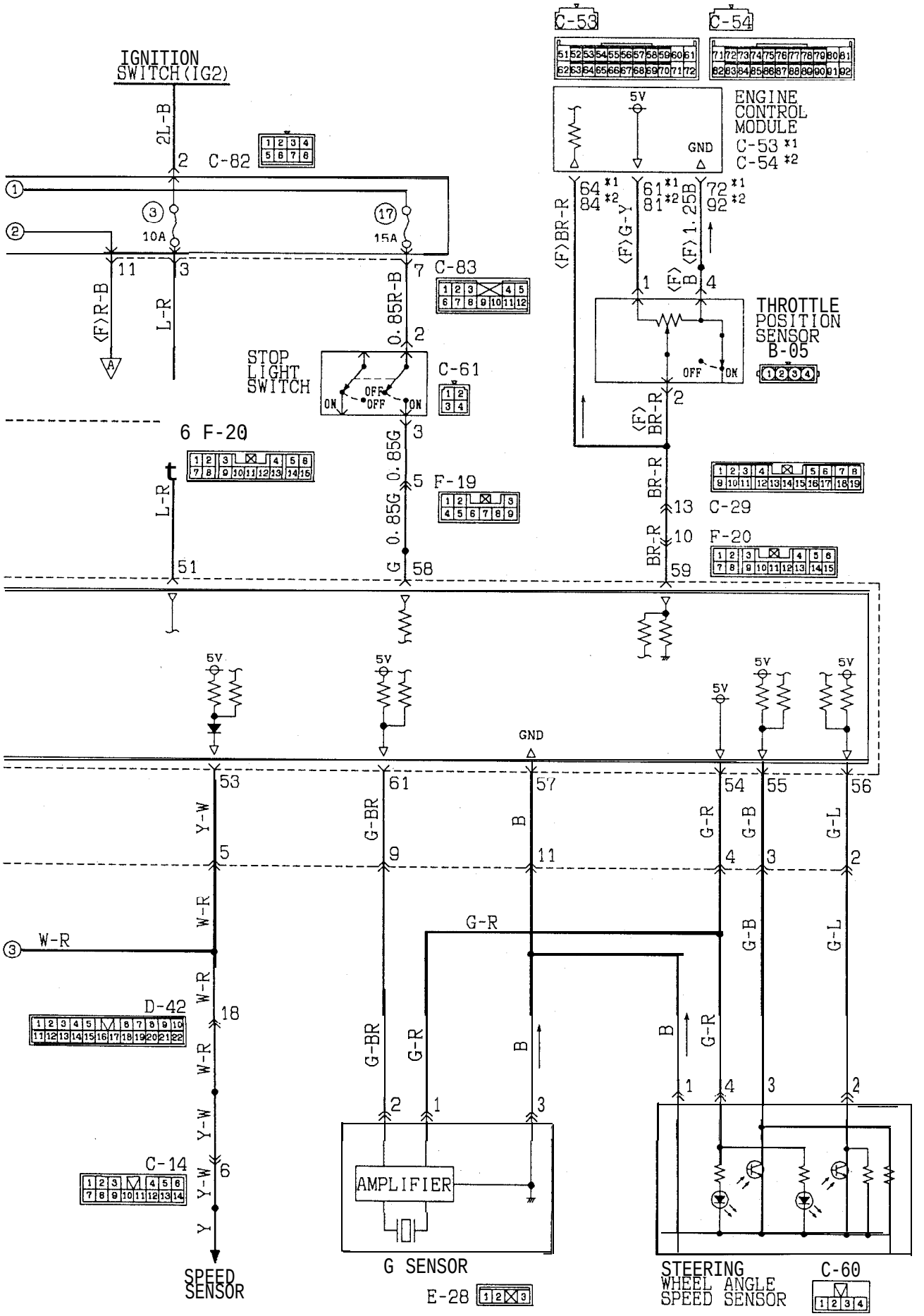
ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT



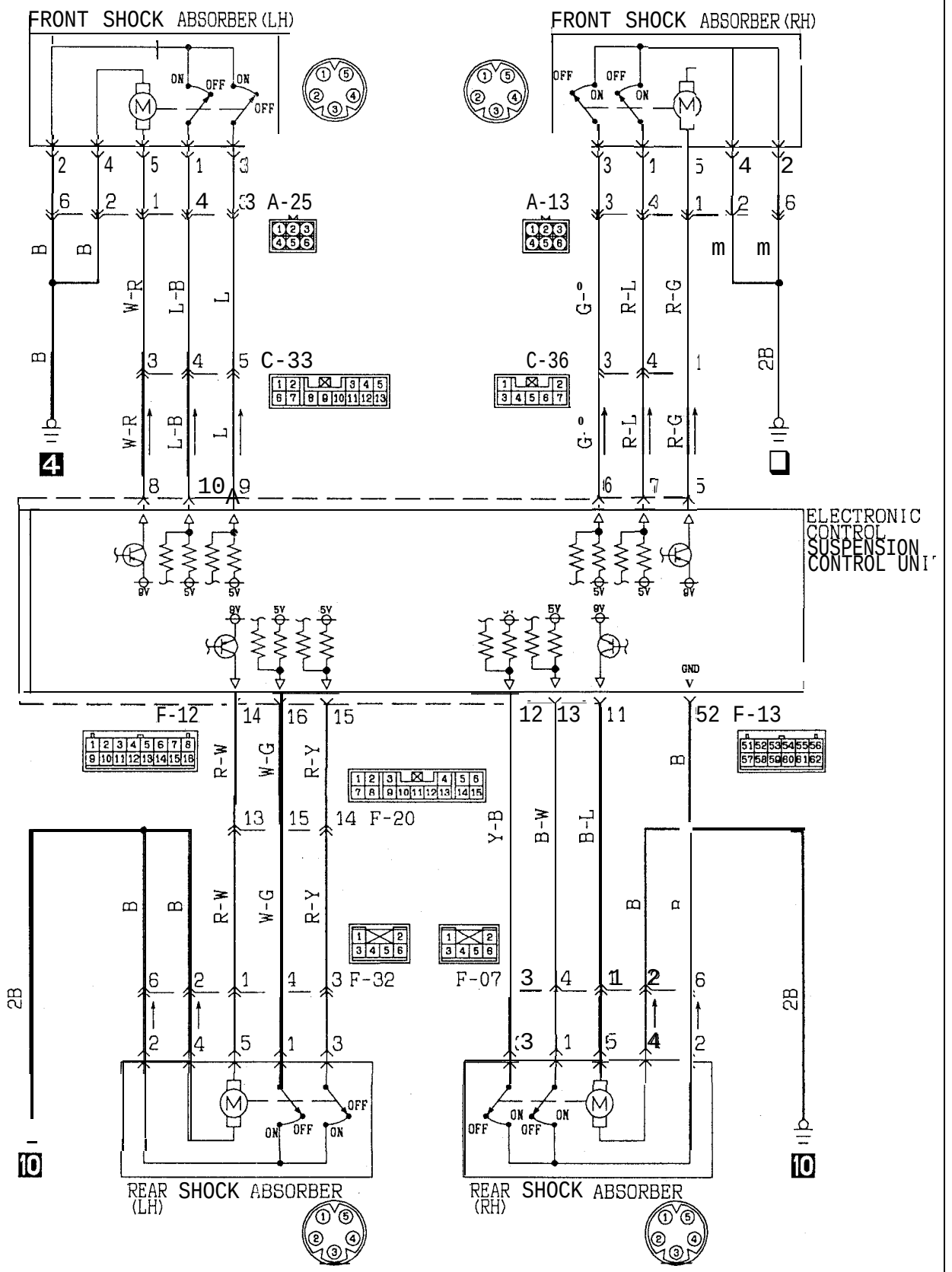
a

NOTE
*1: NON-TURBO (VIHECLES FOR FEDERAL AND CANADA)
*2: TURBO, NON-TURBO (VIHECLES FOR CALIFORNIA)

X35-AC-R1507-N4C


IGNITION SWITCH(IG2)
2L-B
2
C-82
10A
15A
11
3
7
C-83
(F)R-B
L-R
0.85R-B
2
STOP LIGHT SWITCH
ON
OFF
OFF
ON
C-61
6 F-20
L-R
51
0.85G
G
58
5
F-19
C-53
C-54
ENGINE CONTROL MODULE
C-53 *1
C-54 *2
5V
GND
64 *1
84 *2
61 *1
81 *2
72 *1
92 *2
(F)BR-R
(F)G-Y
(F)1.25B
(F)B
1
4
THROTTLE POSITION SENSOR
B-05
OFF
ON
(F)BR-R
2
BR-R
13
C-29
BR-R
10
F-20
59
GND
53
61
57
54
55
56
Y-W
G-BR
B
G-R
G-B
G-L
5
9
11
4
3
2
W-R
W-R
D-42
18
W-R
Y-W
Y-W
C-14
6
Y
SPEED SENSOR
G-R
G-BR
B
2
1
3
AMPLIFIER
G SENSOR
E-28
B
G-R
1
4
3
2
STEERING WHEEL ANGLE SPEED SENSOR
C-60

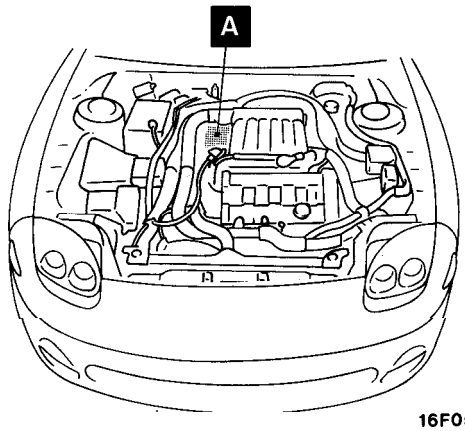
ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED)



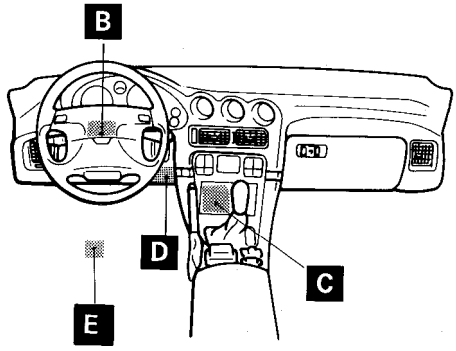
KX35-AC-R1515A-NC

COMPONENT LOCATION

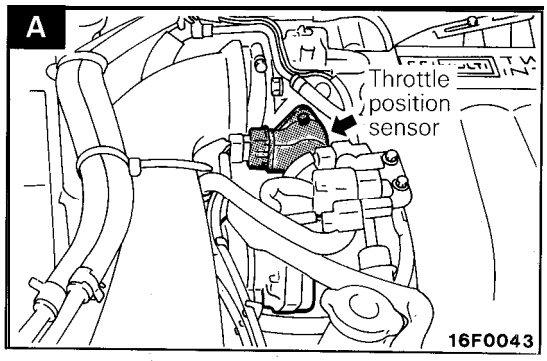
Name	Symbol	Name	Symbol
Data link connector	E	G sensor	D
ECS control unit	F	Steering wheel angle speed sensor	B
Engine control module	I c	Throttle position sensor	A

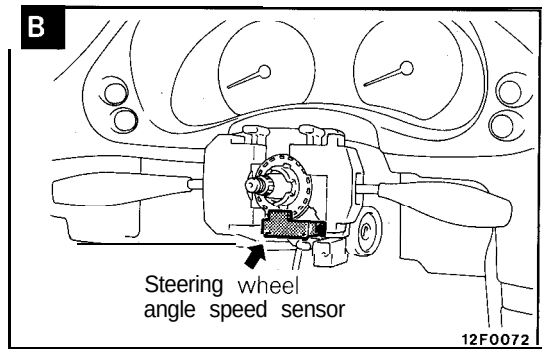


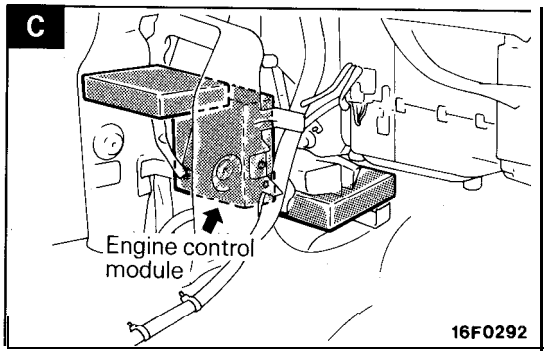
16F0502

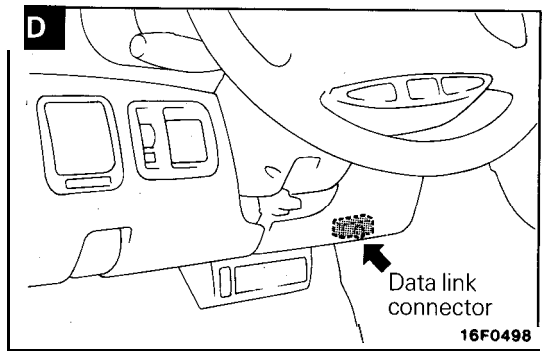


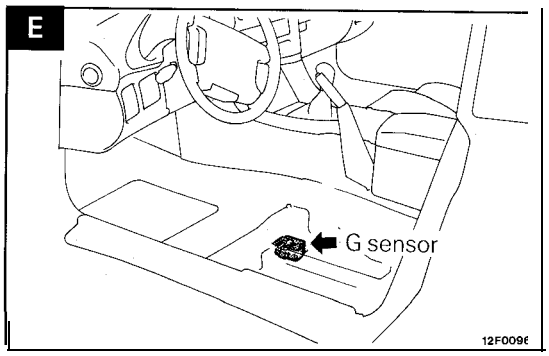
19F0134

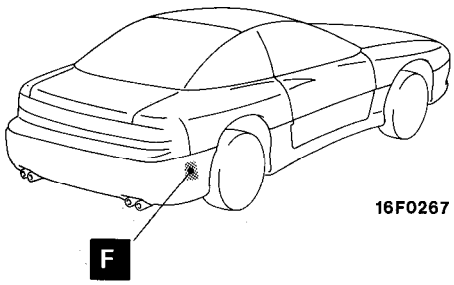


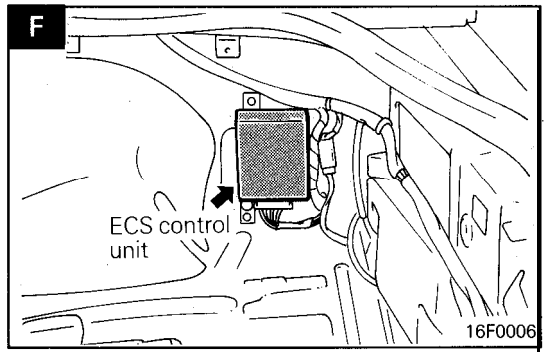




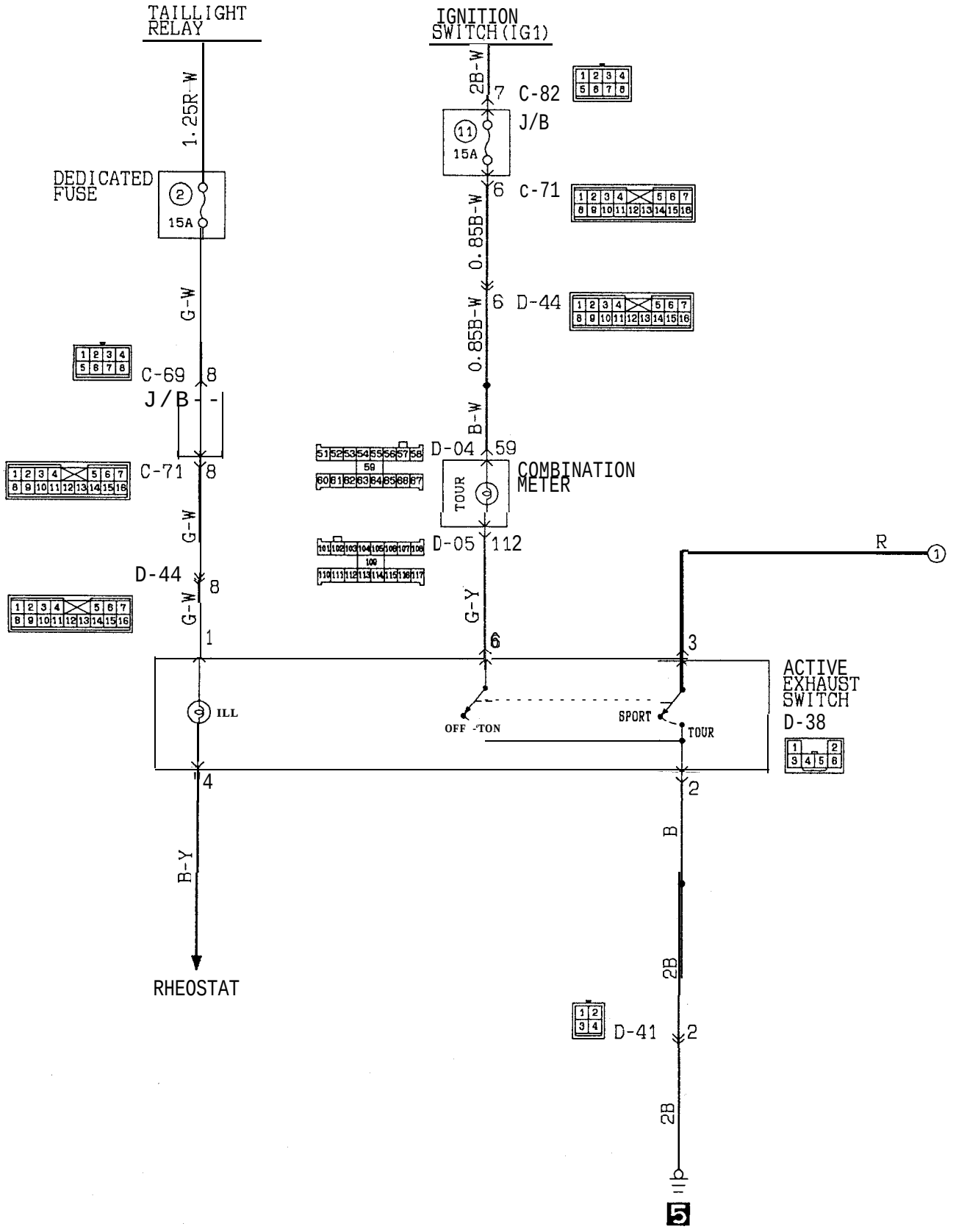




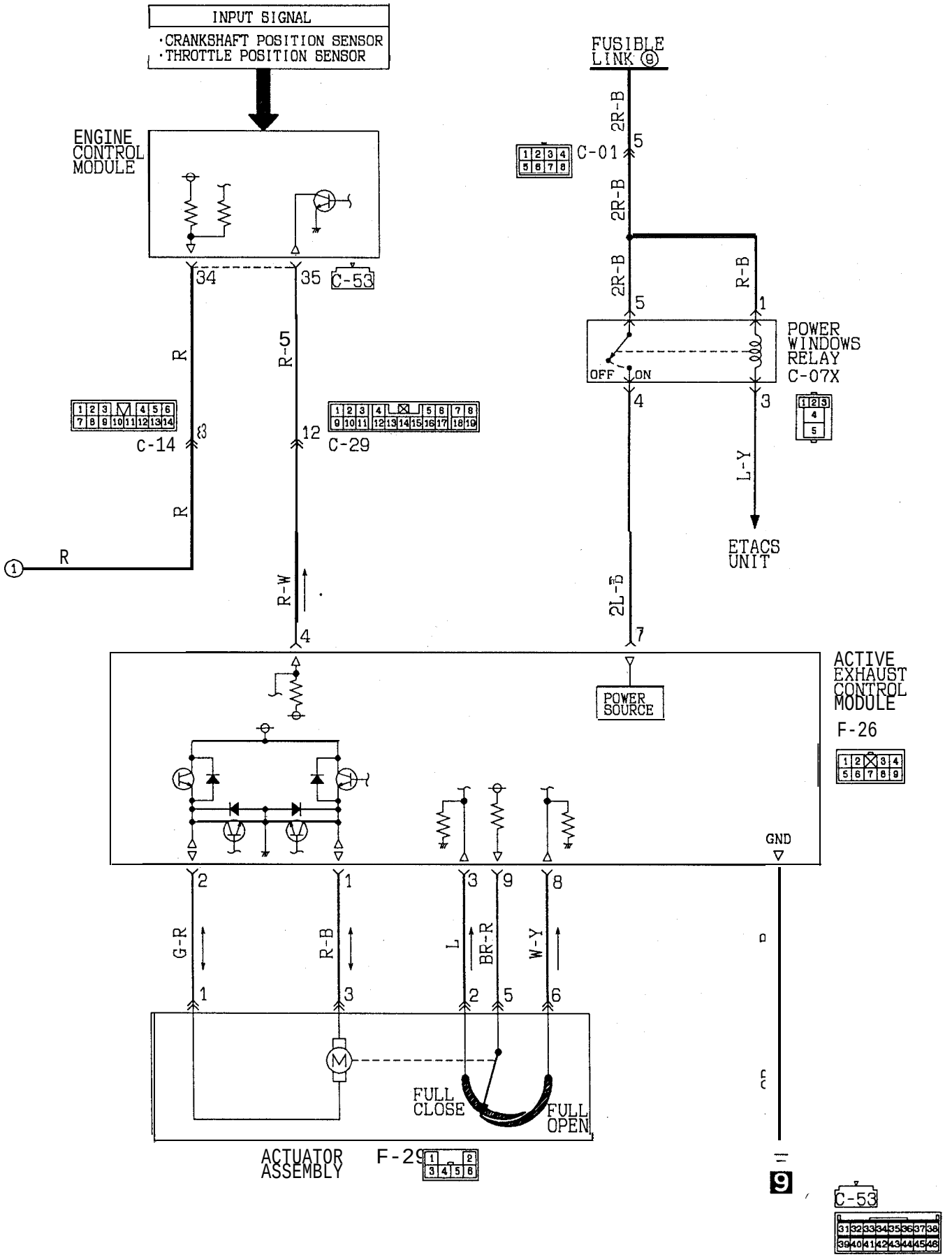

16F0267
F


F
ECS control unit
16F0006

ACTIVE EXHAUST SYSTEM CIRCUIT

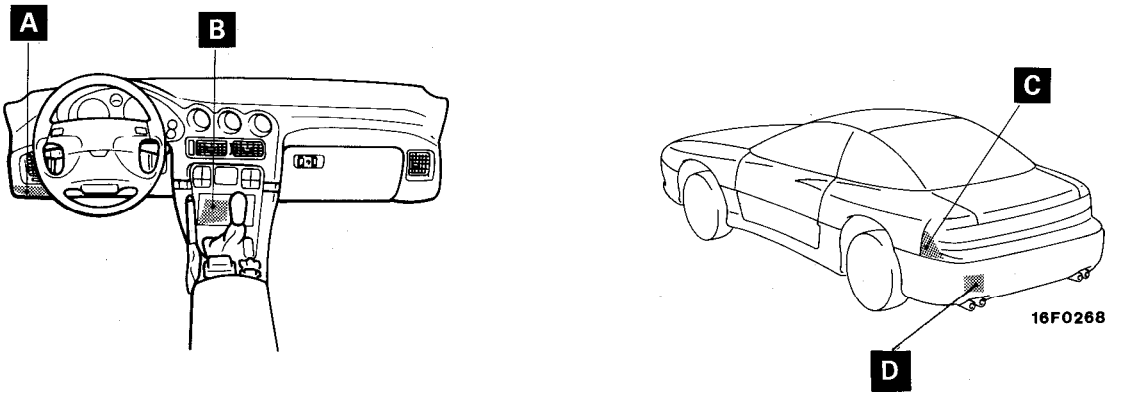


ACTIVE EXHAUST SYSTEM CIRCUIT (CONTINUED)

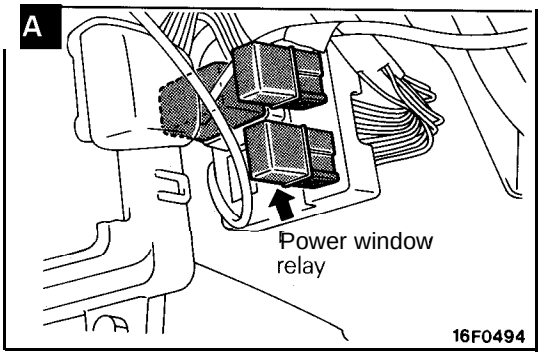


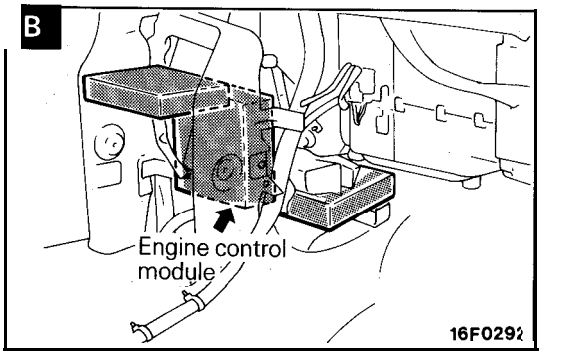
COMPONENT LOCATION

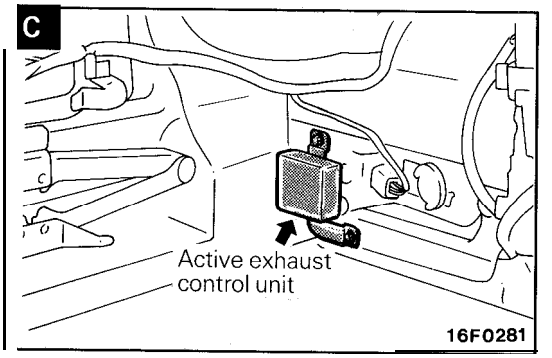
Name	Symbol	Name	Symbol
Active exhaust control unit	C	Engine control module	B
Actuator assembly	D	Power window relay	A

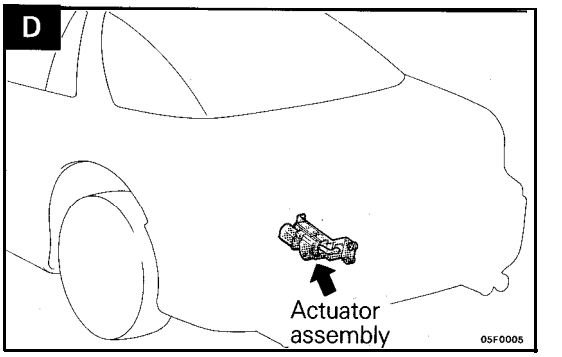


19F0134

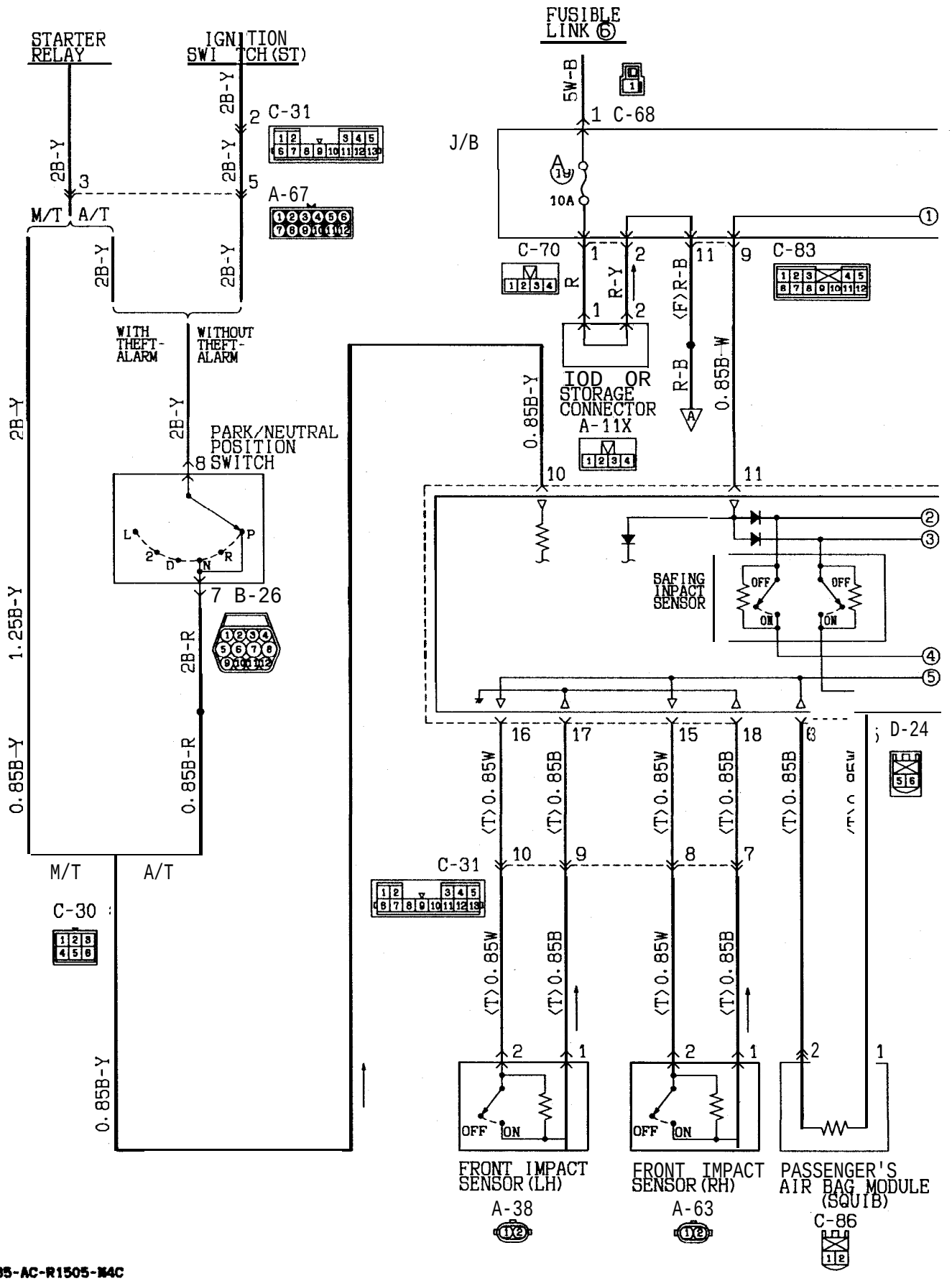




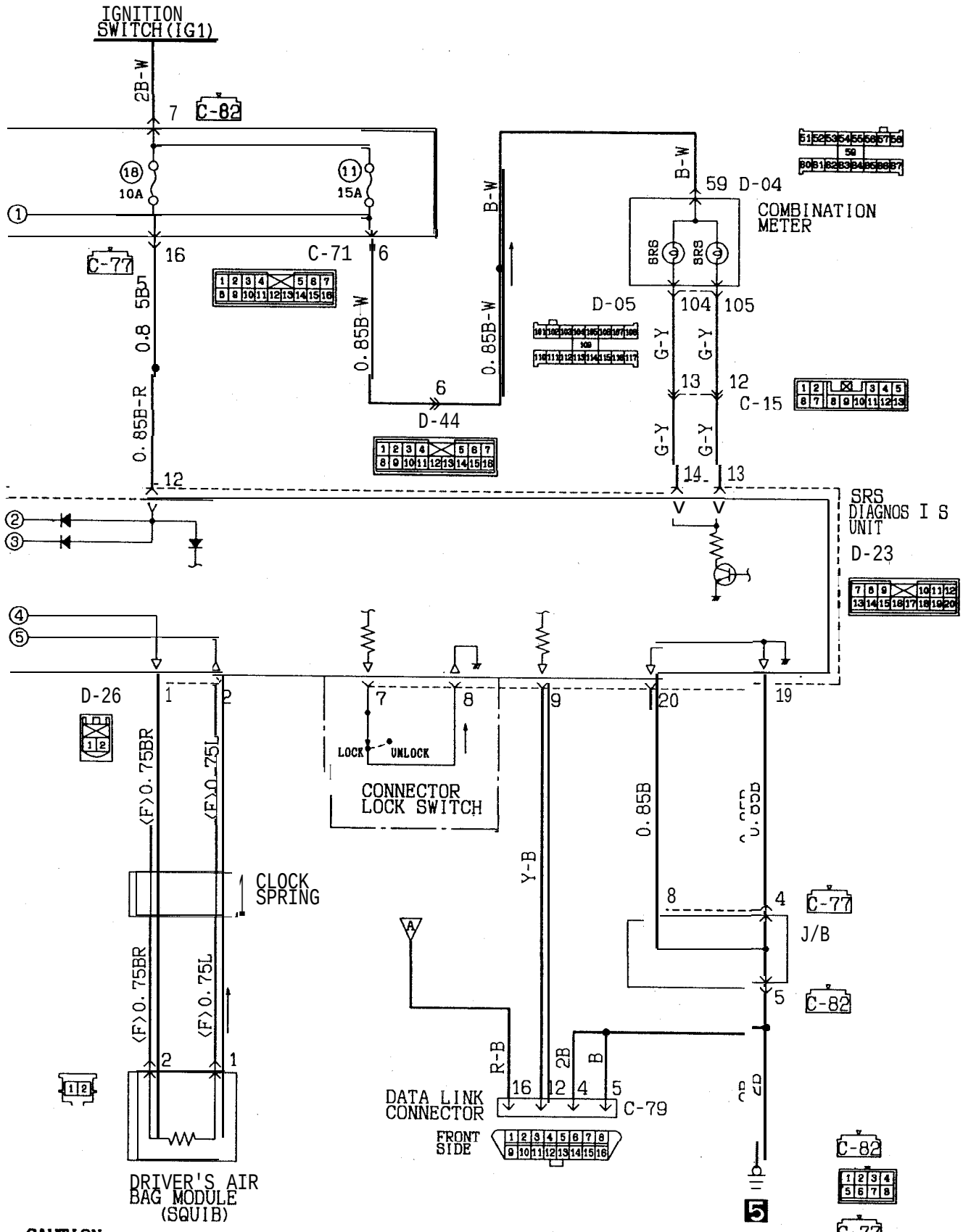




SUPPLEMENTAL RESTRAINT SYSTEM (SRS) CIRCUIT

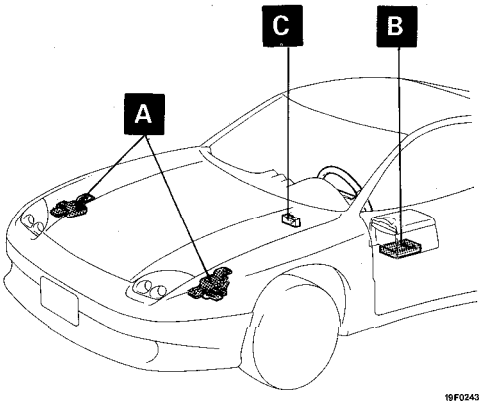


KX35-AC-R1505-M4C

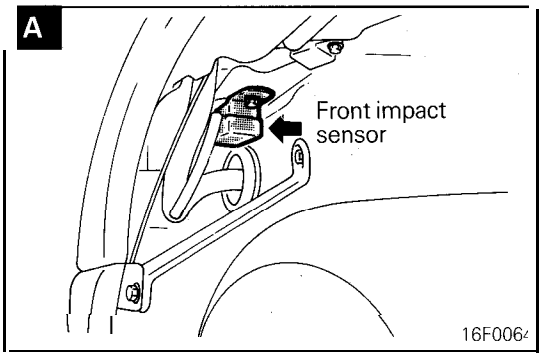


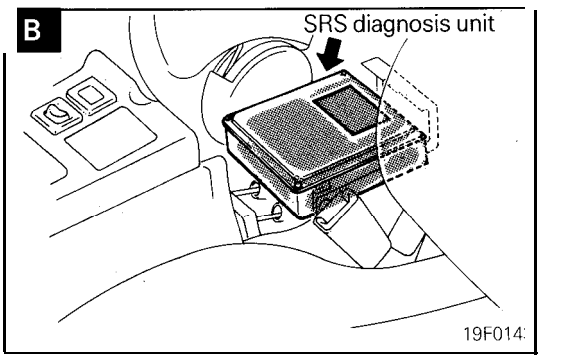
CAUTION
·Carefully read and observe the SRS **SERVCE PRECAUTIONS** (Refer to GROUP **23B-SRS Service Precautions**) Prior to **any service.**

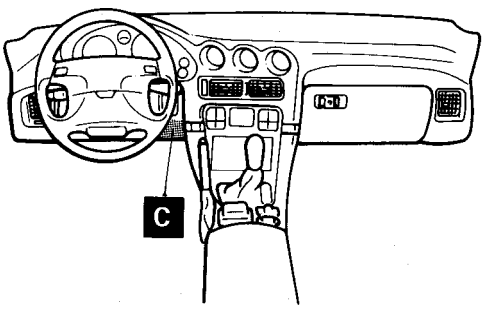
COMPONENT LOCATION

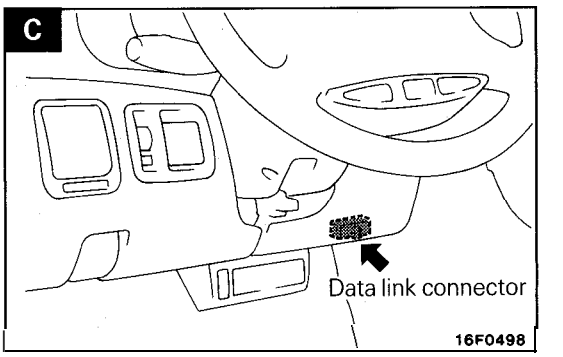


Name	Symbol
Data link connector	C
Front impact sensor	A
SRS diagnosis unit	B





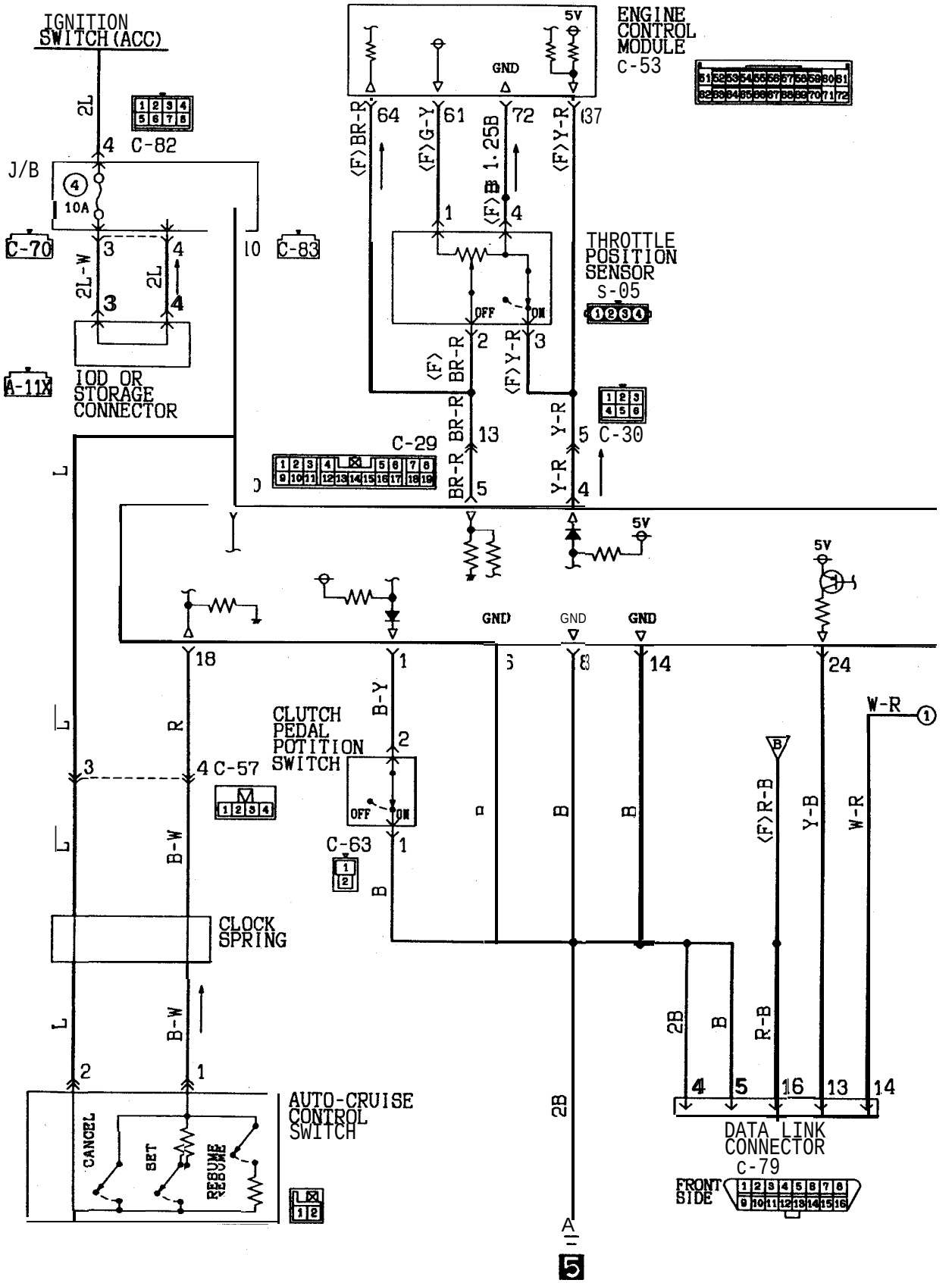




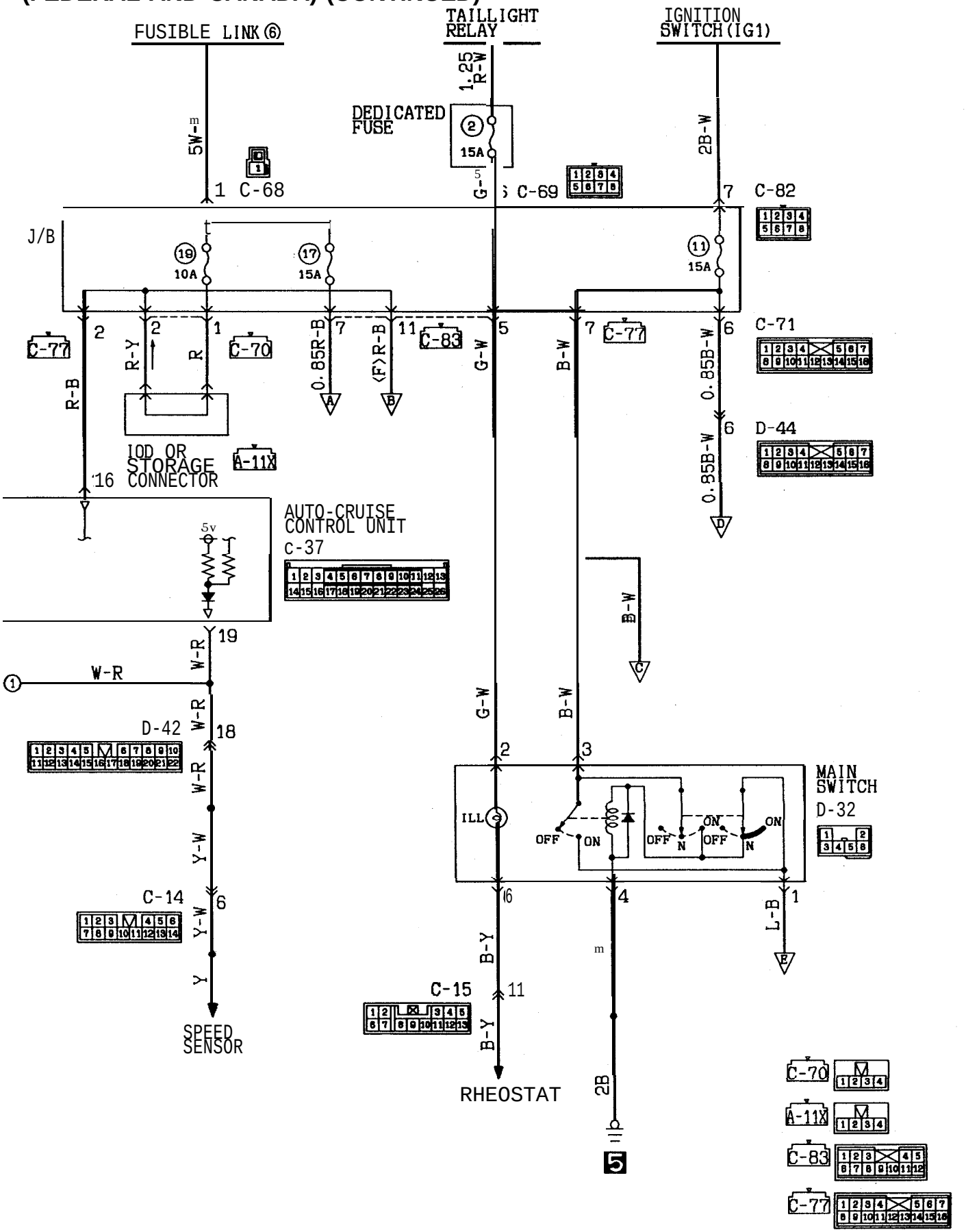
19F0134

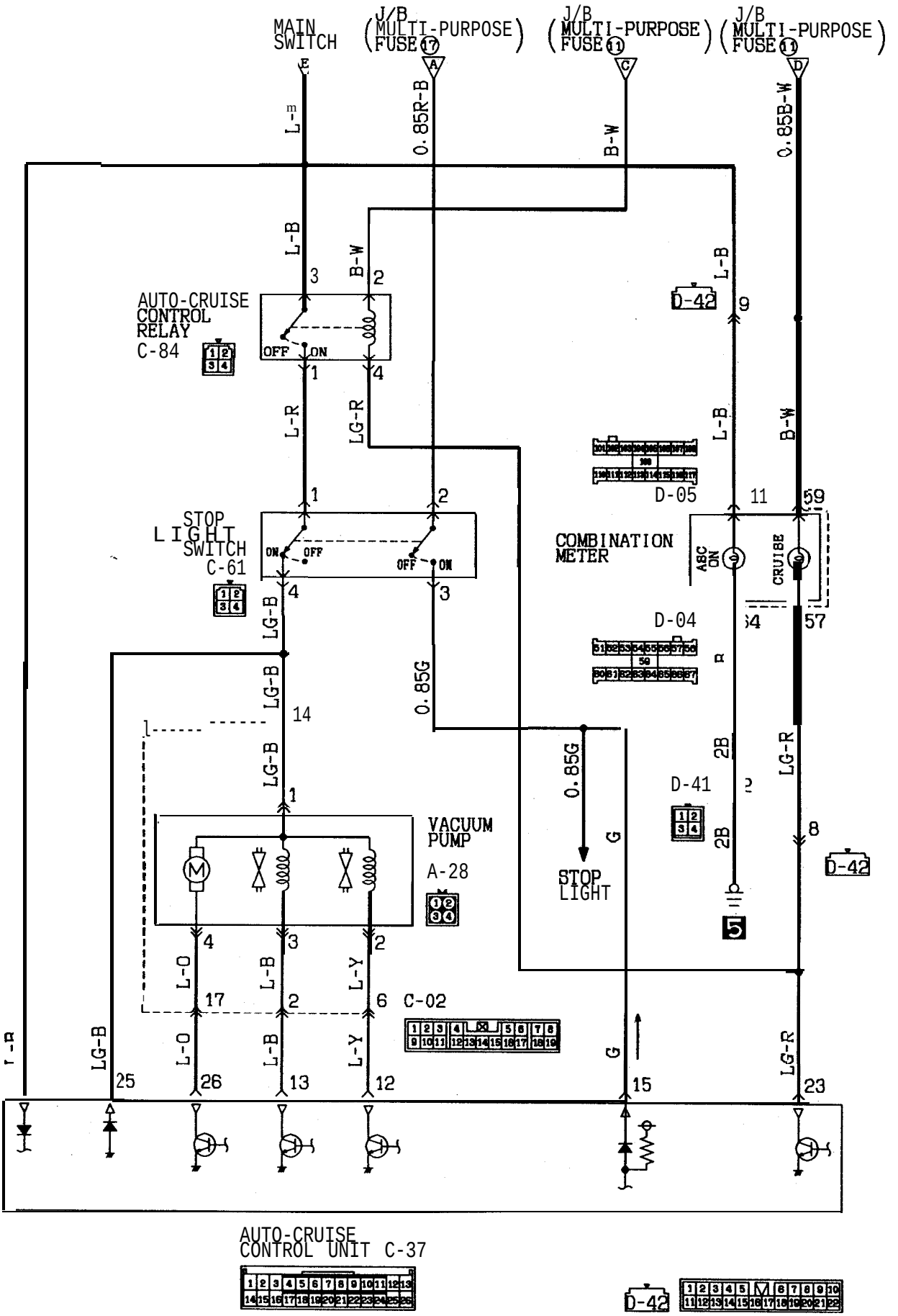
AUTO-CRUISE CONTROL CIRCUIT

<M/T> SOHC, DOHC NON TURBO (FEDERAL AND CANADA)



AUTO-CRUISE CONTROL CIRCUIT <M/T> SOHC, DOHC NON TURBO (FEDERAL AND CANADA) (CONTINUED)

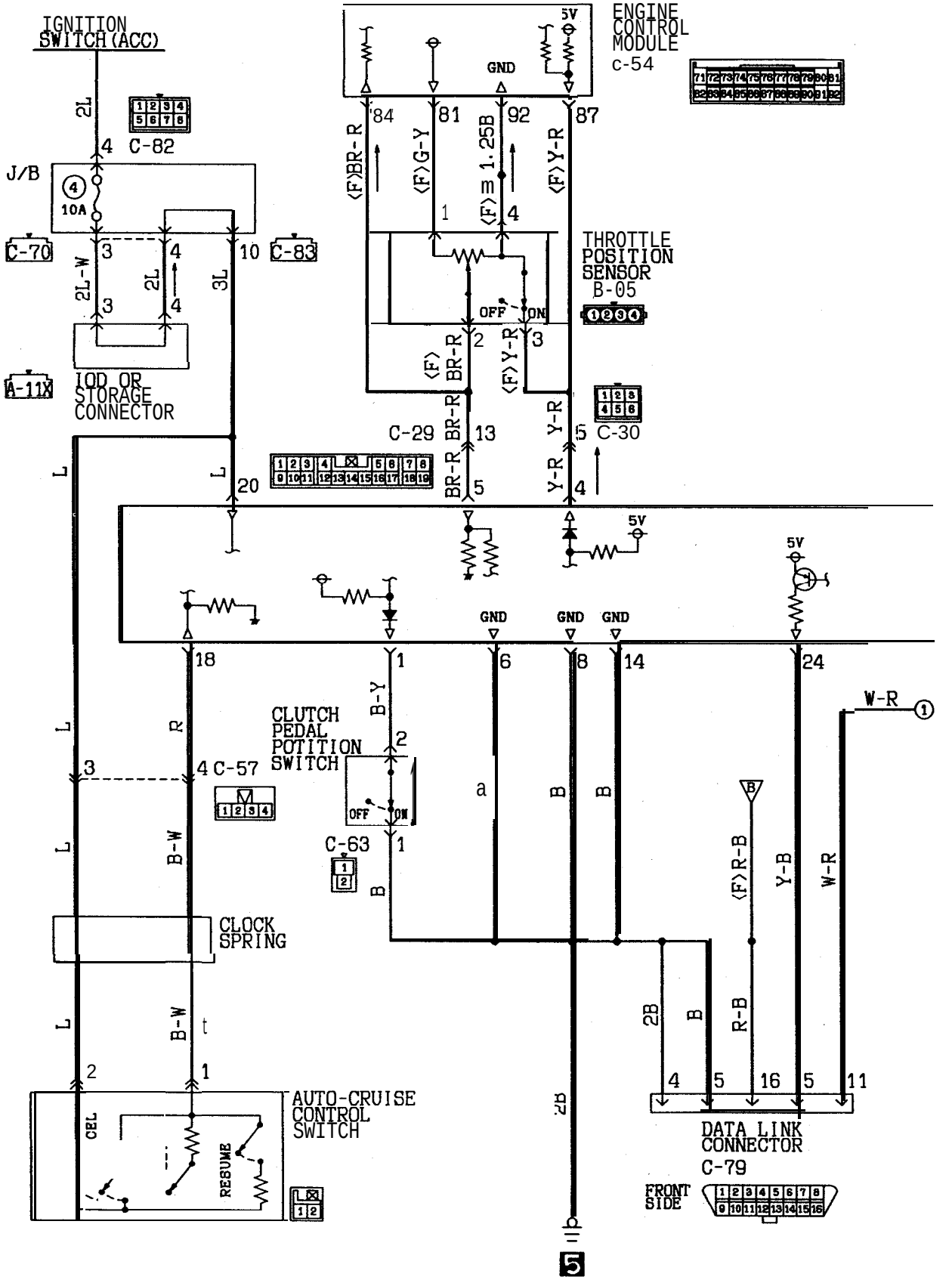


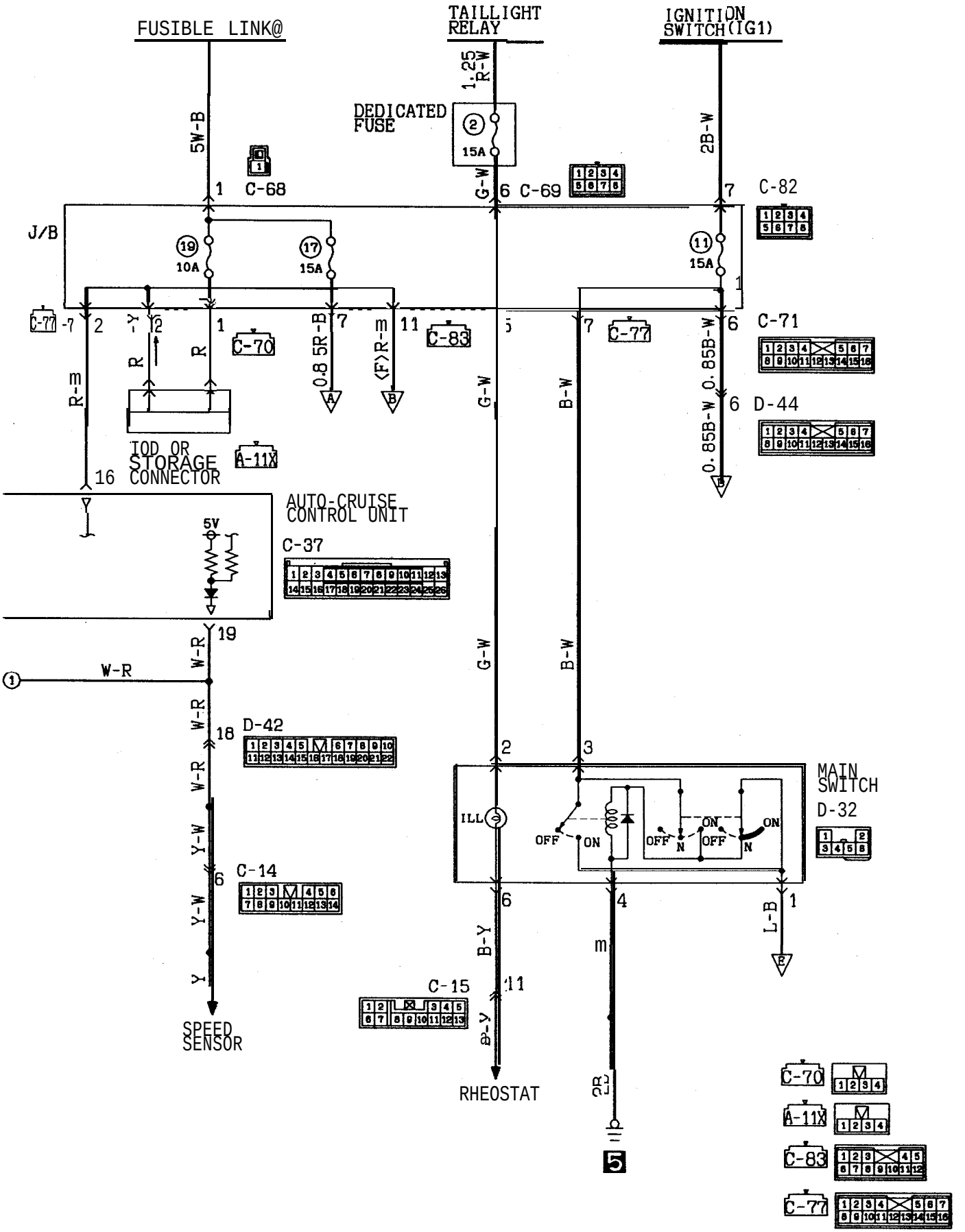


KX35-AC-R1501A-N4C

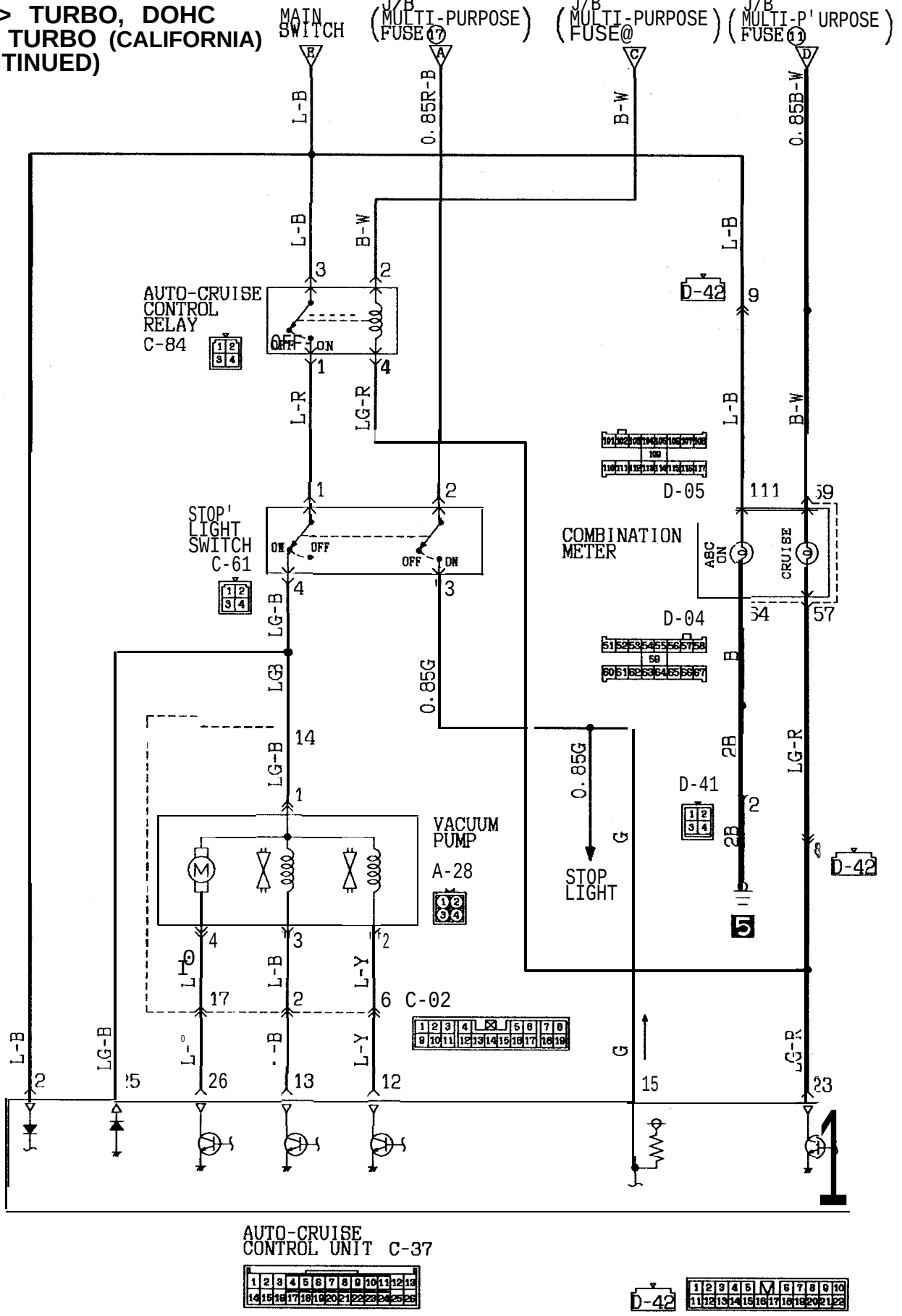
AUTO-CRUISE CONTROL CIRCUIT

<M/T> TURBO, DOHC NON TURBO (CALIFORNIA)



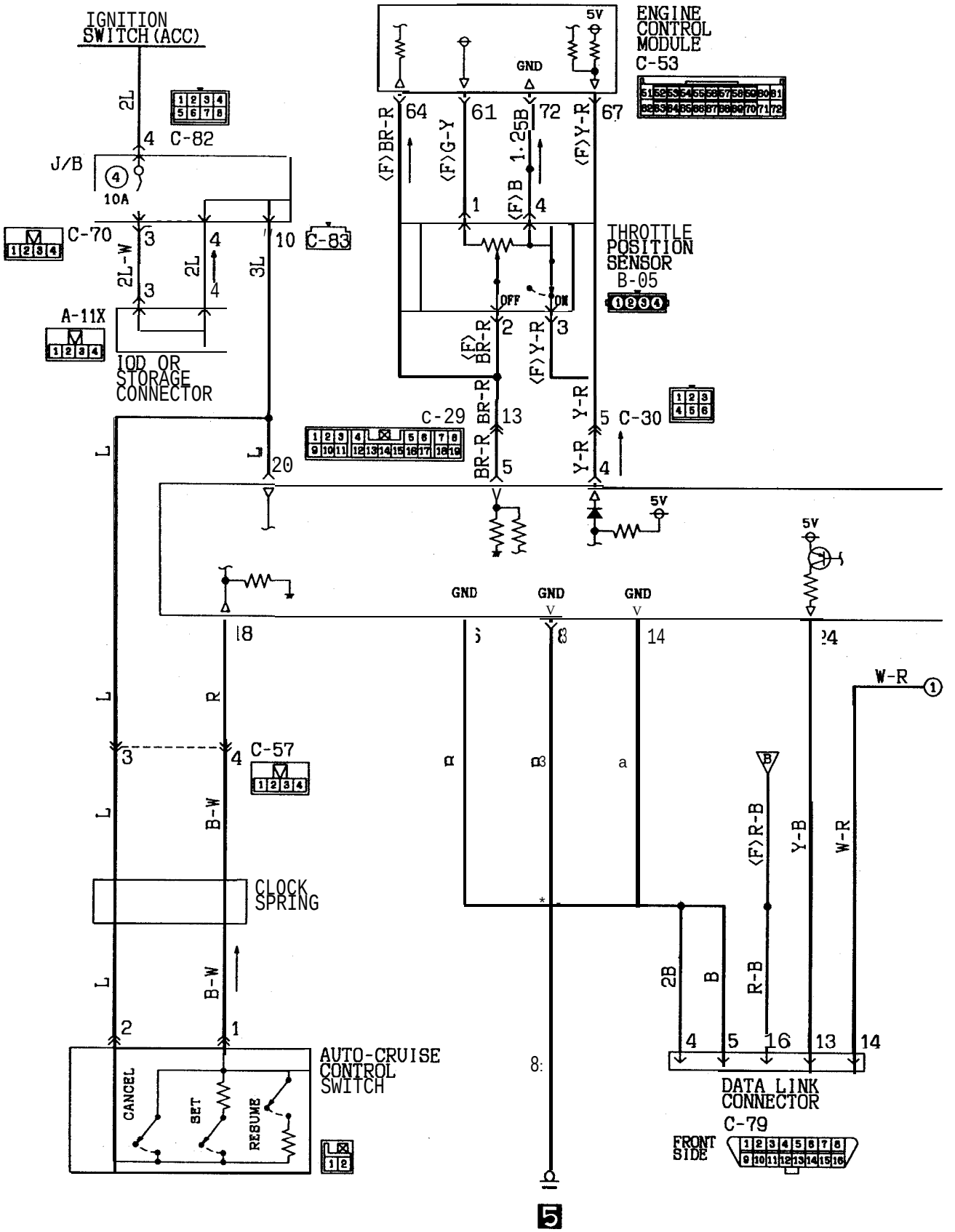

FUSIBLE LINK@
TAILLIGHT RELAY
IGNITION SWITCH(IG1)
DEDICATED FUSE
1.25 R-W
5W-B
2B-W
15A
C-68
C-69
C-82
J/B
10A
15A
15A
C-77
C-70
C-83
C-77
C-71
D-44
R-m
R-Y
R
0.8 5R-B
(F)R-m
G-W
B-W
0.85B-W
0.85B-W
IOD OR STORAGE CONNECTOR
A-11X
16
AUTO-CRUISE CONTROL UNIT
5V
C-37
19
W-R
W-R
18
D-42
W-R
Y-W
6
C-14
Y-W
Y
SPEED SENSOR
2
3
MAIN SWITCH
D-32
ILL
OFF
ON
OFF
N
ON
OFF
ON
N
6
4
1
B-Y
m
L-B
C-15
11
B-y
RHEOSTAT
2R
5
C-70
A-11X
C-83
C-77

AUTO-CRUISE CONTROL CIRCUIT <M/T> TURBO, DOHC NON TURBO (CALIFORNIA) (CONTINUED)

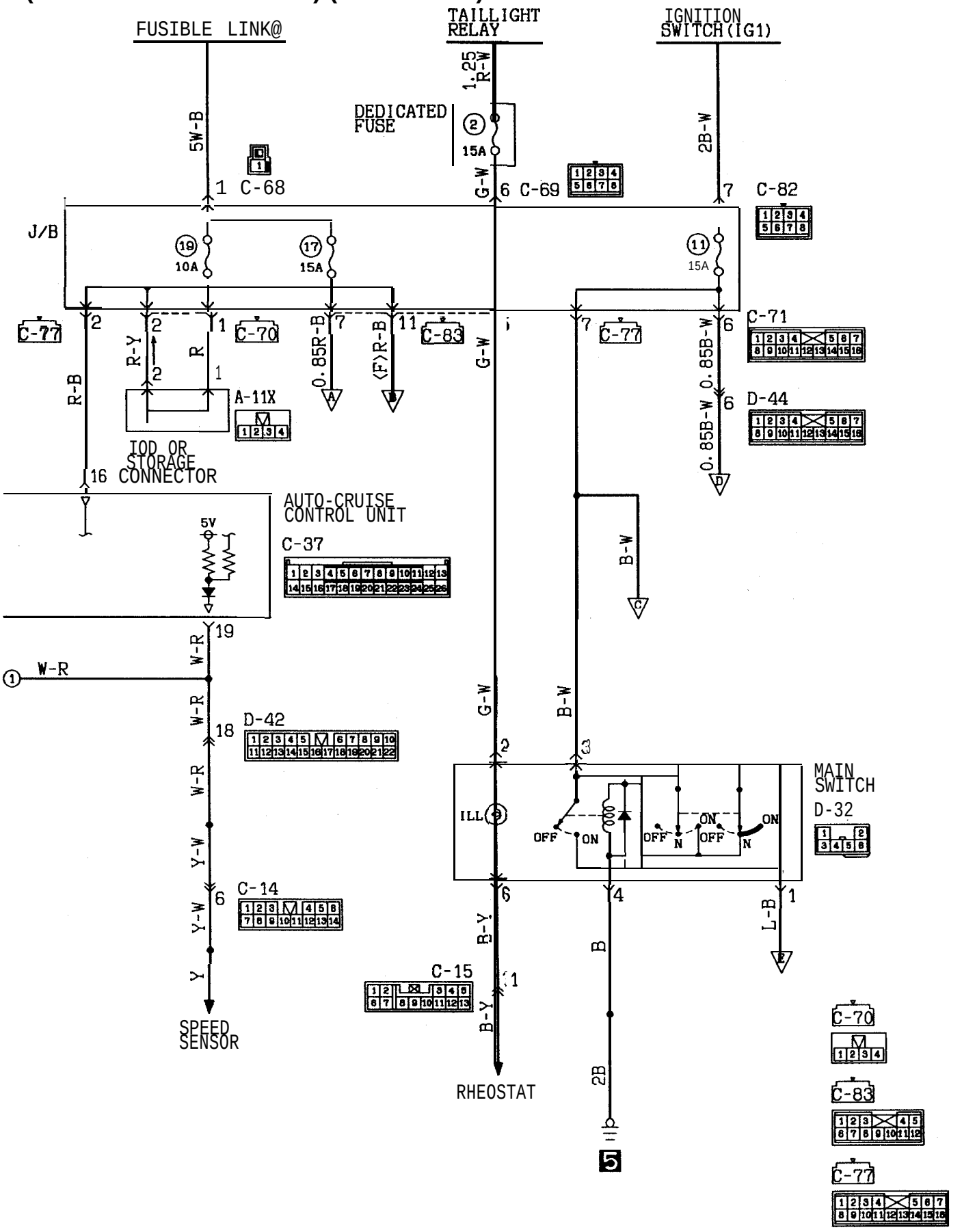


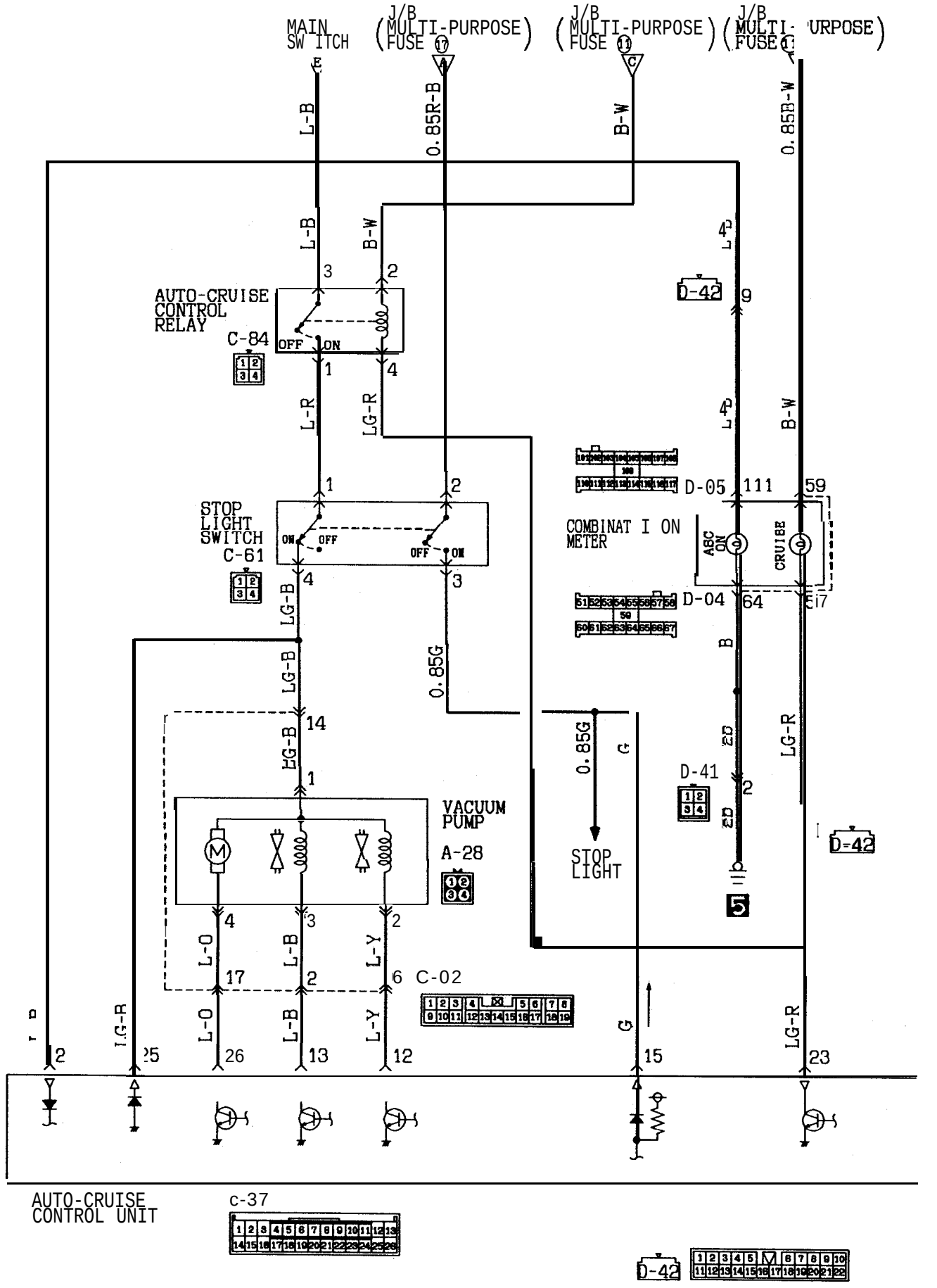
AUTO-CRUISE CONTROL CIRCUIT

<A/T> SOHC, DOHC NON TURBO (FEDERAL AND CANADA)



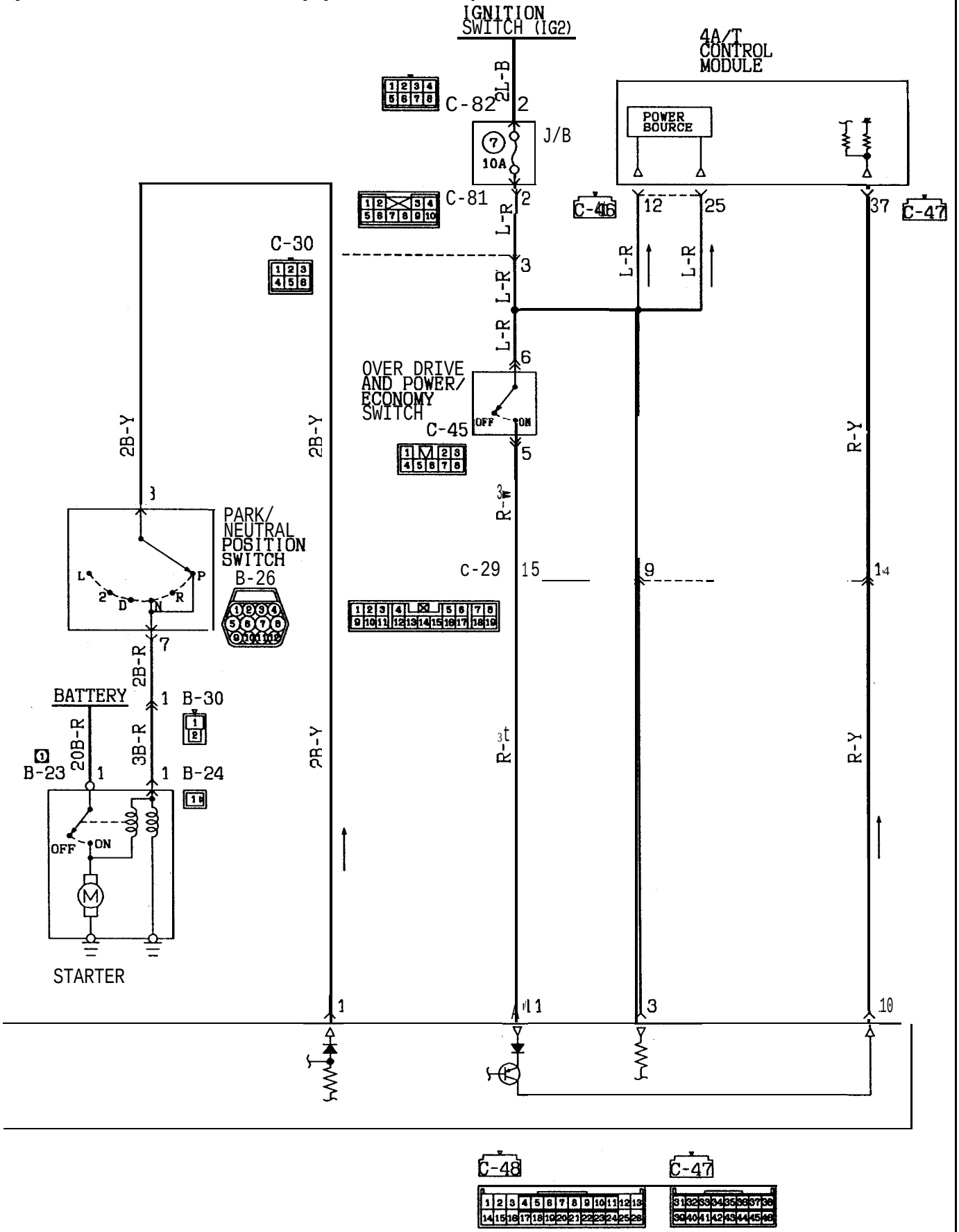
AUTO-CRUISE CONTROL CIRCUIT <A/T> SOHC, DOHC NON TURBO (FEDERAL AND CANADA) (CONTINUED)





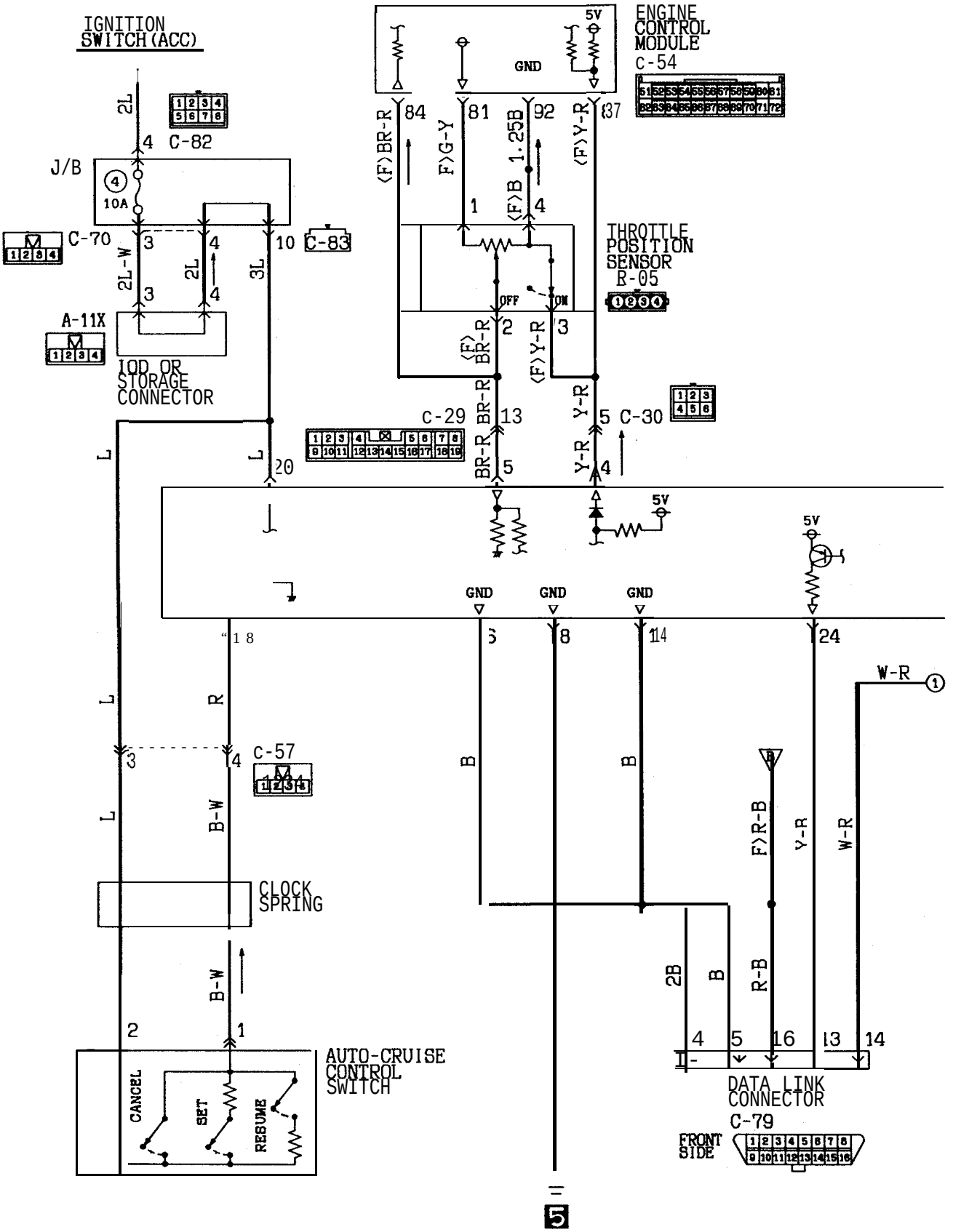
KX35-AC-R1503A-N4C

AUTO-CRUISE CONTROL CIRCUIT <A/T> SOHC, DOHC NON TURBO (FEDERAL AND CANADA) (CONTINUED)



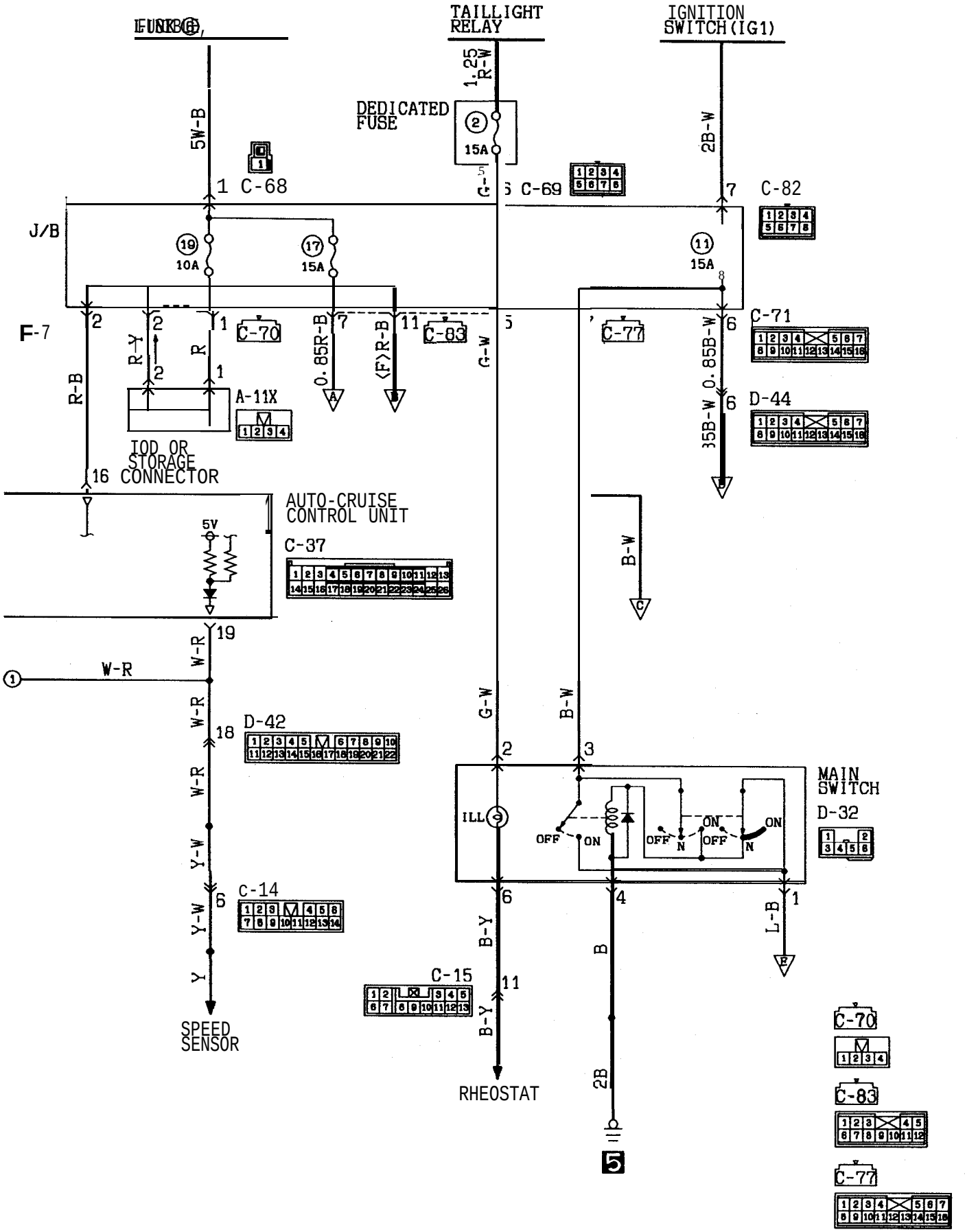
AUTO-CRUISE CONTROL CIRCUIT

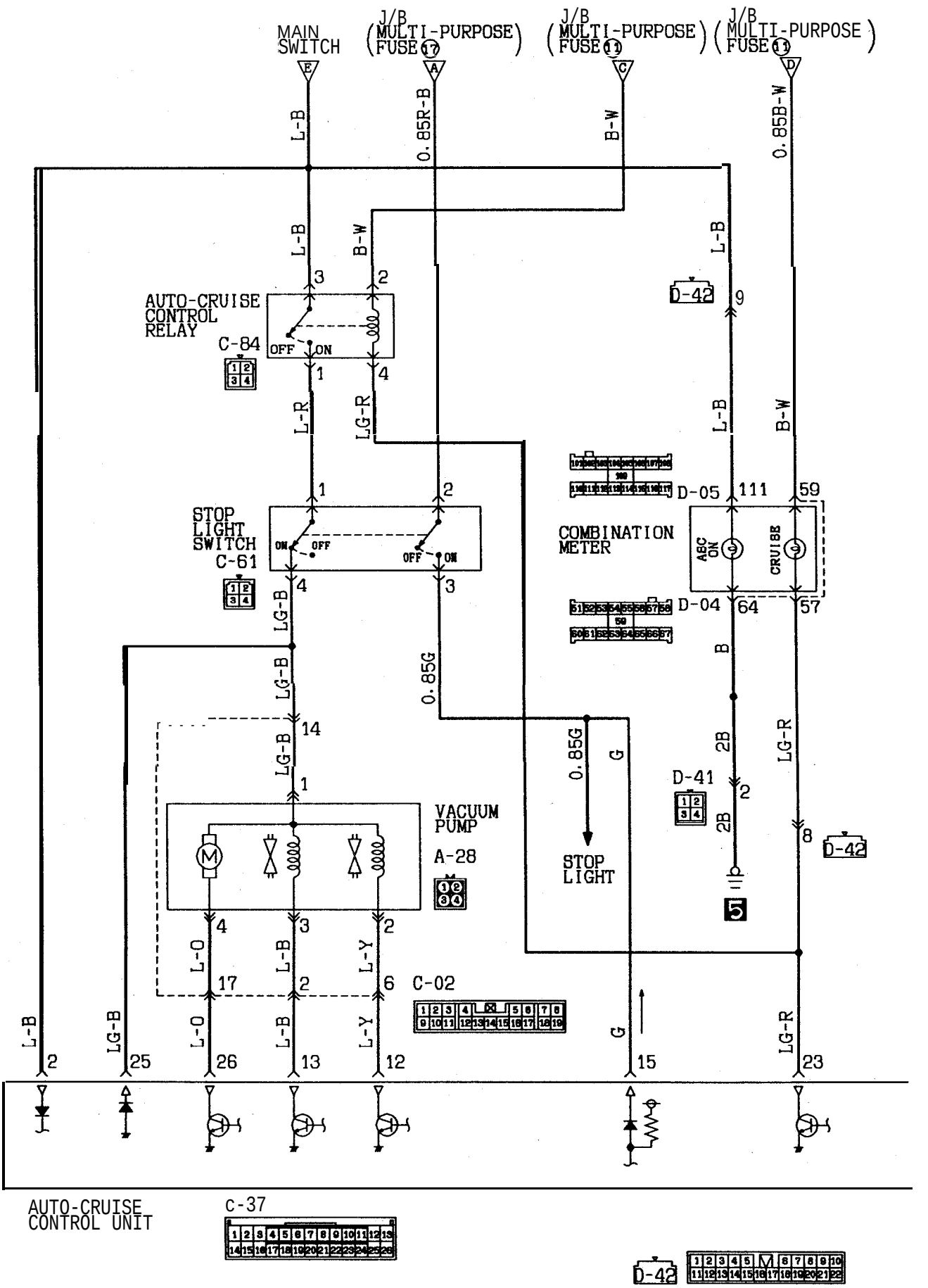
<A/T> DOHC (CALIFORNIA)



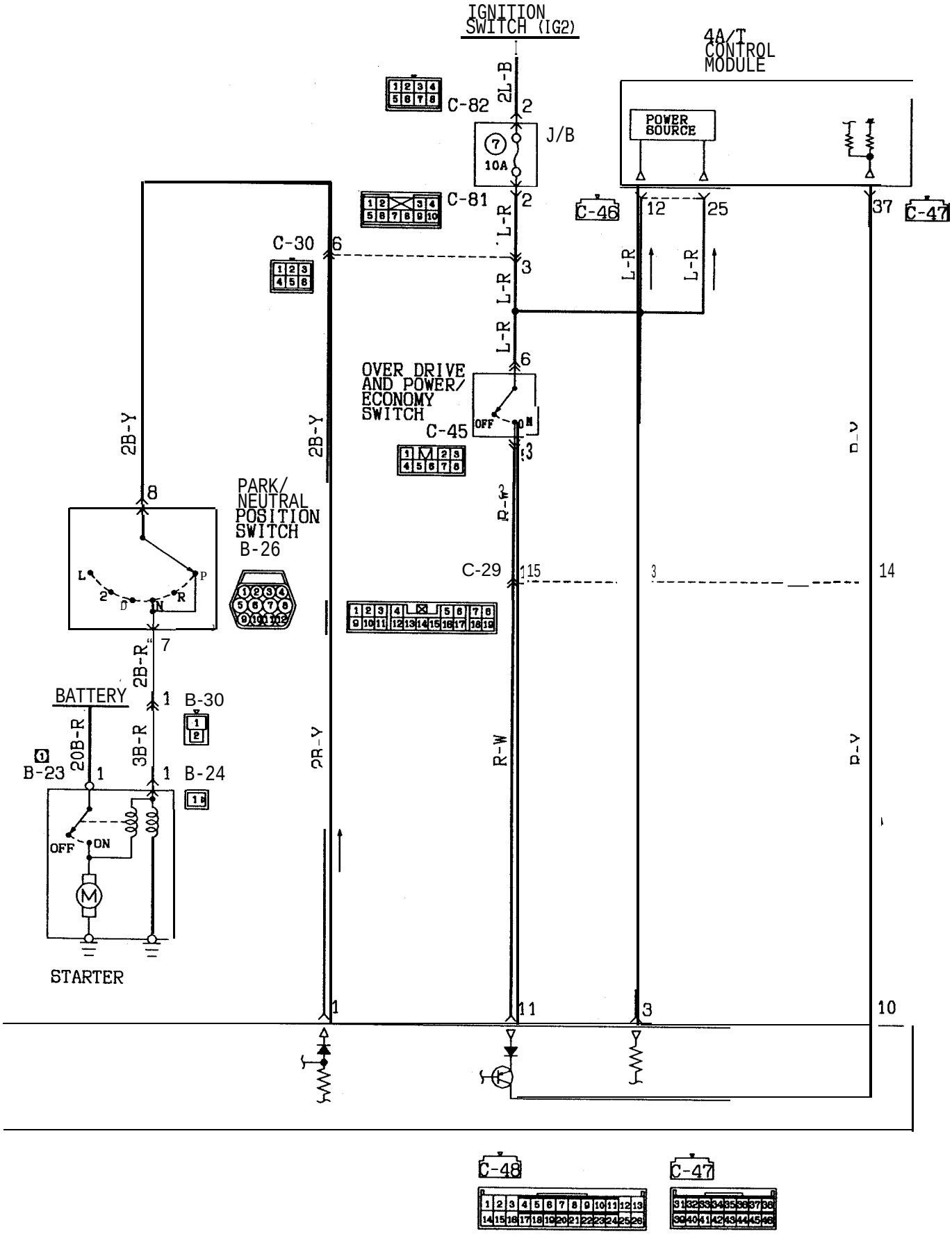
X35-AC-R1504-M4C

AUTO-CRUISE CONTROL CIRCUIT <A/T> DOHC (CALIFORNIA) (CONTINUED)



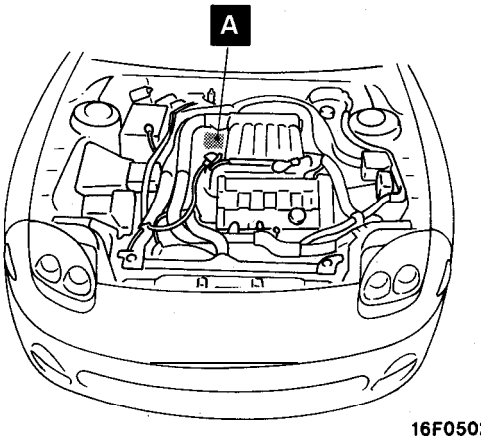

MAIN SWITCH
J/B (MULTI-PURPOSE FUSE 17)
J/B (MULTI-PURPOSE FUSE 11)
J/B (MULTI-PURPOSE FUSE 11)
E
A
C
D
L-B
0.85R-B
B-W
0.85B-W
AUTO-CRUISE CONTROL RELAY
C-84
OFF
ON
L-R
LG-R
STOP LIGHT SWITCH
C-61
ON
OFF
LG-B
0.85G
D-42
D-05
111
59
COMBINATION METER
ABC ON
CRUISE
D-04
64
57
B
2B
D-41
G
STOP LIGHT
VACUUM PUMP
A-28
L-O
L-Y
C-02
AUTO-CRUISE CONTROL UNIT
C-37

AUTO-CRUISE CONTROL CIRCUIT <A/T> DOHC (CALIFORNIA) (CONTINUED)

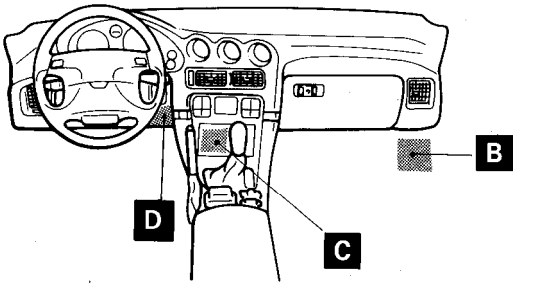


COMPONENT LOCATION

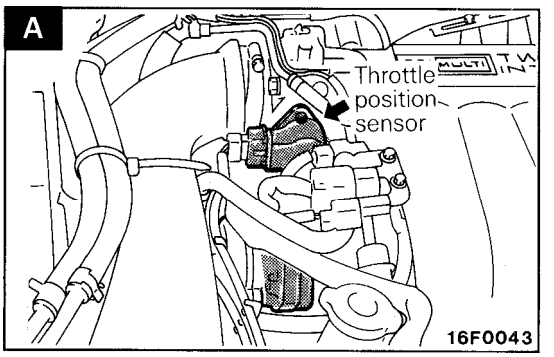
Name	Symbol	Name	Symbol
Auto-cruise control unit	B	Engine control module	C
Auto-cruise relay	C	Throttle position sensor	A
Data link connector	D	–	–

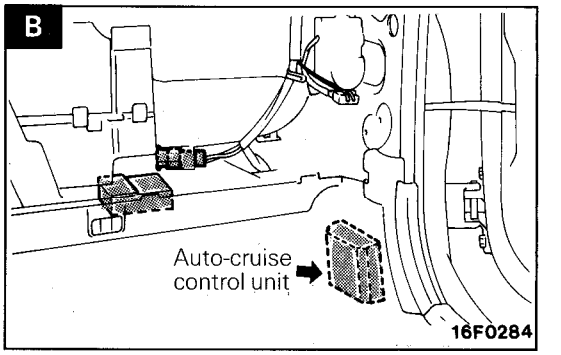


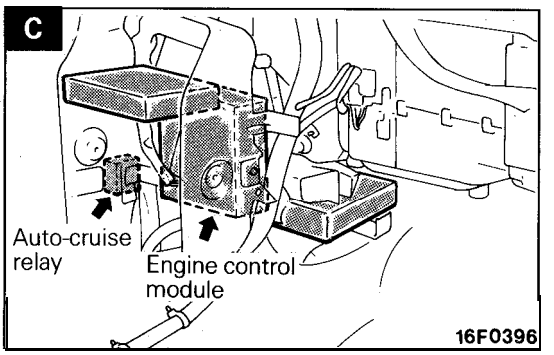
16F0502

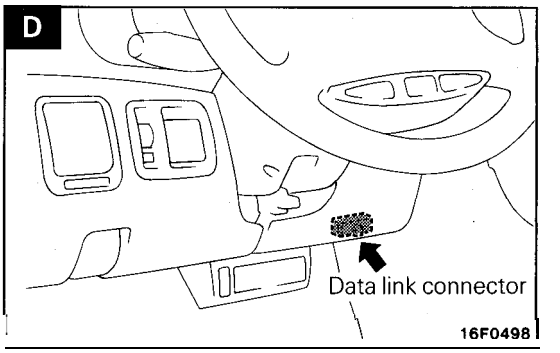


19F0134

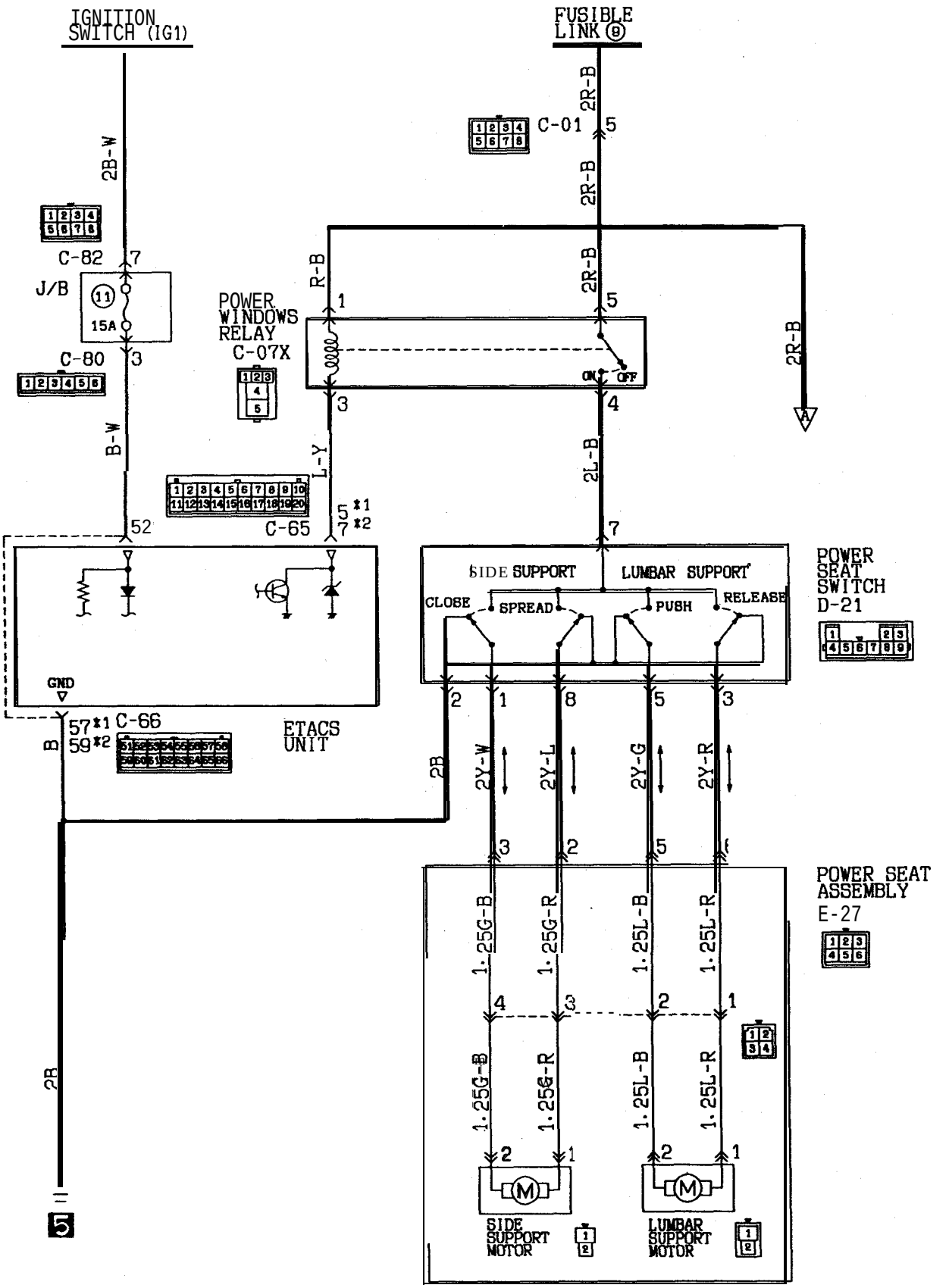






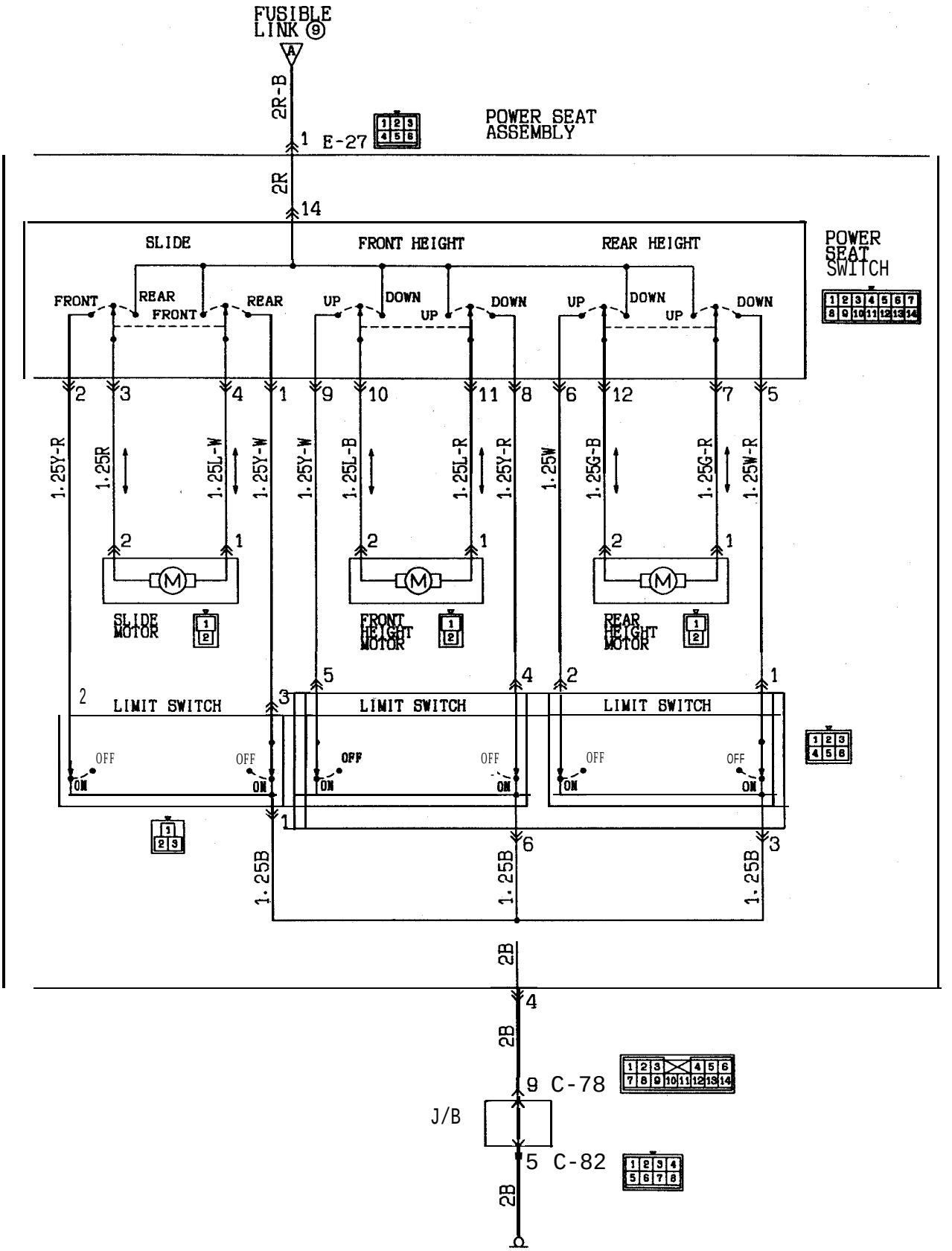


POWER SEAT CIRCUIT

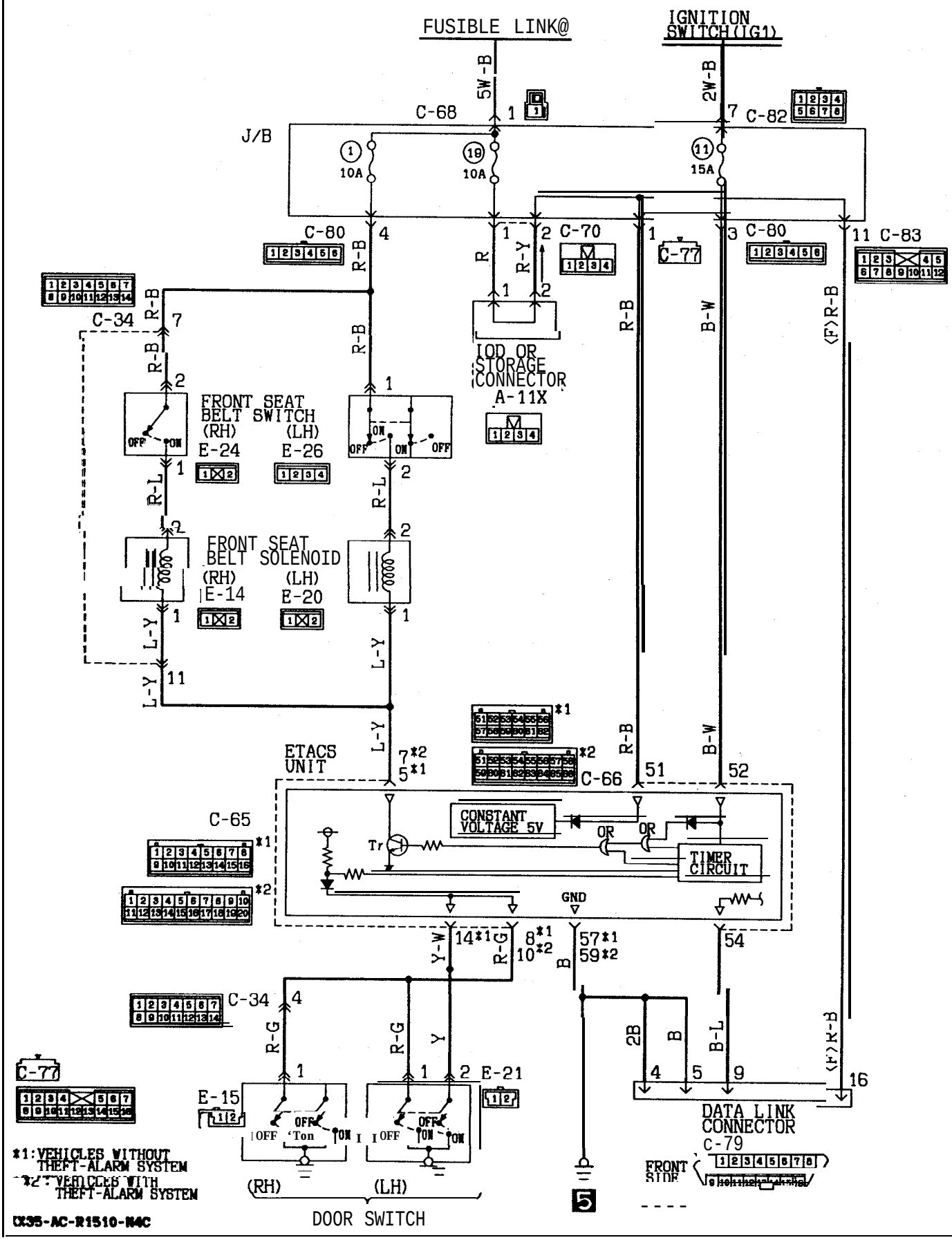


NOTE
*1:VEHICLES WITHOUT THEFT ALARM SYSTEM
*2:VEHICLES WITH THEFT ALARM SYSTEM

DX35-AC-R151 1-N4C

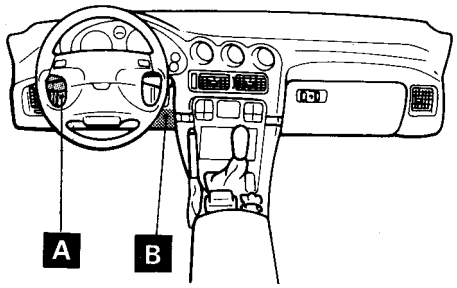

FUSIBLE LINK ⑨
2R-B
1 E-27
POWER SEAT ASSEMBLY
2R
14
SLIDE
FRONT HEIGHT
REAR HEIGHT
POWER SEAT SWITCH
FRONT
REAR
REAR FRONT
REAR
UP
DOWN
UP
DOWN
UP
DOWN
UP
DOWN
2 3 4 1 9 10 11 8 6 12 7 5
1.25Y-R
1.25R
1.25L-W
1.25Y-W
1.25Y-W
1.25L-B
1.25L-R
1.25Y-R
1.25W
1.25G-B
1.25G-R
1.25W-R
SLIDE MOTOR
FRONT HEIGHT MOTOR
REAR HEIGHT MOTOR
LIMIT SWITCH
LIMIT SWITCH
LIMIT SWITCH
OFF
ON
1.25B
1.25B
1.25B
2B
2B
9 C-78
J/B
5 C-82
2B
6

TENSION-REDUCER TYPE SEAT BELT CIRCUIT

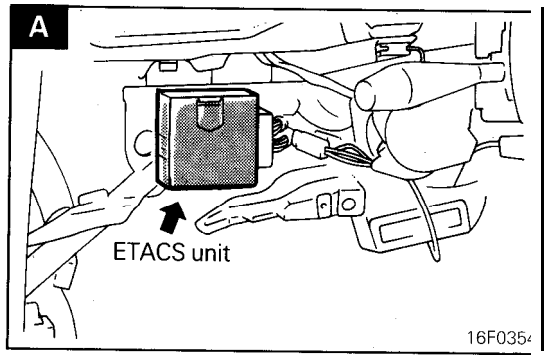


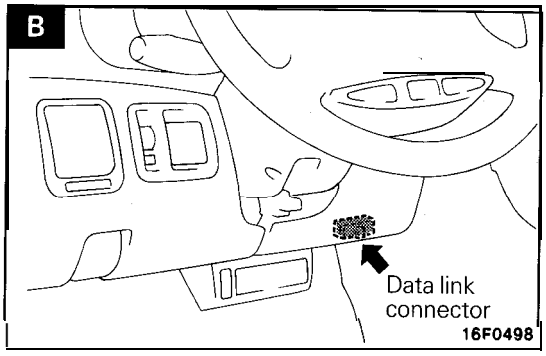
COMPONENT LOCATION

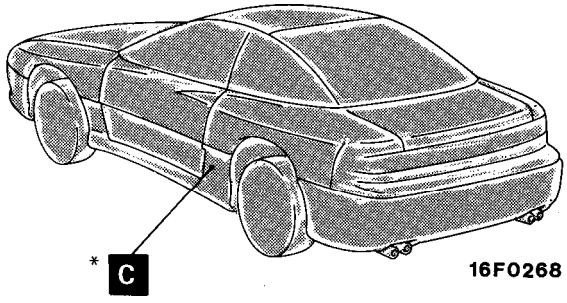
Name	Symbol	Name	Symbol
Data link connecotr	B	Front seat belt solenoid	C
ETACS unit	A	–	–

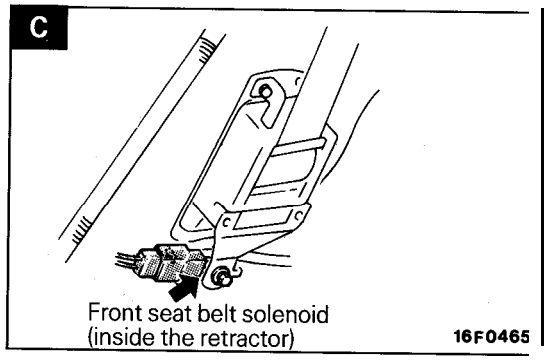


19F0134









Note: * indicates that this component is used on the right side as well.

ENGINE ELECTRICAL

CONTENTS

CHARGING SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS

GENERATOR

Items	SOHC	DOHC
Type	Battery voltage sensing	Battery voltage sensing
Rated output V/A	12/90	12/110
Voltage regulator	Electronic type	Electronic type

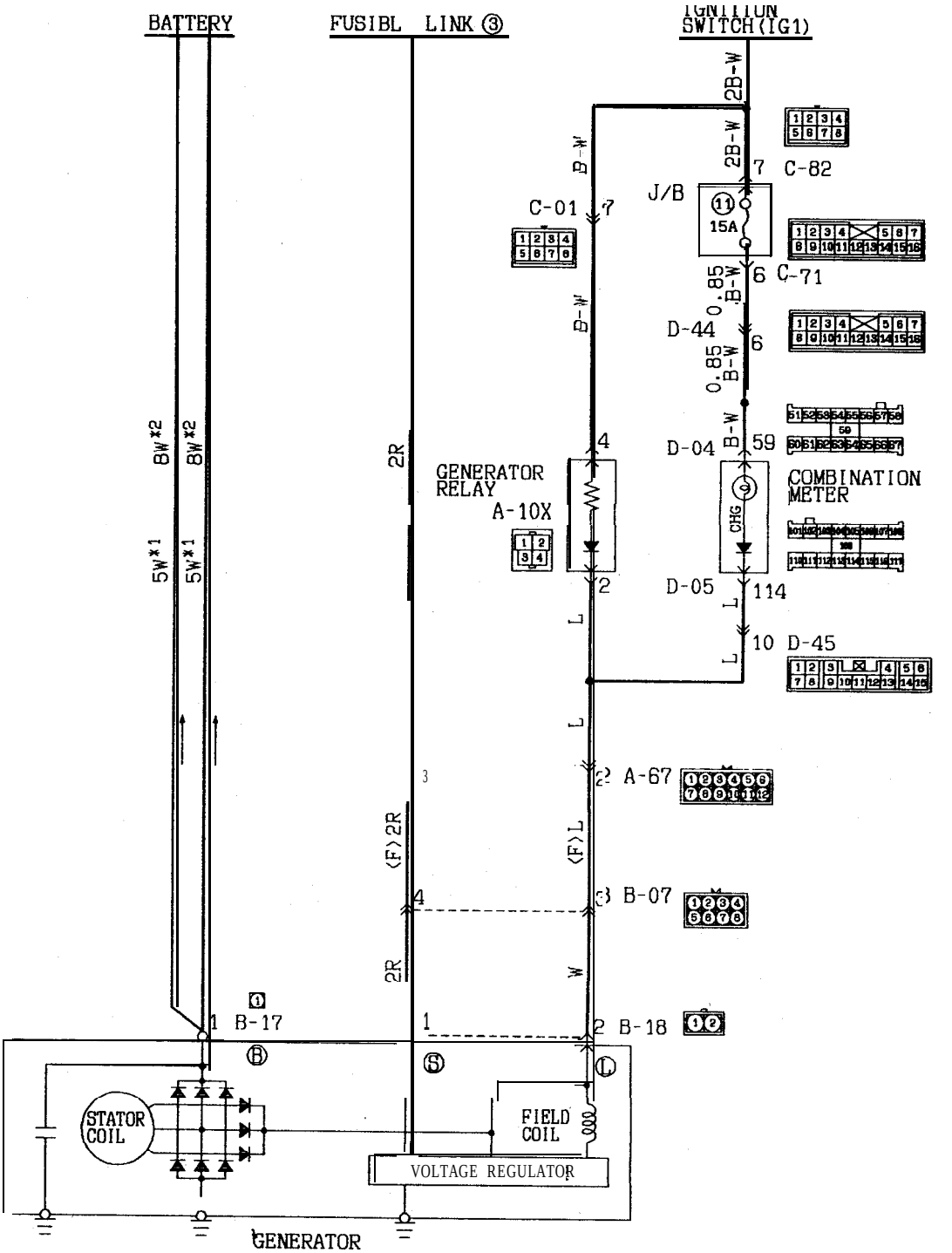
SERVICE SPECIFICATIONS

Items	Specifications
Generator	
Standard value	
Regulated voltage	
Ambient temp. at voltage regulator V	
-20°C (-4°F)	14.2 – 15.4
20°C (68°F)	13.9 – 14.9
60°C (140°F)	13.4 – 14.6
80°C (176°F)	13.1 – 14.5
Slip ring O.D. mm (in.)	
SOHC	23 (.91)
DOHC	26.7 (1.05)
Field coil resistance Ω	Approx. 3 – 5
Limit	
Output current	70% of nominal output current
Slip ring O.D. mm (in.)	
SOHC	22.2 (.87)
DOHC	26.1 (1.03)

TROUBLESHOOTING

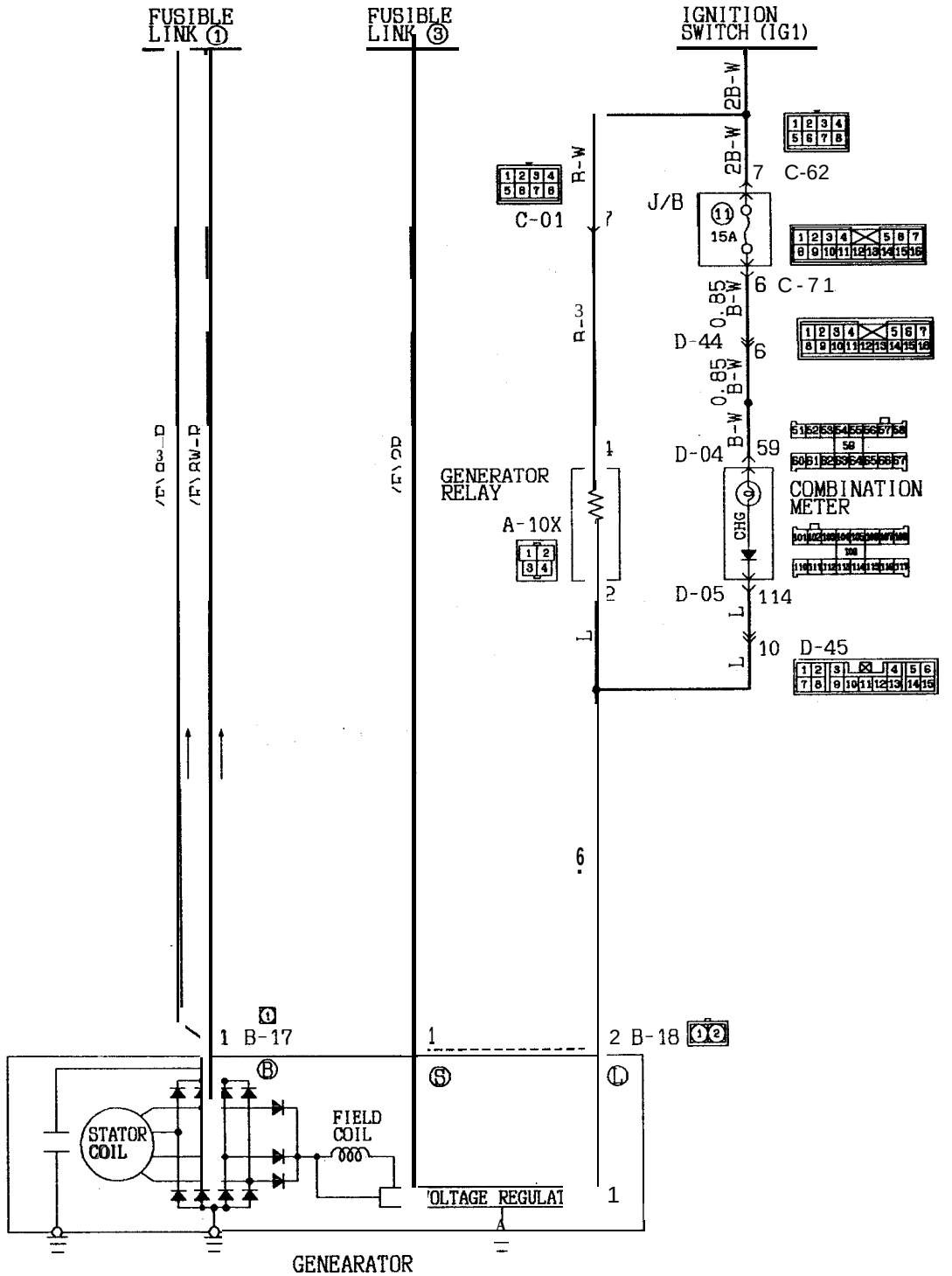
CIRCUIT DIAGRAM

<SOHC>



NOTE
*1:VEHICLES WITH GENERATOR RATED OUTPUT 90A
*2:VEHICLES WITH GENERATOR RATED OUTPUT 110A

<DOHC>


FUSIBLE LINK ①
FUSIBLE LINK ③
IGNITION SWITCH (IG1)
2B-W
C-62
C-01
R-W
J/B
15A
C-71
0.85 B-W
D-44
D-04
59
GENERATOR RELAY
A-10X
COMBINATION METER
CHG
D-05
114
D-45
B-17
B-18
STATOR COIL
FIELD COIL
VOLTAGE REGULAT
GENEARATOR

OPERATION

When engine is stopped

When the ignition switch is switched to the “ON” position, electricity flows from the “L” terminal of the generator to the field coil, and at the same time the charging warning light illuminates.

When engine is being started/has started

When the engine is started, charging voltage is applied to the “L” terminal of the generator, with the result that the charging warning light is extinguished.

In addition, because battery voltage is applied to the “S” terminal of the generator, this battery voltage is monitored at the IC voltage regulator, thus switching ON and OFF the current to the field coil and thereby controlling the output voltage of the generator.

Power is supplied to each load from the “B” terminal of the generator.

NOTE

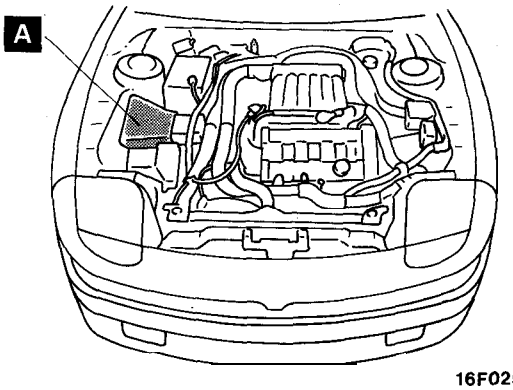
The generator relay functions as a back-up for the flow of electricity to the field coil if there is a disconnection or damaged wiring of the charging warning light.

TROUBLESHOOTING HINTS

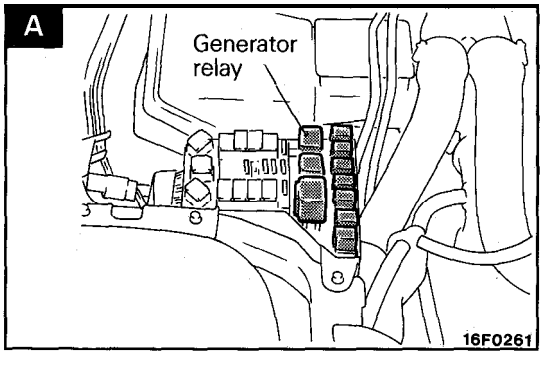
1. Charging warning light does not go on when the ignition switch is turned to “ON”, before the engine starts.
   - Check the bulb.
2. Charging warning light fails to go off once the engine starts.
   - Check the IC voltage regulator (located within the generator).
3. Discharged or overcharged battery.
   - Check the IC voltage regulator (located within the generator).
4. The charging warning light illuminates dimly.
   - Check the diode (within the combination meter) for a short-circuit.

COMPONENT LOCATION

Name	Symbol
Generator relay	A



16F0257



SERVICE ADJUSTMENT PROCEDURES

CHARGING SYSTEM INSPECTION

GENERATOR OUTPUT LINE VOLTAGE DROP TEST

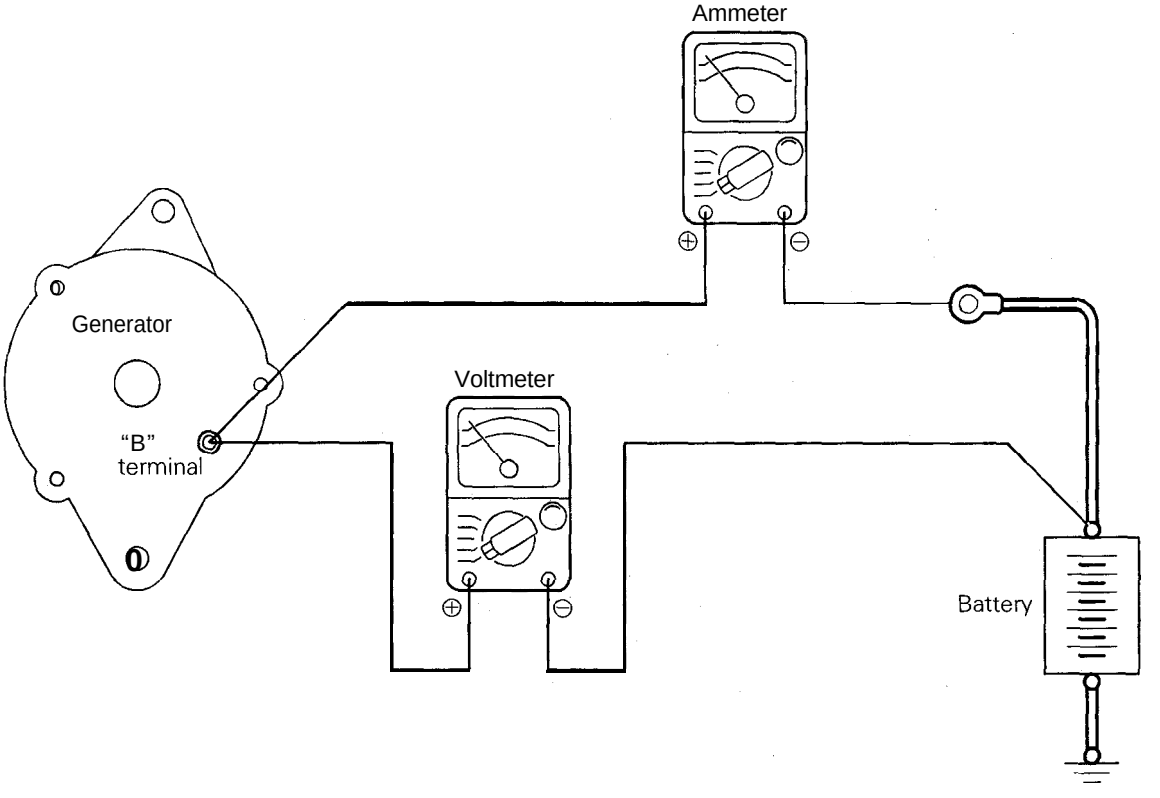
The test is performed to check whether the wiring between terminal B of the generator and the positive terminal of the battery (including the fusible link) is good or not.

(1) Before the test is performed, be sure to check the following items.
- Mounted condition of generator
- Generator drive belt tension (Refer to GROUP 0 – Maintenance Service.)
- Fusible link condition
- Whether strange sound is heard from generator during engine rotation

(2) Set the ignition switch to "OFF".
(3) Disconnect the negative cable of the battery.
(4) Disconnect the output line of the generator from terminal B of the generator.
(5) Connect a 0-100A test DC ammeter between terminal B and the disconnected output line in series. (Connect the positive lead wire of the ammeter to terminal B and connect the negative lead wire of the ammeter to the disconnected output line.)

NOTE:
- Use of a clamp type ammeter is recommended, as it allows measurements to be made without disconnecting the output line of the generator. Why is a clamp type ammeter recommended? When you check a vehicle in which a low output current exists due to incompletely connected terminal B of the generator, you may be unable to detect the cause of the trouble, because direct loosening of terminal B and connection of an ammeter to terminal B completes the connection.

(6) Connect a digital voltmeter between terminal B of the generator and the positive terminal of the battery. (Connect the positive lead wire of the voltmeter to terminal B and connect the negative lead wire of the voltmeter to the positive terminal of the battery.)



6EN0892

(7) Set an engine tachometer.

NOTE:
- For engine tachometer setting procedure, refer to GROUP 9 – Service Adjustment Procedures.

(8) Connect the negative cable of the battery.
(9) Leave the engine hood opened.
(lO) Start the engine.
(1 l) Adjust the generator load by turning the headlamps or smaller lamps ON or OFF so that the ammeter will indicate a somewhat higher value than 30A with the engine running at 2500 rpm.
(12) Slowly lower the engine speed to adjust the engine speed so that the ammeter will indicate 30A. Take the reading of the voltmeter at the time.

Liniit value: 0.3V max.
(0.4V max. in case of ammeter reading of 40A)

(13) If the voltmeter reading is in excess of the limit value, a defective generator output line is suspected. Check the wiring (including fusible link) between terminal B of the generator and the positive terminal of the battery.
If there are problems like loosely tightened terminals, discolored harness due to overheating, etc., make repairs and perform the test thereafter.
(14) After the test has been completed, let the engine run at idle. Turn off the lamps and other devices and place the ignition switch at "OFF".
(15) Disconnect the negative cable of the battery.
(16) Remove the test ammeter, voltmeter and engine tachometer.
(17) Connect the output line of the generator to terminal B of the generator.
(18) Reconnect the negative cable of the battery.

OUTPUT CURRENT TEST

The test is performed to check whether the generator has the capability to output expected current.

(1) Before the output current test is performed, be sure to check the following items.
- Mounted condition of generator
- Battery condition (Refer to GROUP 8 – Battery.)

NOTE:
The battery used for output current test is preferably in a slightly discharged condition. With a fully charged battery, shortage of load could result in incorrect test.

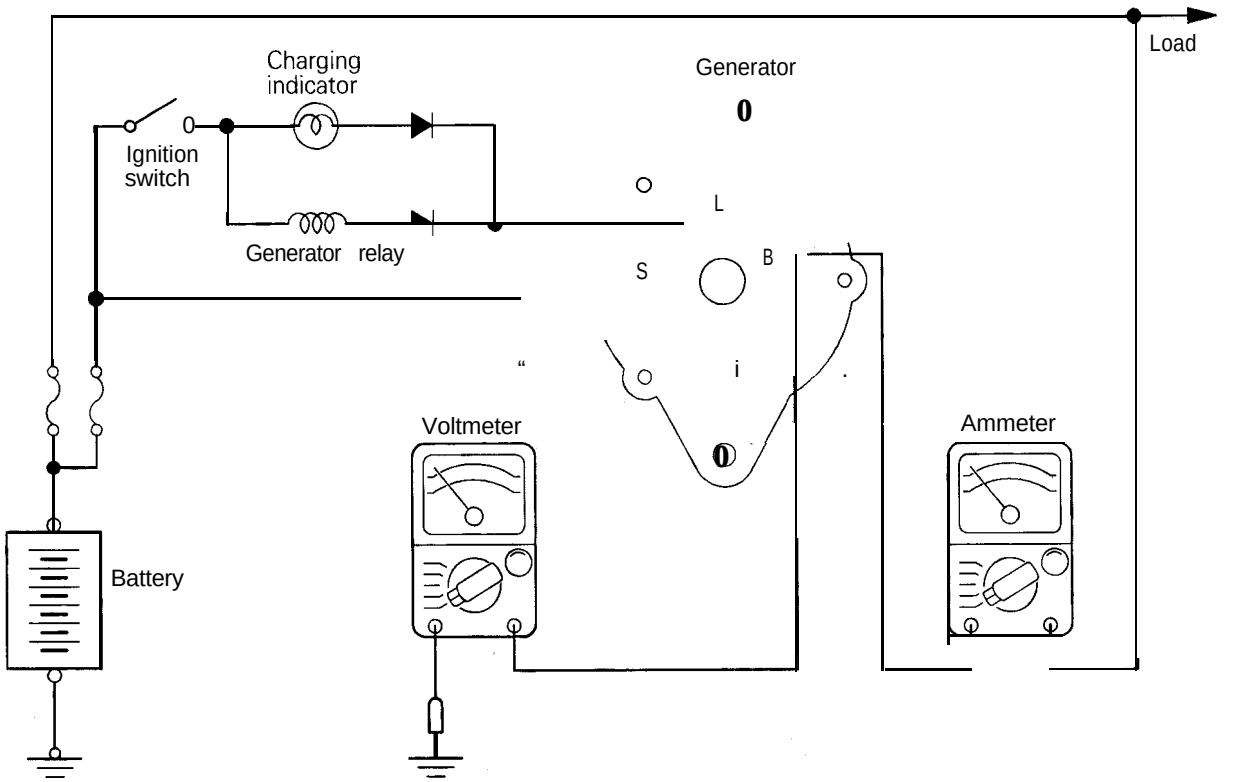
- Generator drive belt tension (Refer to GROUP 0 – Maintenance Service.)
- Fusible link condition
- Whether strange sound is heard from generator during engine rotation

(2) Place the ignition switch at "OFF".
(3) Disconnect the negative cable of the battery.
(4) Disconnect the output line of the generator from terminal B of the generator.
(5) Connect a 0-100A test DC ammeter between terminal B and the disconnected output line in series. (Connect the positive lead wire of the ammeter to terminal B and connect the negative lead wire of the ammeter to the disconnected output line.)

CAUTION:
- Since a large current flows, firmly secure all the connections with bolts and nuts. Be sure to avoid the method of fastening connections with clips.

NOTE:
- Use of a clamp type ammeter is recommended, as it allows measurements to be made without disconnecting the output line of the generator.

(6) Connect a 0-20V test voltmeter between terminal B and ground. (Connect the positive lead wire of the voltmeter to terminal B and connect the negative lead wire of the voltmeter to a good ground.)


Load
Charging indicator
Generator
Ignition switch
L
Generator relay
S
B
i
Voltmeter
Ammeter
Battery
6EN0893

(7) Set an engine tachometer.

NOTE:
- For engine tachometer setting procedure, refer to GROUP 9 – Service Adjustment Procedures.

(8) Connect the negative cable of the battery.
(9) Leave the engine hood opened.
(10) Check that the voltmeter reading is equal to the battery voltage.

NOTE:
- When the voltmeter reading is OV, an open-circuited wiring or fusible link between terminal B of the generator and the positive terminal of the battery is suspected.

(1 l) Set the lighting switch to "ON" to light the headlamps, and then start the engine.
(12) Set the headlamps to high beam and set the heater blower switch to HI. Immediately increase the engine speed to 2,500 rpm and read the maximum output current value indicated by the ammeter.

Limit value: 70% of nominal output current

NOTES:
- For the nominal output current value, refer to General Specifications.
- Since the charge current abruptly decreases after starting the engine, perform the above-mentioned operations quickly when reading the maximum current value.
- The output current value varies with the size of electric load and the temperature of the generator itself.
  When the electric load of the vehicle under test is small, the specified output current may be unavailable even if there is nothing wrong with the generator. In such a case, leave the headlamps lighted to discharge the battery, or get another car and use the lamps and other devices of the car to increase the electric load, and then re-perform the test.
  If the temperature of the generator itself or the ambient temperature is too high, the specified output current may be unavailable, either. In such a case, let the generator cool down before retesting.

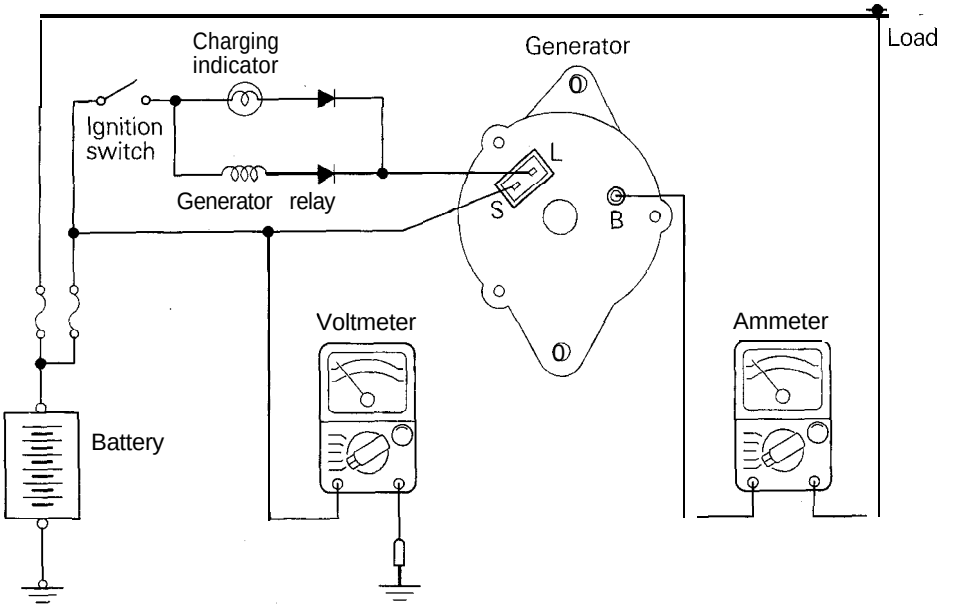
(13) Check to ensure that the ammeter reading is in excess of the limit value. If the reading is lower than the limit value, and there is nothing wrong with the output line of the generator, remove the generator from the engine and check it.
(14) After the output current test has been completed, reduce the engine speed to the idling speed.
(15) Place the ignition switch at "OFF".
(16) Disconnect the negative cable of the battery.
(17) Remove the test ammeter, voltmeter and engine tachometer.
(18) Connect the output line of the generator to terminal B of the generator.
(19) Reconnect the negative cable of the battery.

REGULATOR VOLTAGE TEST

The test is performed to check whether the voltage regulator is properly controlling the output voltage of the generator.

(1) Before the regulator voltage test is performed, be sure to check the following items.
- Mounted condition of generator
- Check to ensure that the battery mounted in the vehicle is in fully charged condition. (Refer to GROUP 8 – Battery.)
- Generator drive belt tension (Refer to GROUP 0 – Maintenance Service.)
- Fusible link condition
- Whether strange sound is heard from generator during engine rotation

(2) Place the ignition switch at "OFF".
(3) Disconnect the negative cable of the battery.
(4) Connect a digital voltmeter between terminal S of the generator and ground. (Connect the positive lead wire of the voltmeter to terminal S. Connect the negative lead wire of the voltmeter to a good ground or the battery negative terminal.)
(5) Disconnect the output line of the generator from terminal B of the generator.
(6) Connect a 0-100A test DC ammeter between terminal B and the disconnected output line in series. (Connect the positive lead wire of the ammeter to terminal B and connect the negative lead wire of the ammeter to the disconnected output line.)


Charging indicator
Generator
Load
Ignition switch
L
Generator relay
S
B
Voltmeter
Ammeter
Battery

6EN0883

(7) Set an engine tachometer.

NOTE:
- For engine tachometer setting procedure, refer to GROUP 9 – Service Adjustment Procedures.

(8) Connect the negative cable of the battery.
(9) Place the ignition switch at "ON" and check that the voltmeter reading is equal to the battery voltage.

NOTE:
When the voltmeter reading is OV, an open-circuited wiring or fusible link between terminal S of the generator and the positive terminal of the battery is suspected.

(10) Check to ensure that all of the lamps and accessories are "OFF".
(1 l) Start the engine.
(12) Increase the engine speed to 2,500 rpm.
(13) When the output current of the generator has decreased to less than 10A, read the value indicated by the voltmeter.
(14) If the reading is equal to a value in the regulator voltage table, it follows that the voltage regulator is performing well. If the reading is out of the standard limits, the voltage regulator or generator is out of order.

Regulator Voltage Table

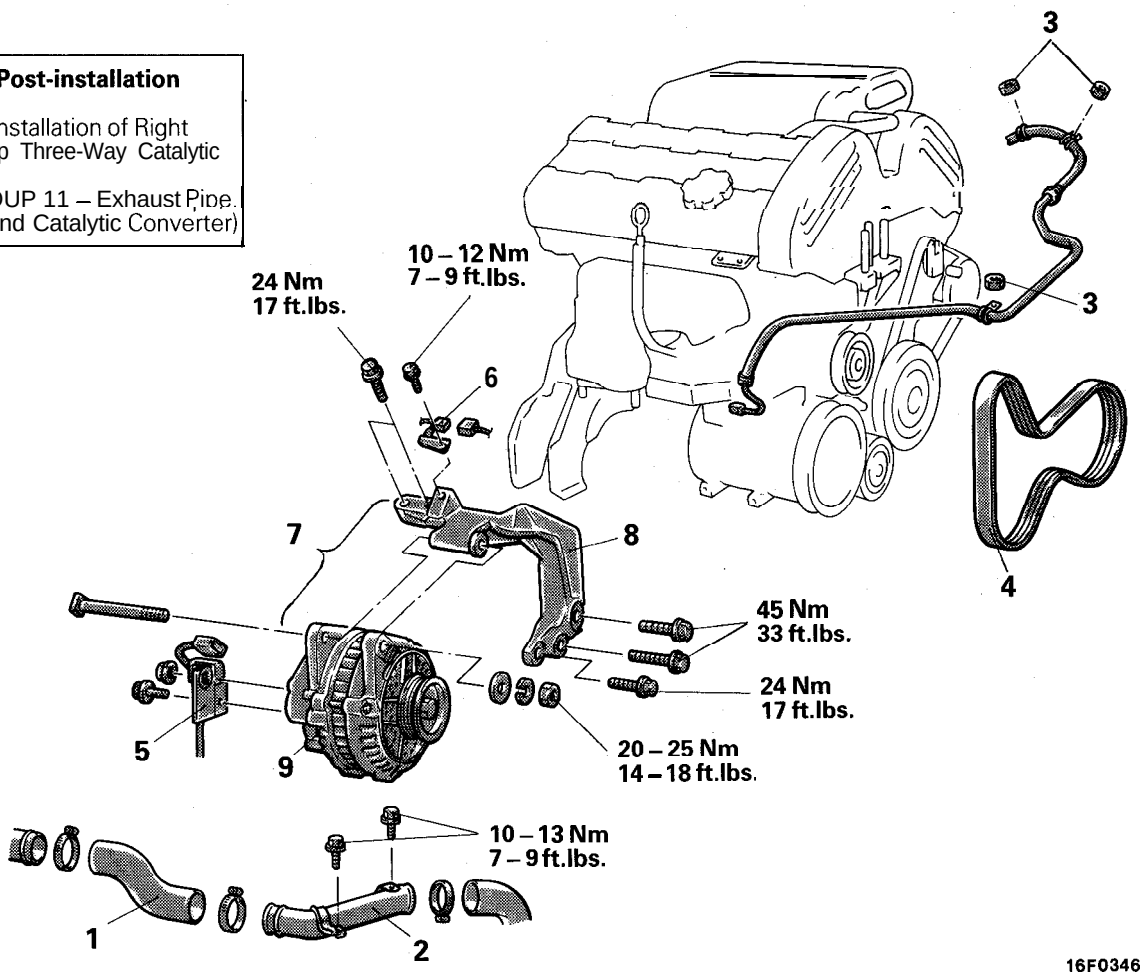
Detecting Terminal	Voltage Regulator Ambient Temperature °C (°F)	Standard Limits (V)
Terminal "S"	-20 (–4)	14.2 – 15.4
	20 (68)	13.9 – 14.9
	60 (140)	13.4 – 14.6
	80 (176)	13.1 – 14.5

(15) After the test has been completed, let the engine run at idle.
(16) Place the ignition switch at "OFF".
(17) Disconnect the negative cable of the battery.
(18) Remove the test ammeter, voltmeter and engine tachometer.
(1 9) Connect the output line of the generator to terminal B of the generator.
(20) Reconnect the negative cable of the battery.

GENERATOR <DOHC>

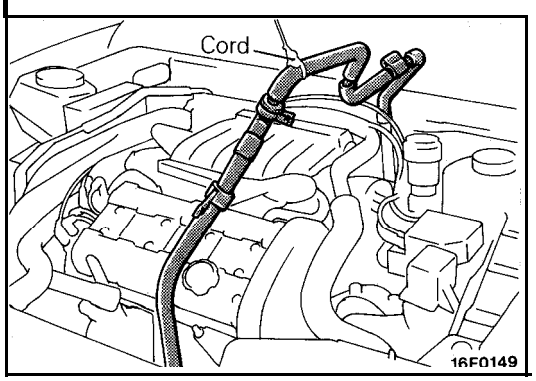
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
- Removal and Installation of Right Bank Warm Up Three-Way Catalytic Converter
  (Refer to GROUP 11 – Exhaust Pipe, Main Muffler and Catalytic Converter)



Removal steps

1. Air hose E <Turbo>
2. Air pipe C <Turbo>
3. ◆◆ Clamp nuts of suction hose <Vehicles with air conditioning>
4. Drive belt
   (Refer to GROUP 9 – Service Adjustment Procedures.)
5. Generator connector
6. Heated oxygen sensor connector
7. Generator and generator bracket assembly
8. Generator bracket
9. Generator



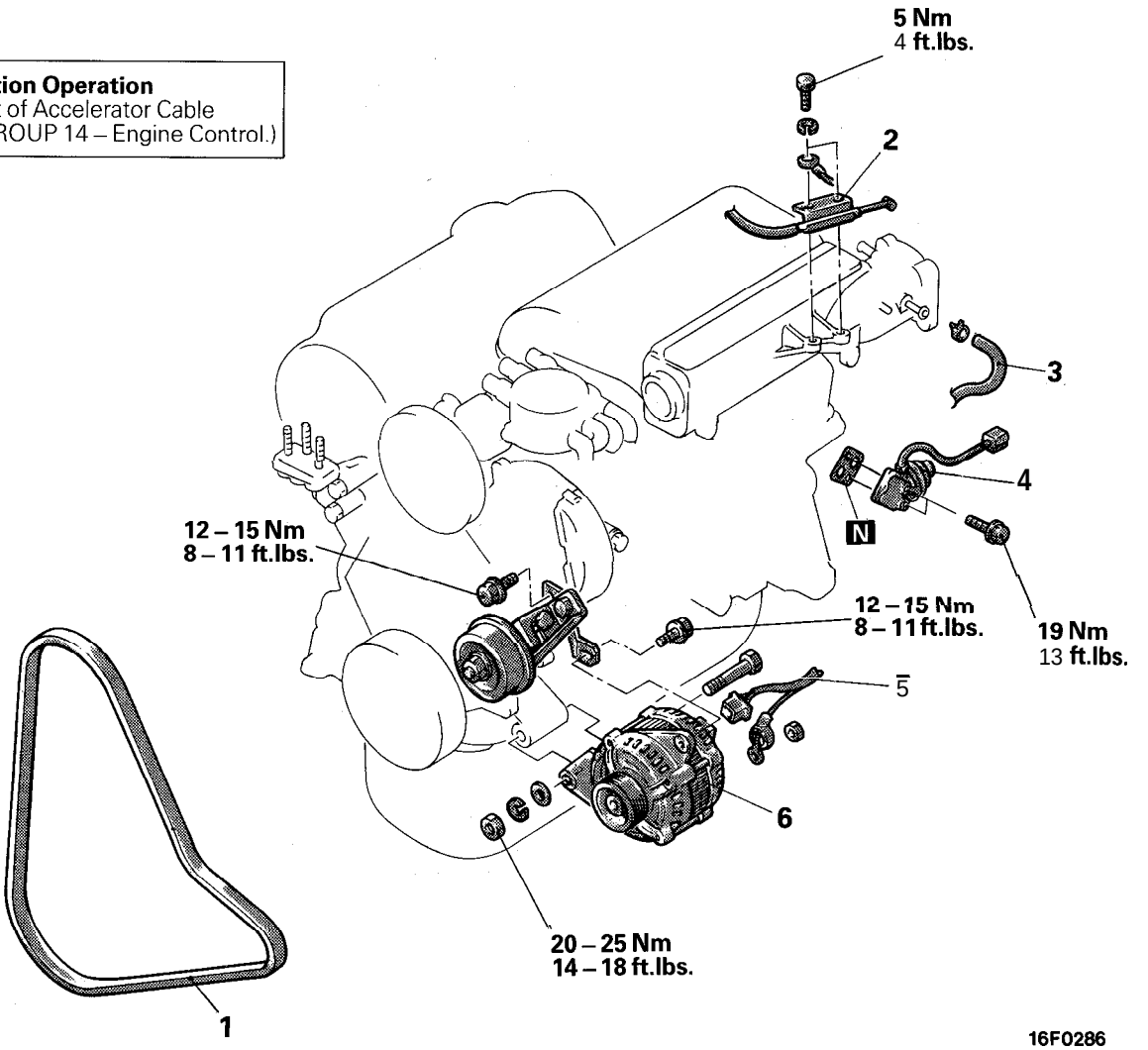
SERVICE POINT OF REMOVAL

3. REMOVAL OF CLAMP NUT

On vehicles with air conditioning, remove the clamp nut, raise the suction hose and suspend it from the engine hood using a cord.

GENERATOR <SOHC>

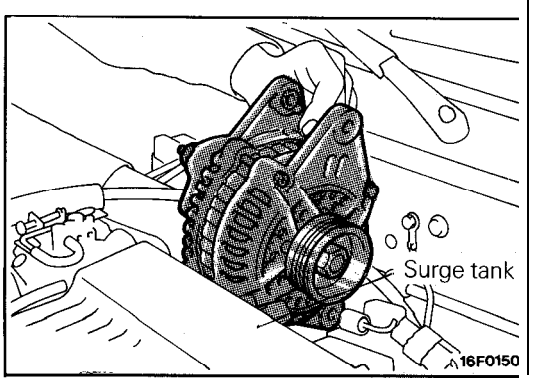
REMOVAL AND INSTALLATION



Post-installation Operation
- Adjustment of Accelerator Cable (Refer to GROUP 14 – Engine Control.)

Removal steps

1. Drive belt (Refer to GROUP 9 – Service Adjustment Procedures.)
2. Accelerator cable
3. Connection of brake booster vacuum hose
4. EGR valve <Vehicles for California>
5. Connection of generator connector
- ☒ 6. Generator

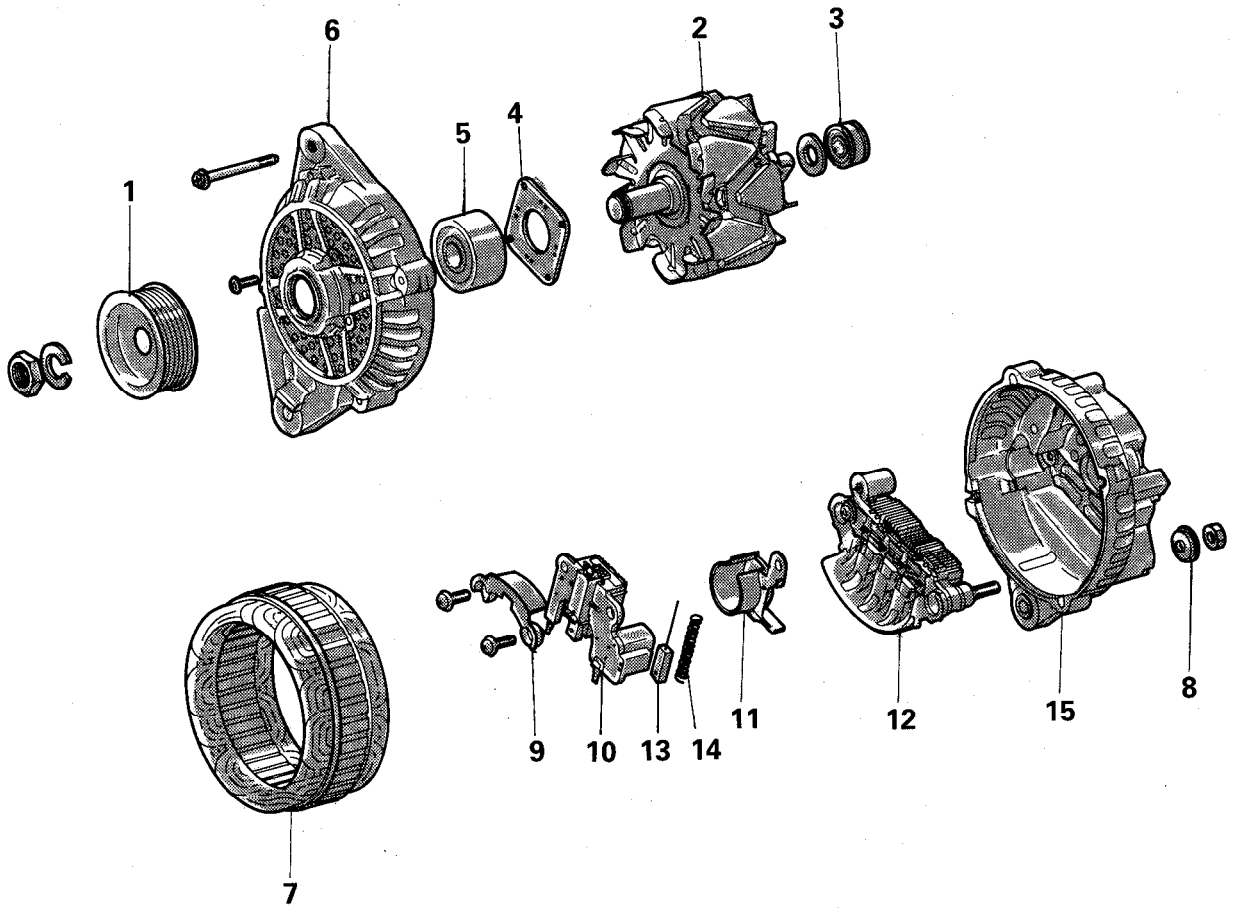


‘SERVICE POINT OF REMOVAL

6. REMOVAL OF GENERATOR

Take out the generator from behind the surge tank at the center of the vehicle.

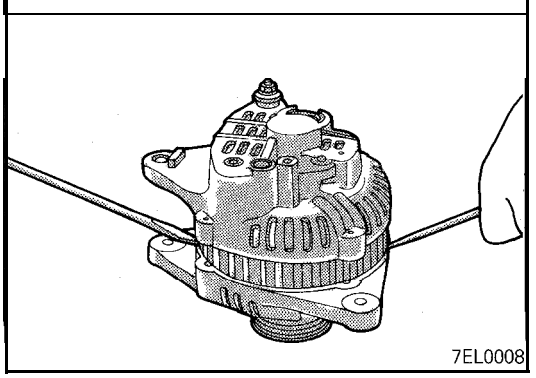
DISASSEMBLY AND REASSEMBLY



Disassembly steps

- ⧫ ☒ 1. Generator pulley
- ⧫ + 2. Rotor assembly
- 3. Rear bearing
- 4. Bearing retainer
- 5. Front bearing
- 6. Front bracket
- ◆◆ 7. Stator
- 8. Insulator
- 9. Plate
- ◆◆ 10. Regulator and brush holder
- 11. Slinger
- 12. Rectifier
- 13. Brush
- 14. Brush spring
- 15. Rear bracket

7EL0104



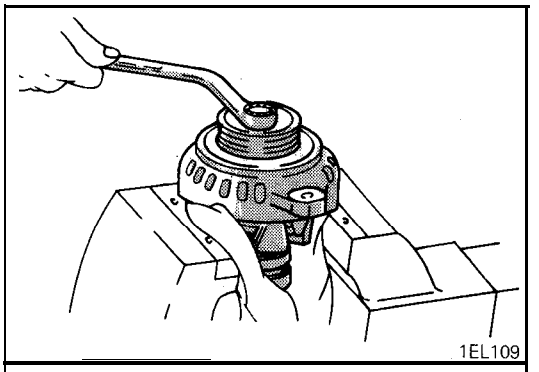
SERVICE POINTS OF DISASSEMBLY

SEPARATING THE STATOR AND FRONT BRACKET

Insert plain screwdriver between front bracket and stator core and pry downward.

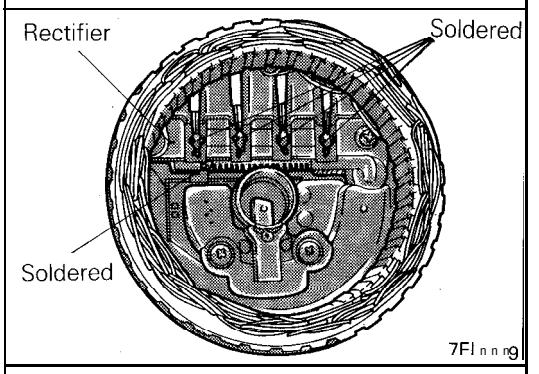
Caution

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



1. REMOVAL OF GENERATOR PULLEY

(1) Clamp the rotor in a vise with soft jaws.
(2) After removing the nut, remove the pulley and front bracket from the rotor.



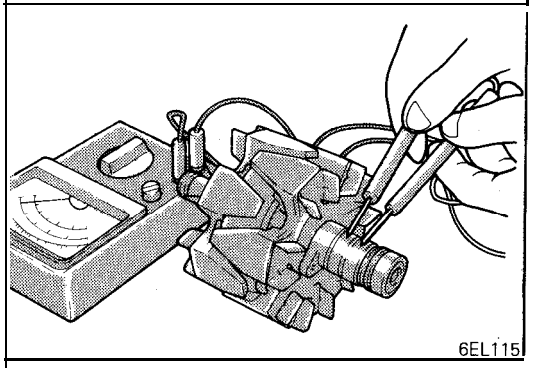
7. REMOVAL OF STATOR / 10. REGULATOR AND BRUSH HOLDER

(1) When removing the stator, unsolder stator lead wire from the main diode of the rectifier.
(2) When removing the brush holder, unsolder it from the rectifier.

Caution
(1) When soldering or unsoldering, use care to make sure that heat of soldering iron is not transmitted to diodes for a long period. Finish soldering or unsoldering in as short a time as possible.
(2) Use care that no undue force is exerted to leads of diodes.

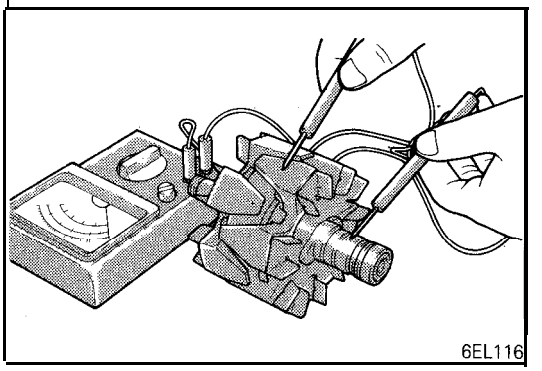
INSPECTION

ROTOR



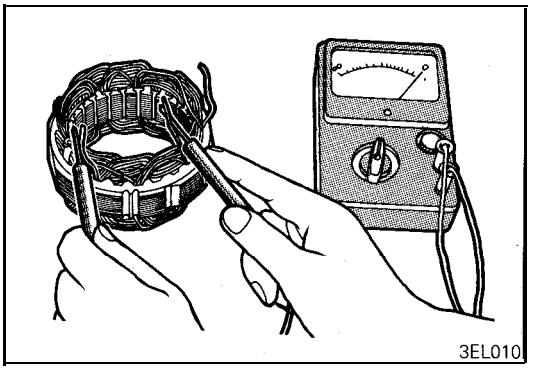
(1) Check field coil for continuity. Check to ensure that there is continuity between slip rings.
If resistance is extremely small, it means that there is a short. If there is no continuity or if there is short circuit, replace rotor assembly.

Resistance value : Approx 3 – 5 Ω

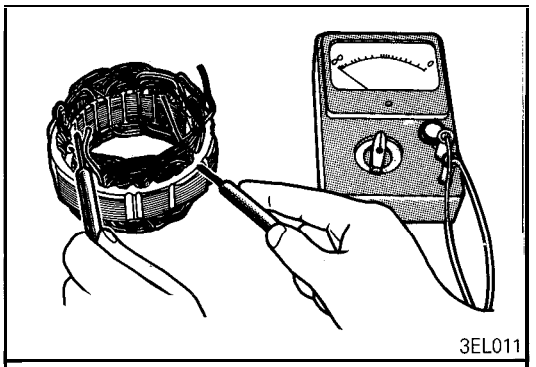


(2) Check field coil for grounding. Check to ensure that there is no continuity between slip ring and core. If there is continuity, replace rotor assembly.

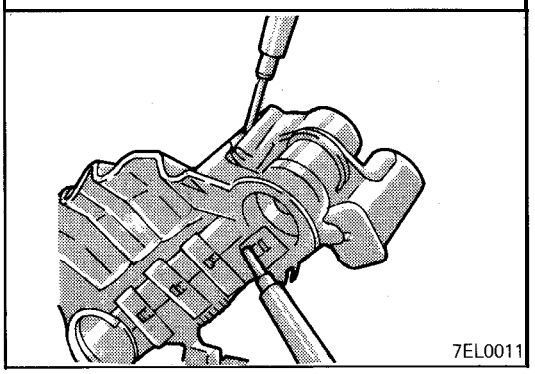
STATOR



(1) Make continuity test on stator coil. Check to ensure that there is continuity between coil leads.
If there is no continuity, replace stator assembly.



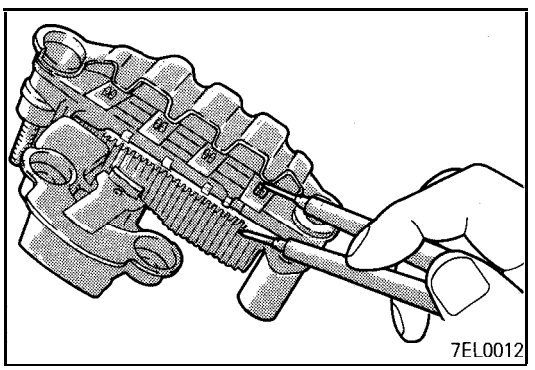
(2) Check coil for grounding. Check to ensure that there is no continuity between coil and core. If there is continuity, replace stator assembly.



RECTIFIERS

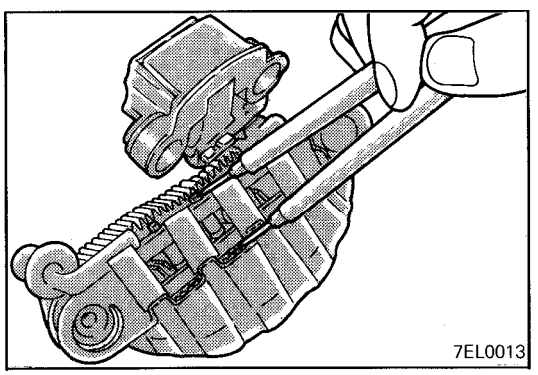
(1) Positive Rectifier Test

Check for continuity between positive rectifier and stator coil lead connection terminal with a circuit tester. If there is continuity in both directions, diode is shorted. Replace rectifier assembly.



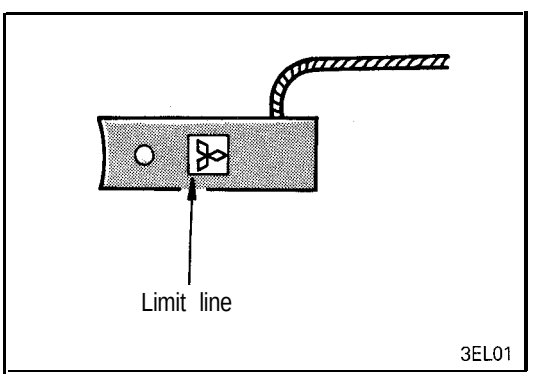
(2) Negative Rectifier Test

Check for continuity between negative rectifier and stator coil lead connection terminal. If there is continuity in both directions, diode is shorted, and rectifier assembly must be replaced.



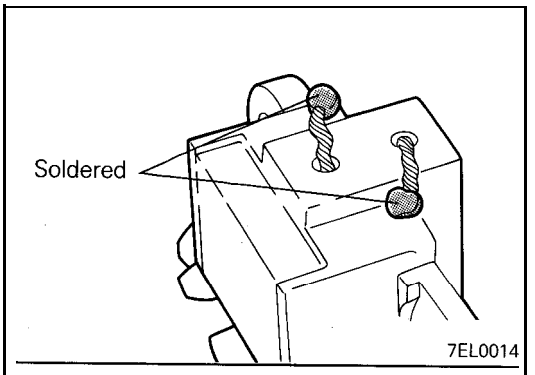
(3) Diode Trio Test

Check three diodes for continuity by connecting an ammeter to both ends of each diode. If there is no continuity in both directions, diode is faulty and heatsink assembly must be replaced.

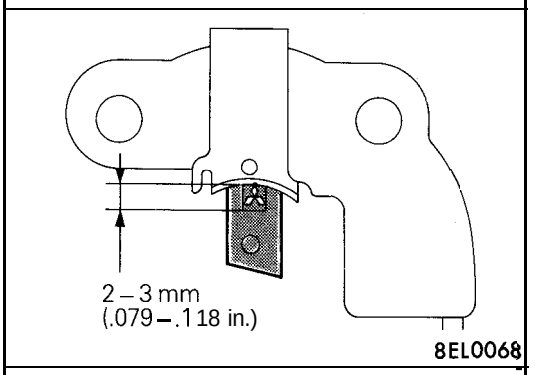


BRUSH REPLACEMENT

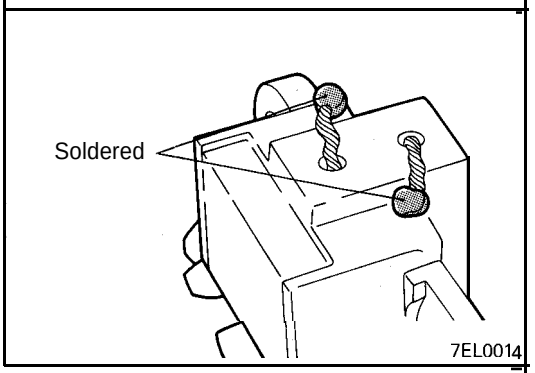
(1) Replace brush by the following procedures if it has been worn to limit line.



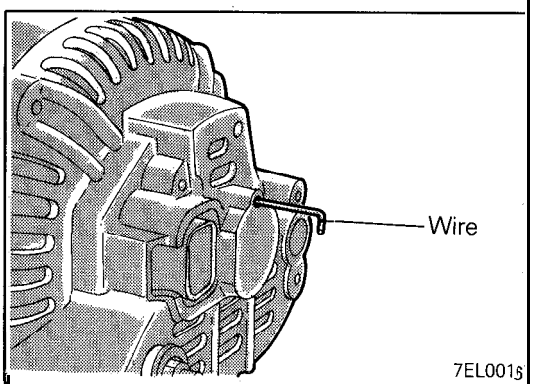
(2) Unsolder pigtail and remove old brush and spring.

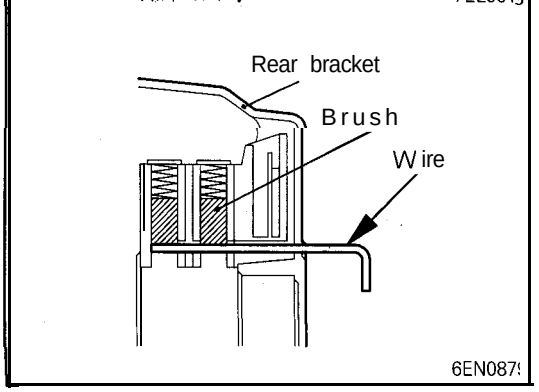


(3) Install brush spring and new brush in brush holder.
(4) Insert the brush to where there is a space 2 to 3 mm (.079 to .118 in.) between the limit line and the end of the brush holder.



(5) Solder pigtail to brush holder as shown in the illustration.





SERVICE POINT OF REASSEMBLY

2. INSTALLATION OF ROTOR ASSEMBLY

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

STARTING SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS

Items	Specification
Starter motor	
Type	Reduction drive (with planetary gear)
Rated output kW/V	1.2/12
No. of pinion teeth	8

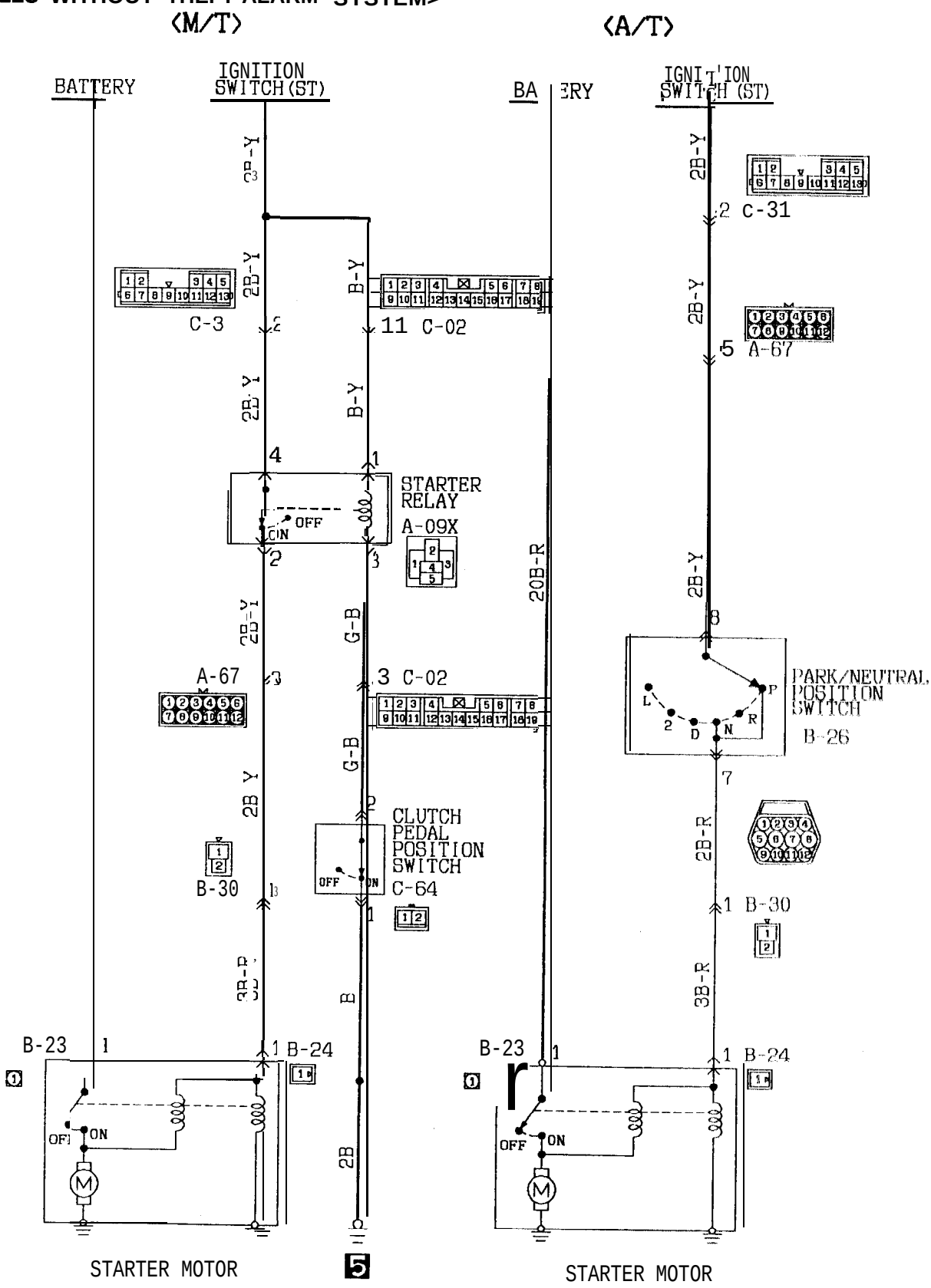
SERVICE SPECIFICATIONS

Items	Specifications
Standard value	
Starter motor	
Free running characteristics	
Terminal voltage V	11
Current A	90 or less
Speed rpm	3,000 or more
Pinion gap mm (in.)	0.5 – 2.0 (.020 – .079)
Commutator runout mm (in.)	0.05 (.002)
Commutator diameter mm (in.)	29.4 (1.158)
Undercut depth mm (in.)	0.5 (.020)
Limit	
Commutator runout mm (in.)	0.1 (.004)
Commutator diameter mm (in.)	28.4 (1.118)

TROUBLESHOOTING

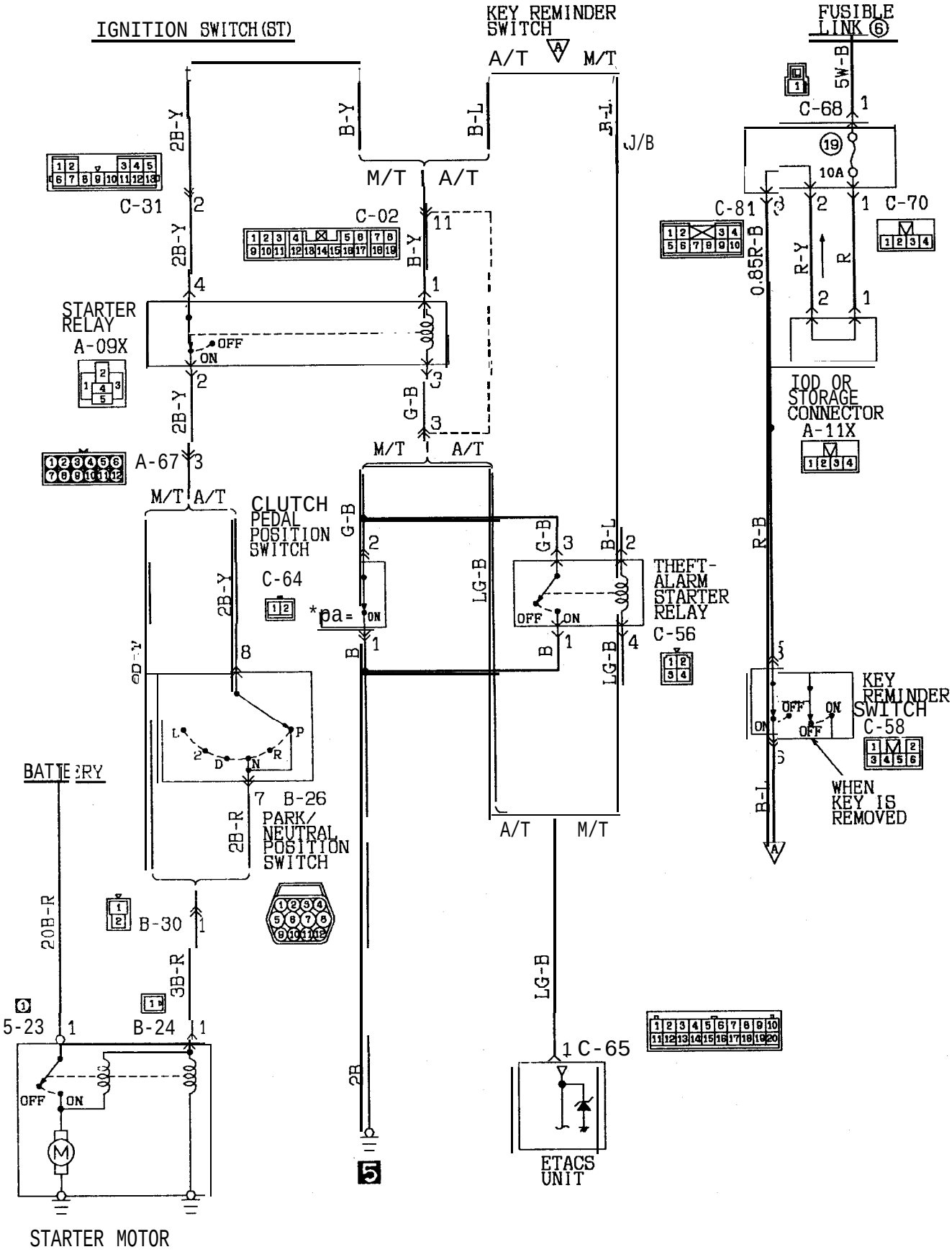
CIRCUIT DIAGRAM

<VEHICLES WITHOUT THEFT-ALARM SYSTEM>



KX35-AC-R0203-N3C

<VEHICLES WITH THEFT-ALARM SYSTEM>



OPERATION

- For models equipped with the M/T, the clutch

  when the clutch pedal is depressed; when the ignition switch is then switched to the “ST” position, electricity flows to the starter relay and the starter motor, the contact (magnetic switch) of the starter is switched ON and the starter motor is activated.

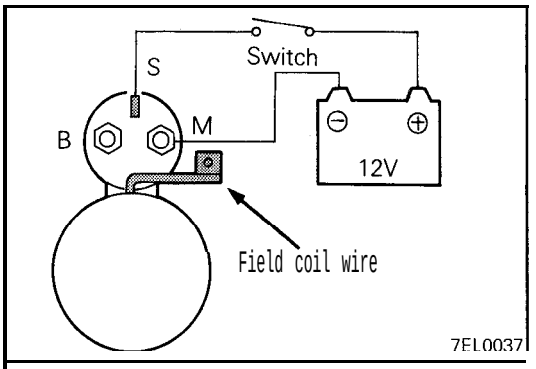
  NOTE
  If the ignition switch is switched to the “ST” position without the clutch pedal being depressed, electricity flows to the starter relay (coil), the clutch pedal position switch (contacts) and to ground, with the result that the contacts of the starter relay are switched OFF, and, because the power to the starter motor is thereby interrupted, the starter motor is not activated.

- For models equipped with the A/T, when the ignition switch is switched to the “ST” position while the selector lever is at the “P” or “N” position, the contact (magnetic switch) of the starter is switched ON and the starter motor is activated.

TROUBLESHOOTING HINTS

Check the starter (coil).

- Check for poor contact at the battery terminals and starter.
- Check Park/Neutral position switch.
- Check clutch pedal position switch.
- Check starter relay.
- Check theft-alarm starter relay.
- Check key reminder switch.



STARTER MOTOR

REMOVAL AND INSTALLATION

Refer to GROUP 21 – Transaxle.

INSPECTION

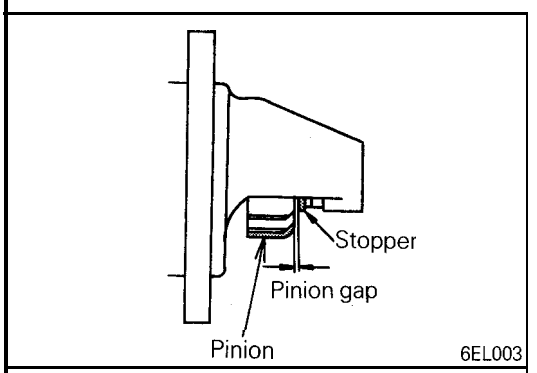
PINION GAP ADJUSTMENT

(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12V battery between S-terminal and M-terminal.
(3) Set switch to "ON", and pinion will move out.

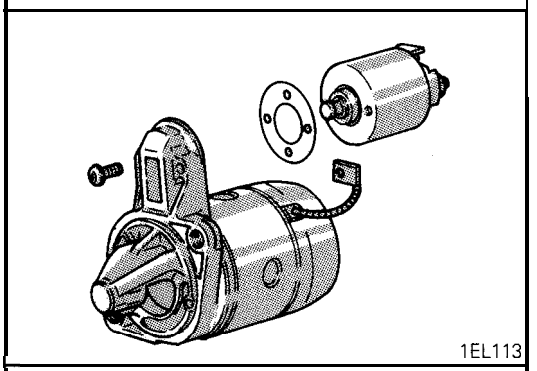
Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

(4) Check pinion to stopper clearance (pinion gap) with a feeler gauge.

Pinion gap: 0.5 – 2.0 mm (.020 – .079 in.)



(5) If pinion gap is out of specification, adjust by adding or removing gaskets between magnetic switch and front bracket.

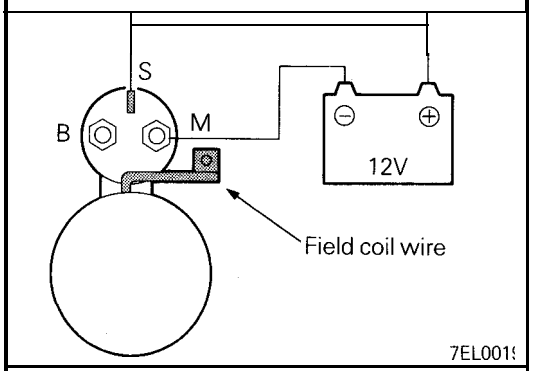


PULL-IN TEST OF MAGNETIC SWITCH

(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12V battery between S-terminal and M-terminal.

Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

(3) If pinion moves out, then pull-in coil is good. If it doesn't, replace magnetic switch.

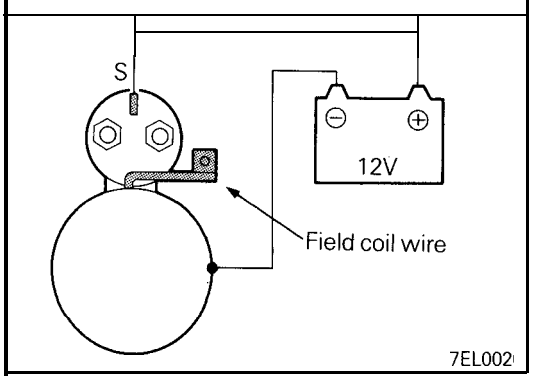


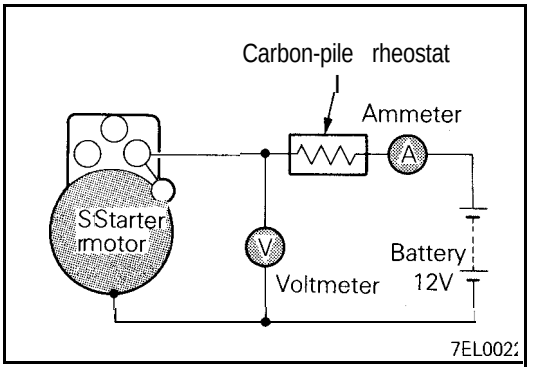
HOLD-IN TEST OF MAGNETIC SWITCH

(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12V battery between S-terminal and body.

Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

(3) If pinion remains out, everything is in order. If pinion moves in, hold-in circuit is open. Replace magnetic switch.

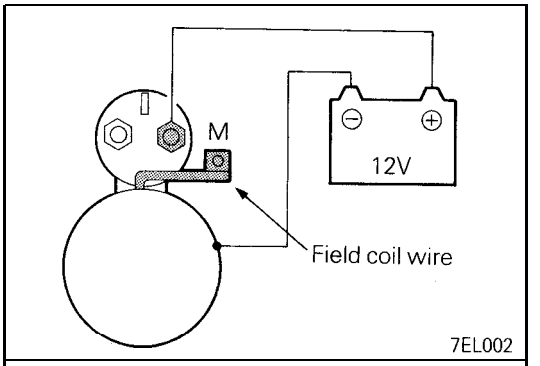




FREE RUNNING TEST

(1) Place starter motor in a vise equipped with soft jaws and connect a fully-charged 12-volt battery to starter motor as follows:
(2) Connect a test ammeter (100-ampere scale) and carbon pile rheostat in series with battery positive post and starter motor terminal.
(3) Connect a voltmeter (15-volt scale) across starter motor.
(4) Rotate carbon pile to full-resistance position.
(5) Connect battery cable from battery negative post to starter motor body.
(6) Adjust rheostat until the battery voltage shown by the voltmeter is 1 IV.
(7) Confirm that the maximum amperage is within the specifications and that the starter motor turns smoothly and freely.

Current: max. 90 Amps

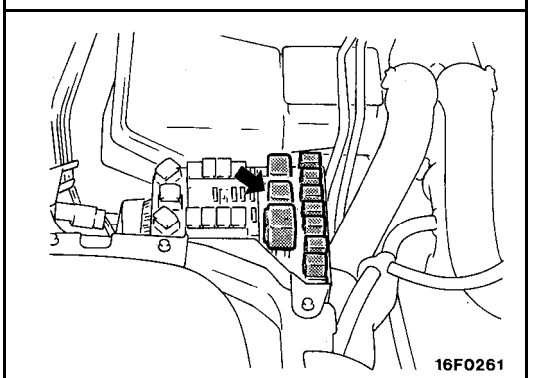


RETURN TEST OF MAGNETIC SWITCH

(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12V battery between M-terminal and body.

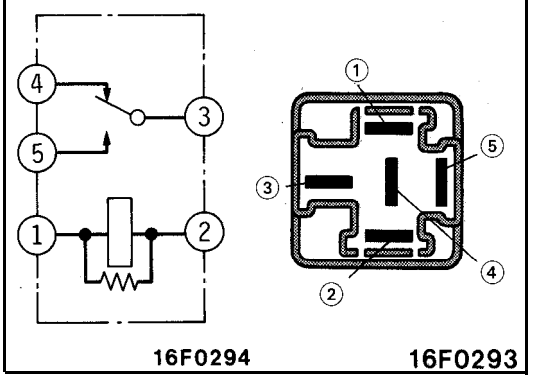
Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

(3) Pull pinion out and release. If pinion quickly returns to its original position, everything is in order. If it doesn't, replace magnetic switch.



STARTER RELAY

(1) Remove the starter relay from the relay box.
(2) Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

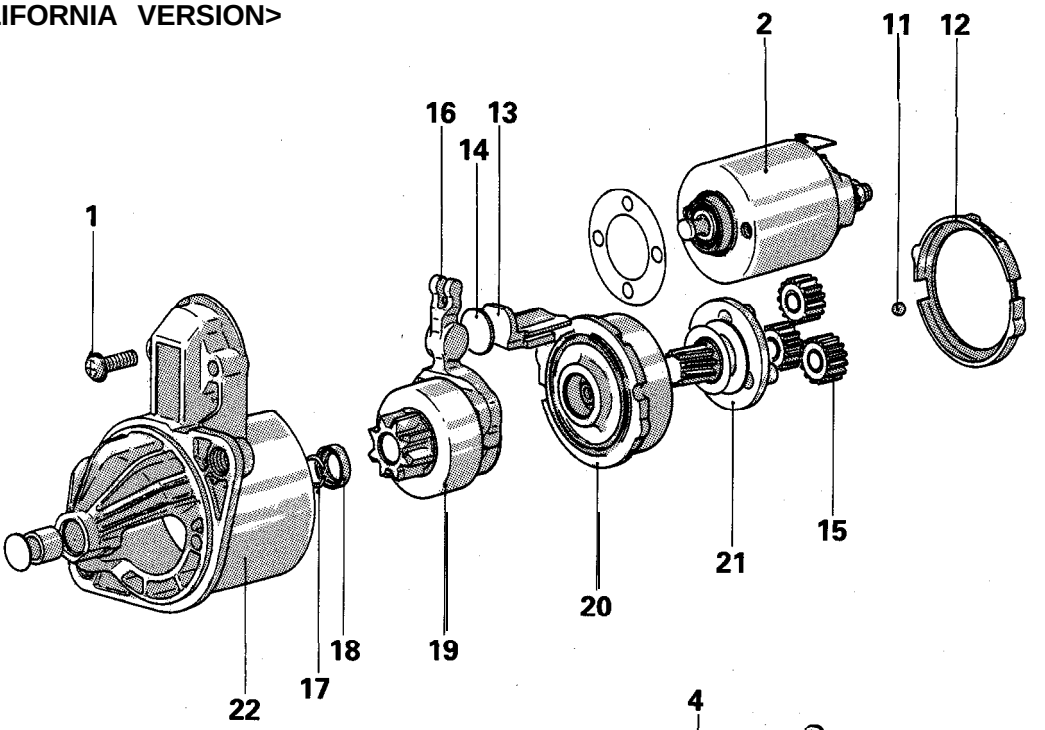


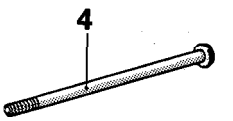
Power is supplied	3-4 terminals	No continuity
	3-5 terminals	Continuity
Power is not supplied	3-4 terminals	Continuity
	3-5 terminals	No continuity
	1-2 terminals	Continuity

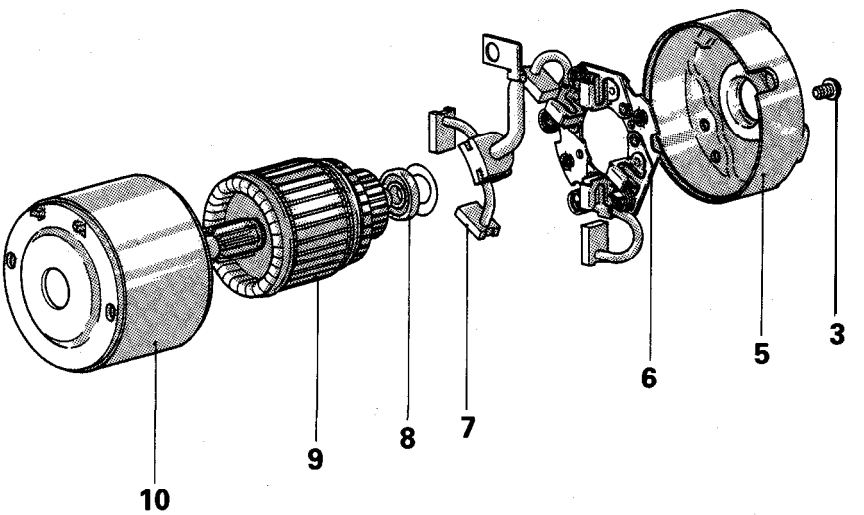
STARTER MOTOR

DISASSEMBLY AND REASSEMBLY

<EXCEPT CALIFORNIA VERSION>







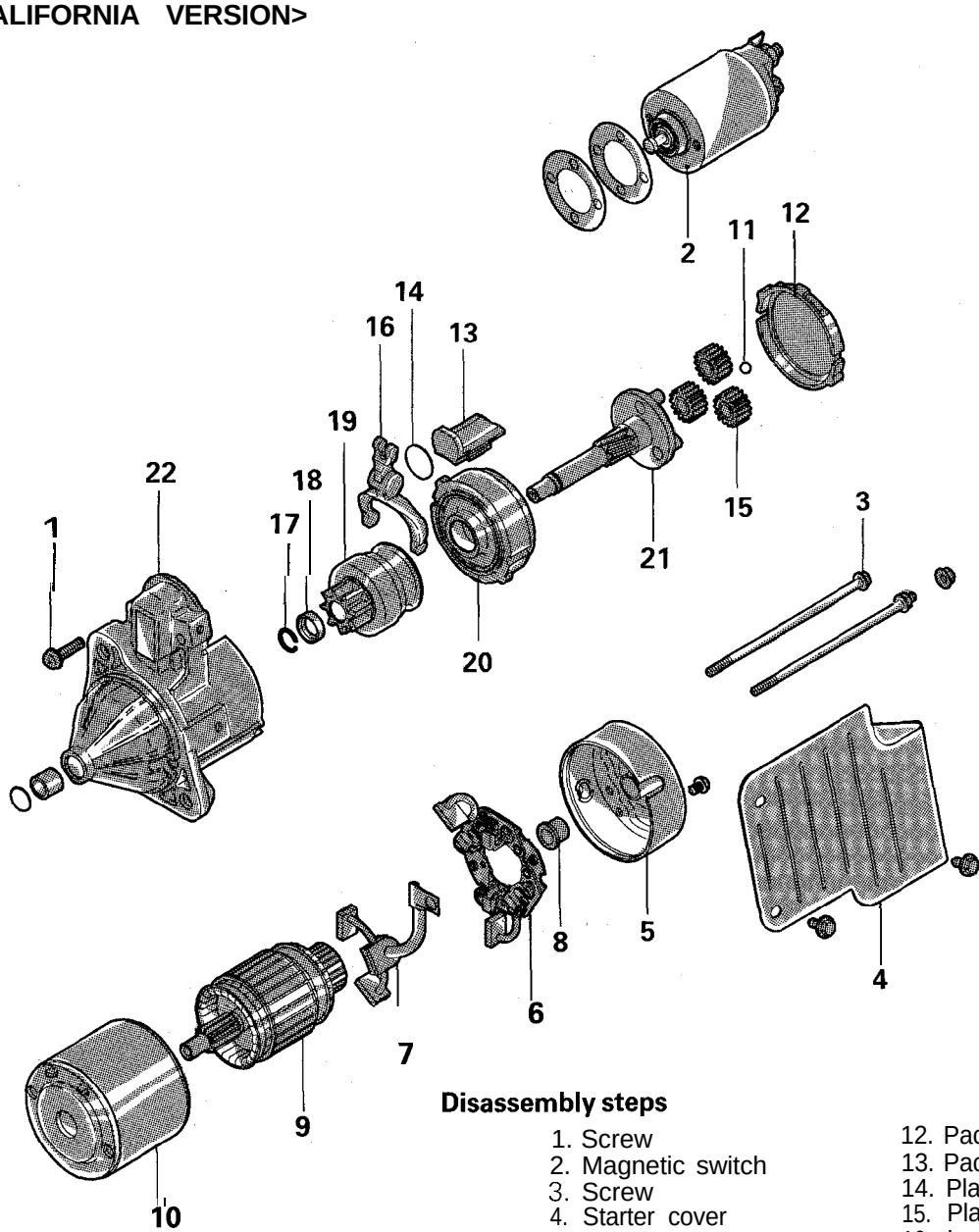
Disassembly steps

1. Screw
2. Magnetic switch
3. Screw
4. Screw
5. Rear bracket
6. Brush holder
7. Brush
8. Rear bearing
9. ⇔ Armature
10. Yoke assembly
11. ⇔ Ball
12. Packing A
13. Packing B
14. Plate
15. Planetary gear
16. Lever
17. ⇔ ⇔ Snap ring
18. ● * ● + Stop ring
19. Overrunning clutch
20. Internal gear
21. Planetary gear holder
22. Front bracket

6EL199

DISASSEMBLY AND REASSEMBLY

<CALIFORNIA VERSION>



Disassembly steps

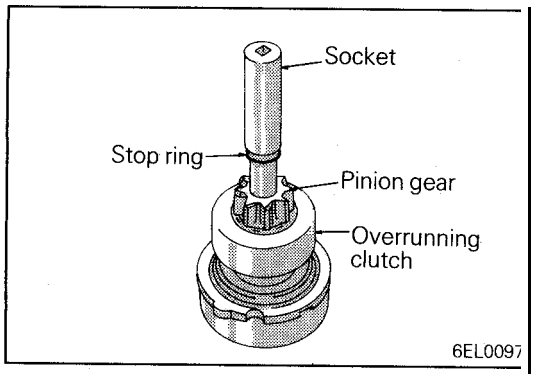
1. Screw
2. Magnetic switch
3. Screw
4. Starter cover
5. Rear bracket
6. Brush holder
7. Brush
8. Brush
9. Armature ◆◆
10. Yoke assembly
11. Ball ◆◆
12. Packing A
13. Packing B
14. Plate
15. Planetary gear
16. Lever
17. Snap ring ◆◆ ◆◆
18. Stop ring ◆◆ ◆◆
19. Overrunning clutch
20. Internal gear
21. Planetary gear holder
22. Front bracket

SERVICE POINTS OF DISASSEMBLY

9. REMOVAL OF ARMATURE / 11. BALL

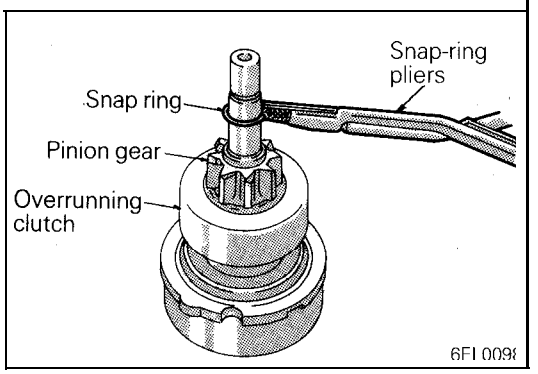
Caution

When removing the armature, take care not to lose the ball (which is used as a bearing) in the armature end.



17. REMOVAL OF SNAP RING / 18. STOP RING

(1) Press the stop ring, by using an appropriate socket wrench, to the snap ring side.



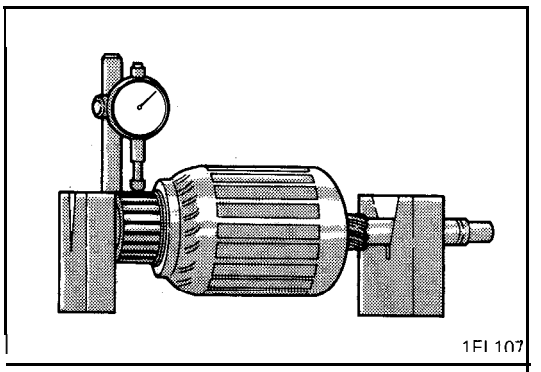
(2) After removing the snap ring (by using snap-ring pliers), remove the stop ring and the overrunning clutch.

CLEANING STARTER MOTOR PARTS

1. Do not immerse parts in cleaning solvent. Immersing the yoke and field coil assembly and/or armature will damage insulation. Wipe these parts with a cloth only.
2. Do not immerse drive unit in cleaning solvent. Overrunning clutch is pre-lubricated at the factory and solvent will wash lubrication from clutch.
3. The drive unit may be cleaned with a brush moistened with cleaning solvent and wiped dry with a cloth.

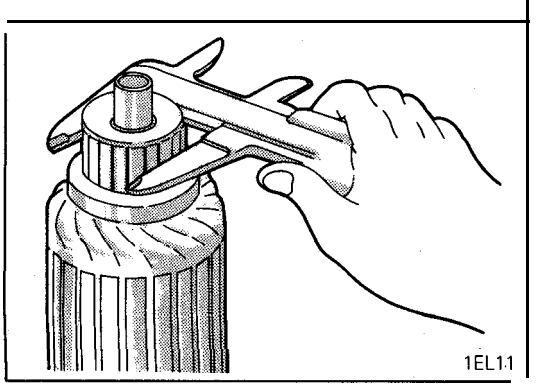
INSPECTION

CHECKING THE COMMUTATOR



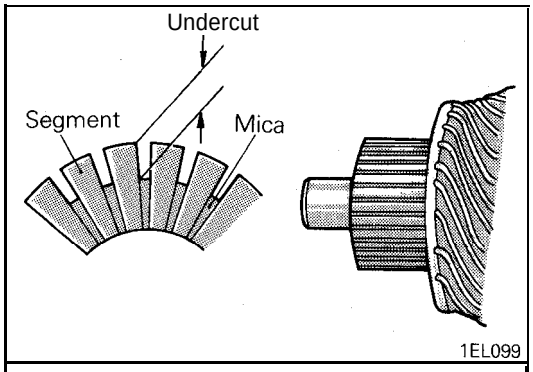
(1) Place the armature on a pair of V-blocks, and check the deflection by using a dial gauge.

Standard value: 0.05 mm (.0020 in.)
Limit: 0.1 mm (.0040 in.)

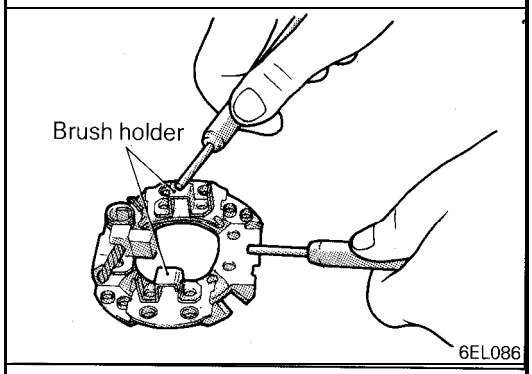


(2) Check the outer diameter of the commutator.

Standard value: 29.4 mm (1.158 in.)
Limit: 28.4 mm (1.118 in.)

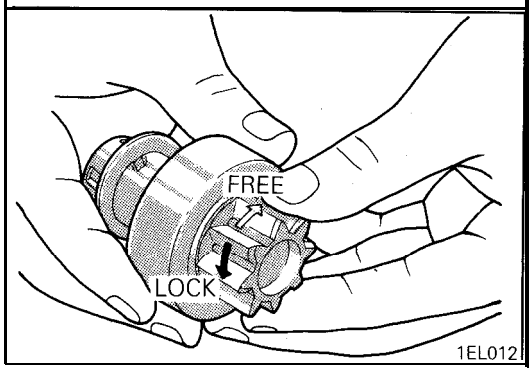


(3) Check the depth of the undercut between segments.
Standard value: 0.5 mm (.020 in.)



BRUSH HOLDER

Check for continuity between brush holder plate and brush holder.
The normal condition is non-continuity.

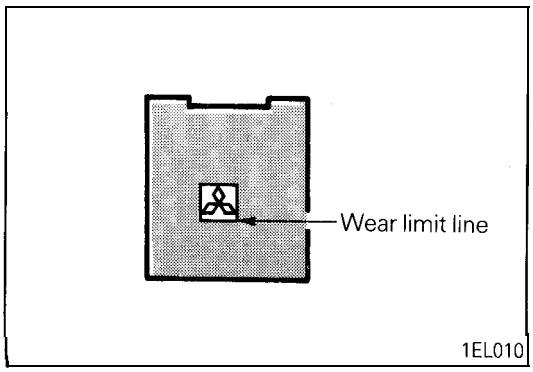


OVERRUNNING CLUTCH

1. While holding clutch housing, rotate the pinion. Drive pinion should rotate smoothly in one direction, but should not rotate in opposite direction. If clutch does not function properly, replace overrunning clutch assembly.
2. Inspect pinion for wear or burrs. If pinion is worn or burred, replace overrunning clutch assembly. If pinion is damaged, also inspect ring gear for wear or burrs.

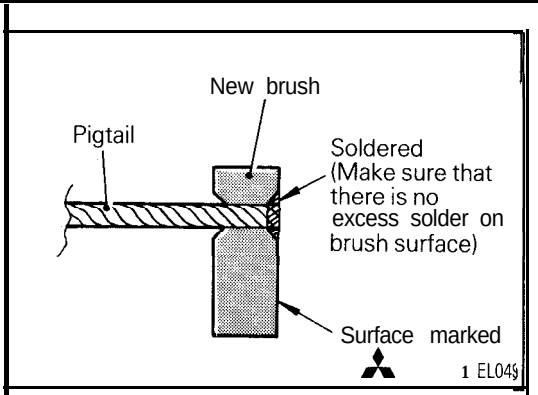
FRONT AND REAR BRACKET BUSHING

Inspect bushing for wear or burrs. If bushing is worn or burred, replace front bracket assembly or rear bracket assembly.



REPLACEMENT OF BRUSHES AND SPRINGS

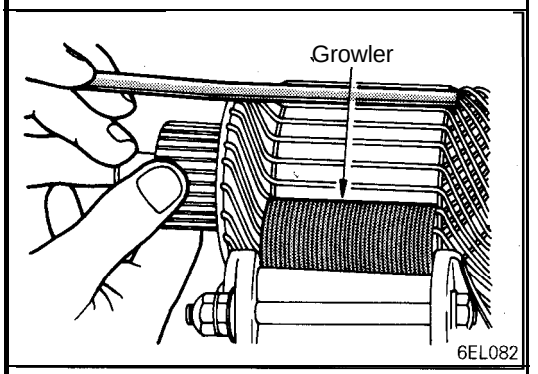
1. Brushes that are worn beyond wear limit line, or oil-soaked, should be replaced.
2. When replacing field coil brushes, crush worn brush with pliers, taking care not to damage pigtail.



3. Sand pigtail end with sandpaper to ensure good soldering.
4. Insert pigtail into hole provided in new brush and solder it. Make sure that pigtail and excess solder do not come out onto brush surface.
5. When replacing ground brush, slide the brush from brush holder by prying retaining spring back.

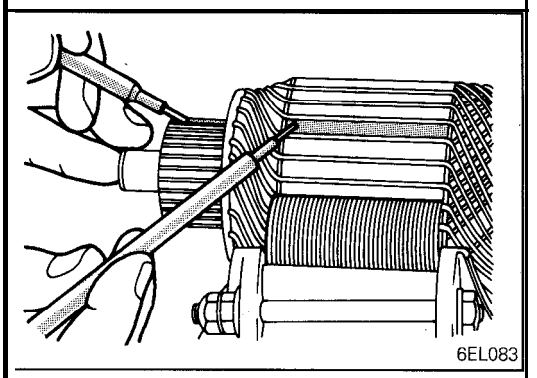
TESTING ARMATURE

TESTING ARMATURE FOR SHORT-CIRCUIT



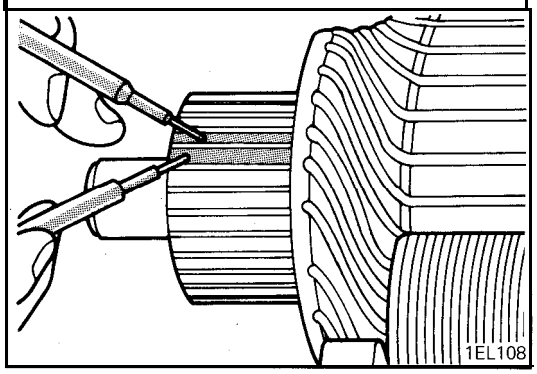
1. Place armature in a growler.
2. Hold a thin steel blade parallel and just above while rotating armature slowly in growler. A shorted armature will cause blade to vibrate and be attracted to the core. Replace shorted armature.

TESTING ARMATURE FOR GROUNDING



Check the insulation between the armature coil cores and the commutator segments. They are normal if there is no continuity.

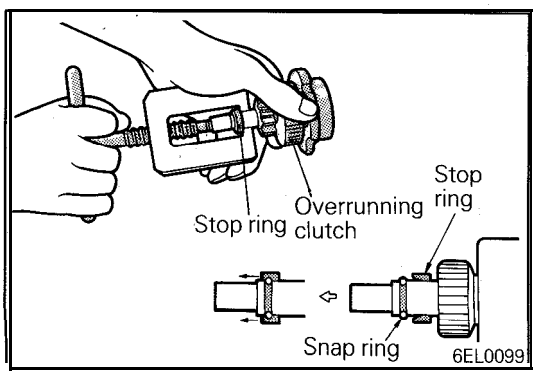
CHECKING FOR ARMATURE COIL WIRING DAMAGE / DISCONNECTION



Check for continuity between segments. The condition is normal if there is continuity.

SERVICE POINTS OF REASSEMBLY

18. INSTALLATION OF STOP RING / 17. SNAP RING



Using a suitable pulling tool, pull overrunning clutch stop ring over snap ring.

IGNITION SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS

DISTRIBUTOR

Items	SOHC
Type	Contact pointless type
Identification No.	T5T42671
Part No.	MD1 47874
Advance mechanism	Controlled by engine control unit
Firing order	1-2-345-6

IGNITION COIL

Items	SOHC	DOHC
Type	Mold single-coil	Mold 3-coil
Identification No.	F-504	F-536
Part No.	MD160532	MD1 52648

SPARK PLUG

Items	SOHC	DOHC
NGK	BPR5ES-11	PFR6J-11
NIPPON DENS0	WI 6EPR11	PK20PR-P11

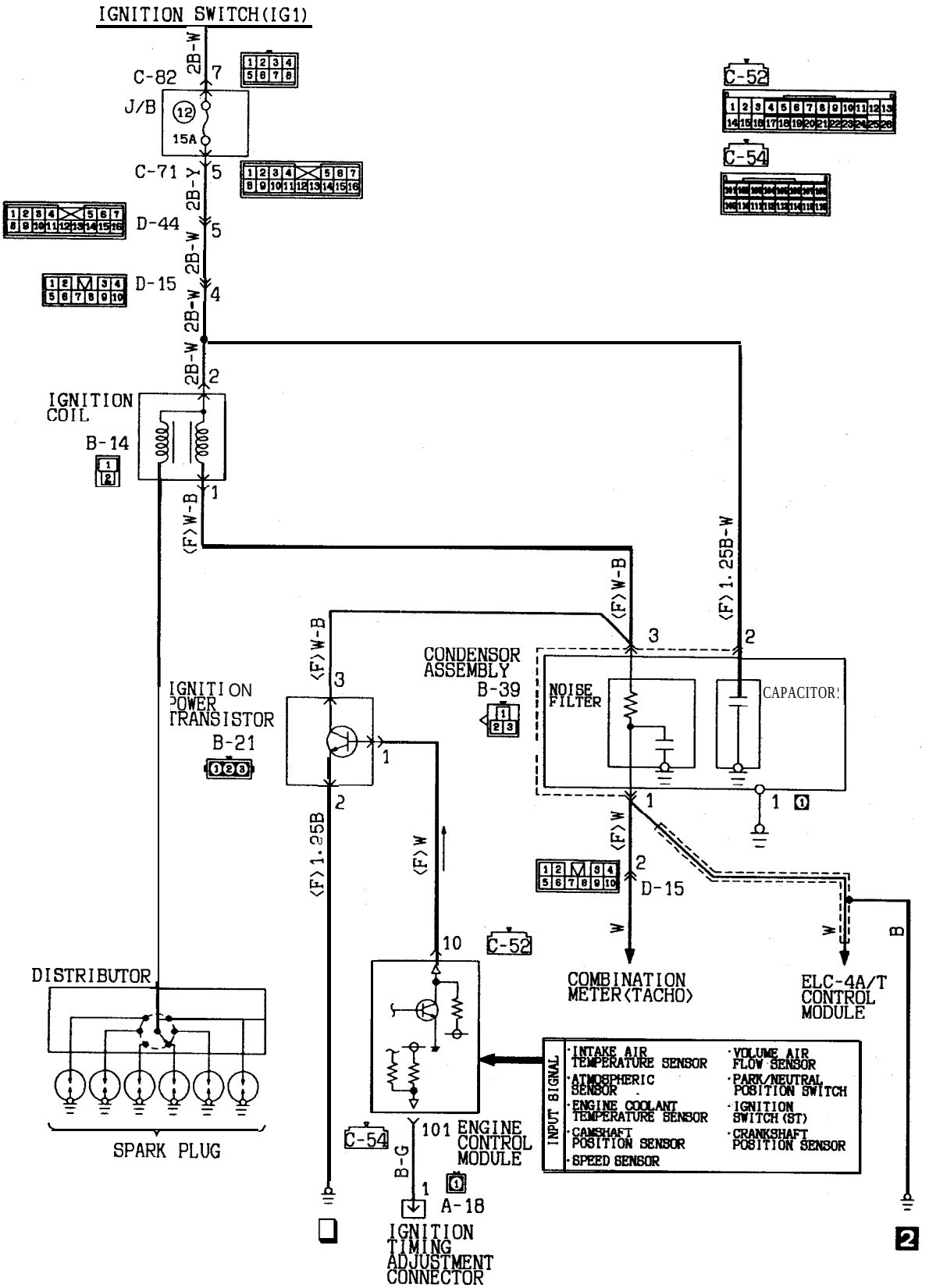
SERVICE SPECIFICATIONS

Items	Specifications
Standard value	
Ignition coil	
Primary coil resistance at 20°C (68°F) Ω	
<SOHC>	0.72 – 0.88
<DOHC>	0.67 – 0.81
Secondary coil resistance at 20°C (68°F) kΩ	
<SOHC>	10.29 – 13.92
<DOHC>	11.31 – 15.30
Spark plug gap mm (in.)	1.0 – 1.1 (.39 – .43)

TROUBLESHOOTING

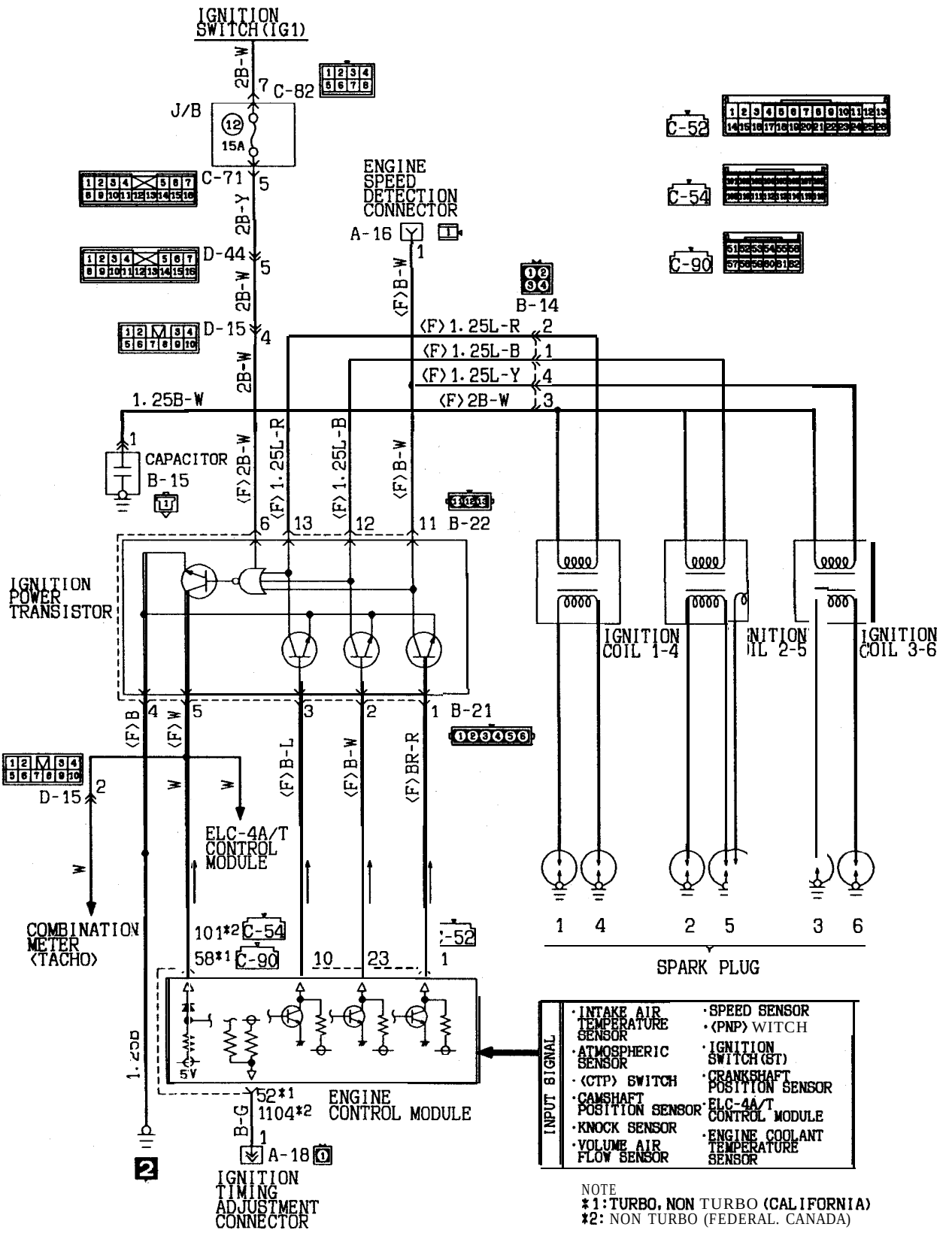
CIRCUIT DIAGRAM

<SOHC>



X35-AC-R0302-M4C

<DOHC>



NOTE
*1: TURBO, NON TURBO (CALIFORNIA)
*2: NON TURBO (FEDERAL, CANADA)

OPERATION

<SOHC>

- Turn ignition switch to "ON" position, and battery voltage will be applied to primary winding of ignition coil.
- When crankshaft position sensor and camshaft position sensor signal is input to engine control module, ON-OFF control of power transistor is performed by engine control module.
- When power transistor is turned on, current flows from ignition coil (primary winding) to ground through power transistor.
- When power transistor is turned off, high voltage is generated in primary winding of ignition coil which induces even higher voltage in the secondary winding, causing a spark at the spark plug(s).

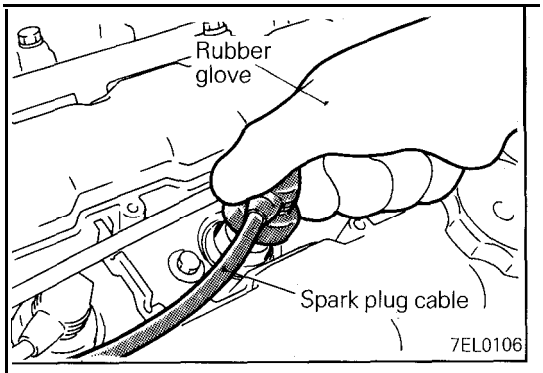
<DOHC>

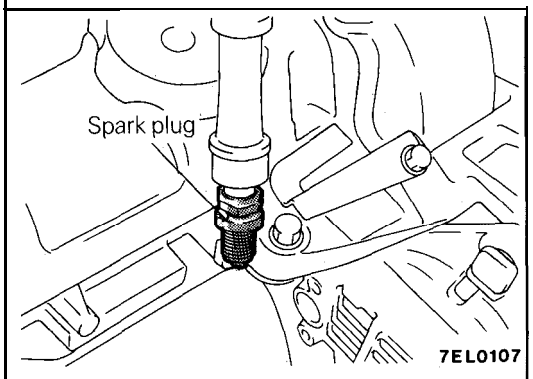
- When crankshaft position sensor and camshaft position sensor signal is input to engine control module, engine control module makes ON-OFF control of power transistors one by one.
- When power transistor A is turned from ON to OFF, the spark plugs of No. 1 and No. 4 cylinders spark. Turning of power transistor B from ON to OFF will produce sparking in spark plugs of No. 2 and No. 5 cylinders. Furthermore, when power transistor C is turned from ON to OFF, sparking is produced in spark plugs of No. 5 and No. 6 cylinders.
- The rest of operation is the same as described for SOHC engine.

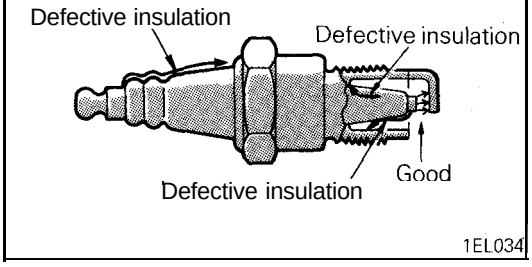
TROUBLESHOOTING HINTS

1. Engine cranks, but does not start.
   (1) Spark is insufficient or does not occur at all (on spark plug).
   - Check ignition coil.
   - Check distributor. <SOHC Engine>
   - Check crankshaft position sensor and camshaft position sensor <DOHC Engine>
   - Check power transistor.
   - Check spark plugs.
   - Check spark plug cable.

   (2) Spark is good.
   - Check ignition timing.
2. Engine idles roughly or stalls.
   - Check spark plugs.
   - Check ignition timing.
   - Check ignition coil.
   - Check spark plug cable.
3. Poor acceleration
   - Check ignition timing.
   - Check spark plug cable.
   - Check ignition coil.







SERVICE ADJUSTMENT PROCEDURES

SPARK PLUG CABLE TEST

(1) Disconnect, one at a time, each of the spark plug cables while the engine is idling to check whether the engine's running performance changes or not.

Caution
Wear rubber gloves while doing so.

(2) If the engine performance does not change, check the resistance of the spark plug cable, and check the spark plug itself.

SPARK PLUG TEST

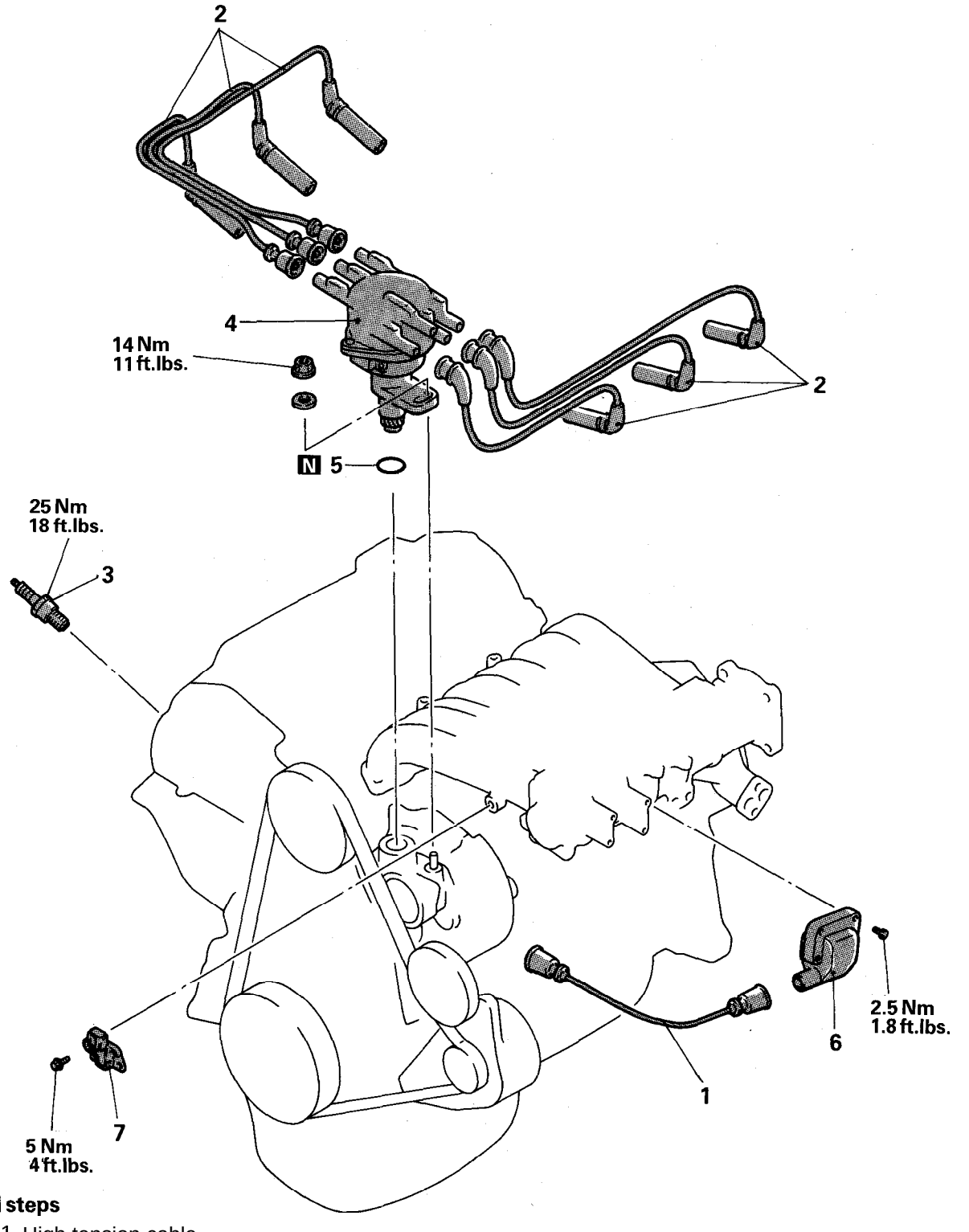
(1) Remove the spark plug and connect to the spark plug cable.
(2) Ground the spark plug outer electrode (body), and crank the engine.
Check to be sure that there is an electrical discharge between the electrodes at this time.

HIGH TENSION CABLE SPARK TEST <SOHC>

(1) Disconnect the high-tension cable from the distributor cap.
(2) Hold the high tension cable about 6 – 8 mm (.24 – .31 in.) away from engine proper (grounding portion such as cylinder block) and crank engine to verify that sparks are produced.

IGNITION SYSTEM

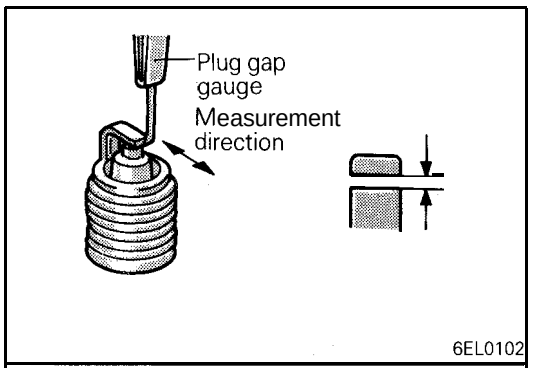
REMOVAL AND INSTALLATION <SOHC>



Removal steps

1. High tension cable
2. Spark plug cable
3. Spark plug
4. Distributor
5. O-ring
6. Ignition coil
7. Ignition power transistor

7EL0108

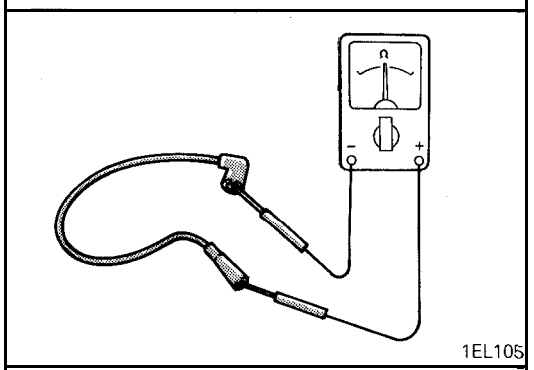


INSPECTION

SPARK PLUG

Check plug gap using a plug gap gauge and adjust if it is not as specified.

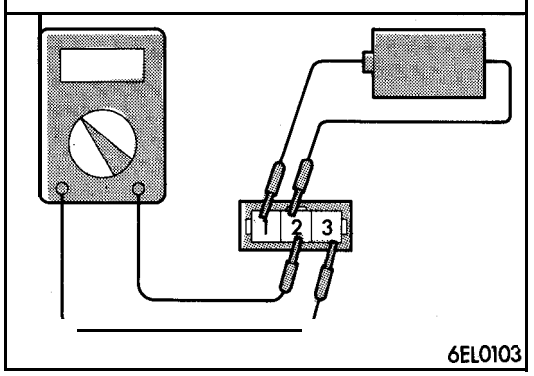
Standard value: 1.0 – 1.1 mm (.040 – .043 in.)



SPARK PLUG CABLE

(1) Check cap and coating for cracks.
(2) Measure resistance.

Limit: Max. 22 kΩ



IGNITION POWER TRANSISTOR

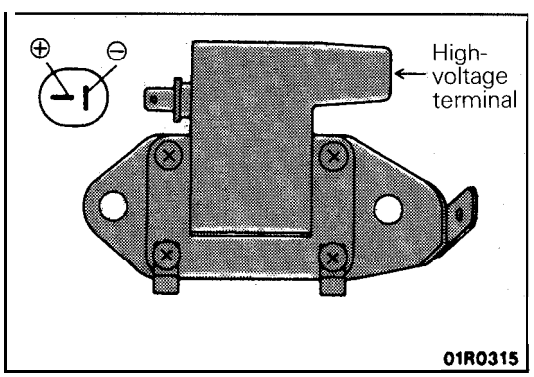
NOTE
An analog-type circuit tester should be used.

(1) Connect the negative (–) terminal of the 1.5V power supply to terminal ② of the ignition power transistor; then check whether there is continuity between terminal ③ and terminal ② when terminal @and the positive (+) terminal are connected and disconnected.

NOTE
Connect the (–) probe of the circuit tester to terminal ③.

Terminal 1 and (+) terminal	Terminal 3 and terminal 2
Connected	Continuity
Unconnected	No continuity

(2) Replace the ignition power transistor if there is a malfunction.



IGNITION COIL

Primary Coil Resistance

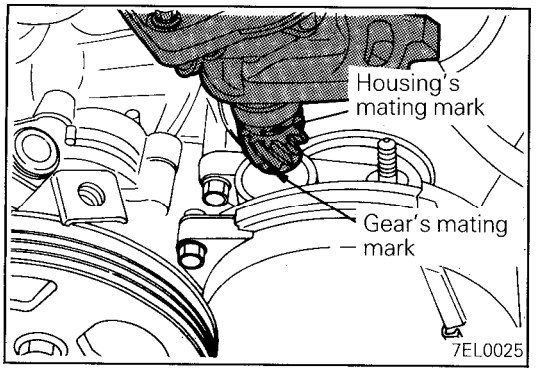
Measure the resistance of the positive (+) terminal and negative (–) terminal of the ignition coil.

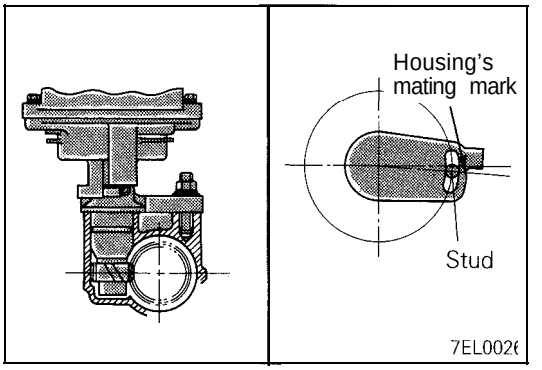
Standard value: 0.72 – 0.88 Ω

Secondary Coil Resistance

Measure the resistance of the positive (+) terminal and the high-voltage terminal.

Standard value: 10.29 – 13.92 kΩ





SERVICE POINTS OF INSTALLATION

4. INSTALLATION OF DISTRIBUTOR

(1) Turn the crankshaft so that the No. 1 cylinder is at compression top dead center.

Caution
Be careful not to turn it to the No. 4 cylinder compression top dead center by mistake.

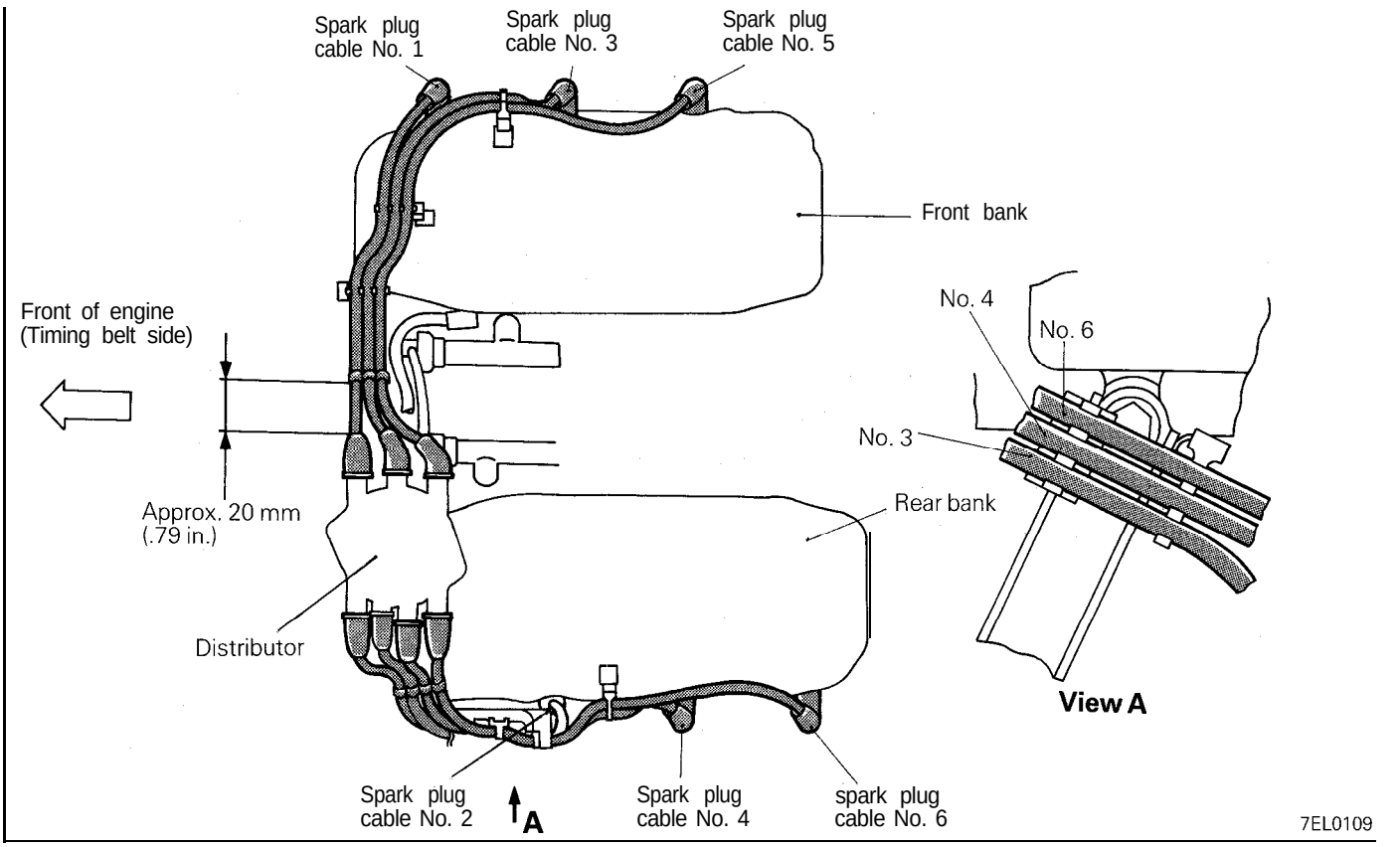
(2) Align the distributor housing and gear mating marks.

(3) Install the distributor to the engine while aligning the distributor's installation flange with the center of the distributor installation stud.

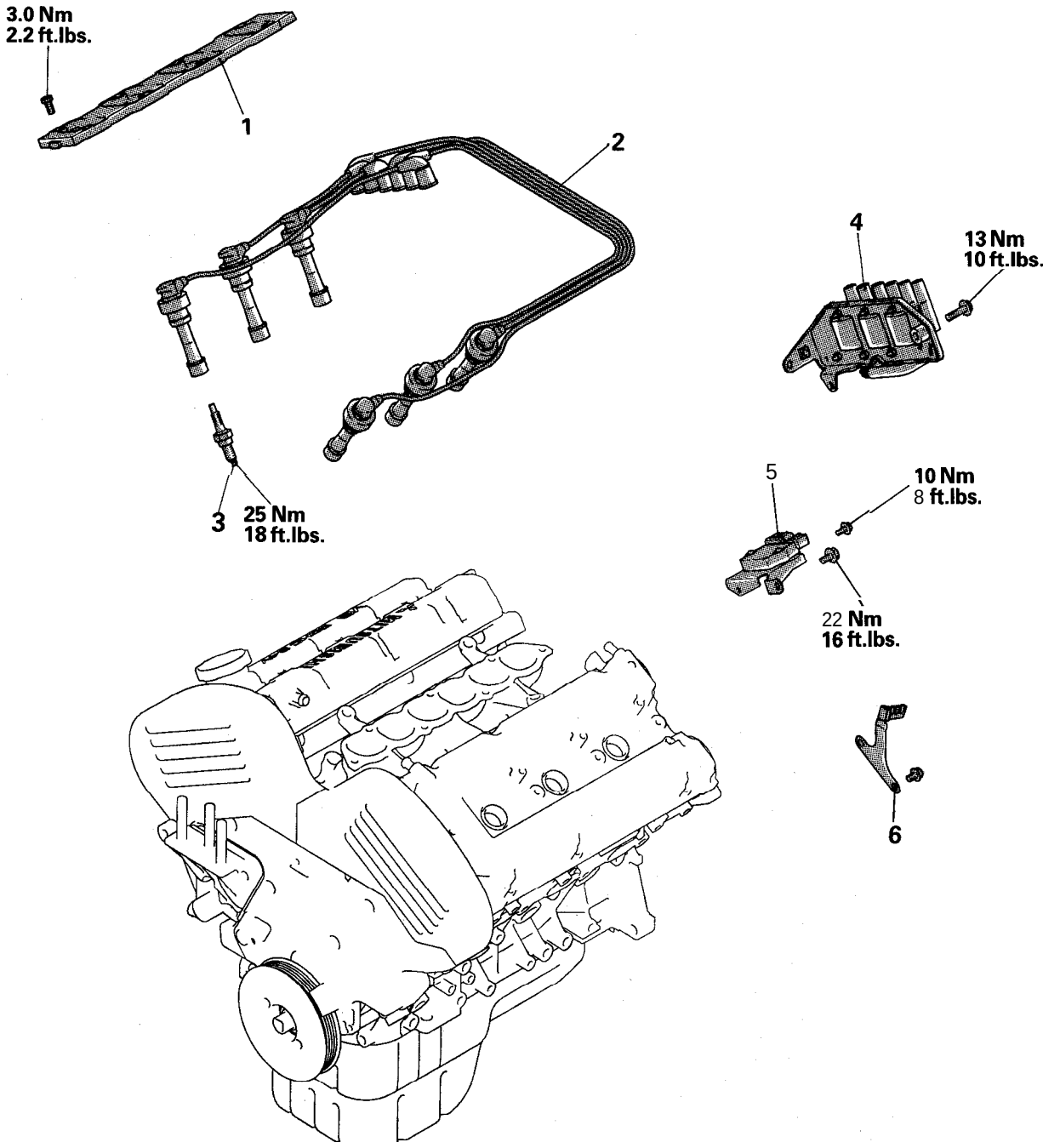
2. INSTALLATION OF SPARK PLUG CABLE

Improper arrangement of spark plug cables will induce voltage between the cables, causing miss firing and developing a surge at acceleration in high-speed operation. Therefore, be careful to arrange the spark plug cables properly by the following procedure.

1. Install the spark plug cable clamps as shown in the illustration.
2. The numerals on the support and clamp indicate the spark plug cable No.
3. Pay attention to the following items when the spark plug cables are installed.
   (1) Install the cables securely to avoid possible contact with metal parts.
   (2) Install the cables neatly, ensuring they are not too tight, loose, twisted or kinked.



REMOVAL AND INSTALLATION <DOHC>

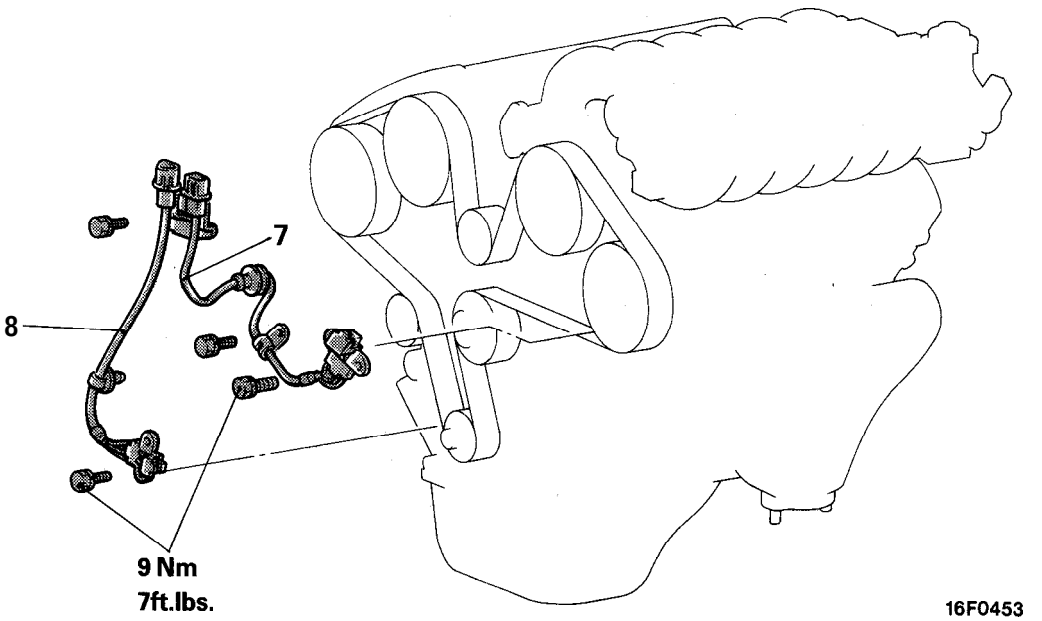


Removal steps

1. Center cover
- 2. Spark plug cable
3. Spark plug
4. Ignition coil
5. Ignition power transistor
6. Clamp

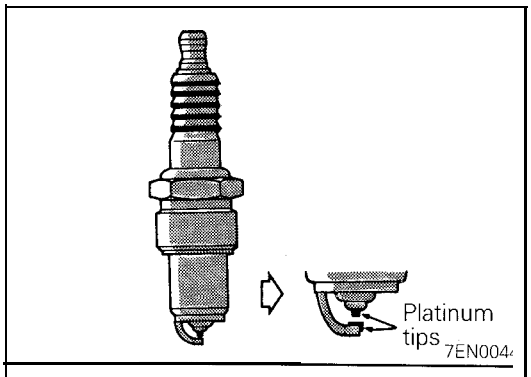
Pre-removal and Post-installation Operation
- Removal and Installation of Intake Manifold Plenum (Refer to GROUP 11 -Intake Manifold.)

7EN0517



7. Camshaft position sensor
8. Crankshaft position sensor

Pre-removal and Post-installation Operation
- Removal and Installation of Timing Belt Cover (Refer to GROUP 9 -Timing Belt.)



INSPECTION

SPARK PLUG

Check the plug gap and replace if the limit is exceeded.

Standard value: 1.0 – 1.1 mm (.039 – .043 in.)
Limit: 1.3 mm (.051 in.)

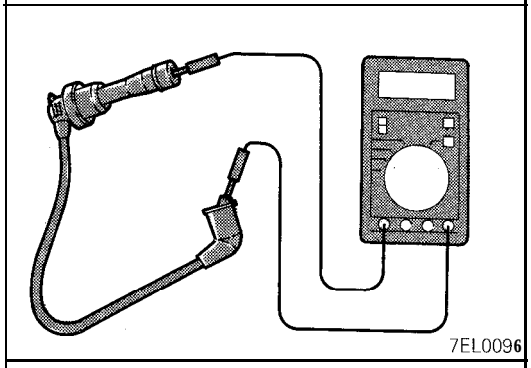
Caution

1. **Do not attempt to adjust the gap of the platinum plug.**
2. **Cleaning of the platinum plug may damage the platinum tip. Therefore, if carbon deposits must be removed, use a plug cleaner and complete cleaning within 20 seconds for protection of the electrode. Do not use wire brushes.**

SPARK PLUG CABLE

(1) Check cap and coating for cracks.
(2) Measure resistance.

Limit: Max. 22 kΩ



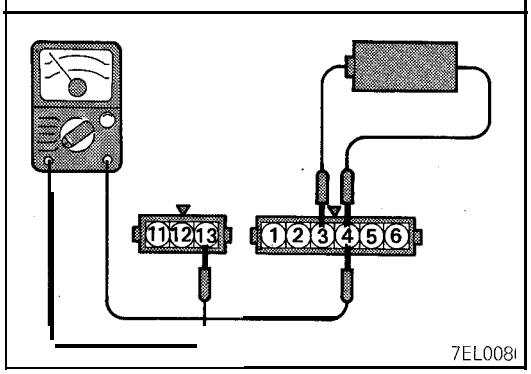
IGNITION POWER TRANSISTOR

NOTE
An analog-type circuit tester should be used.

No. 1 – No. 4 **coil side**

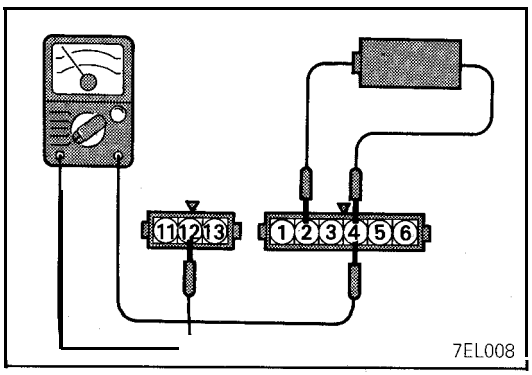
(1) Connect the negative (–) terminal of the 1.5V power supply to terminal ④ of the ignition power transistor; then check whether there is continuity between terminal ⑬ and terminal ④ when terminal ③ and the positive (+) terminal are connected and disconnected.

NOTE
Connect the (–) probe of the circuit tester to terminal ⑬.



Terminal 3 and (+) terminal	Terminal 13 and terminal 4
Connected	Continuity
Unconnected	No continuity

(2) Replace the ignition power transistor if there is a malfunction.



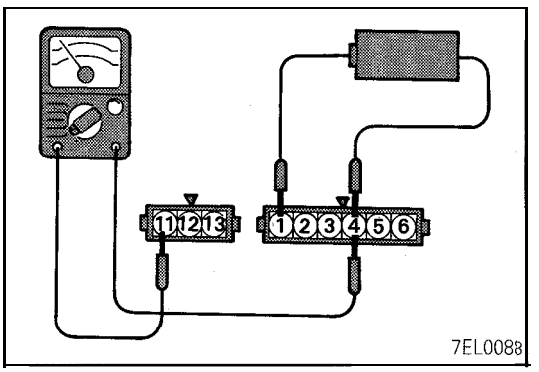
No. 2 – No. 5 **coil side**

(1) Connect the negative (–) terminal of the 1.5V power supply to terminal ④ of the ignition power transistor; then check whether there is continuity between terminal ⑫ and terminal ④ when terminal ② and the positive (+) terminal are connected and disconnected.

NOTE
Connect the (–) probe of the circuit tester to terminal ⑫.

Terminal 2 and (+) terminal	Terminal 12 and terminal 4
Connected	Continuity
Unconnected	No continuity

(2) Replace the ignition power transistor if there is a malfunction.



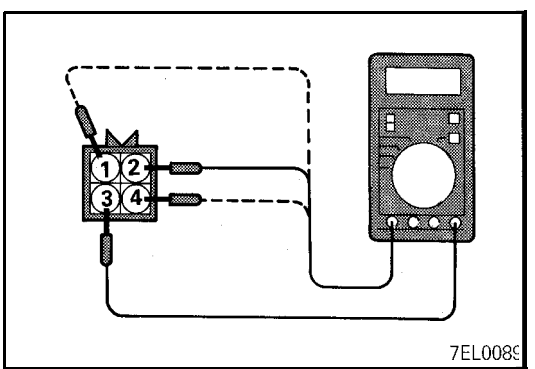
No. 3 – No. 6 coil side

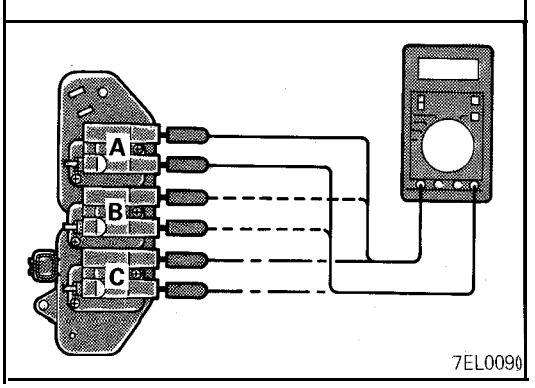
(1) Connect the negative (–) terminal of the 1.5V power supply to terminal ④ of the ignition power transistor; then check whether there is continuity between terminal ⑪ and terminal ④ when terminal ① and the positive (+) terminal are connected and disconnected.

NOTE
Connect the (–) probe of the circuit tester to terminal ⑪.

Terminal 1 and (+) terminal	Terminal 11 and terminal 4
Connected	Continuity
Unconnected	No continuity

(2) Replace the ignition power transistor if there is a malfunction.





IGNITION COIL

Primary Coil Resistance

Measure the resistance between connector terminal ③ (power) and each coil terminal.

Measuring point:

Coil A (No. 1 – No. 4 cylinder side coil) ..... ②–③
Coil B (No. 2 – No. 5 cylinder side coil) .....
Coil C (No. 3 – No. 6 cylinder side coil) ..... 8 - 8

Standard value: 0.67 – 0.81 Ω

Secondary Coil Resistance

Measure the resistance between each coil high voltage terminals.

Measuring point:

Coil A (No. 1 – No. 4 cylinder side coil)
Coil B (No. 2 – No. 5 cylinder side coil)
Coil C (No. 3 – No. 6 cylinder side coil)

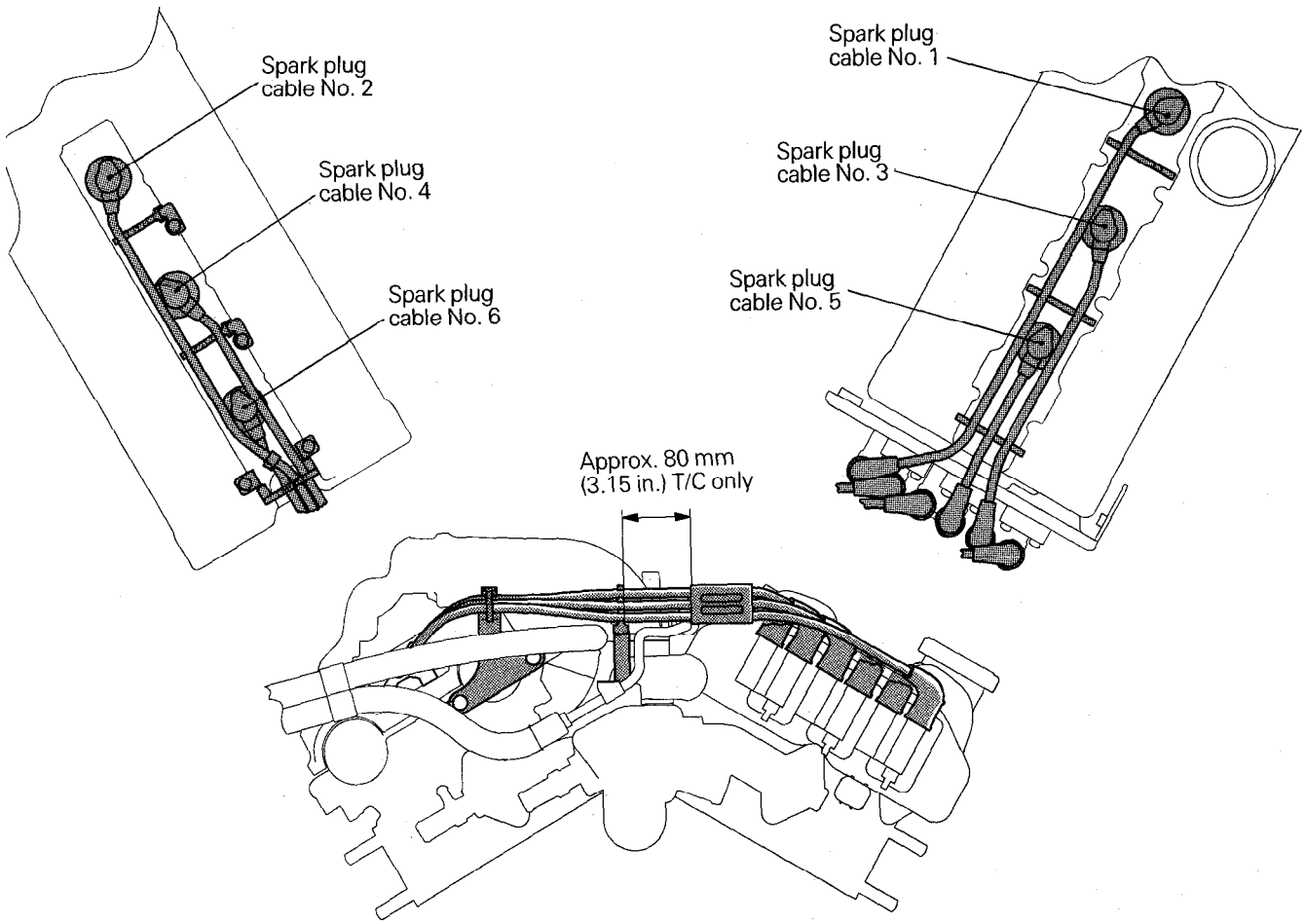
Standard value: 11.3 – 15.3 kΩ

SERVICE POINTS OF INSTALLATION

2. INSTALLATION OF SPARK PLUG CABLE

Improper arrangement of spark plug cables will induce voltage between the cables, causing miss firing and developing a surge at acceleration in high-speed operation. Therefore, be careful to arrange the spark plug cables properly by the following procedure.

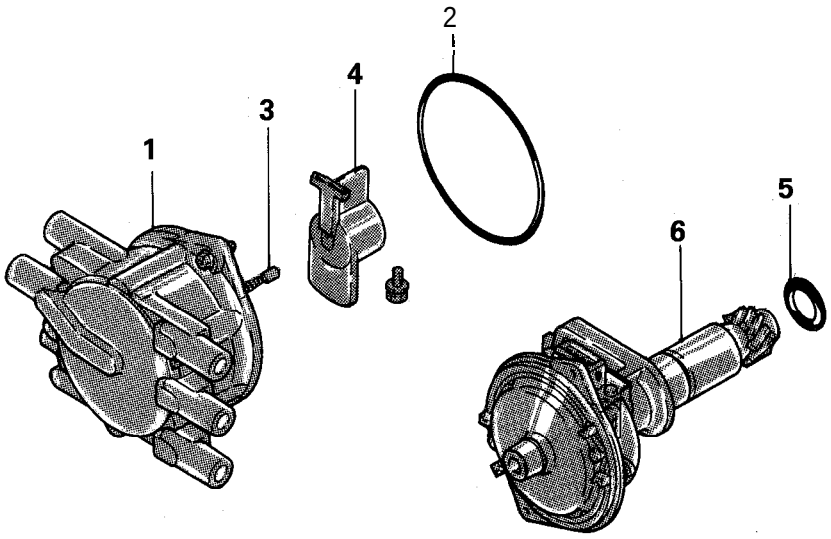
1. Install the spark plug cable clamps as shown in the illustration.
2. The numerals on the support and clamp indicate the spark plug cable No.
3. Pay attention to the following items when the spark plug cables are installed.
   (1) Install the cables securely to avoid possible contact with metal parts.
   (2) Install the cables neatly, ensuring they are not too tight, loose, twisted or kinked.


Spark plug cable No. 2
Spark plug cable No. 4
Spark plug cable No. 6
Spark plug cable No. 1
Spark plug cable No. 3
Spark plug cable No. 5
Approx. 80 mm (3.15 in.) T/C only

7EN0518

DISTRIBUTOR

DISASSEMBLY AND REASSEMBLY



Disassembly steps

1. Distributor cap
2. O-ring
3. Contact carbon
4. Rotor
5. O-ring
6. Housing &crankshaft position sensor assembly

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INSPECTION

Check the following points; repair or replace if a problem is found.

CAP AND ROTOR

(1) There must be no cracking in the cap.
(2) There must be no damage to the cap's electrode or the rotor's electrode.
(3) Clean away any dirt from the cap and rotor.

CAMSHAFT POSITION SENSOR, CRANKSHAFT POSITION SENSOR

Refer to GROUP 14 – On-vehicle Inspection of MFI Components.

CHASSIS ELECTRICAL

CONTENTS

CONTINUED ON NEXT PAGE

WARNINGS REGARDING SERVICING OF SUPPLEMENTAL RESTRAINT SYSTEM (SRS) EQUIPPED VEHICLES

WARNING!

(1) Improper service or maintenance of any component of the SRS, or any SRS-related component, can lead to personal injury or death to service personnel (from inadvertent firing of the air bag) or to the driver (from rendering the SRS inoperative).

(2) Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized CHRYSLER dealer.

(3) CHRYSLER dealer personnel must thoroughly review this manual, and especially its GROUP 23B – Supplemental Restraint System (SRS), GROUP 0 – Maintenance Service, before beginning any service or maintenance of any component of the SRS or any SRS-related component.

NOTE

The SRS includes the following components: impact sensors, SRS diagnosis unit, SRS warning light, air bag module, clock spring and interconnecting wiring. Other SRS-related components (that may have to be removed/installed in connection with SRS service or maintenance) are indicated in the table of contents by an asterisk (*).

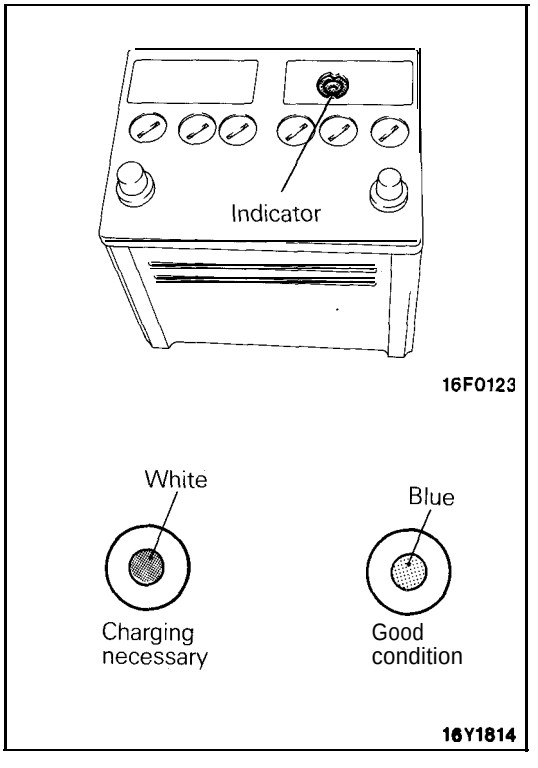
BATTERY

SPECIFICATIONS

GENERAL SPECIFICATIONS

Items	Specifications
Type	75D23R-MF
Ampere hours (5HR) Ah	52
Cranking rating [at – 18°C (0°F)] A	520
Reserve capacity min.	118

NOTES
1. CRANKING RATING is the current a battery can deliver for 30 seconds and maintain a terminal voltage of 7.2 volts or greater at a specified temperature.
2. RESERVE CAPACITY RATING is the amount of time a battery can deliver 25A and maintain a minimum terminal voltage of 10.5 at 27°C (80°F).



SERVICE ADJUSTMENT PROCEDURES

BATTERY INSPECTION

BATTERY VISUAL INSPECTION (1)

The battery contains a visual test indicator which gives blue signal when an adequate charge level exists, and white signal when charging is required.

BATTERY VISUAL INSPECTION (2)

Make sure ignition switch is in Off position and all battery feed accessories are Off.

1. Disconnect ground cable from battery before disconnecting (+) cable.
2. Remove battery from vehicle.

Caution
Care should be taken in the event battery case is cracked or leaking to protect hands from the electrolyte. A suitable pair of rubber gloves (not the household type) should be worn when removing battery by hand.

3. Inspect battery carrier for damage caused by loss of acid from battery. If acid damage is present, it will be necessary to clean area with a solution of clean warm water and baking soda. Scrub area with a stiff bristle brush and wipe off with a cloth moistened with ammonia or baking soda in water.

4. Clean top of battery with same solutions as described in step (3).
5. Inspect battery case and cover for cracks. If cracks are present, battery must be replaced.
6. Clean the battery post with a suitable battery post cleaning tool.
7. Clean the inside surfaces of the terminal clamps with a suitable battery terminal cleaning tool. Replace damaged or frayed cables and broken terminals clamps.
8. Install the battery in vehicle.
9. Connect (+) and (–) cables to battery in the order of mention.
10. Tighten the clamp nut securely.

BATTERY CHARGING

Caution

When batteries are being charged, an explosive gas forms beneath the cover of each cell. Do not smoke near batteries on charge or which have recently been charged.

Do not break live circuits at the terminals of the batteries on charge. A spark will occur where the live circuit is broken.

Keep all open flames away from the battery.

Battery electrolyte temperature may temporarily be allowed to rise to 55°C (131°F). Increase of electrolyte temperature above 55°C (131°F) is harmful to the battery, causing deformation of battery cell, decrease in life of battery, etc.

CHARGE RATE

If the test indicator is white, the battery should be charged as outlined below.

When the dot appears or when maximum charge shown below is reached, charging should be stopped.

NOTE

When the charging is performed at 5 amps, charging is virtually 100% three hours after the indicator's indication changes from white to green.

Use fast charging only in an emergency.

If the indicator does not turn to green even after the battery is charged, the battery should be replaced; do not overcharge.

Charge Rate Chart

Battery	Slow Charging		Fast Charging	
75D23R-MF (520 amps)	5 amps 15 hrs.	10 amps 7.5 hrs.	20 amps 3.75 hrs.	30 amps 2.5 hrs.

BATTERY TEST

TEST STEP	RESULT ▶	ACTION TO TAKE
A0 VISUAL INSPECTION • Remove negative cable, then positive cable. • Check for dirty or corroded connections.	OK ▶ OK ▶	CLEAN terminals and clamps. GO to A1. GO to A1.
A1 LOOSE BATTERY POST • Check for loose battery post.	OK ▶ OK ▶	REPLACE battery. GO to A2.
A2 CRACKED BATTERY COVER • Remove holddowns and shields. • Check for broken/cracked case or cover.	OK ▶ OK ▶	REPLACE battery. GO to A3.
A3 TEST INDICATOR/OPEN CIRCUIT VOLTAGE TEST • Turn headlights on for 15 seconds. • Turn headlights off for 2 minutes to allow battery voltage to stabilize. • Disconnect cables. • Read open circuit voltage.	Open circuit voltage is less than 12.4 V OK ▶ Open circuit voltage is more than 12.4 V OK ▶	CHARGE battery at 5 amps, then GO to A3. GO to A4.
A4 LOAD TEST • Connect a load tester to the battery. • Load the battery at the recommended discharge rate (See LOAD TEST RATE CHART) for 15 seconds. • Read voltage after 15 seconds, then remove load.	OK ▶ Voltage is less than minimum listed (white indicator). OK ▶ Voltage is more than minimum listed. (Blue indicator).	REPLACE battery. Battery OK.

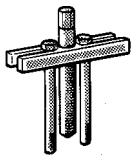
LOAD TEST CHART

Minimum voltage	Temperature	
	°F	°C
9.6	70 and above	21 and above
9.5	60	16
9.4	50	10
9.3	40	4
9.1	30	–1
8.9	20	–7
8.7	10	–12
8.5	0	–18

LOAD TEST RATE CHART

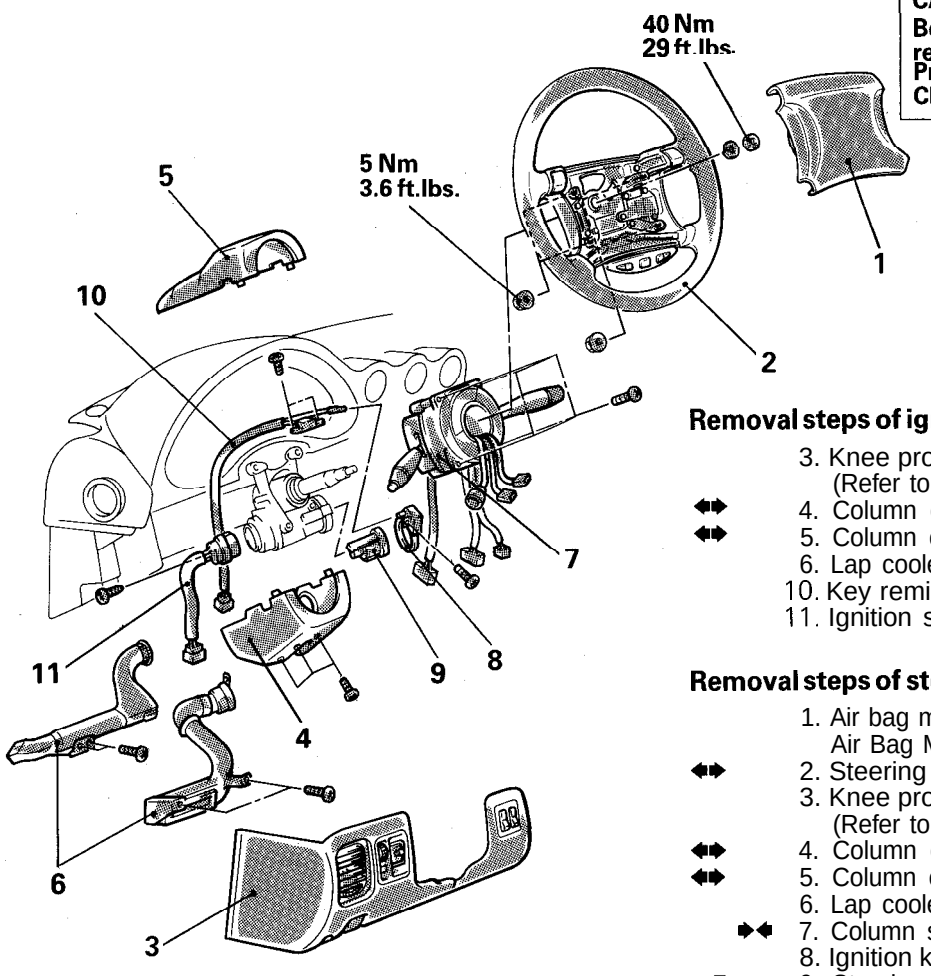
Load test (Amps)	Cranking Rating 0°F	Reserve Capacity	Application
240 amps	520 amps	118 minutes	75D23R-MF

IGNITION SWITCH
SPECIAL TOOL

Tool number and tool name	Replaced by Miller tool number	Application
 MB990803 Steering wheel puller	General service tool	Removal of steering wheel

IGNITION SWITCH
REMOVAL AND INSTALLATION

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

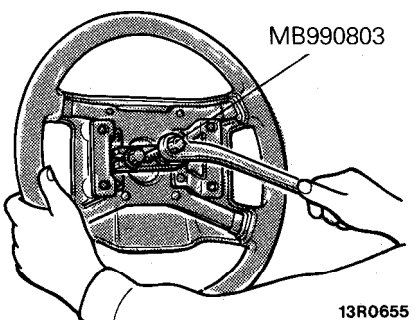


Removal steps of ignition switch segment

3. Knee protector (Refer to GROUP 23A – Instrument Panel.)
◆◆ 4. Column cover lower
◆◆ 5. Column cover upper
6. Lap cooler duct and foot shower duct
10. Key reminder switch segment
11. Ignition switch segment

Removal steps of steering lock cylinder

1. Air bag module (Refer to GROUP 23B – Air Bag Module and Clock Spring.)
◆◆ 2. Steering wheel
3. Knee protector (Refer to GROUP 23A – Instrument Panel.)
◆◆ 4. Column cover lower
◆◆ 5. Column cover upper
6. Lap cooler duct and foot shower duct
◆◆ 7. Column switch and clock spring assembly
8. Ignition key illumination ring
● □ 9. Steering lock cylinder

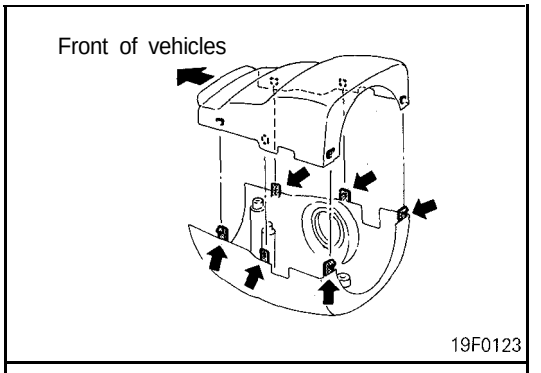


SERVICE POINTS OF REMOVAL

2. REMOVAL OF STEERING WHEEL

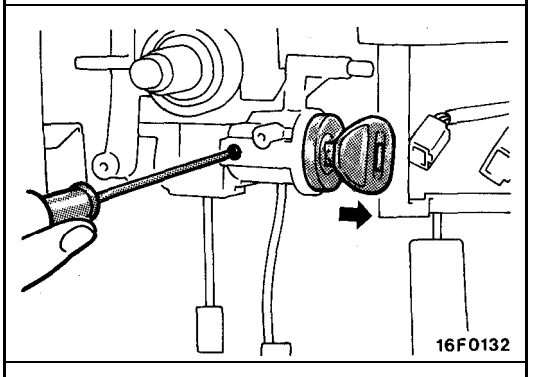
Remove the steering wheel by using the special tool.

Caution
Do not hammer on the steering wheel to remove it; doing so may damage the collapsible mechanism.



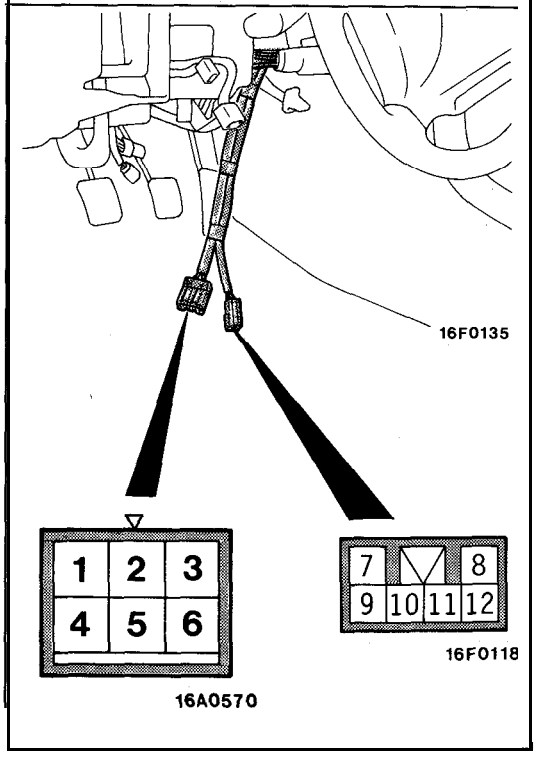
4. REMOVAL OF COLUMN COVER LOWER / 5. COLUMN COVER UPPER

After the screws have been removed, remove the covers, while making sure not to break the grippers.



9. REMOVAL OF STEERING LOCK CYLINDER

(1) Insert the ignition key into the steering lock cylinder and place the key in the ACC position.
(2) Press the lock pin down with a Phillips head screwdriver (small-size one) to remove the steering lock cylinder.



INSPECTION

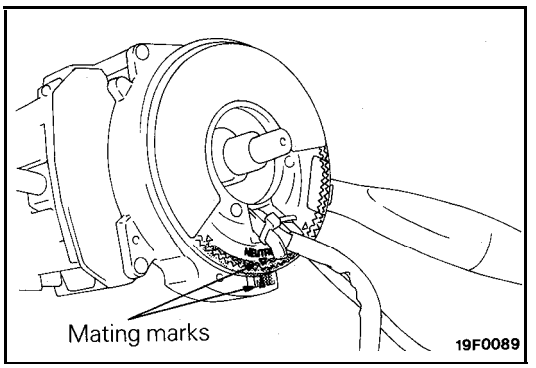
IGNITION SWITCH INSPECTION

(1) Remove the knee protector, the column cover lower and the column cover upper. (Refer to GROUP 23A – Instrument Panel.)
(2) Disconnect the wiring connector from the ignition switch and key reminder switch, and connect an ohmmeter to the switch side connector.

(3) Operate the switch, and check the continuity between the terminals.

Position \ Terminal	Key	Ignition switch						Key reminder switch				Ignition key illumination light	
		1	2	3	4	5	6	7	8	9	12	10	11
LOCK	Removed									O–O			
ACC	Inserted			O			O						
ON			O	O	O		O	O	O				
START		O			O	O	O						

NOTE
O-O indicates that there is continuity between the terminals.



SERVICE POINTS OF INSTALLATION

7. INSTALLATION OF COLUMN SWITCH AND CLOCK SPRING ASSEMBLY

Line up the “NEUTRAL” mark of the clock spring with the mating mark to center the clock spring.

Caution

If the clock spring is not centered, problems such as intermediate failure of the steering wheel to turn, broken ribbon cable in the clock spring, or the like could occur. As a result, they might hinder proper operation of the SRS, resulting in serious injury.

METERS AND GAUGES

SPECIFICATIONS

GENERAL SPECIFICATIONS

METERS AND GAUGES

Items	Specifications
Speedometer	
Type	Electrical type
Tachometer	
Type	Pulse type
Fuel gauge	
Type	Coil type
Fuel gauge unit	
Type	Variable resistance type
Engine coolant temperature gauge	
Type	Coil type
Engine coolant temperature gauge unit	
Type	Thermistor type
Oil pressure gauge	
Type	Bi-metal type
Oil pressure gauge unit	
Type	Bi-metal type
Pressure gauge <Turbo>	
Type	Moving coil type
Voltage gauge <Non-turbo>	
Type	Moving iron type

INDICATORS AND WARNING LIGHTS

terns	Specifications
ndicator lights	
Turn signal indicator light W	3.0
High beam indicator light W	1.4 (74)
Charging system warning light W	1.4 (74)
Oil pressure warning light W	1.4 (74)
Door-ajar warning light W	1.4 (74)
Brake warning light W	1.4 (74)
Low fuel warning light W	3.4 (158)
Seat belt warning light W	1.4 (74)
Cruise control indicator light W	1.4 (74)
Engine coolant level warning light W	1.4 (74)
Check engine warning light W	1.4 (74)
Security indicator light*1 W	1.4 (74)
Power/economy changeover indicator light <A/T> W	1.12
Overdrive indicator light <A/T> W	1.12
Supplemental restraint system warning light W	1.4 (74) x 2
Anti-lock braking system warning light W	1.4 (74)
Washer fluid level indicator light W	1.4 (74)
4-wheel steering oil level warning light <4WD> W	1.4 (74)
Cruise control ON indicator light W	1.4 (74)
Tour/sport mode indicator light*2 W	1.12
Tour mode indicator light*3 W	1.12

NOTE
(1) The values in parentheses denote SAE trade numbers
(2) The *1 symbol indicates vehicles with theft-alarm system.
(3) The *2 symbol indicates vehicles with Electronic Control Suspension.
(4) The *3 symbol indicates vehicles with Active Exhaust System.

SERVICE SPECIFICATIONS

Items	Specifications
Standard Values	
Speedometer indication error	
20 mph	19-22
40 mph	38-44
60 mph	57-66
80 mph	76-88
100 m p h	94-110
40 km/h	37-44
80 km/h	75-88
120 k m / h	113-132
160 k m / h	150-176
Tachometer indication error rpm	
1,000	± 100
3,000	± 150
5,000	± 250
6,000	± 300
Fuel gauge unit resistance Ω	
Point F	3 ± 2
Point E	110 ± 7
Fuel gauge unit float height mm (in.)	
Point F	18.6 – 21.6 (.73 – .85)
Point E	193.4 – 196.4 (7.61 – 7.73)
Engine coolant temperature gauge unit resistance Ω [at 70°C (158°F)]	104 ± 13.5
Fuel gauge resistance Ω	
Between A- B	Approx. 254
Between A- C	Approx. 101
Between B – C	Approx. 153
Engine coolant temperature gauge resistance Ω	
Between A- B	Approx. 51
Between A- C	Approx. 139
Between B – C	Approx. 190
Oil pressure gauge resistance Ω	Approx. 42
Pressure meter resistance <Turbo> Ω	Approx. 72

SEALANTS AND ADHESIVES

Items	Specified sealants and adhesives
Engine coolant temperature gauge unit	MOPAR Part No. 4318034 or equivalent

TROUBLESHOOTING

OPERATION

<Fuel gauge>

- When the ignition key is at the "ON" position, the fuel gauge is activated.
- When there is much fuel, the unit's resistance is small and the current flowing in the circuit is great, so the gauge's indicator indicates in the "F" area.
- When there is little fuel, the unit's resistance is high and the current flowing in the circuit is small, so the gauge's indicator indicates in the "E" area.

<Engine coolant temperature gauge>

- When the ignition key is at the "ON" position, the engine coolant temperature gauge is activated.
- When the engine coolant temperature is high, the unit's resistance is low and there is a great flow of current in the circuit, so the gauge's indicator indicates in the "H" area.
- When the engine coolant temperature is low, the unit's resistance is high and there is a small flow of current in the circuit, so the gauge's indicator indicates in the "C" area.

<Speed sensor>

- Pulses are produced in accordance with the vehicle speed, and vehicle-speed signals are input to systems (the MFI system, etc.) that regulate according to the vehicle speed.

<Oil pressure gauge>

- When the ignition key is at the "ON" position, the oil pressure gauge is activated.
- When oil pressure is high, the internal contacts of the gauge unit are kept closed for a longer period of time. This causes more current to flow in the circuit, and the gauge pointer swings to the high pressure side.
- When oil pressure is low, the internal contacts of the gauge unit open in a shorter period of time. Therefore, there is less current flowing in the circuit and the gauge pointer swings to the low pressure side.

<Pressure (TURBO) gauge>

- When the ignition key is set to the "ON" position, the gauge indicator will be at "0".
- When the engine is started, the indicator will move from "0" to the minus (–) side, and then, as the boost level increases, it will move to the plus (+) side.

<Voltage gauge (NON-TURBO)>

- When the ignition key is placed in the "ON" position, the voltage gauge operates and indicates a battery voltage of approximately 12V.
- When the engine is started, the voltage gauge indicates a battery voltage of 12 to 16V, indicating that the battery is on charge.

TROUBLESHOOTING HINTS

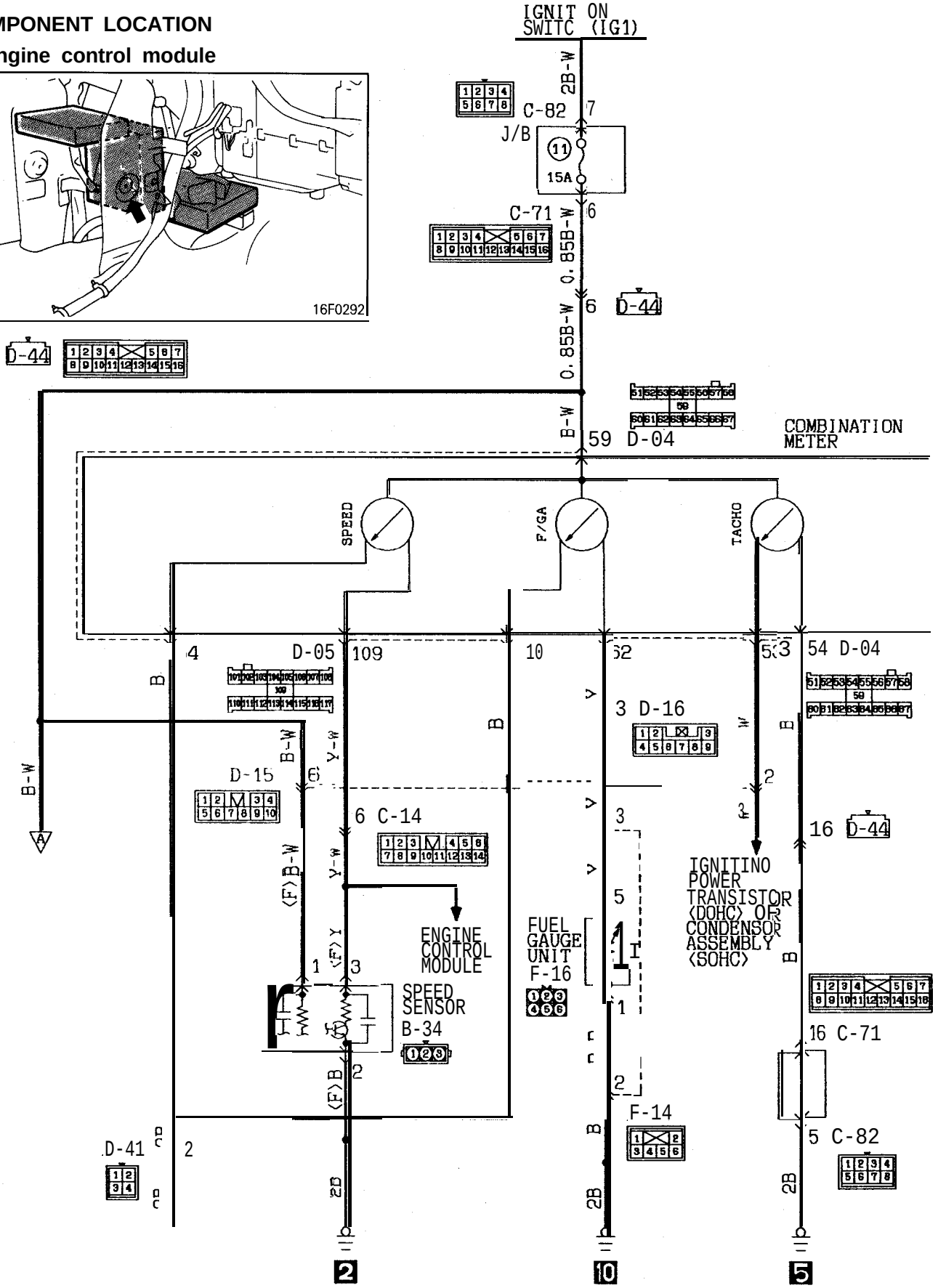
1. The fuel gauge doesn't function, or shows the incorrect indication.
   (1) Disconnect the connector of the fuel pump and gauge unit assembly; the "F" side is indicated when terminal ⑤ is then grounded.
   - Check the fuel gauge.
2. The engine coolant temperature gauge doesn't function, or shows the incorrect indication.
   (1) The "H" side is indicated when the connector of the engine coolant temperature gauge unit is disconnected and then grounded.
   - Check the engine coolant temperature gauge unit.
3. Systems dependent upon control according to the vehicle speed do not function correctly.
   - Check the speed sensor
4. The oil pressure gauge doesn't function, or shows the incorrect indication.
   (1) The "H" side is indicated when the connector of the oil pressure gauge unit is disconnected and then grounded.
   - Check the oil pressure gauge unit.
5. The meter illumination light does not illuminate.
   (1) The tail lights illuminate.
   - Check the rheostat.
6. The voltage gauge doesn't function, or shows the incorrect indication.
   - Check the voltage gauge.

METER AND GAUGES CIRCUIT

CIRCUIT DIAGRAM

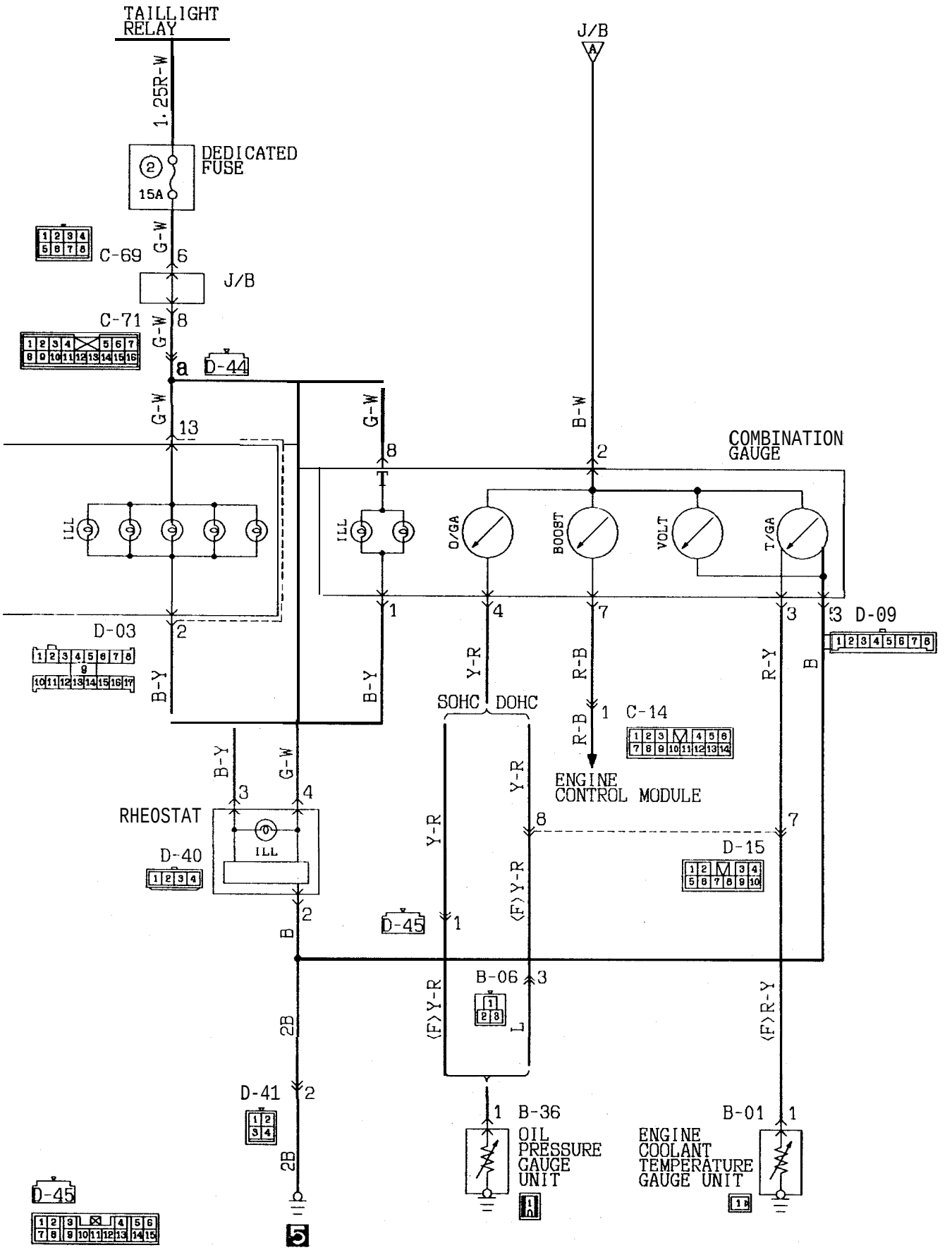
COMPONENT LOCATION

Engine control module



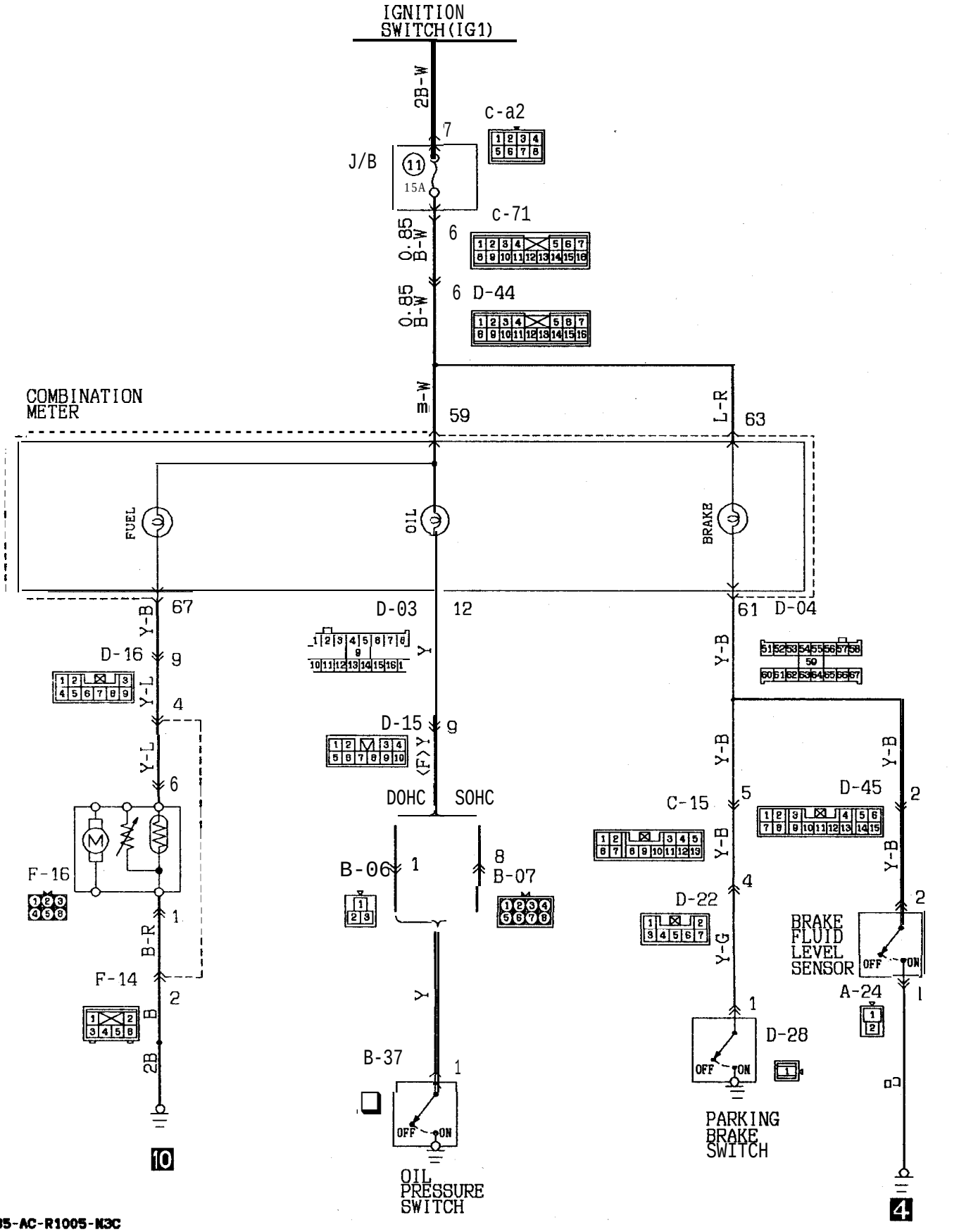
X35-AC-R1004-M4C

METER AND GAUGES CIRCUIT (CONTINUED)



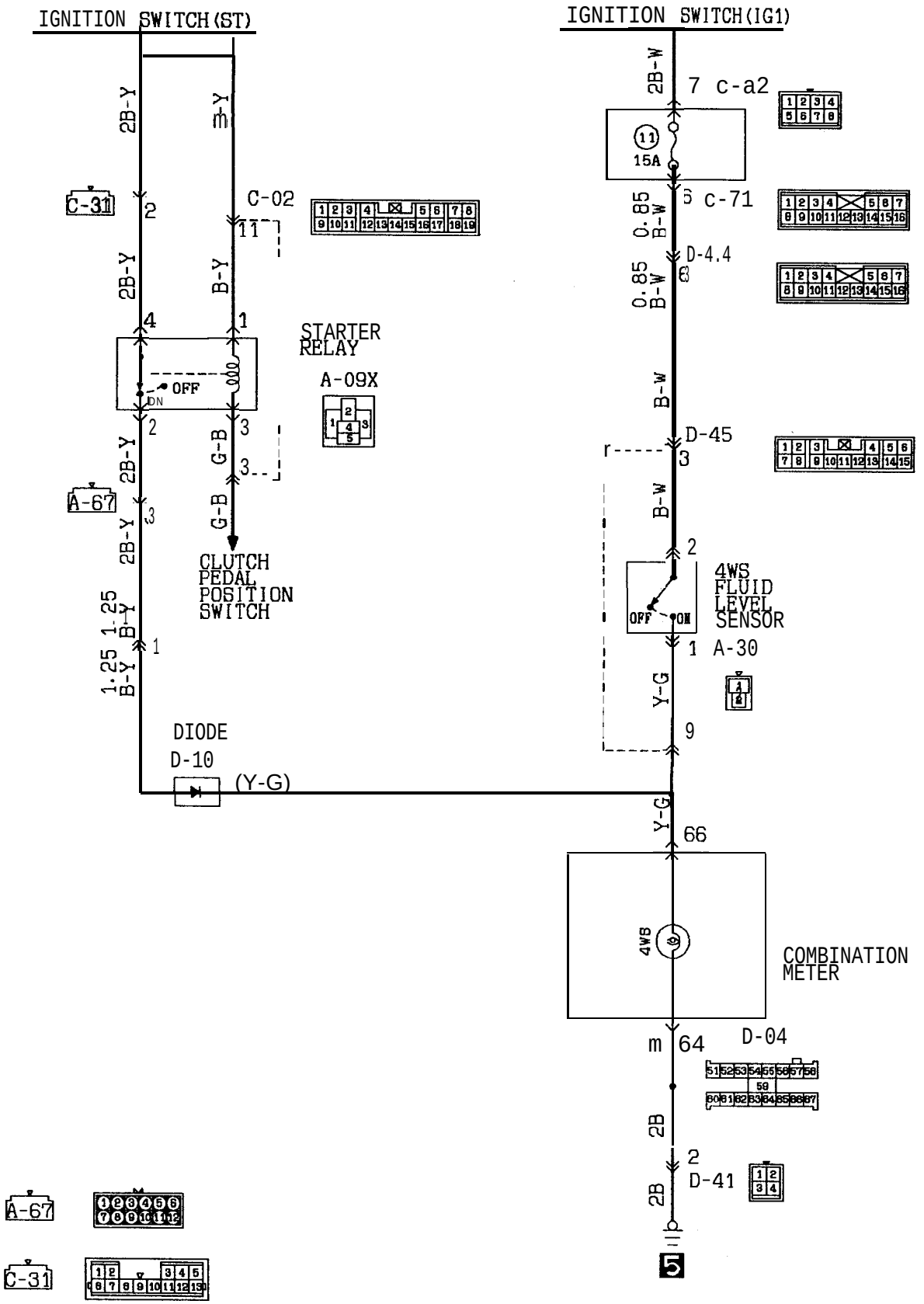
WARNING LIGHT CIRCUIT

CIRCUIT DIAGRAM



(X35-AC-R1005-M3C

WARNING LIGHT CIRCUIT (CONTINUED)



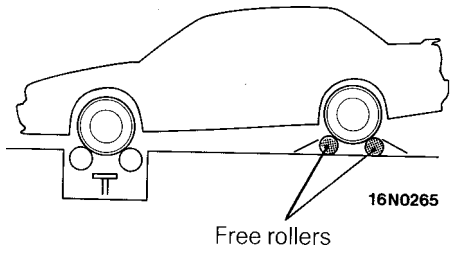
SERVICE ADJUSTMENT PROCEDURES

INSPECTION

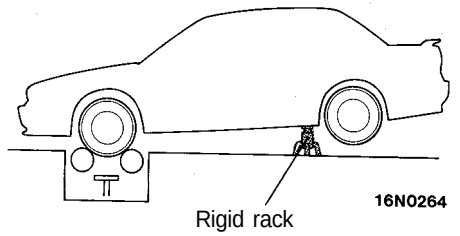
SPEEDOMETER INSPECTION

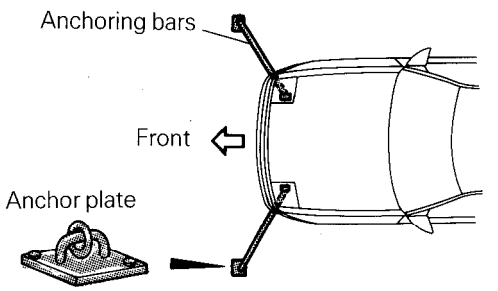
(1) Assure tire pressure at standard value.
(Refer to GROUP 22 – Specifications.)
(2) Set the vehicle on a speedometer tester.
(3) Set free rollers securely on the floor according to the wheelbase and rear tread of the vehicle (when rear wheels are to be set on free rollers).
(4) Raise the rear wheels on a jack and' place rigid racks to support the specified positions of the side sills (when rear wheels are to be raised on a jack).
(5) Make sure the parking brake has been set. <FWD>

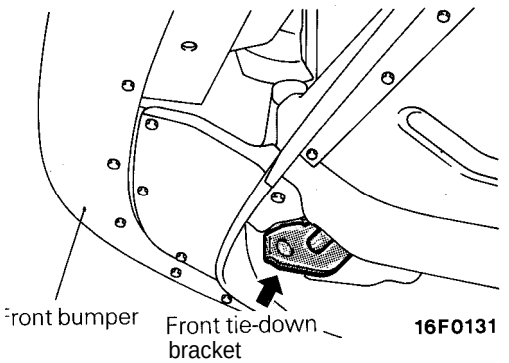
<Rear wheels on free rollers>

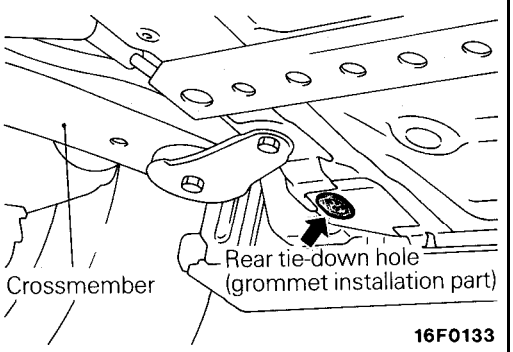


<Rear wheels raised on jack>







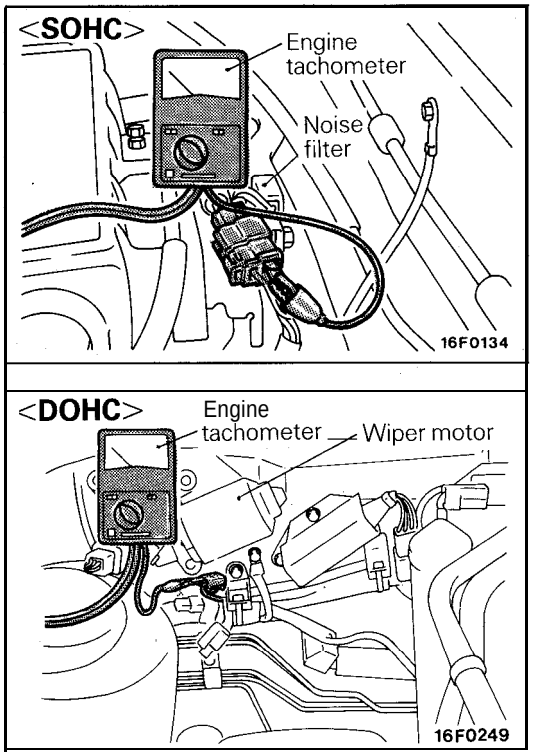


(6) Attach anchoring bars on the tie-down brackets and secure their ends to the anchor plates.
(7) Make sure the tension on the right and left bars is the same. Also be sure there is enough tension on each bar.
(8) Attach a chain or wire to the rear tie-down hole. Make sure the end of the wire or chain is secured firmly.
(9) Take all other necessary precautions.
(10) Use a speedometer tester to measure the speedometer's indication error.

Standard value:

Standard indication	Allowable range
mph	**mph**
20	**19 – 22**
40	**38 – 44**
60	**57 – 66**
80	**76 – 88**
100	**94 – 110**
km/h	**km/h**
40	**37 – 44**
80	**75 – 88**
120	**113 – 132**
160	**150 – 176**

Caution
Do not operate the clutch or accelerator abruptly or decelerate during the operations.



TACHOMETER INSPECTION

(1) Insert paper clip into the engine revolution speed detection terminal provided in the engine compartment, and connect the engine tachometer to the inserted paper clip.

Caution
As the tachometer is negative grounded, do not connect battery conversely to prevent damaging transistor and diode.

NOTE
For tachometer inspection, use of a fluxmeter-type engine tachometer is recommended. (Because a fluxmeter only needs to be clipped to the high tension cable.)

(2) Connect the engine tachometer and compare the engine tachometer and tachometer readings. Replace tachometer if difference is excessive.

Standard value:
1,000 ±100 rpm
3,000 ±150 rpm
5,000 ±250 rpm
6,000 ±300 rpm

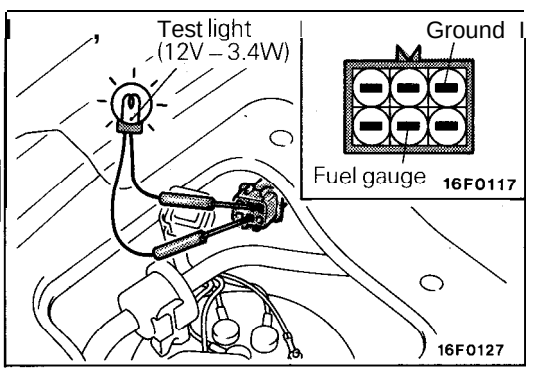
Caution
The engine speed signal output from the DOHC engine is one-third of the actual speed. When the engine speed is measured, make sure that the engine tachometer is placed in the 2-cylinder range. (The real speed is indicated.)

FUEL GAUGE SIMPLE INSPECTION

Remove the fuel gauge unit coupling connector.

↓

Connect a test light to the harness connector.



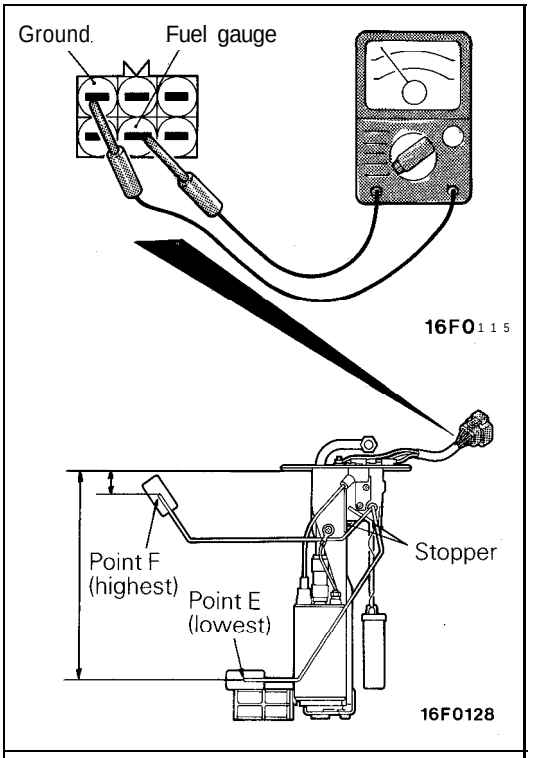
↓

Place the ignition switch in the ON position.

↓

Check the test light and gauge conditions.

① Test light lights. (Pointer of gauge does not swing.)	→ Replace fuel gauge.
② Test light lights. (Pointer of gauge swings.)	→ Replace fuel gauge unit.
③ Test light does not light. (Pointer of gauge does not swing.)	→ Correct harness.



FUEL GAUGE UNIT INSPECTION

To check, remove fuel gauge unit from fuel tank. (Refer to GROUP 14 – Fuel Tank.)

Fuel Gauge Unit Resistance

(1) Check that resistance value between the fuel gauge terminal and ground terminal is at standard value when fuel gauge unit float is at point F (highest) and point E (lowest).

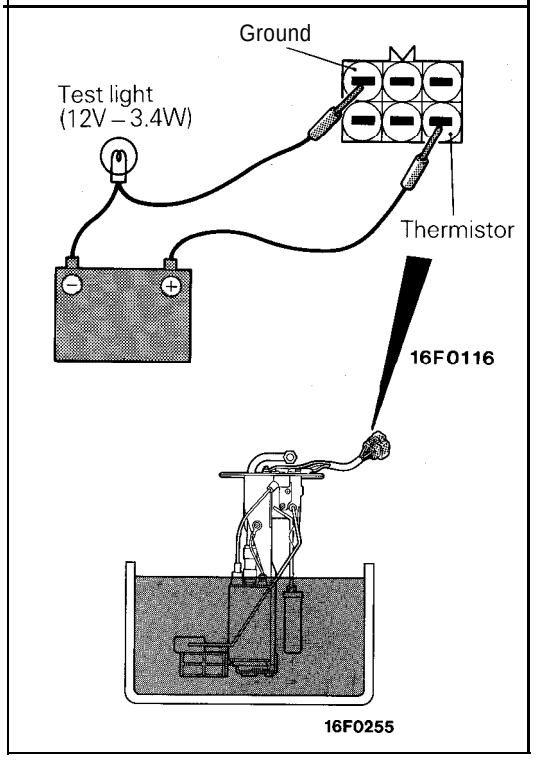
Standard value: Point F: 3±2 Ω
Point E: 110±7 Ω

(2) Check that resistance value changes smoothly when float moves slowly between point F (highest) and point E (lowest).

Fuel Gauge Unit Float Height

Move float and measure the height at point F (highest) and point E (lowest) with float arm touching stopper.

Standard value:
Point F: 18.6 – 21.6 mm (.73 – .85 in.)
Point E: 193.4 – 196.4 mm (7.61 – 7.73 in.)



FUEL SENSOR INSPECTION

Connect fuel gauge unit to battery via test light (12V – 3.4W). Immerse in water. Condition good if light goes off when unit thermistor is in water and lights when unit is removed from water.

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

ENGINE COOLANT TEMPERATURE GAUGE SIMPLE INSPECTION

Remove the water temperature gauge unit coupling connector.

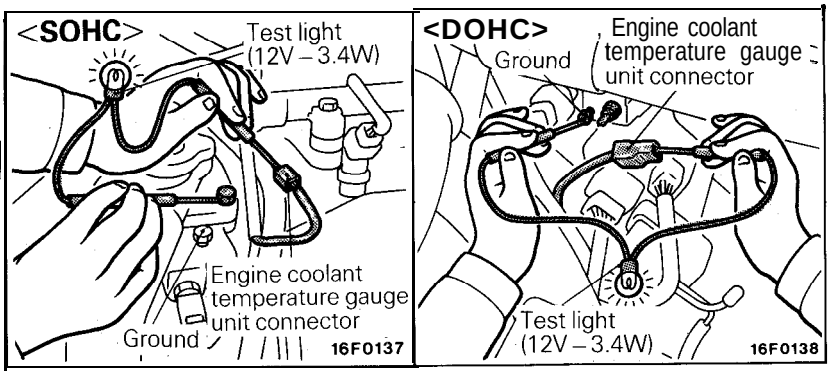
↓

Connect the harness connector via a test light to the ground.

↓

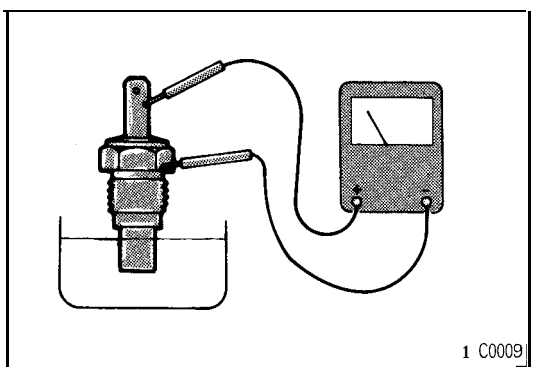
Place the ignition switch in the ON position.

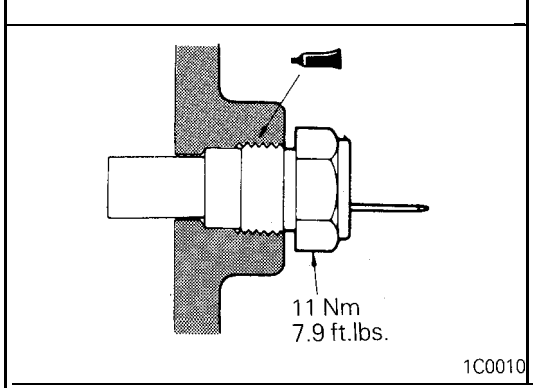
↓



Check the test light and gauge conditions.

① Test light lights. (Pointer of gauge does not swing.)	→ Replace water temperature gauge.
② Test light lights. (Pointer of gauge swings.)	→ Replace water temperature gauge unit.
@ Test light does not light. (Pointer of gauge does not swing.)	→ Correct harness.





ENGINE COOLANT TEMPERATURE GAUGE UNIT INSPECTION

To check, remove engine coolant temperature gauge unit from the intake manifold of the SOHC engine or from the thermostat housing of the DOHC engine.

Engine Coolant Temperature Gauge Unit Resistance

(1) Immerse unit in 70°C (158°F) water to measure resistance.

Standard value: 104±13.5 Ω

(2) After checking, apply the specified sealant around the thread of engine coolant temperature gauge unit and install on the intake manifold of the SOHC engine or on the thermostat housing of the DOHC engine.

Specified sealant: MOPAR Part No. 4318034 or equivalent

OIL PRESSURE GAUGE SIMPLE INSPECTION

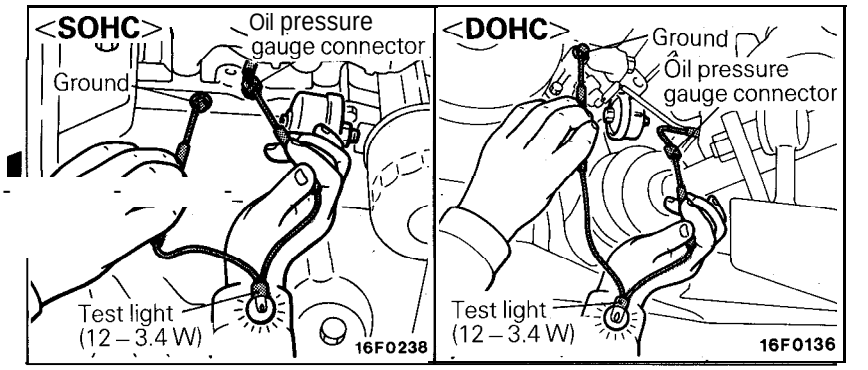
Remove the oil pressure gauge unit coupling connector.

↓

harness connector it to the ground. A

↓

Place the ignition switch in the ON position.



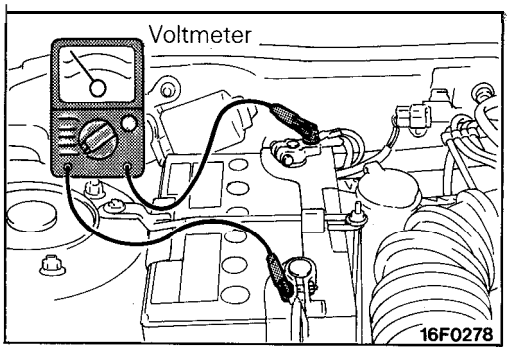
↓

Check the test light and gauge conditions.

① Test light lights. (Pointer of gauge does not swing.)	→ Replace oil pressure gauge.
② Test light lights. (Pointer of gauge swings,)	→ Replace oil pressure gauge unit.
③ Test light does not light. (Pointer of gauge does not swing.)	→ Correct harness.

VOLTAGE GAUGE SIMPLE TEST

Connect voltmeter to battery.



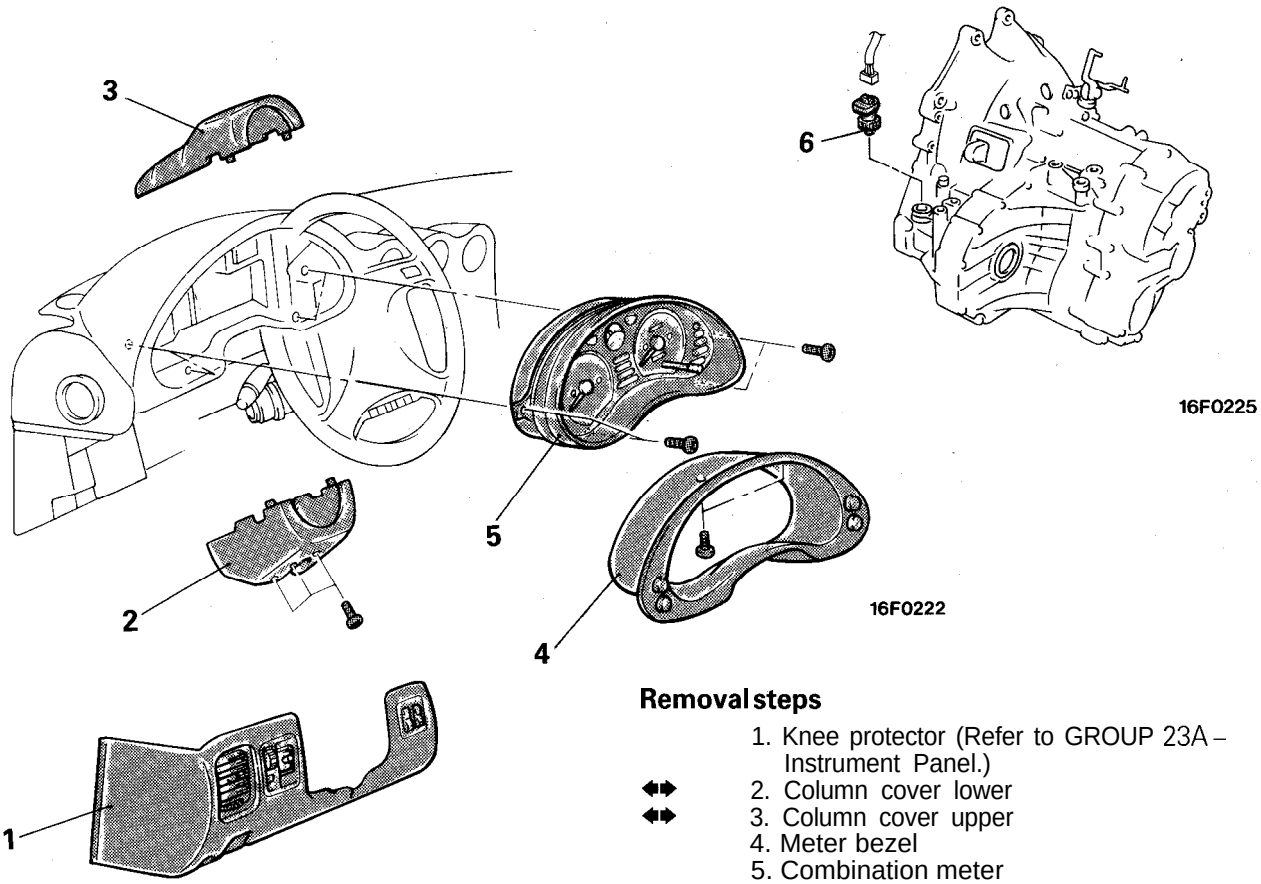
↓

Check voltage gauge for conditions,

① Voltage indicated by voltmeter differs from voltage indicated by voltage gauge (position indicated by pointer).	→ Replace gauge.
② Gauge does not operate.	→ Correct harness or replace gauge.

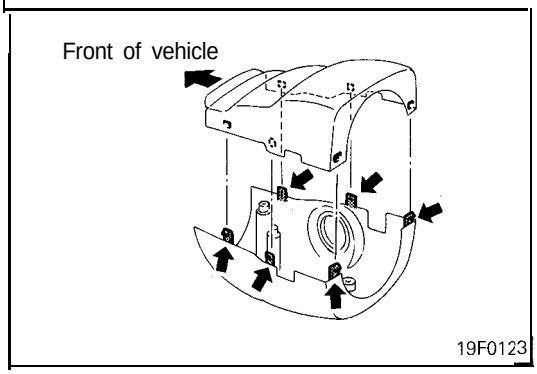
COMBINATION METERS

REMOVAL AND INSTALLATION



Removal steps

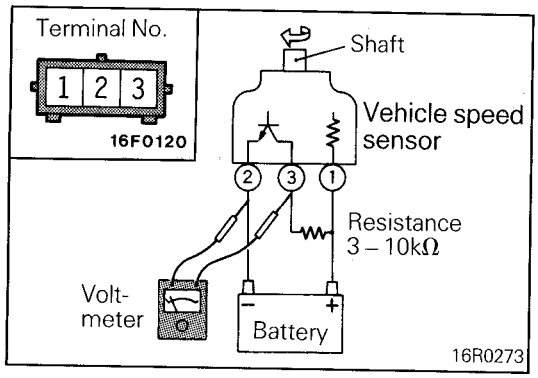
1. Knee protector (Refer to GROUP 23A – Instrument Panel.)
2. ◆◆ Column cover lower
3. ◆◆ Column cover upper
4. Meter bezel
5. Combination meter
6. Vehicles speed sensor



SERVICE POINTS OF REMOVAL

2. REMOVAL OF COLUMN COVER LOWER / 3. COLUMN COVER UPPER

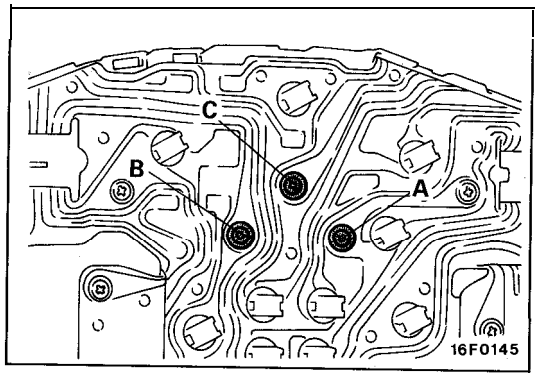
After the screws have been removed, remove the covers, while making sure not to break the grippers.



INSPECTION

VEHICLES SPEED SENSOR INSPECTION

(1) Remove the vehicles speed sensor and connect as shown in the illustration, using a 3 – 10 kΩ resistance.
(2) Use a voltmeter to check for voltage at terminals ② and ③ when the pulse generator shaft is turning. (One revolution is four pulses.)



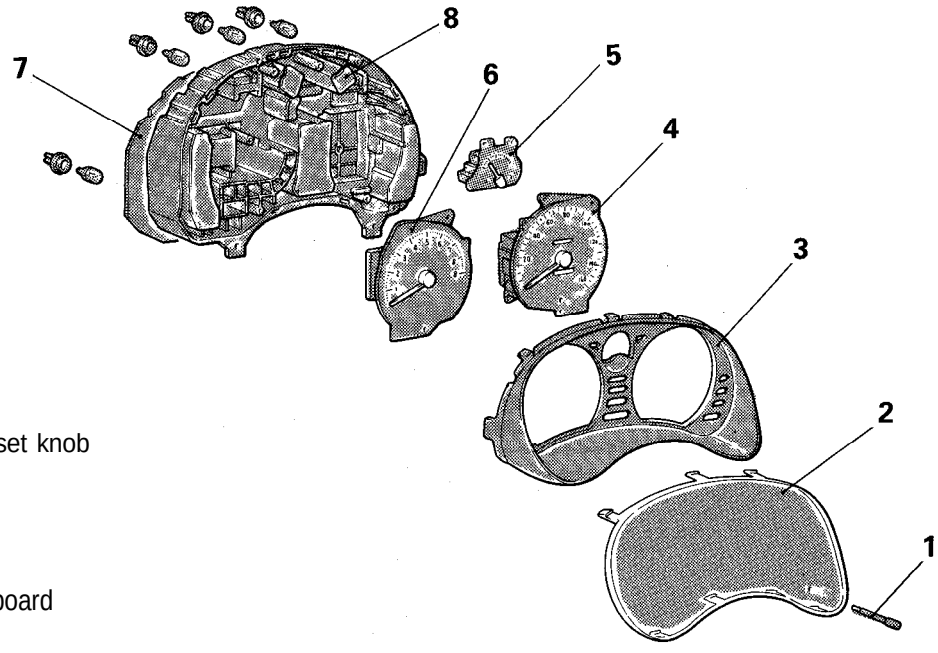
FUEL GAUGE INSPECTION

Measure resistance between terminals with circuit tester.

Standard value:

A - B	**Approx. 254 Ω**
A - C	**Approx. 101 Ω**
B - C	**Approx. 153 Ω**

DISASSEMBLY AND REASSEMBLY

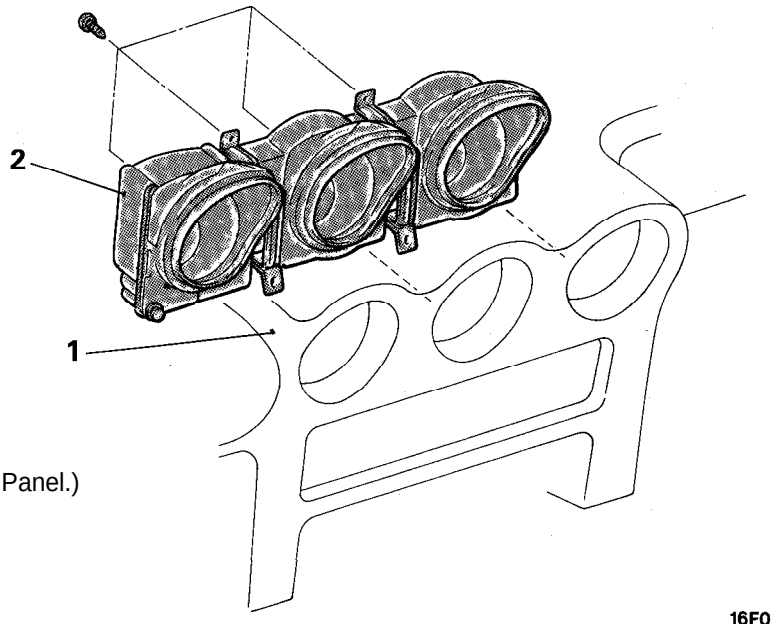


Disassembly steps

1. Trip counter reset knob
2. Meter glass
3. Window plate
4. Speedometer
5. Fuel gauge
6. Tachometer
7. Printed-circuit board
8. Meter case

COMBINATION GAUGES

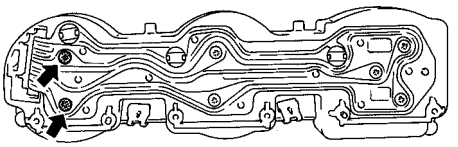
REMOVAL AND INSTALLATION



16F0211

Removal steps

1. Instrument panel
   (Refer to GROUP 23A – Instriment Panel.)
   Distribution duct
   [Refer to GROUP 24 -Ventilators
   (Instrument Panel).]
2. Combination gauge



16F0143

INSPECTION

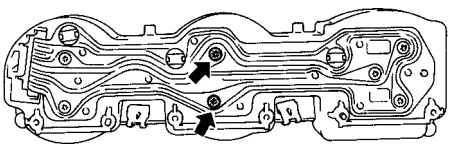
PRESSURE GAUGE INSPECTION <Turbo>

Measure resistance between terminals with circuit tester.

Standard value: Approx. 72 Ω

VOLTAGE GAUGE INSPECTION <Non-Turbo>

Refer to P.8-283

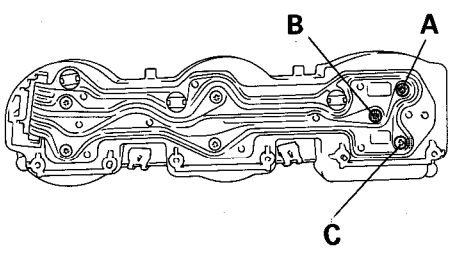


16F0142

OIL PRESSURE GAUGE INSPECTION

Measure resistance between terminals with circuit tester.

Standard value: Approx. 42 Ω



16F0141

ENGINE COOLANT TEMPERATURE GAUGE INSPECTION

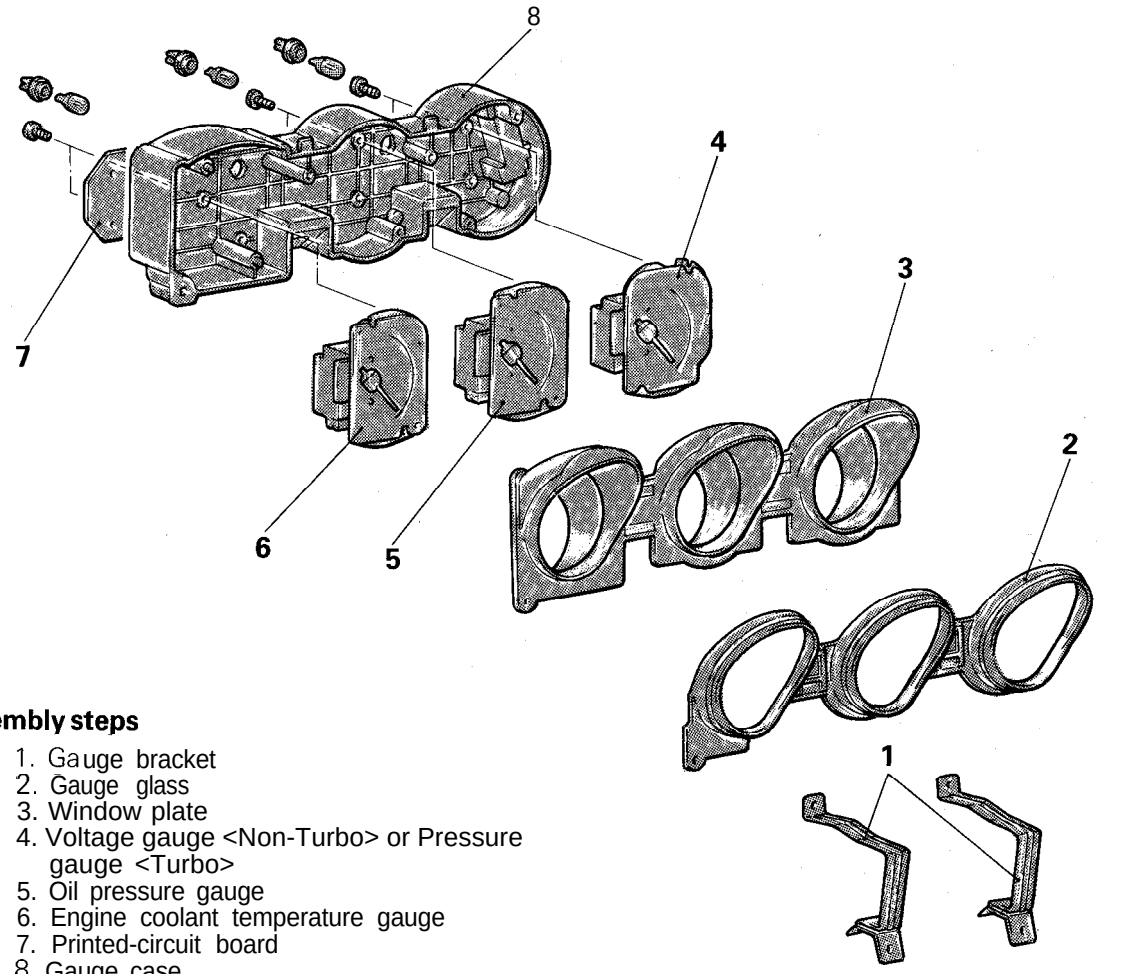
(1) Remove the IG terminal screw from area A.
(2) Measure resistance between terminals with circuit tester.

Caution
For inspection, use a circuit tester which uses a measurement current of 4mA or less.

Standard value:

A - B	**Approx. 51 Ω**
A - C	**Approx. 139 Ω**
B - C	**Approx. 190 Ω**

DISASSEMBLY AND REASSEMBLY



Disassembly steps

1. Gauge bracket
2. Gauge glass
3. Window plate
4. Voltage gauge <Non-Turbo> or Pressure gauge <Turbo>
5. Oil pressure gauge
6. Engine coolant temperature gauge
7. Printed-circuit board
8. Gauge case

LIGHTING SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS

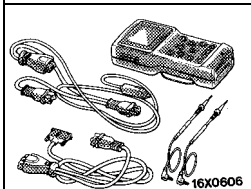
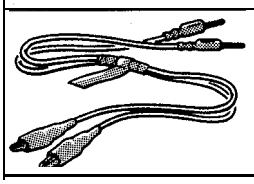
Items	Specifications
Exterior lights	
Headlight W	65155
Fog light W	35*1 or 55*2
Front combination light	
Turn-signal light / side marker light CP	43/3 (3496)
Rear combination light	
Turn-signal light / side marker and tail light CP	32/2 (2057)"'
Stop light / tail light CP	32/2 (2057)*1
Turn-signal and stop light / side marker and tail CP	3212 (2057)*2
Side marker and tail light CP	3 (168)*2
Back-up light CP	21
License plate light CP	3 (168)
High-mounted stop light CP	32 (1156) or LED*3: Light' Emitting Diode
Engine compartment inspection light W	3.8 (194)
Interior lights	
Foot light W	3.4 (158)
Dome light W	8
Spot light W	8
Door light W	5
Glove compartment light W	3.4 (158)
Luggage compartment light W	5

NOTE
(1) *1: Vehicles with small bumper
(2) *2: Vehicles with large bumper
(3) *3: Vehicles with rear spoiler
(4) The values in parentheses denote SAE trade number.

SERVICE SPECIFICATIONS

Items	Specifications
Limit	
Headlight intensity	20,000 cd or more

SPECIAL TOOL

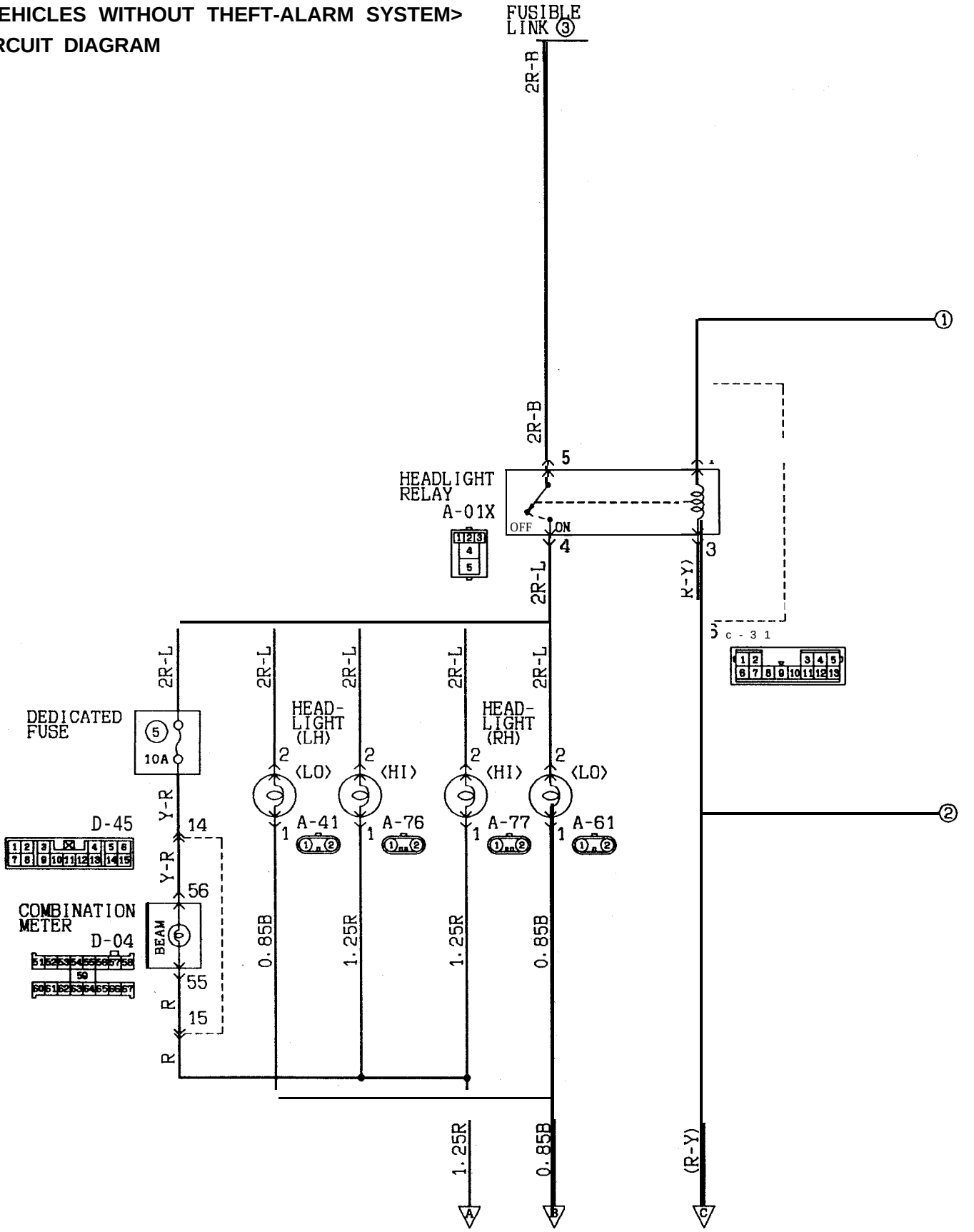
Tool number and tool name	Replaced by Miller tool number	Application
 MB991 502 Scan Tool (MUT-II)	DRB-II Scan Tool	Checking the lighting system
 MB991 529 Diagnostic trouble code check harness	MB991 529	Checking the lighting system using a voltmeter

TROUBLESHOOTING

HEADLIGHT CIRCUIT (VEHICLES FOR U.S.)

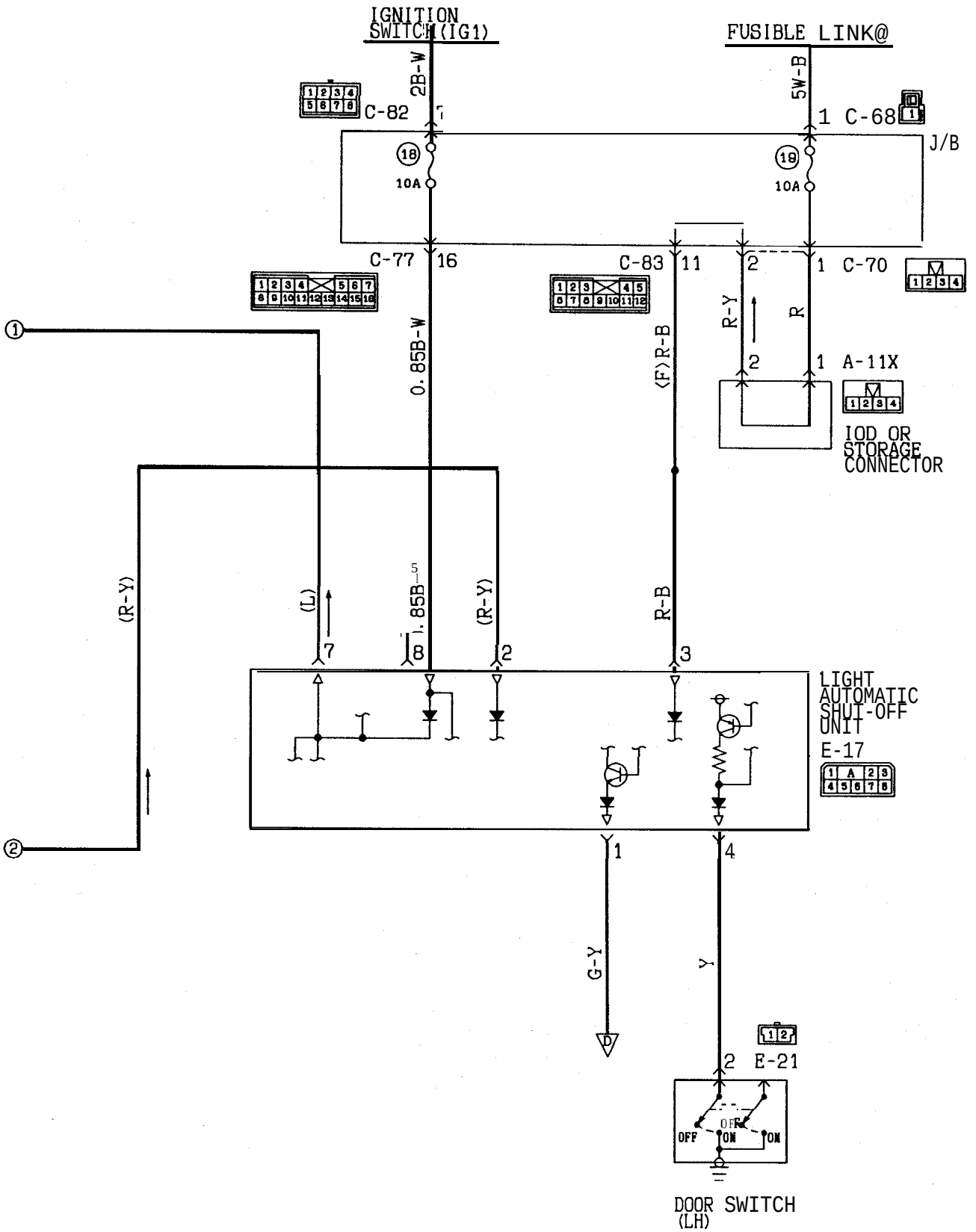
<VEHICLES WITHOUT THEFT-ALARM SYSTEM>

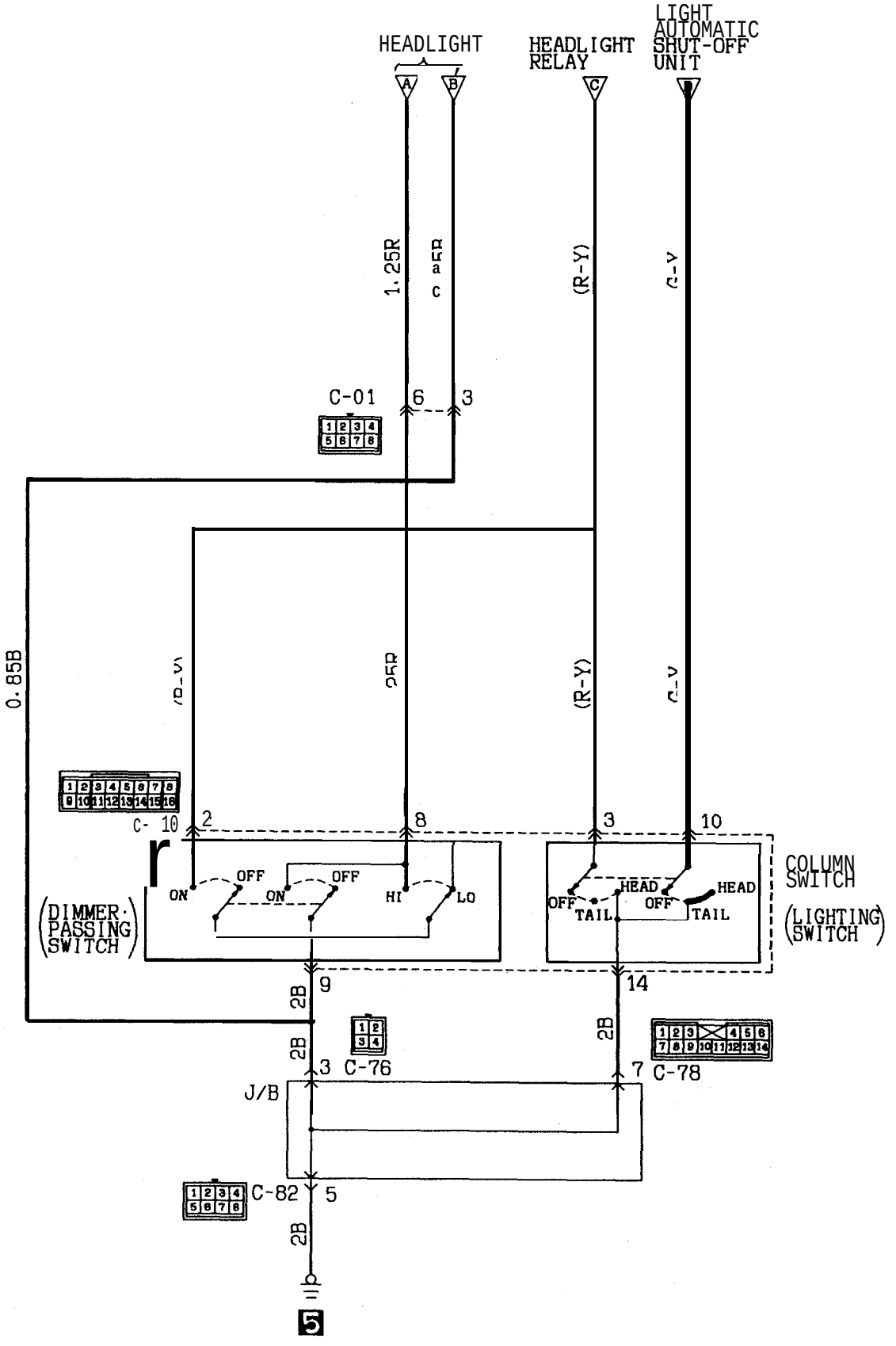
CIRCUIT DIAGRAM



KX35-AC-R0801-N4C

HEADLIGHT CIRCUIT (VEHICLES FOR U.S.) <VEHICLES WITHOUT THEFT-ALARM SYSTEM> (CONTINUED)

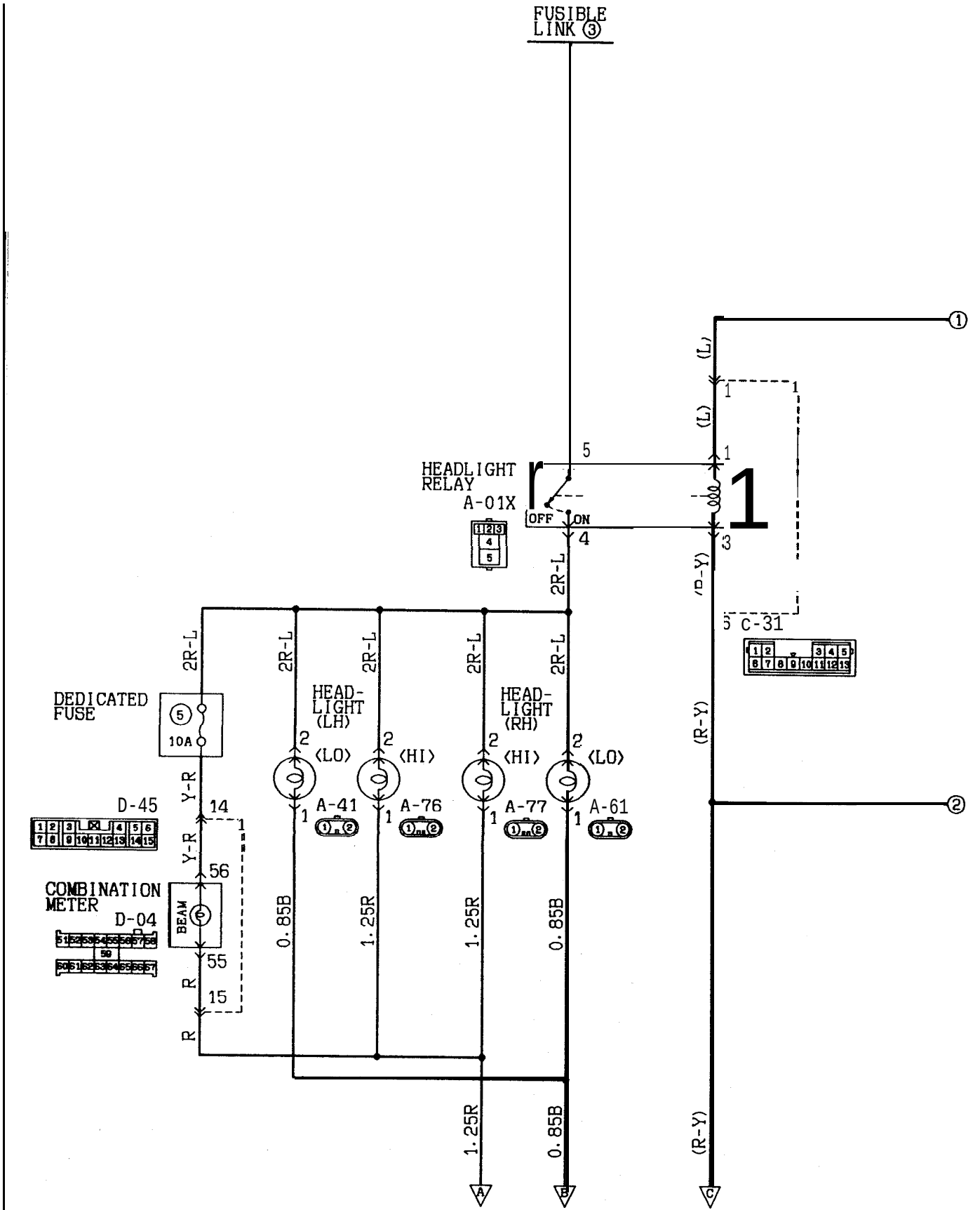


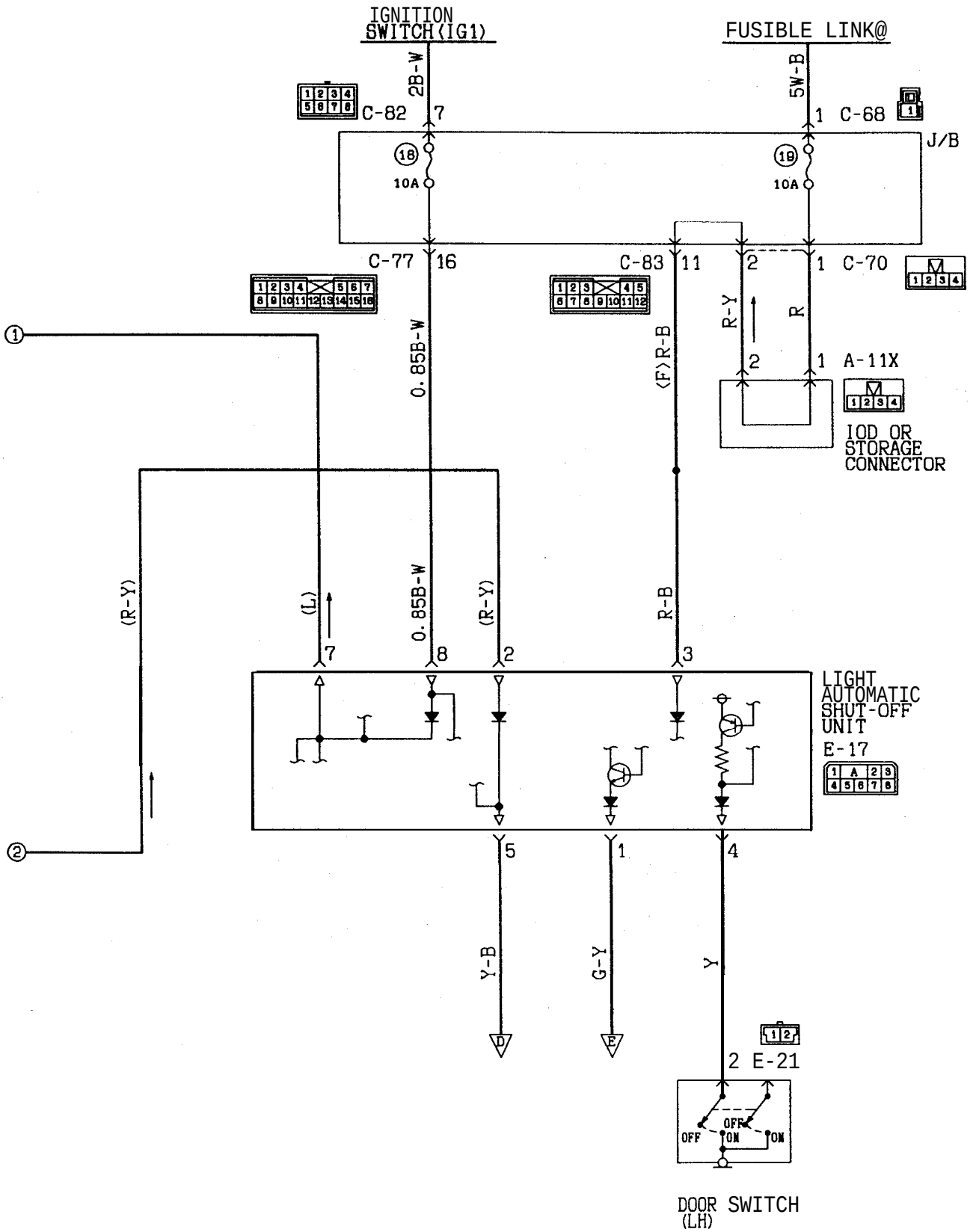


KX35-AC-R0601A-N4C

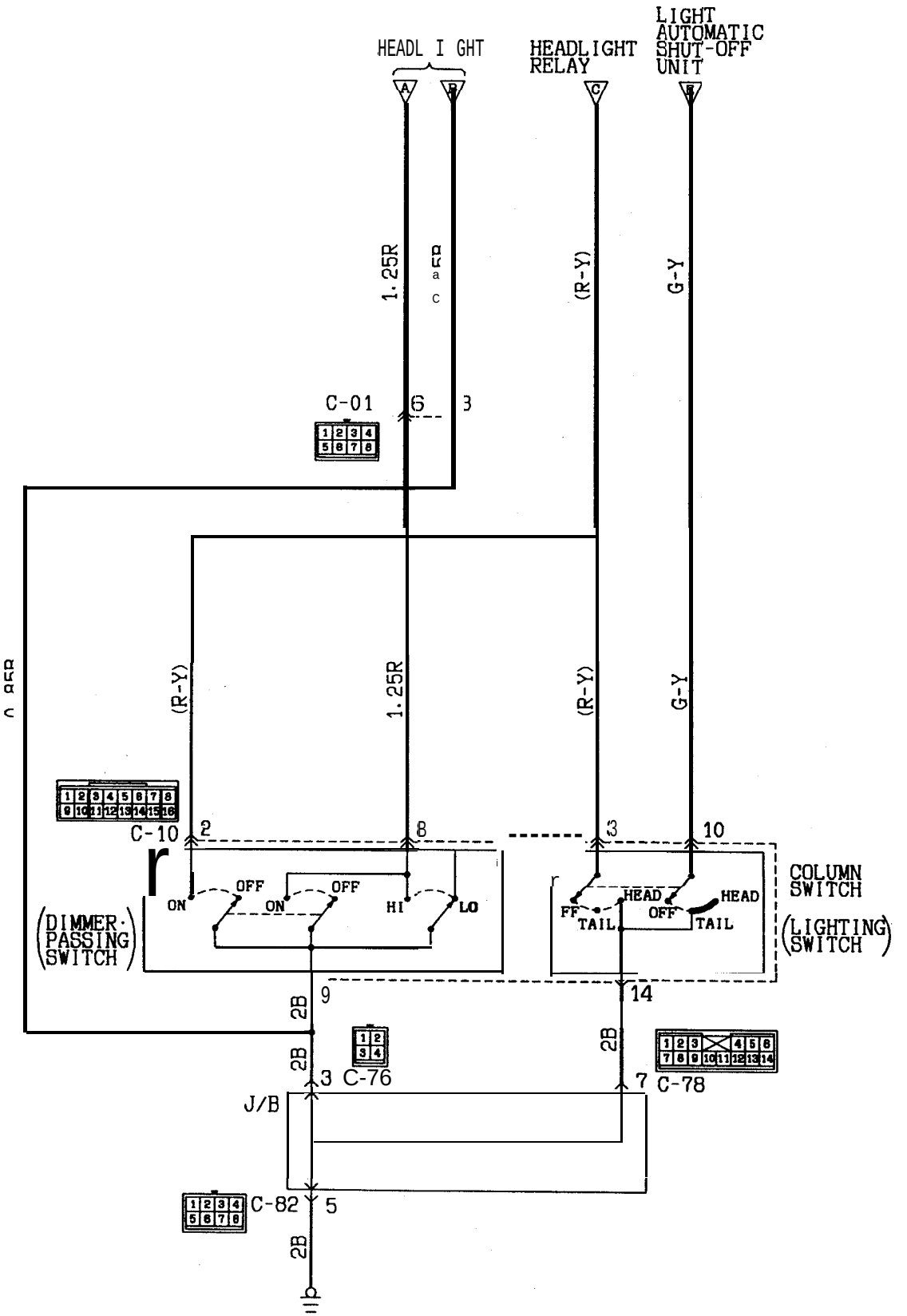
<VEHICLES WITH THEFT-ALARM SYSTEM>

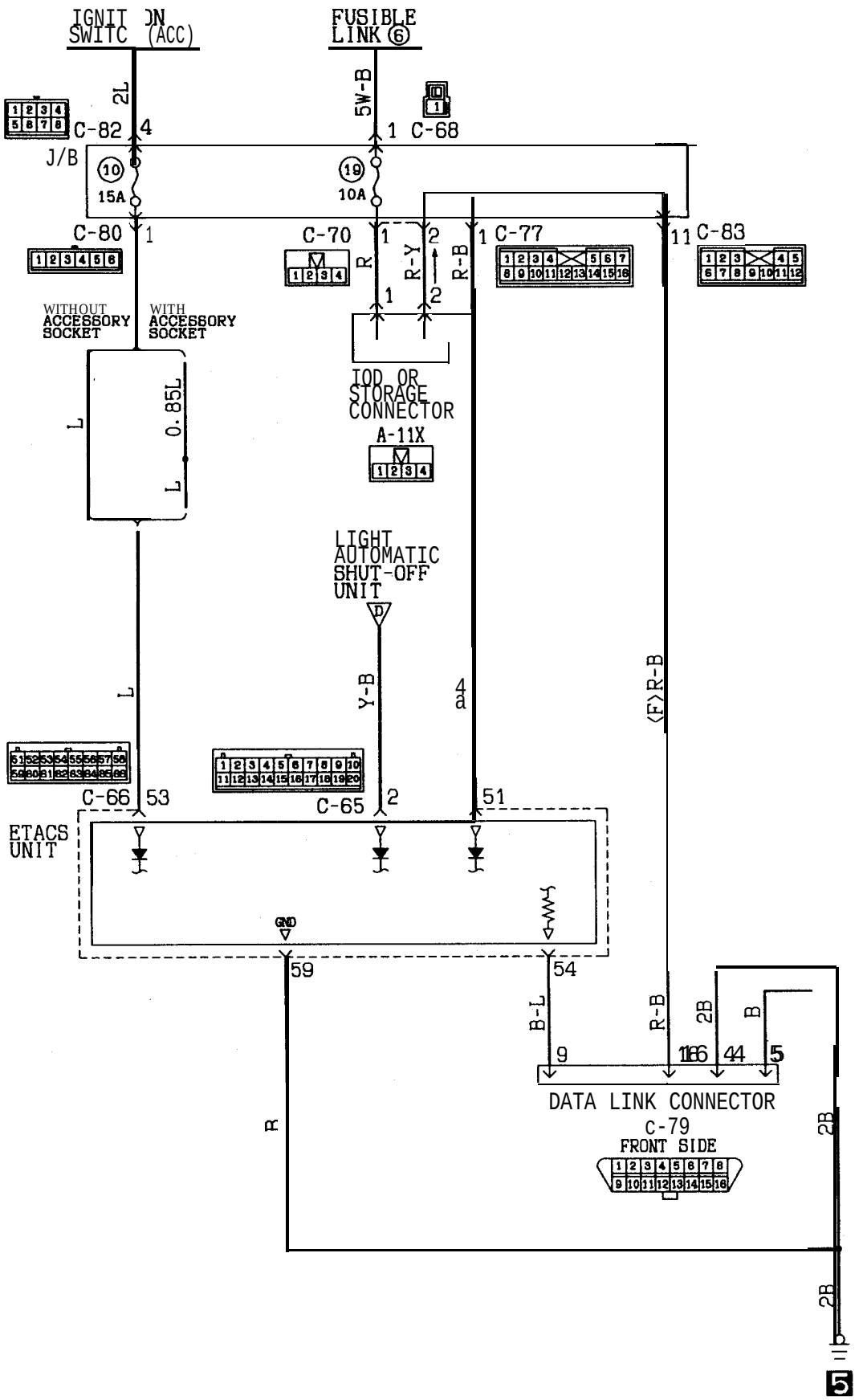
CIRCUIT DIAGRAM




IGNITION SWITCH(IG1)
FUSIBLE LINK@
2B-W
5W-B
C-82
7
1
C-68
J/B
18
19
10A
10A
C-77
16
C-83
11
2
1
C-70
0.85B-W
(F)R-B
R-Y
R
2
1
A-11X
IOD OR STORAGE CONNECTOR
(R-Y)
(L)
0.85B-W
(R-Y)
R-B
7
8
2
3
LIGHT AUTOMATIC SHUT-OFF UNIT
E-17
5
1
4
Y-B
G-Y
Y
D
E
2 E-21
OFF
ON
ON
DOOR SWITCH (LH)

<VEHICLES WITH THEFT-ALARM SYSTEM> (CONTINUED)

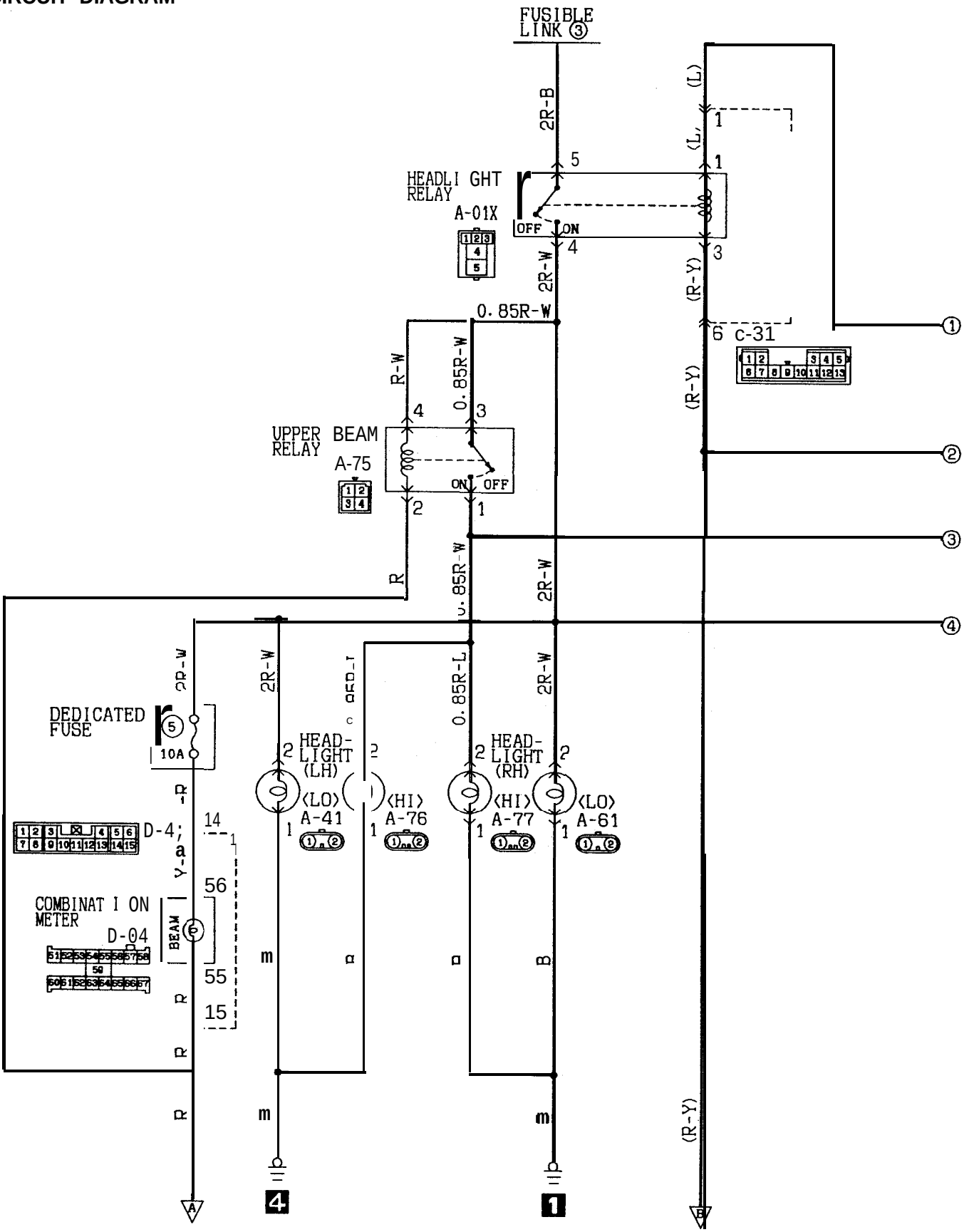



IGNIT ON
SWITC (ACC)
FUSIBLE
LINK ⑥
2L
5W-B
C-82
4
1
C-68
J/B
⑩
15A
⑲
10A
C-80
1
C-70
1
2
1
C-77
11
C-83
R
R-Y
R-B
WITHOUT
ACCESSORY
SOCKET
WITH
ACCESSORY
SOCKET
L
0.85L
L
IOD OR
STORAGE
CONNECTOR
A-11X
LIGHT
AUTOMATIC
SHUT-OFF
UNIT
D
Y-B
4
L
(F)R-B
C-66
53
C-65
2
51
ETACS
UNIT
GND
59
54
B-L
R-B
2B
B
9
16
44
5
DATA LINK CONNECTOR
C-79
FRONT SIDE
R
2B
2B
5

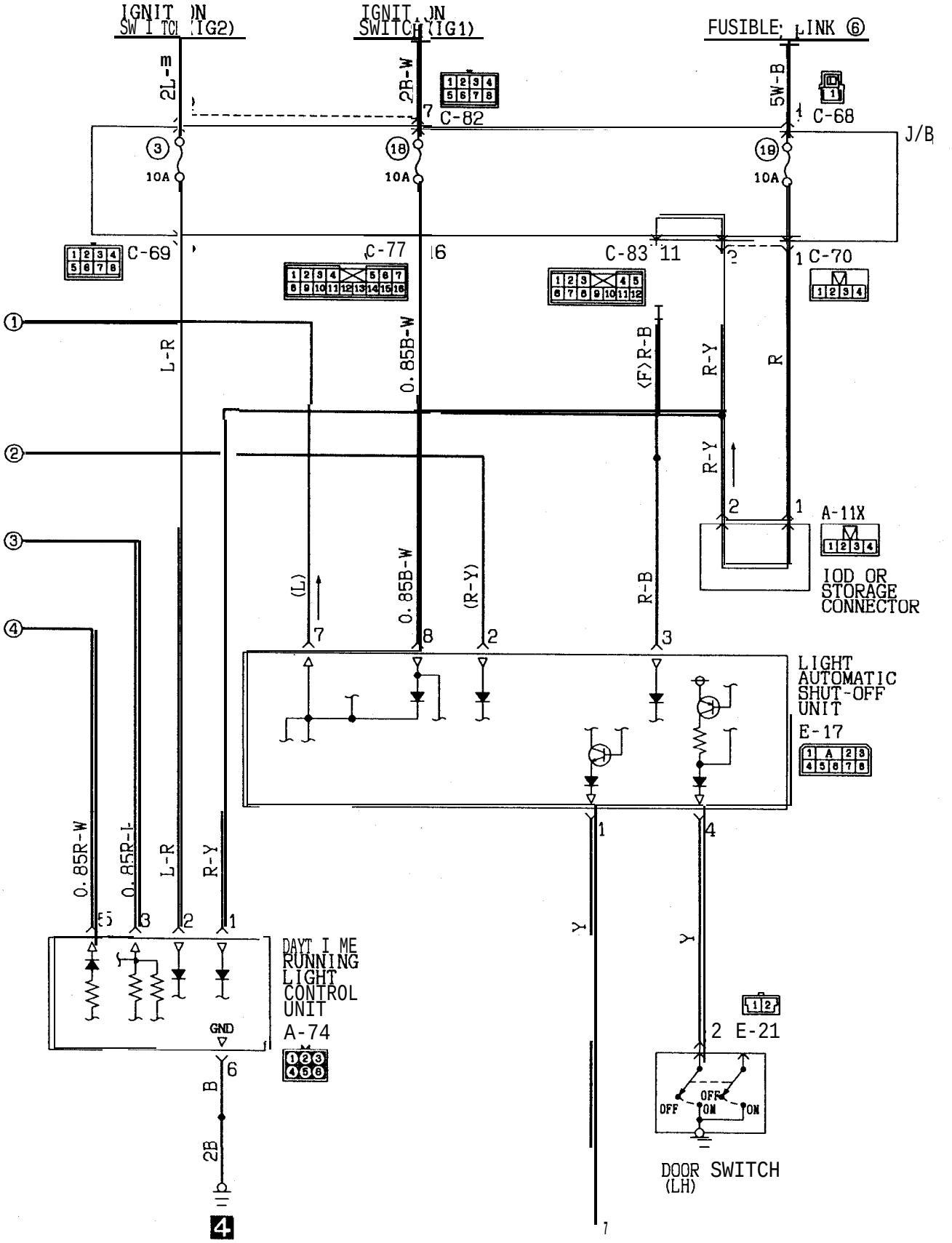
(VEHICLES FOR CANADA)

<VEHICLES WITHOUT THEFT-ALARM SYSTEM>

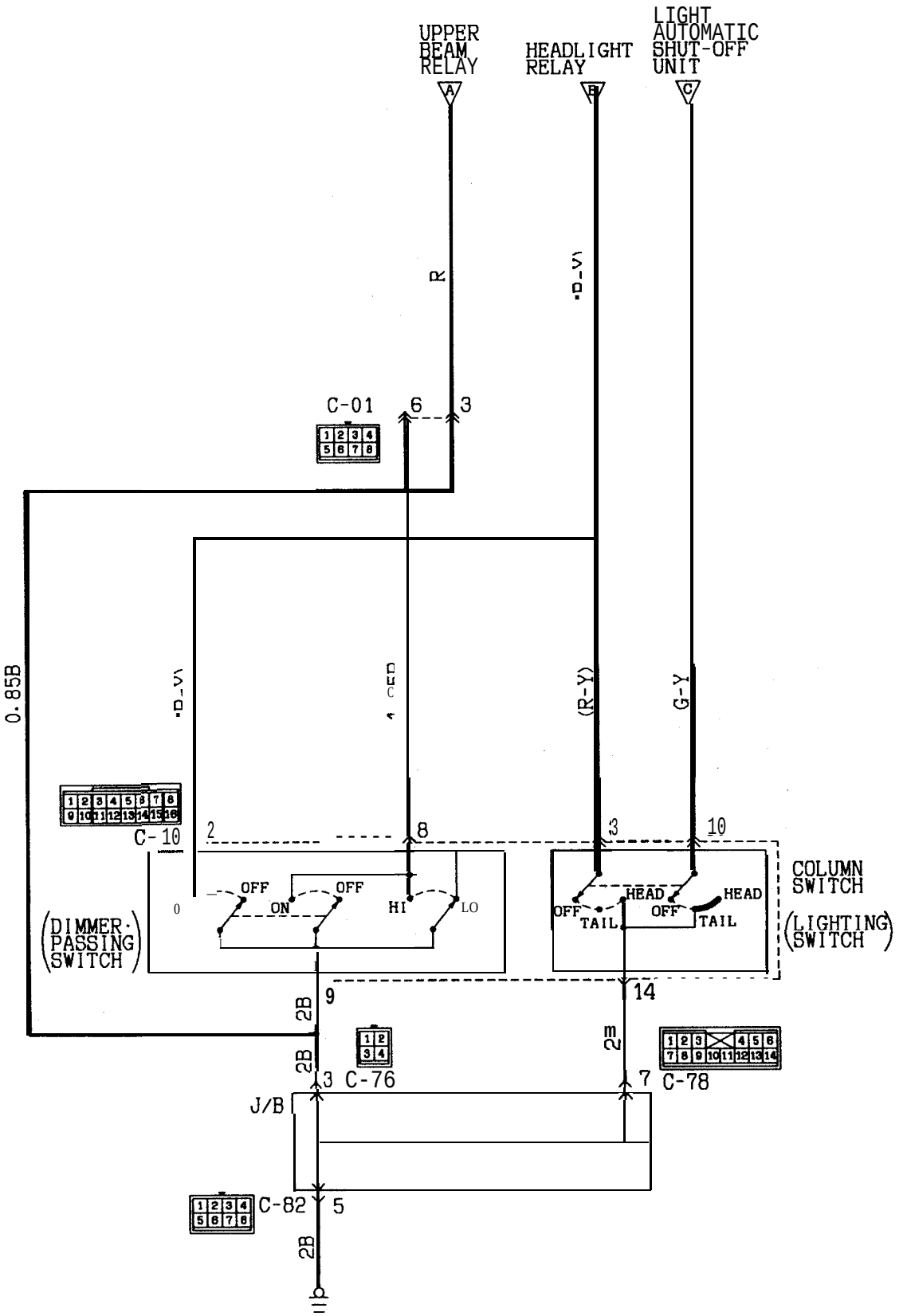
CIRCUIT DIAGRAM



KX35-AC-R0603-N4C

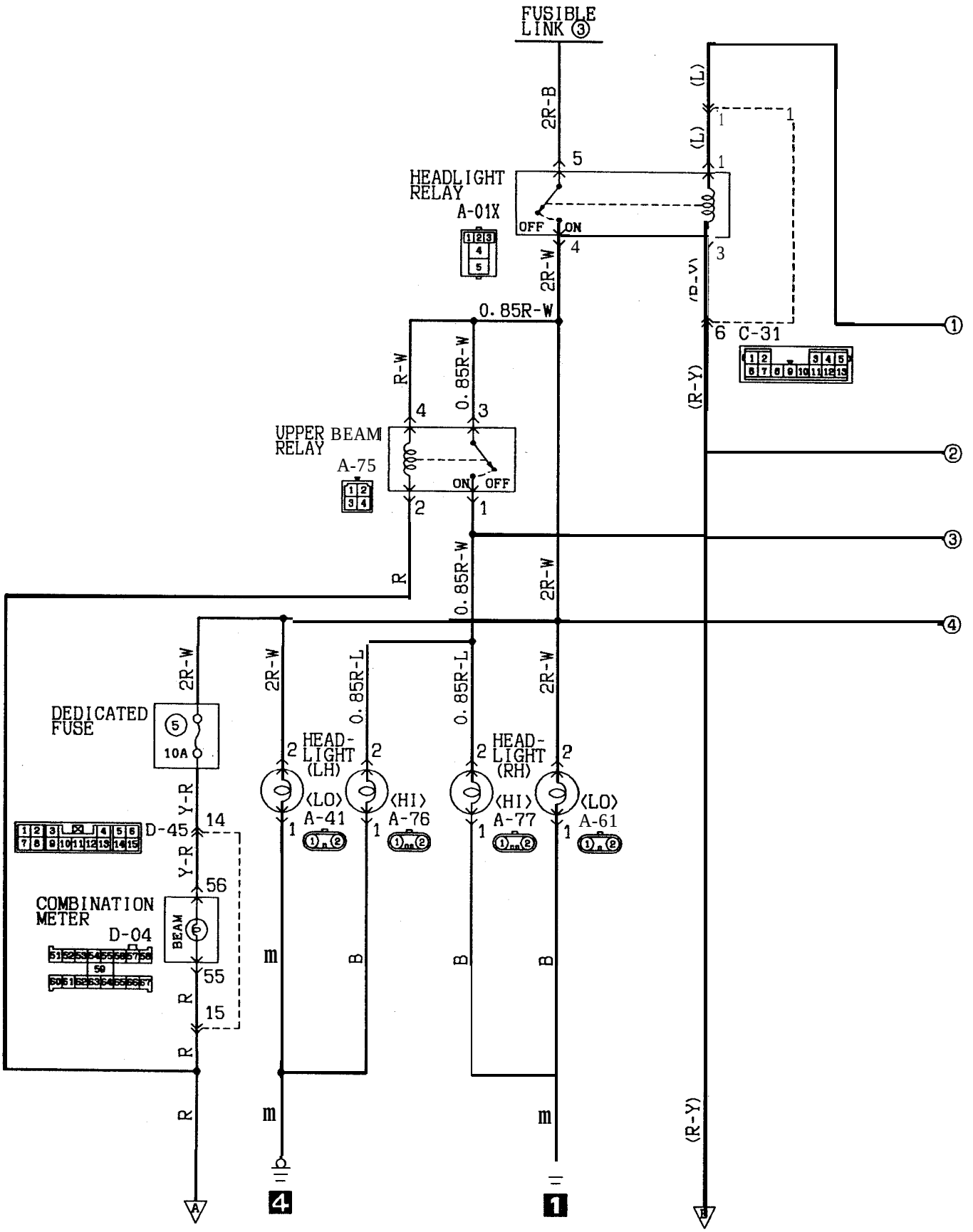

IGNITION SWITCH (IG2)
IGNITION SWITCH (IG1)
FUSIBLE LINK ⑥
2L-m
2R-W
5W-B
C-82
C-68
J/B
10A
C-69
C-77
C-83
C-70
L-R
0.85B-W
(F)R-B
R-Y
R
A-11X
IOD OR STORAGE CONNECTOR
(L)
(R-Y)
R-B
LIGHT AUTOMATIC SHUT-OFF UNIT
E-17
0.85R-W
0.85R-L
DAYTIME RUNNING LIGHT CONTROL UNIT
A-74
GND
B
2B
Y
E-21
OFF
ON
DOOR SWITCH (LH)

(VEHICLES FOR CANADA) <VEHICLES WITHOUT THEFT-ALARM SYSTEM> (CONTINUED)

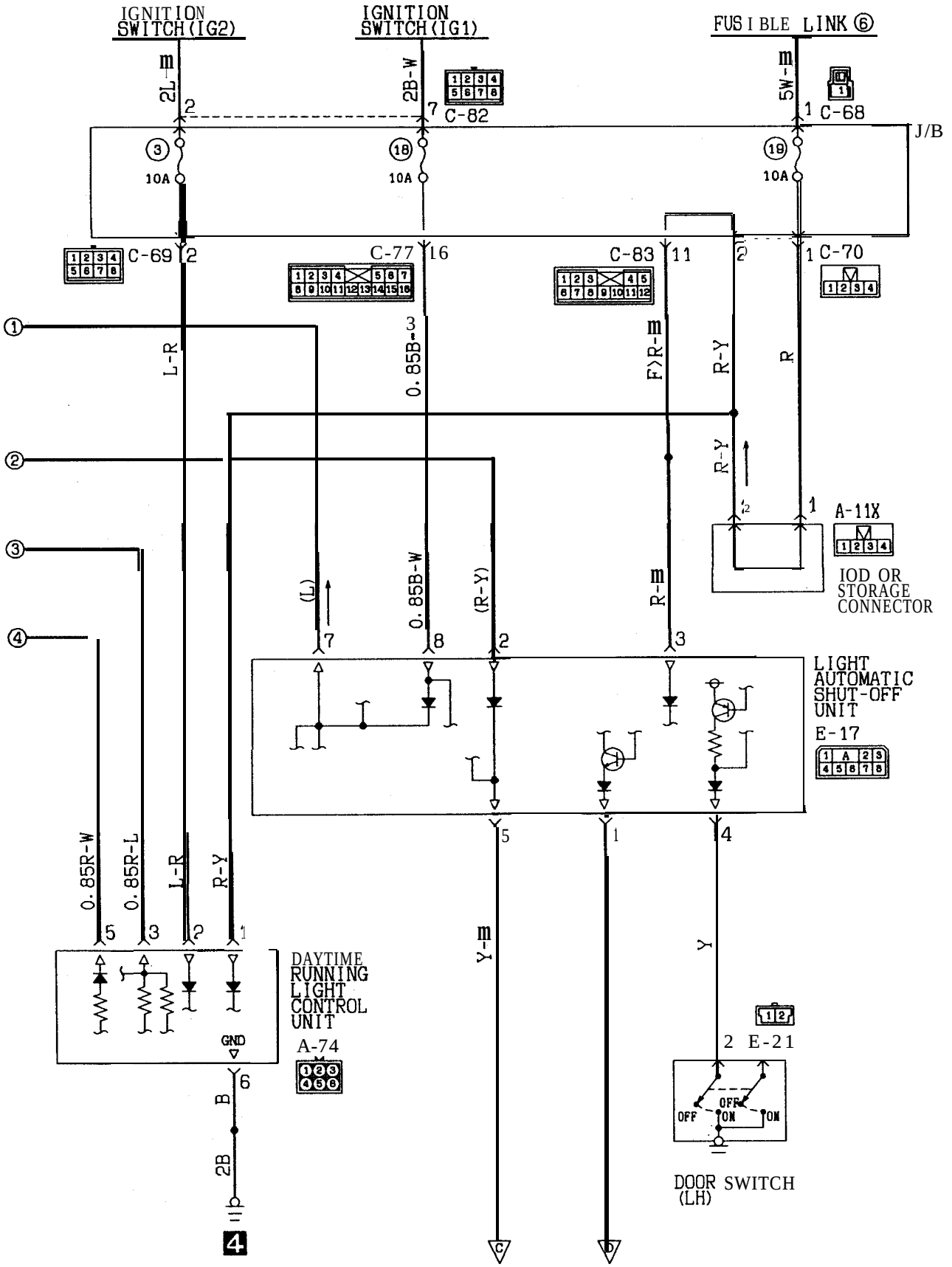


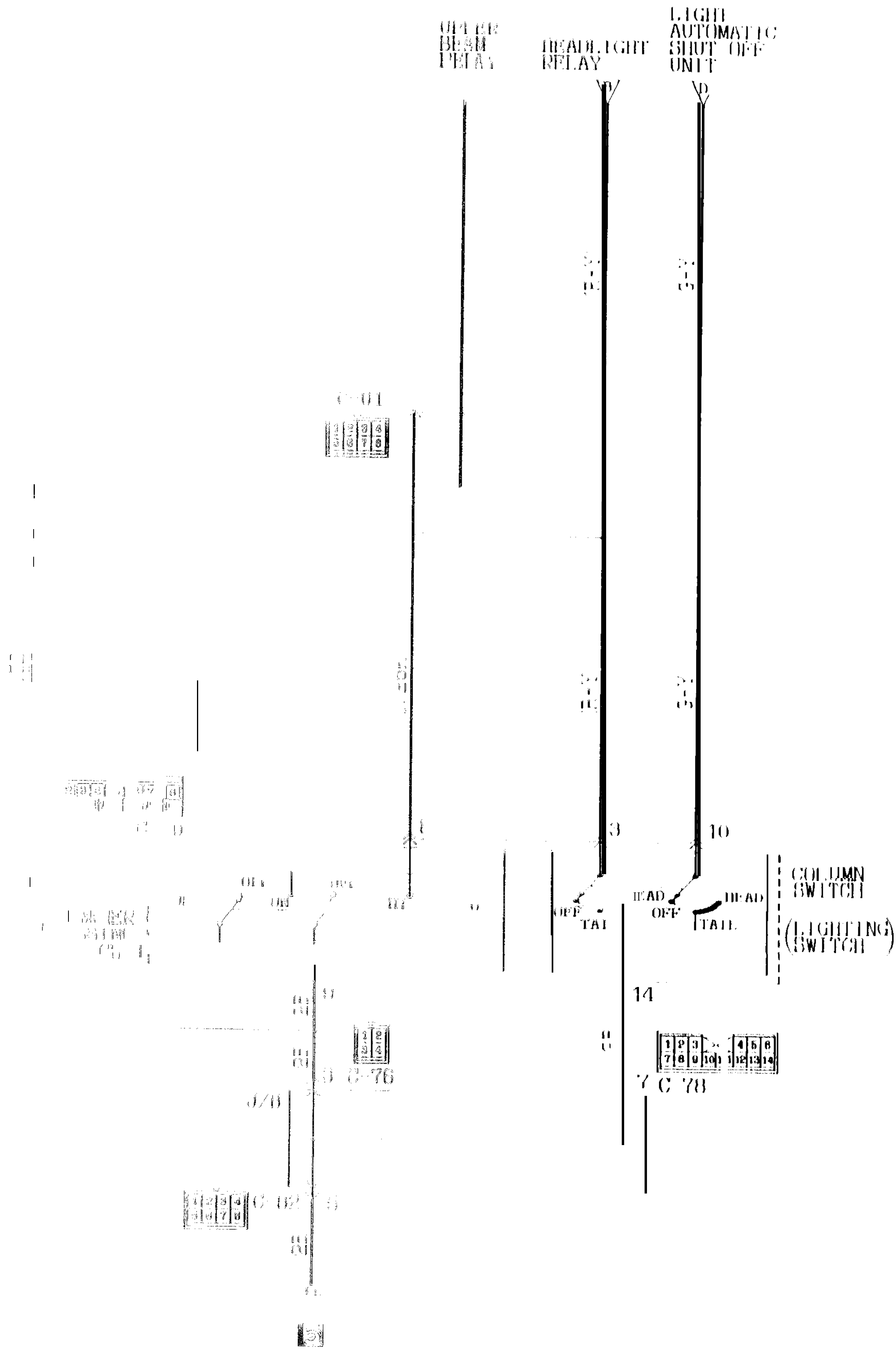
<VEHICLES WITH THEFT-ALARM SYSTEM>

CIRCUIT DIAGRAM

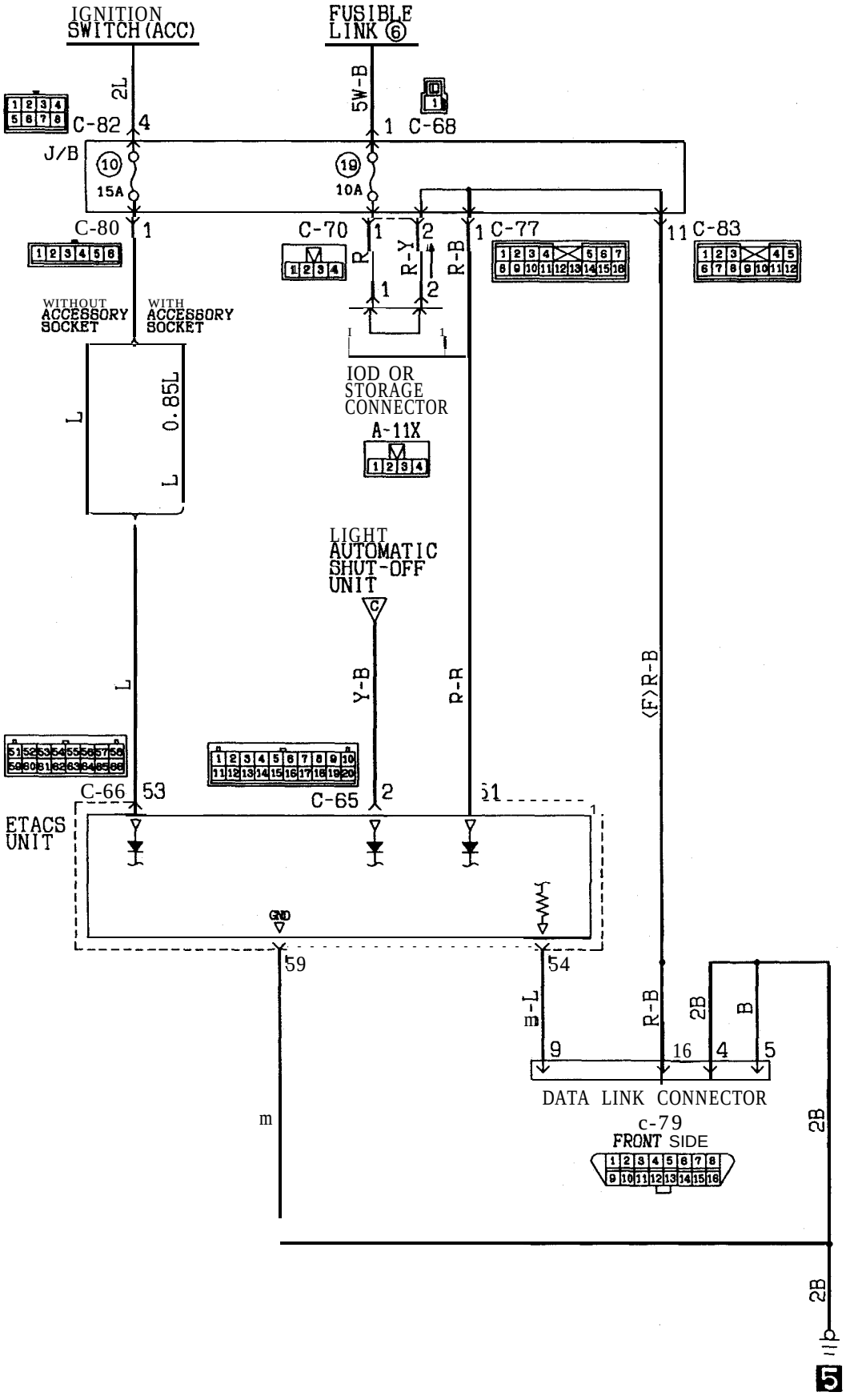


<VEHICLES WITH THEFT-ALARM SYSTEM> (CONTINUED)



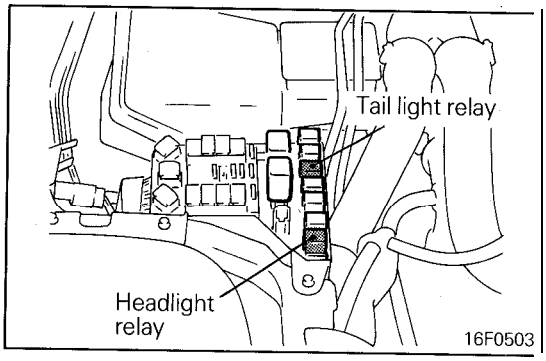

HEADLIGHT RELAY
LIGHT AUTOMATIC SHUT OFF UNIT
3
10
HEAD
OFF
TAIL
COLUMN SWITCH
(LIGHTING SWITCH)
14
C-78
C-76
J/B

<VEHICLES WITH THEFT-ALARM SYSTEM> (CONTINUED)

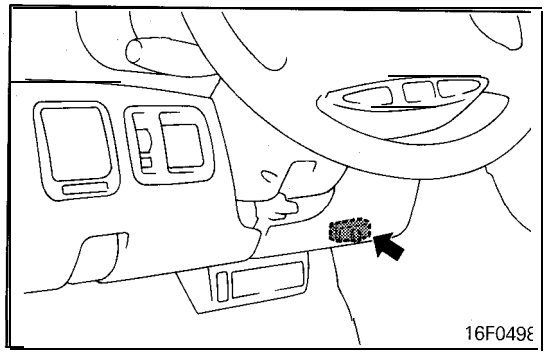


COMPONENT LOCATION

Headlight relay/Tail light relay

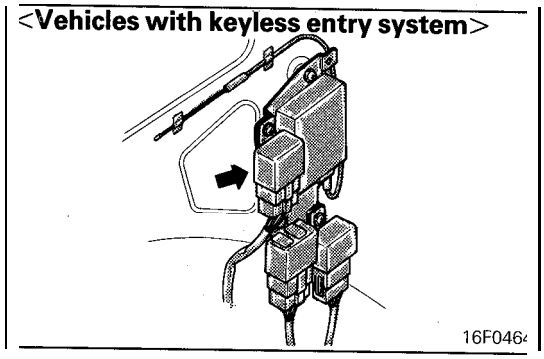


Data link connector



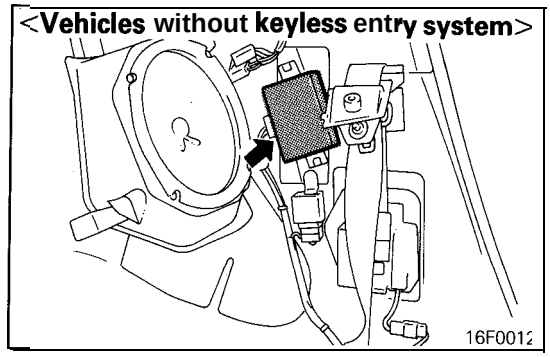
Light automatic shut-off unit

<Vehicles with keyless entry system>

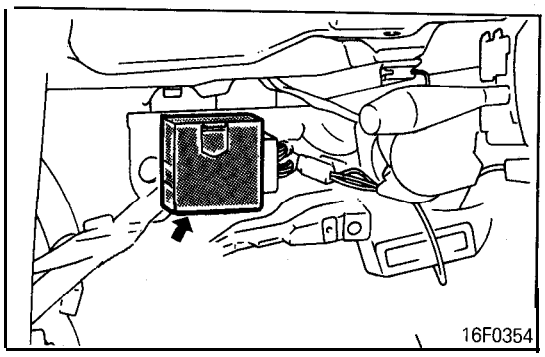


Liight automatic shut-off unit

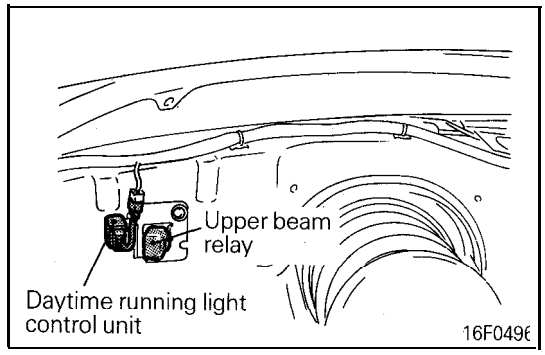
<Vehicles without keyless entry system>



ETACS unit



Daytime running light control unit/ Upper beam relay



OPERATION

<Headlights ON operation>

- Turn the lighting switch to “HEAD”, and the contact point of the headlight relay will be closed to turn “ON” the headlight relay.
- When the dimmer switch is placed in the LO position, the headlight low-beams go on. When the switch is placed in the HI position, the headlight low-beams and high-beams go on.

<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.

<Light automatic shut-OFF system>

- If the driver’s door is opened after the ignition switch is turned to “OFF” or the ignition switch is turned to “OFF” after the driver’s door is opened when the headlights are lit, the current which flows to the coil side of the headlight relay will be cut off by the light automatic shut-OFF unit opening the contact point, and the headlight relay will be turned “OFF” to automatically shut off the headlights.
- To turn the headlights on again after they are automatically shut off, turn the lighting switch to “OFF” once and then back to “HEAD”, or turn the ignition switch to “ACC” or “ON”, and the automatic shut-OFF will be cancelled and the current will flow from the light automatic shut-OFF unit to the coil side of the headlight relay again to close the contact point. Thus, the headlight relay will be turned “ON” to turn on the headlights.

NOTE

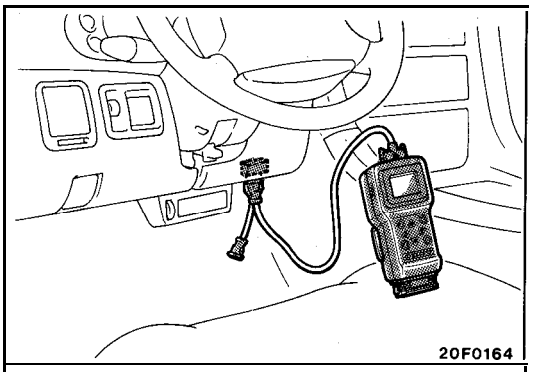
When the lighting switch is at “HEAD”, the light automatic shut-OFF system is valid for tail lights, parking and side marker lights, license plate light, illumination light, etc.

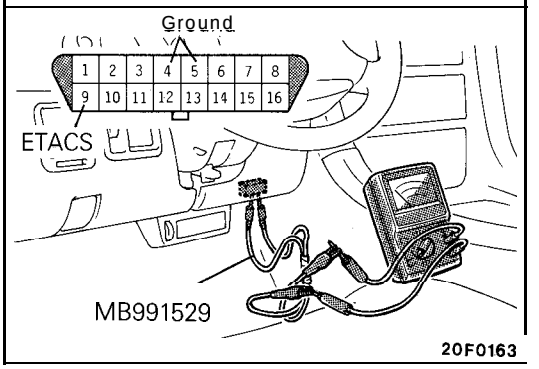
(Refer to P.8-315.)

TROUBLESHOOTING HINTS

Phenomenon		Checking method
Headlights don't come on.	But the tail lights do illuminate.	• Check the headlight relay. (Refer to P.8-338.) • Check the lighting switch. (Refer to P.8-344.) • Check the light automatic shut-OFF unit. (Refer to P.8-339.)
	The tail lights also don't illuminate.	• Check the fusible link ③.
The low beam at both sides doesn't illuminate.		• Check the "LO" contacts of the dimmer switch.
The upper beam at both sides doesn't illuminate.	The passing signal functions OK.	• Check the "HI" contacts of the dimmer switch.
	The passing signal doesn't function.	• Check the dimmer switch. (Refer to P.8-344.)
One headlight doesn't illuminate.		• Check the bulb.
Can't switch from low to high beam or vice versa.		• Check the dimmer switch. (Refer to P.8-344.)
The high beam indicator light doesn't illuminate.	The high beam of the headlights is normal.	• Check dedicated fuse No. ⑤. • Check the bulb.
Headlights are not automatically shut off.	Tail lights are automatically shut off.	• Check the light automatic shut-OFF unit. (Refer to P.8-339.)
	Tail lights are not automatically shut off either.	• Check the driver's side door switch. (Refer to GROUP 23A – Door Assembly). • Check the light automatic shut-OFF unit. (Refer to P.8-339.)

NOTE
For information concerning the theft-alarm system, refer to P.8-412.


20F0164



20F0163

Input Signal

Using the scan tool or voltmeter, check whether or not the input signals from each switch are being input to the ETACS unit.

When using the scan tool

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

Caution
Turn off the ignition switch beforehand whenever the scan tool is connected or disconnected.

(2) If the scan tool makes a peep sound when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

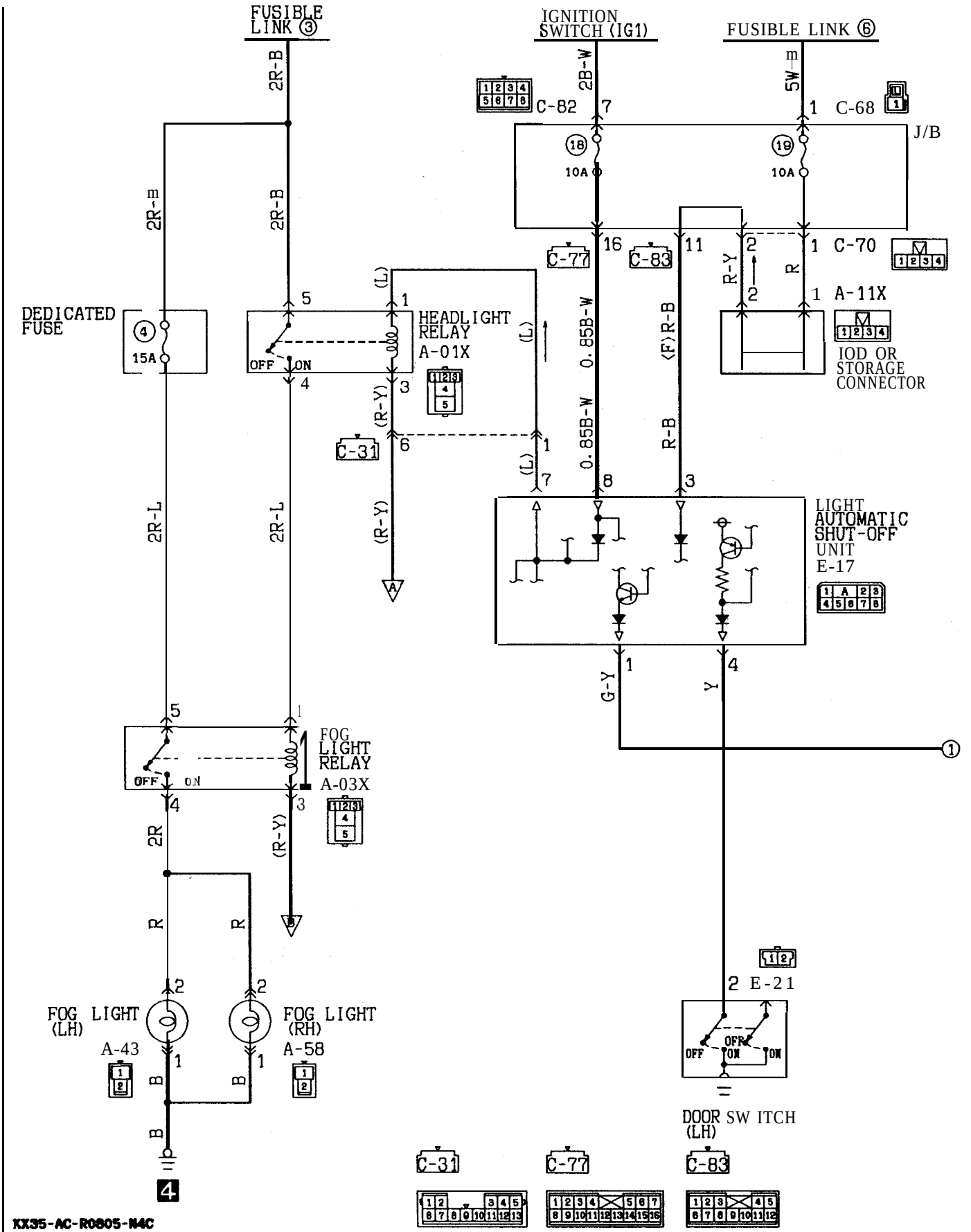
When using a voltmeter

(1) Connect a voltmeter to the ETACS terminal and the ground terminal of the data link connector using the special tool.

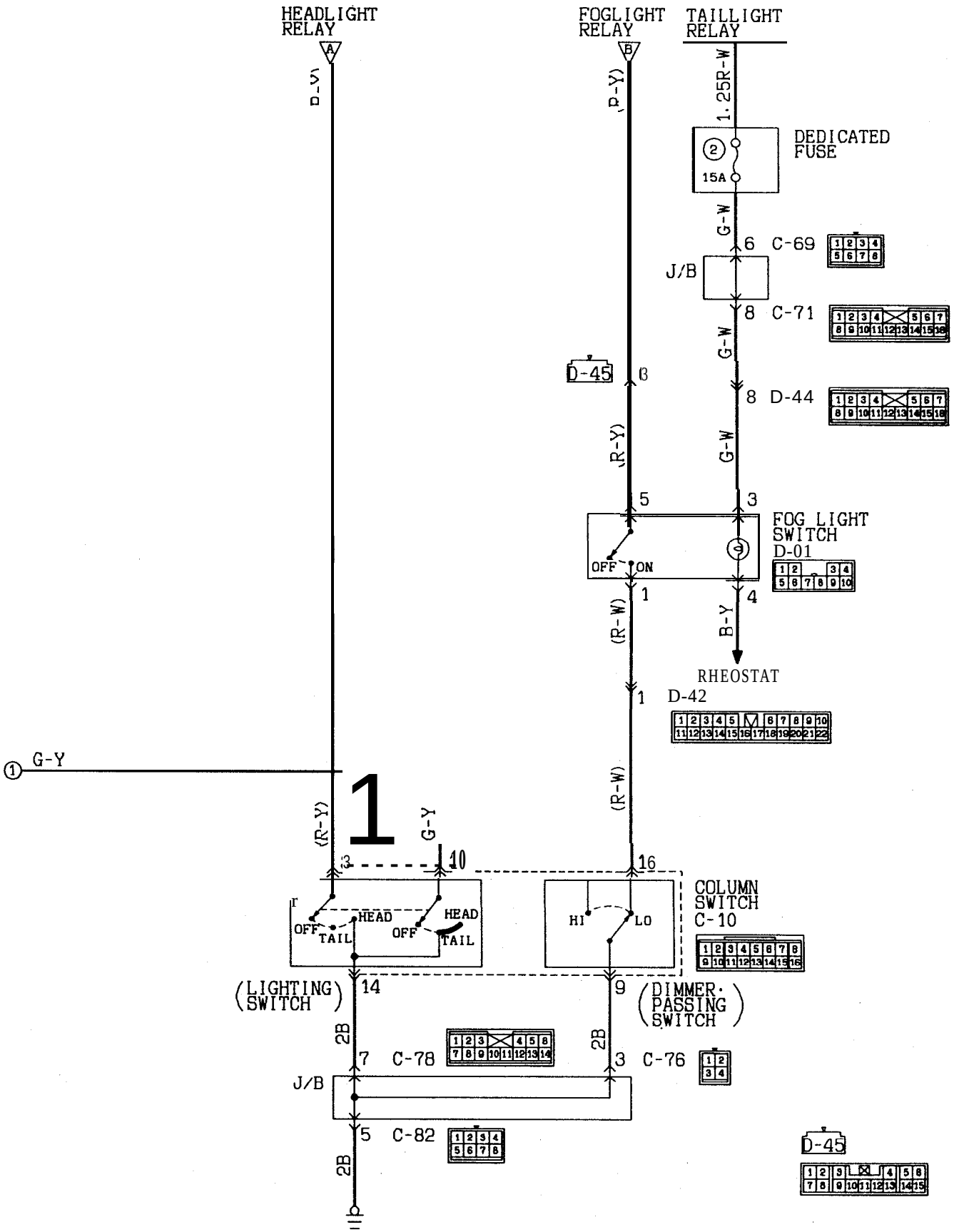
(2) If the voltmeter pointer deflects once when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

FOG LIGHT CIRCUIT

CIRCUIT DIAGRAM



FOG LIGHT CIRCUIT (CONTINUED)



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 ④ 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 ④ 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.

NOTE
The fog lights are included in the light automatic shut-OFF system operation. (Refer to P.8-304.) The illumination lights are also included in the same system operation.

Fog Lights Operation Conditions

Fog light switch	Lighting switch	Dimmer switch	Fog lights
ON position	OFF position or TAIL position	LO position	OFF
		HI position	OFF
	HEAD position	LO position	ON
		HI position	OFF

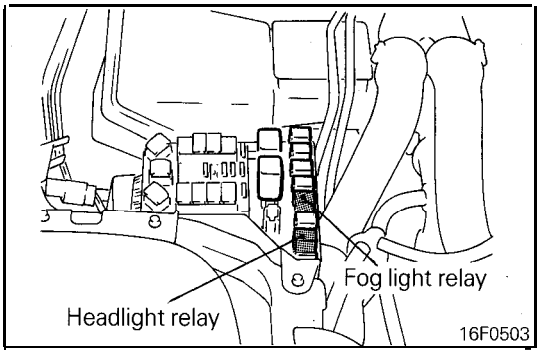
TROUBLESHOOTING HINTS

1. The right or left fog lights only go on.
   - Check the bulb.
2. Fog lights do not go on when the fog light switch is set at ON.
   - Check the dedicated fuse ④.
   - Check the fog light relay. (Refer to P.8-338.)
   - Check the fog light switch.

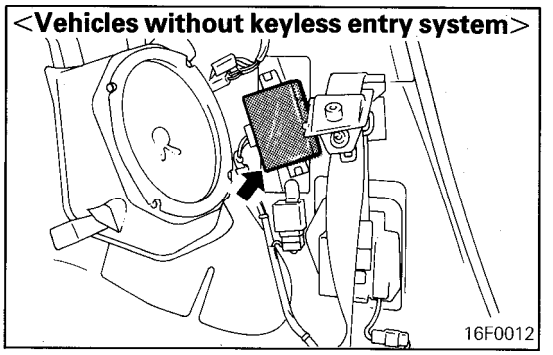
NOTE
For the light automatic shut-OFF system troubleshooting hints, refer to P.8-305.

COMPONENT LOCATION

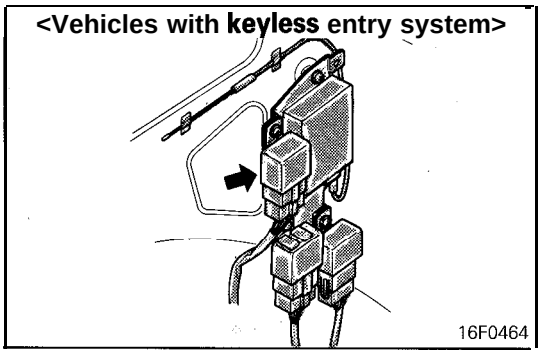
Headlight relay/Foglight relay



Light automatic shut-off unit



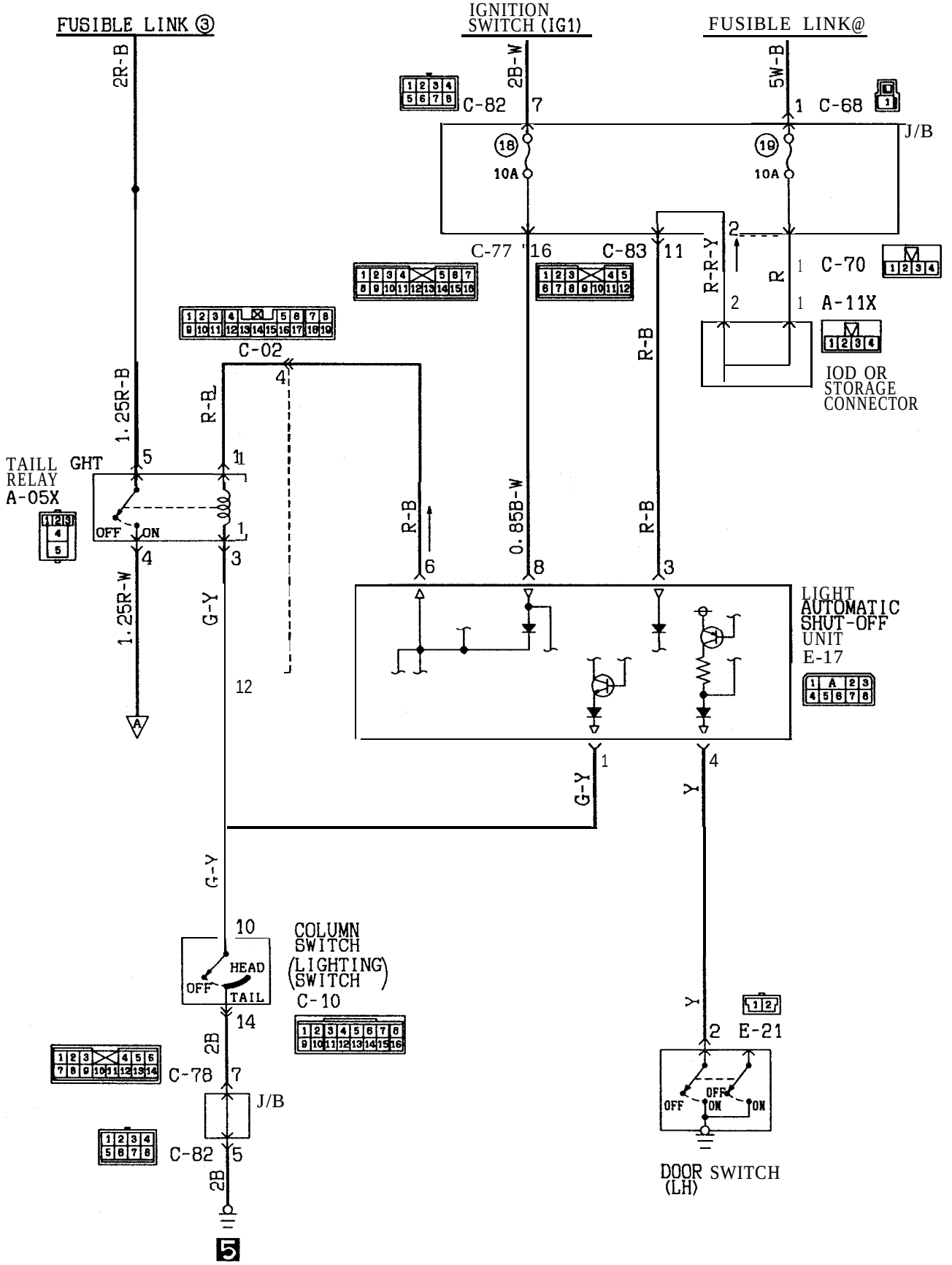
Light automatic shut-off unit



TAIL LIGHT, PARKING/SIDE MARKER LIGHT AND LICENSE PLATE LIGHT CIRCUIT

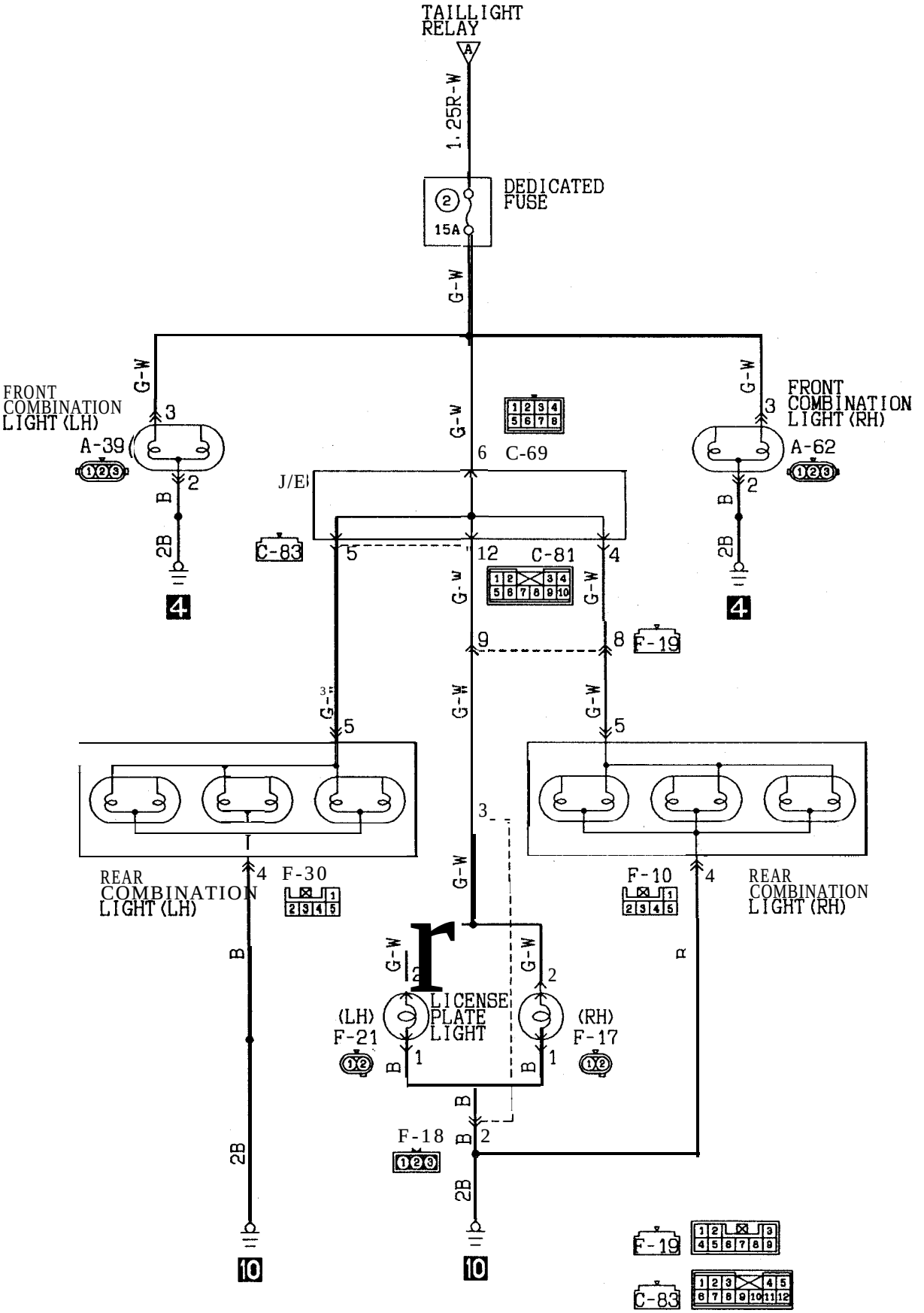
<VEHICLES WITH SMALL BUMPER>

CIRCUIT DIAGRAM



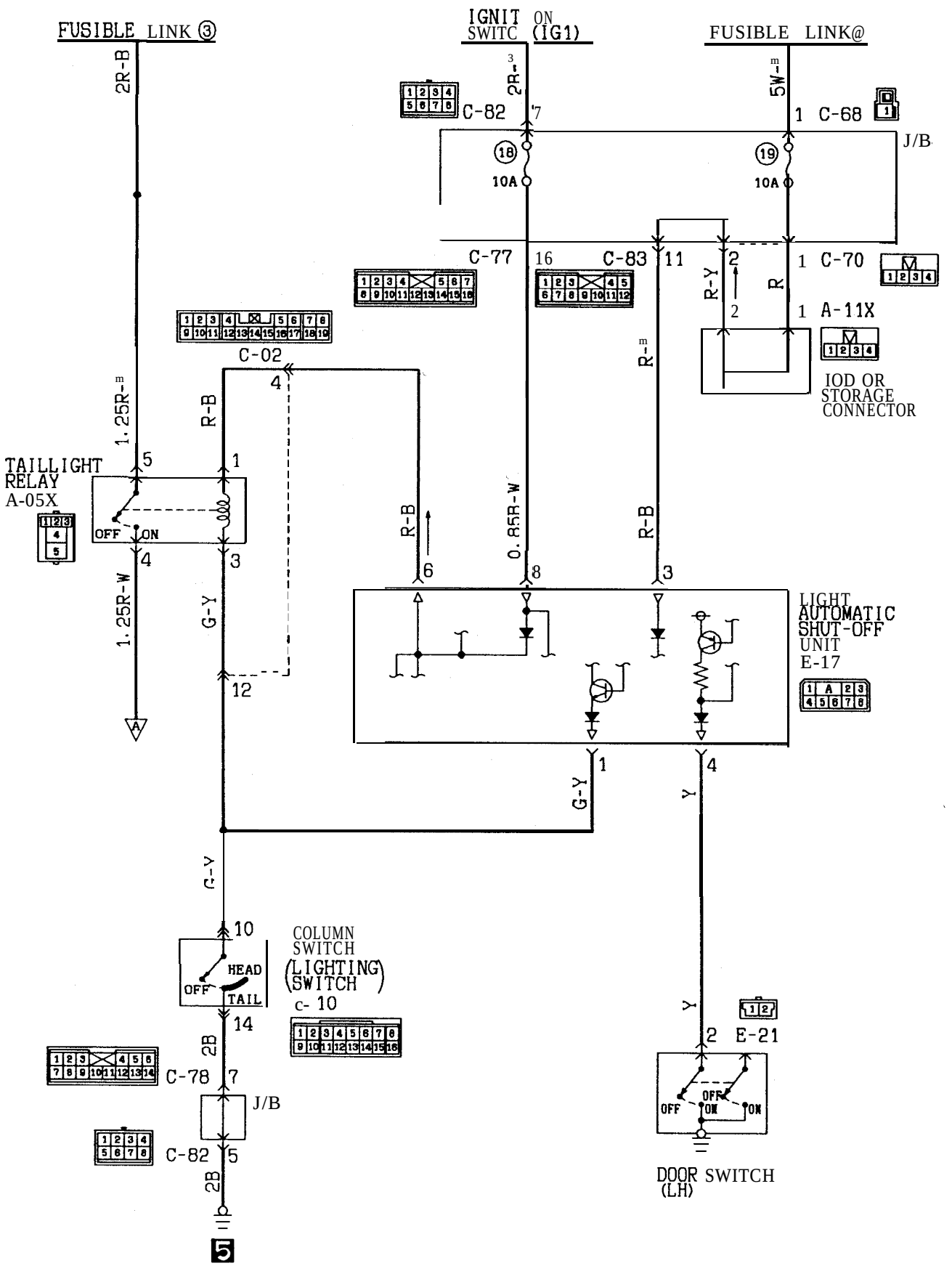
KX35-AC-R0806-N4C

TAIL LIGHT, PARKING/SIDE MARKER LIGHT AND LICENSE PLATE LIGHT CIRCUIT <VEHICLES WITH SMALL BUMPER> (CONTINUED)



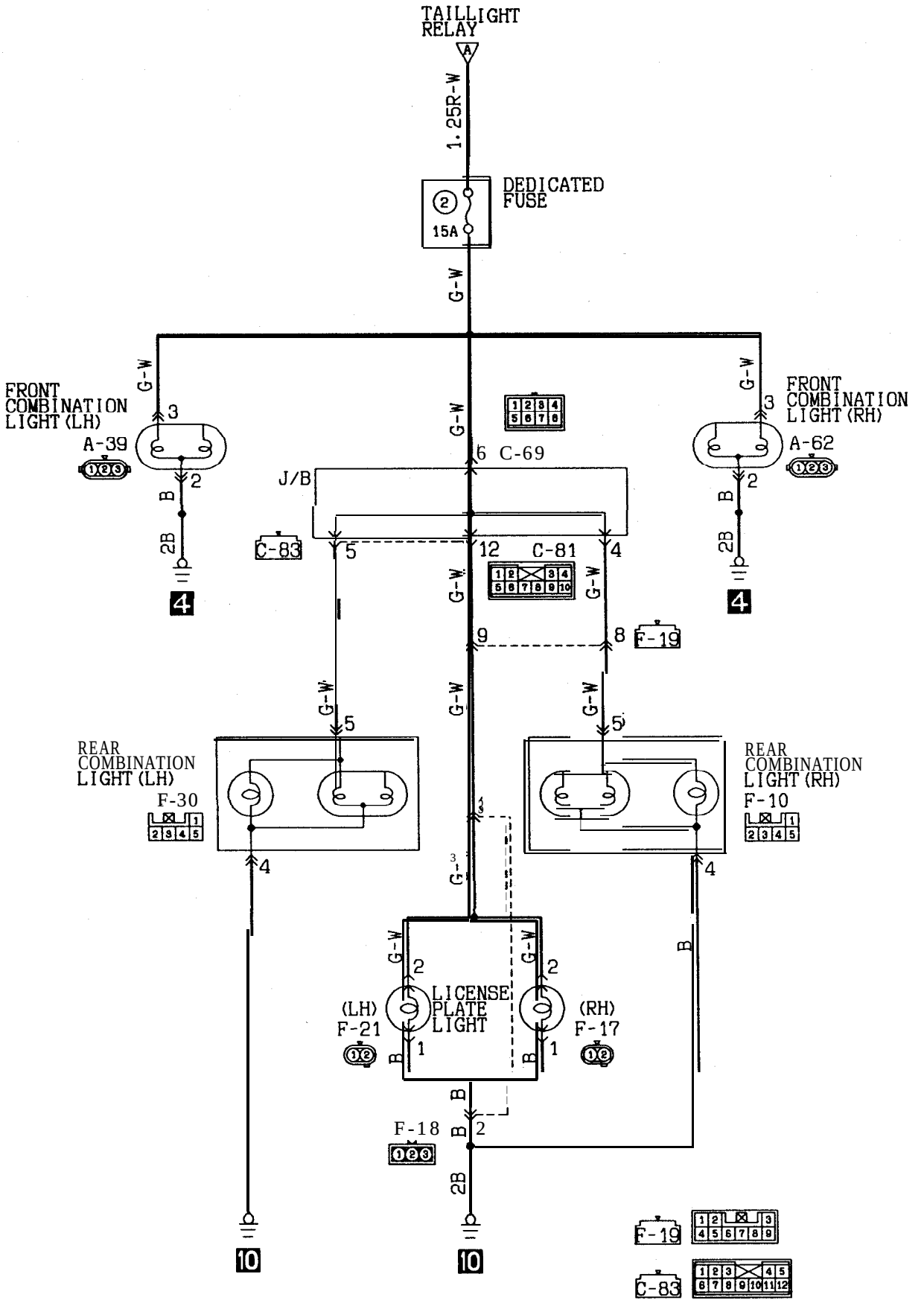
<VEHICLES WITH LARGE BUMPER>

CIRCUIT DIAGRAM



DX35-AC-R0807-M4C

<VEHICLES WITH LARGE BUMPER> (CONTINUED)



OPERATION

- When the lighting switch is placed in the TAIL or HEAD position, current flows through the coil of the tail light relay to the lighting switch and ground, causing the contacts of the tail light relay to close.
  Then current flows through the contacts of the tail light relay to the dedicated fuse ②, the individual lights and ground, causing the tail lights, parking/side marker lights and license plate lights to go ON.

<Light automatic shut-OFF system>

- If the driver's door is opened after the ignition switch is turned to "OFF" or the ignition switch is turned to "OFF" after the driver's door is opened when the tail lights are lit, the current which flows to the coil side of the tail light relay will be cut off by the light automatic shut-OFF unit opening the contact point, and the tail light relay will be turned "OFF" to automatically shut off the tail lights, parking and front side marker lights and license plate light.
- To turn on the tail lights, parking and front side marker lights and license plate light again after they are automatically shut off, turn the lighting switch to "OFF" once and to "HEAD" again, or turn the ignition switch to "ACC" or "ON", and the automatic shut-off will be cancelled and the current will flow from the light automatic shut-OFF unit to the coil side of the tail light relay to close the contact point. Thus, the tail light relay will be turned "ON" to turn on the tail lights, parking and front marker lights and license plate light.

NOTE
When the lighting switch is at the "HEAD" position, the light automatic shut-OFF system will be also activated for the headlights. (Refer to P.8-304.) The same system will also be activated for the illumination lights, etc.

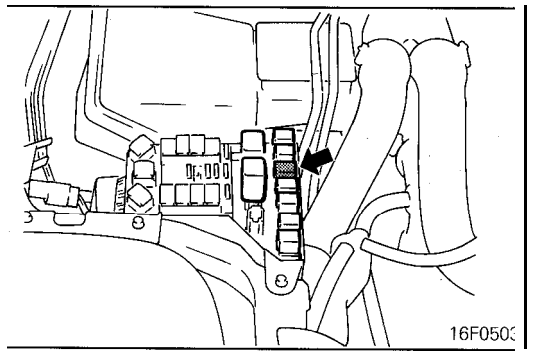
TROUBLESHOOTING HINTS

1. All lights don't illuminate.
   (1) The headlights don't illuminate, either.
   - Check the fusible link ③.

   (2) The headlights illuminate.
   - Check the tail light relay. (Refer to P.8-338.)
   - Check the dedicated fuse ②.
   - Check the lighting switch. (Refer to P.8-344.)
   - Check the light automatic shut-OFF unit. (Refer to P.8-339.)
2. Some light does not come on.
   - Check the bulb.
   - Check the grounding circuit.
3. Some light is not automatically shut off.
   - Check the driver's side door switch. (Refer to GROUP 23A – Door Assembly.)
   - Check the automatic shut-OFF unit. (Refer to P.8-339.)

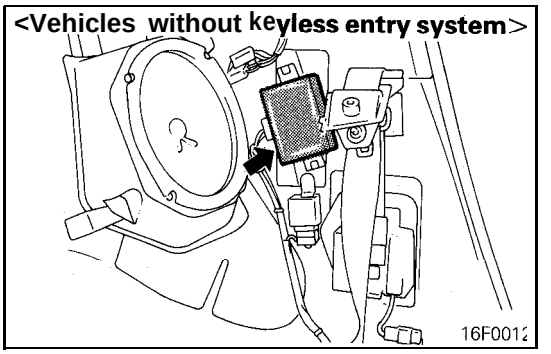
COMPONENT LOCATION

Taillight relay



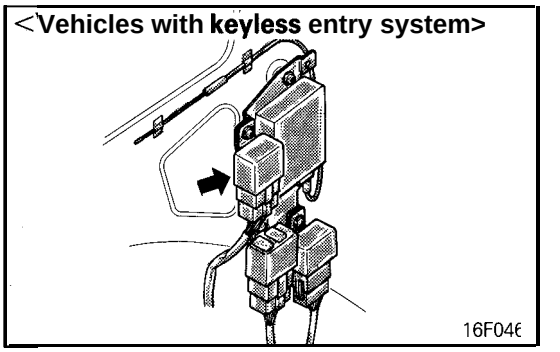
Light automatic shut-off unit

<Vehicles without keyless entry system>



Light automatic shut-off unit

<Vehicles with keyless entry system>



DOME LIGHT, FOOT LIGHT AND IGNITION KEY CYLINDER ILLUMINATION LIGHT CIRCUIT

OPERATION

<Dome light>

- Battery voltage is always applied to the dome light. When the dome light switch is turned to "ON", the dome light will remain lit. After either door is opened if the dome light switch is at "DOOR" position, the dome light will come on.
- With the dome light turned on (with the ignition switch in the OFF position and with the dome light switch in the DOOR position), close all doors, and the timer circuit in the ETACS unit will be activated to gradually vary the voltage for approx. 6 seconds owing to the duty control, and the voltage will be output to transistor Tr. Since the voltage applied to the dome light gradually decreases, the dome light will be dimmed.
- If the ignition switch is turned to "ON" while the dome light is lit (while the timer is activated), the timer circuit will be opened to turn "off" transistor Tr. This will immediately turn off the dome light without dimming.

<Foot lights and ignition key illumination light>

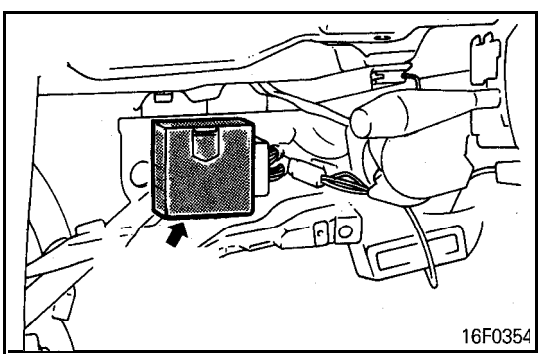
- Battery voltage is always applied to the foot lights and ignition key illumination light. With the ignition switch in the OFF position, open any door, and all lights will come on.
- With all lights turned on (with the ignition switch in the OFF position), close all doors, and the timer circuit inside the ETACS unit will operate in the same manner as the dome light to dim all lights. When the ignition switch is placed in the ON position with all lights turned on (with the timer in operation), the same operation as the dome light will take place.

TROUBLESHOOTING HINTS

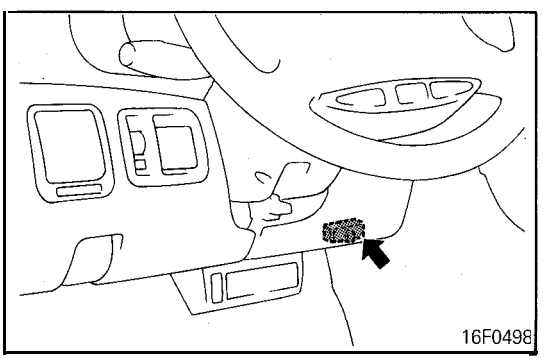
Phenomenon		Checking method
Dome light does not come on when a door is opened with the dome light switch in the DOOR position.	The foot lights and ignition key cylinder illumination light don't illuminate, either.	• Check the door switch input signal. (Refer to P.8-317.) • Check the door switch. (Refer to GROUP 23B – Door Assembly.)
	The foot lights and ignition key cylinder illumination light illuminate.	• Check the dome light switch. • Check the dome light bulb.
Dome light, foot lights and ignition key illumination light go out at once when doors are closed.		• Check the door switch input signal. (Refer to P.8-317.)
Even if ignition switch is turned on while lights are being dimmed, lights do not go out at the same time.		• Check the ignition switch input signal. (Refer to P.8-317.)

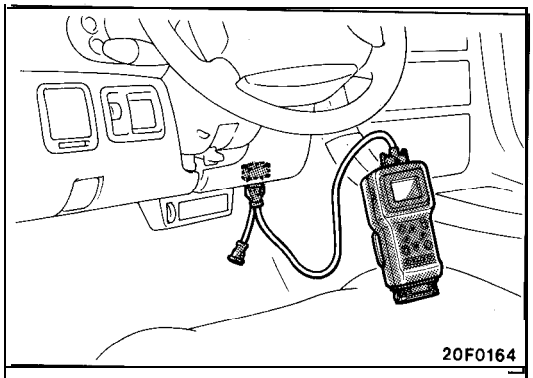
COMPONENT LOCATION

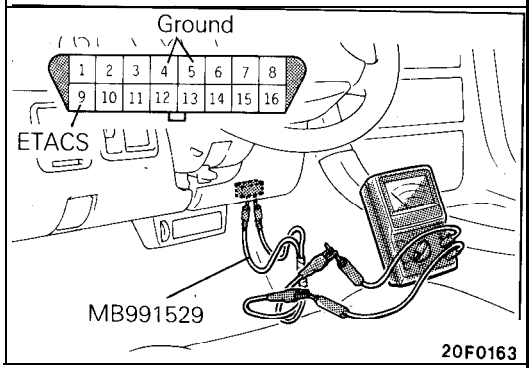
ETACS unit



Data link connector







Input Signal

Using the scan tool or voltmeter, check whether or not the input signals from each switch are being input to the ETACS unit.

When using the scan tool

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

Caution
Turn off the ignition switch beforehand whenever the scan tool is connected or disconnected.

(2) If the scan tool makes a peep sound when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

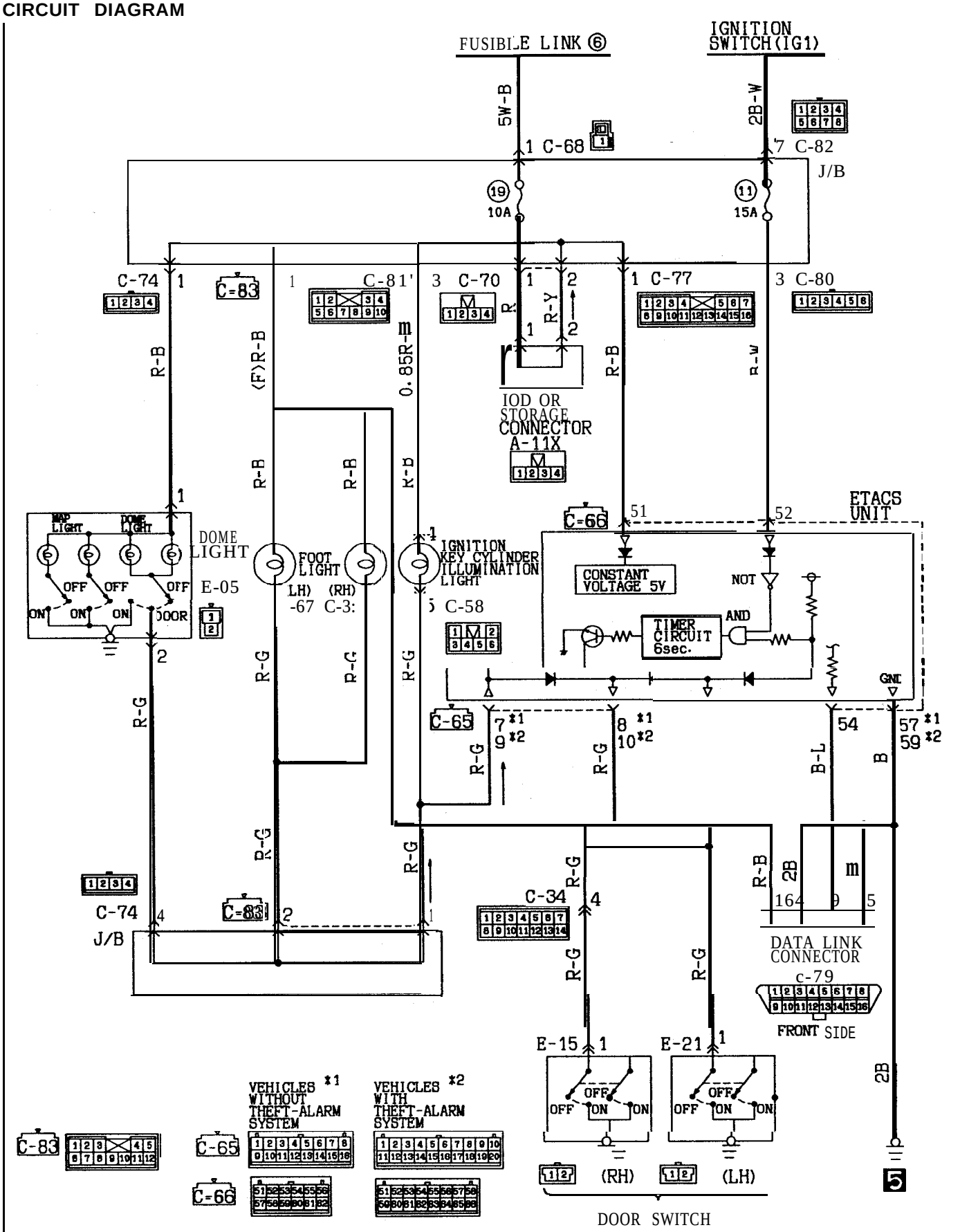
When using a voltmeter

(1) Connect a voltmeter to the ETACS terminal and the ground terminal of the data link connector using the special tool.

(2) If the voltmeter pointer deflects once when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

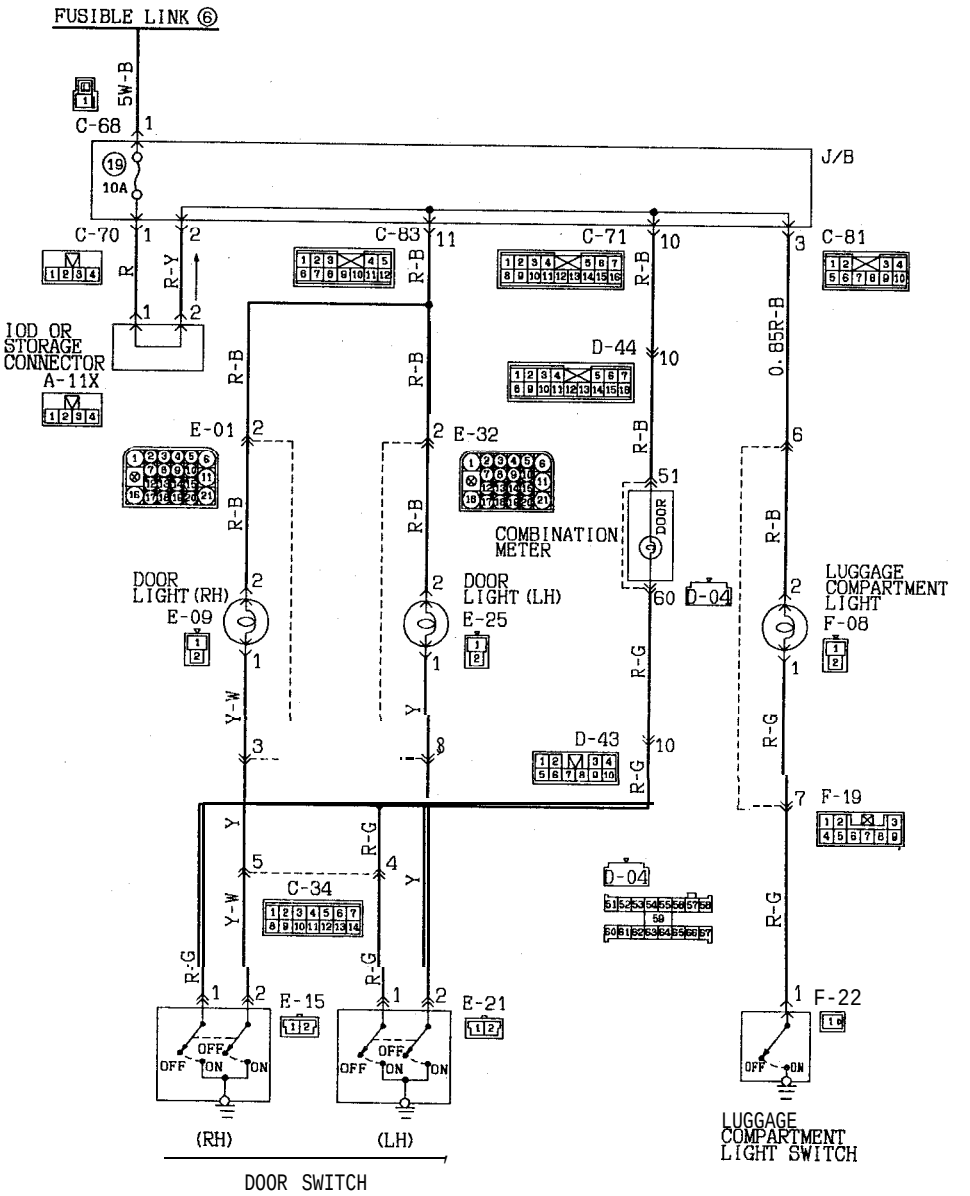
DOME LIGHT, FOOT LIGHT AND IGNITION KEY CYLINDER ILLUMINATION LIGHT CIRCUIT

CIRCUIT DIAGRAM



DOOR LIGHT AND LUGGAGE COMPARTMENT LIGHT CIRCUIT

CIRCUIT DIAGRAM



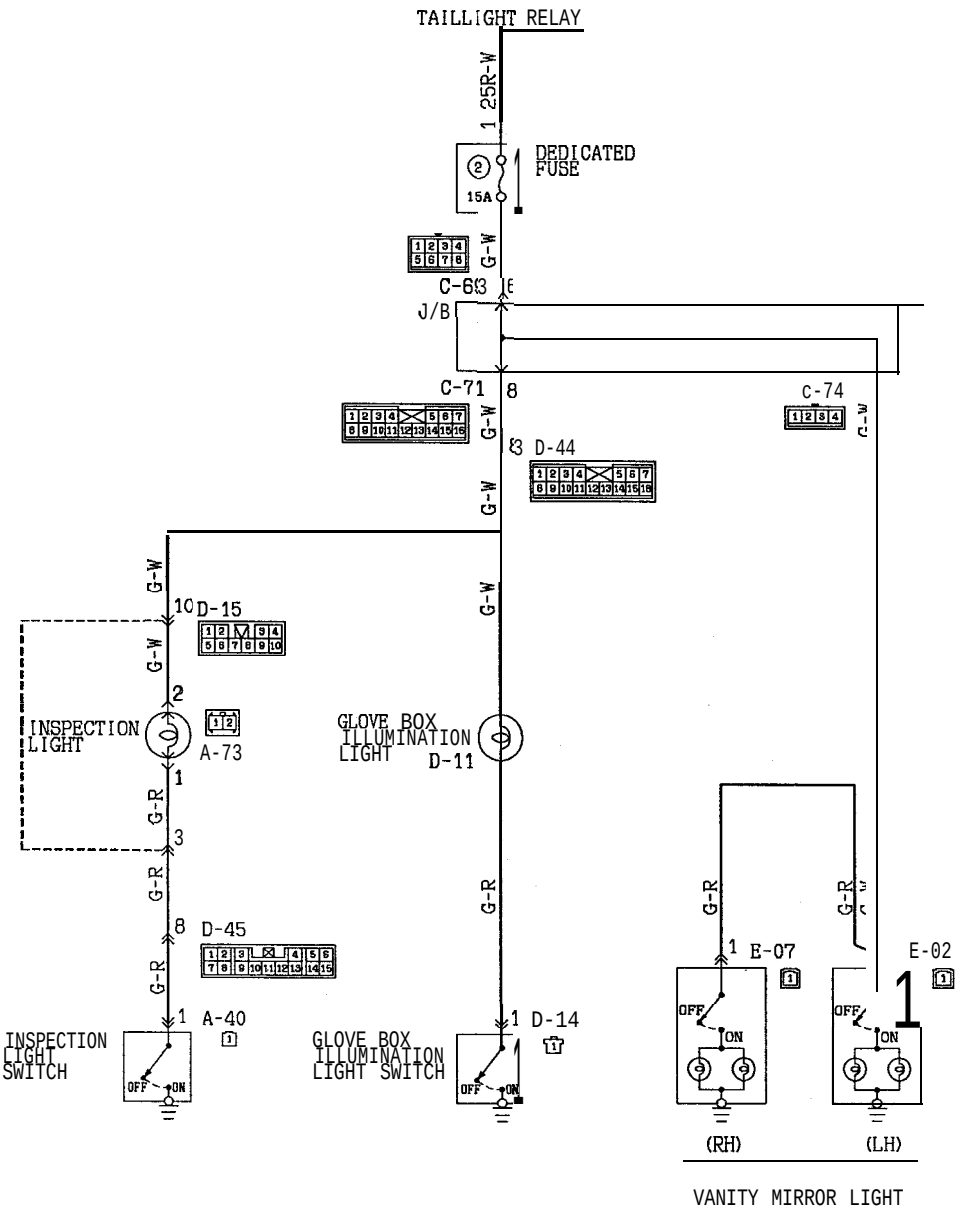
I35-AC-R0817-N3C

OPERATION

- Battery voltage is always applied (via sub-fusible link No. ⑥ and multipurpose fuse No. ⑲) to the luggage compartment light and door light.
- When the door is opened, the door switch is switched ON and the door light illuminates.
- When the liftgate is opened, the luggage compartment light switch is switched ON and the luggage compartment light illuminates.

GLOVE BOX LIGHT, VANITY MIRROR LIGHT AND INSPECTION LIGHT CIRCUIT

CIRCUIT DIAGRAM



X35-AC-R0818-NC

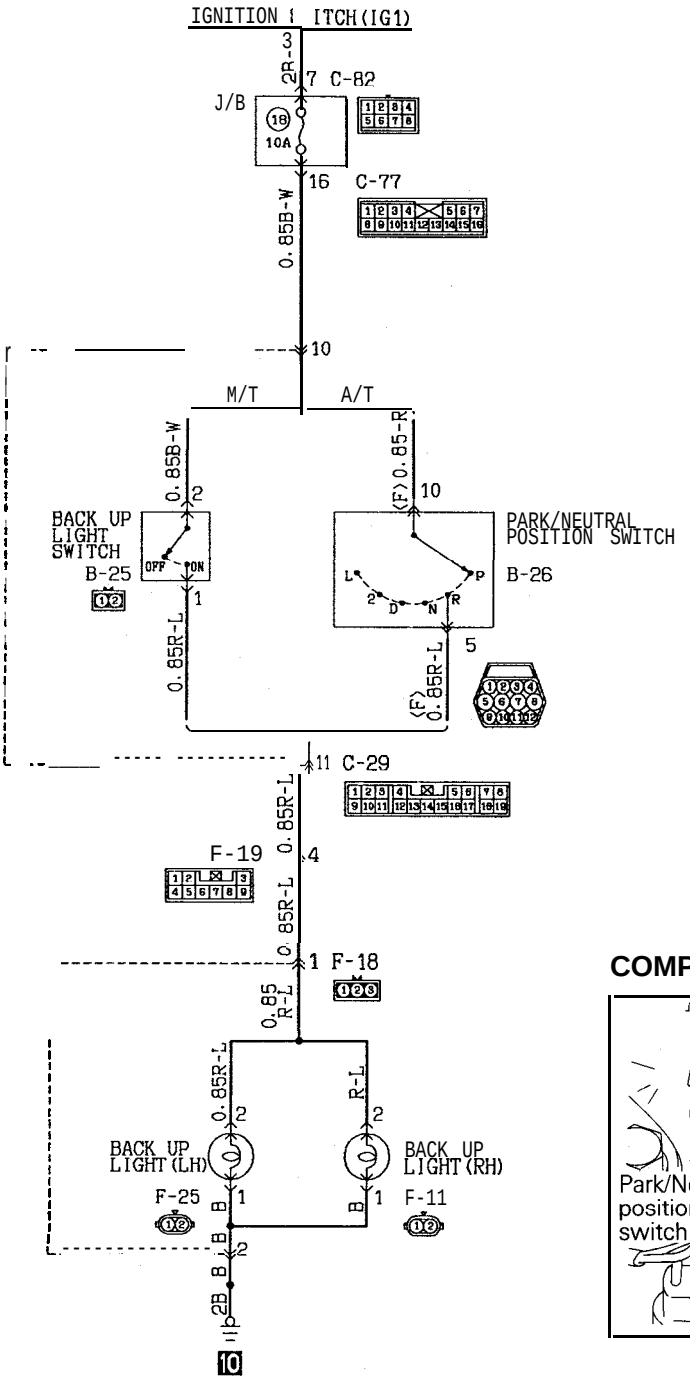
OPERATION

- When the lighting switch is placed in the TAIL or HEAD position, and the contacts of the tail light relay close, battery voltage is applied via the dedicated fuse ② to the glove box light, the vanity mirror light and the inspection light.
- When the glove box is opened, the glove box illumination light switch is switched ON and the glove box illumination light illuminates.
- When the vanity mirror lid is opened, the vanity mirror light switch is switched ON and the vanity mirror light illuminates.
- When the engine hood is opened, the inspection light switch is switched ON and the inspection light illuminates.

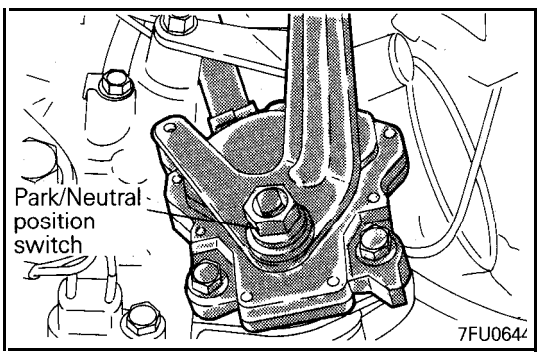
NOTE
The light automatic shut-OFF system is valid for the glove box light, vanity mirror light and inspection light. (Refer to P.8-315.)

BACK-UP LIGHT CIRCUIT

CIRCUIT DIAGRAM



COMPONENT LOCATION

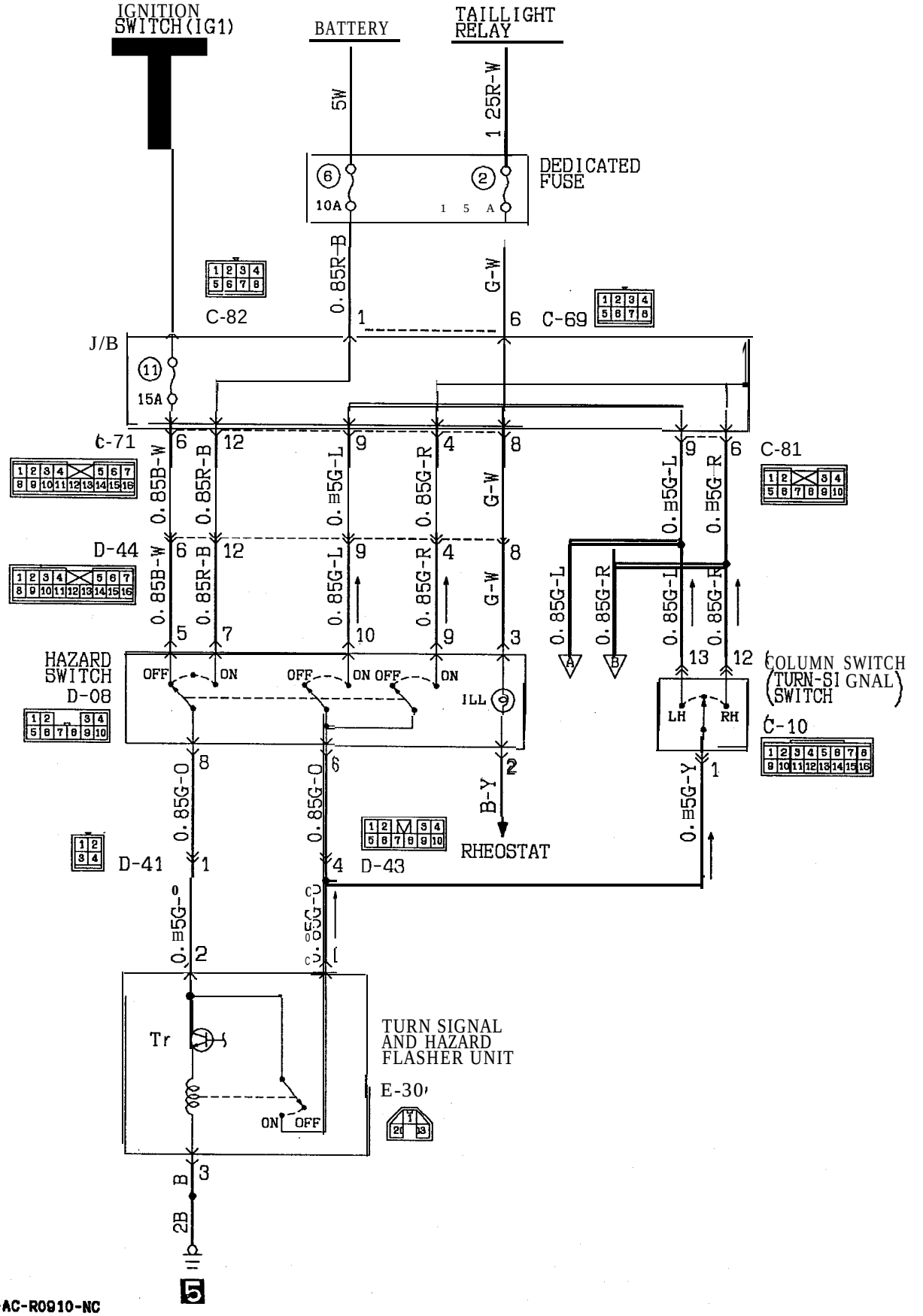


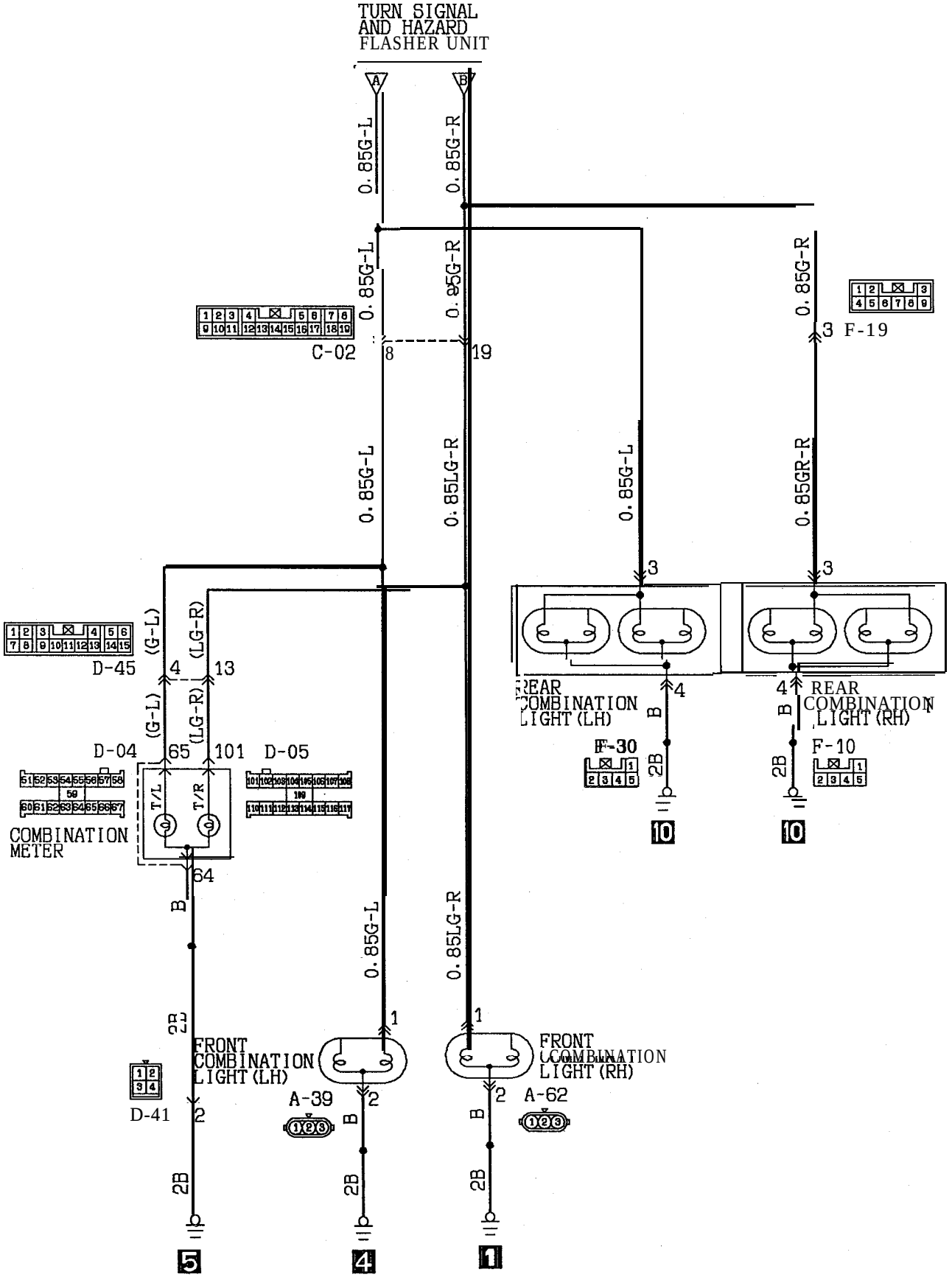
OPERATION

- When, with the ignition switch at the “ON” position, the shift lever (or the selector lever) is moved to the “R” position, the backup light switch (M/T) is switched ON (or the park/neutral position switch (A/T) is switched to the “R” position), and the backup light illuminates.

TURN-SIGNAL LIGHT AND HAZARD LIGHT CIRCUIT <VEHICLES WITH SMALL BUMPER – TYPE 1>

CIRCUIT DIAGRAM




TURN SIGNAL AND HAZARD FLASHER UNIT
A
B
0.85G-L
0.85G-R
C-02
8
19
0.85LG-R
0.85GR-R
3 F-19
REAR COMBINATION LIGHT (LH)
REAR COMBINATION LIGHT (RH)
F-30
F-10
D-45
(G-L)
(LG-R)
4
13
D-04
65
101
D-05
T/L
T/R
COMBINATION METER
64
B
2B
FRONT COMBINATION LIGHT (LH)
FRONT COMBINATION LIGHT (RH)
D-41
A-39
A-62
10
10
5
4
1

OPERATION

1. When operation is normal
   - When the ignition switch is switched to the ON position, battery voltage is applied (via the multi-purpose fuse (11) and hazard switch) to the turn-signal and hazard flasher unit.
   - When the turn-signal switch is switched to the LH (or RH) position, Tr (within the flasher unit) is switched ON and OFF repeatedly. Then the contacts of the relay (also within the flasher unit) repeatedly switch from ON to OFF, causing the turn-signal lights and turn-signal indicator light LH (or RH) to flash.
2. If one of the bulbs is burned out
   - If either of the turn-signal light bulbs is burned-out, the resistance of the turn-signal circuit as a whole increases, resulting in shorter ON and OFF intervals of the Tr and a higher flashing rate of the lights.

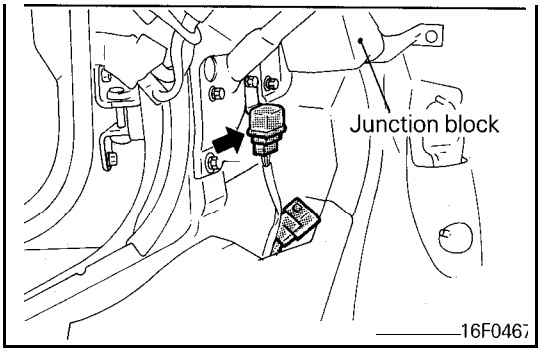
<Hazard-warning lights>

- When the hazard-warning switch is switched to the "ON" position, the relay contact of the turn signal and hazard 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
(1) The number of flashes of the hazard-warning lights does not change if there is damaged or disconnected wiring of one light.
(2) The light automatic shut-OFF system is valid for the illumination light of the hazard switch. (Refer to P.8-315.)

COMPONENT LOCATION

Turn-signal and hazard flasher unit



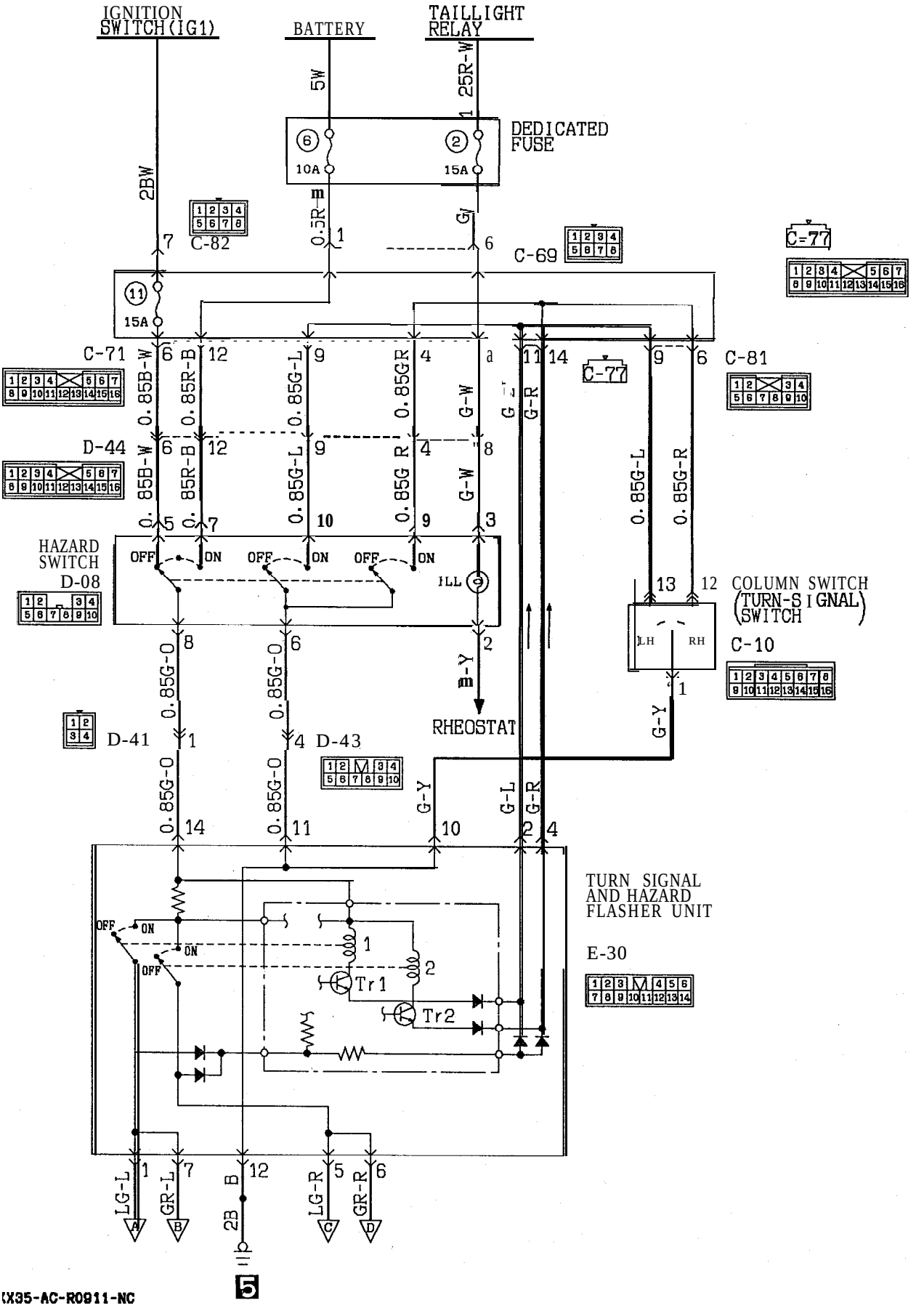
TROUBLESHOOTING HINTS

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

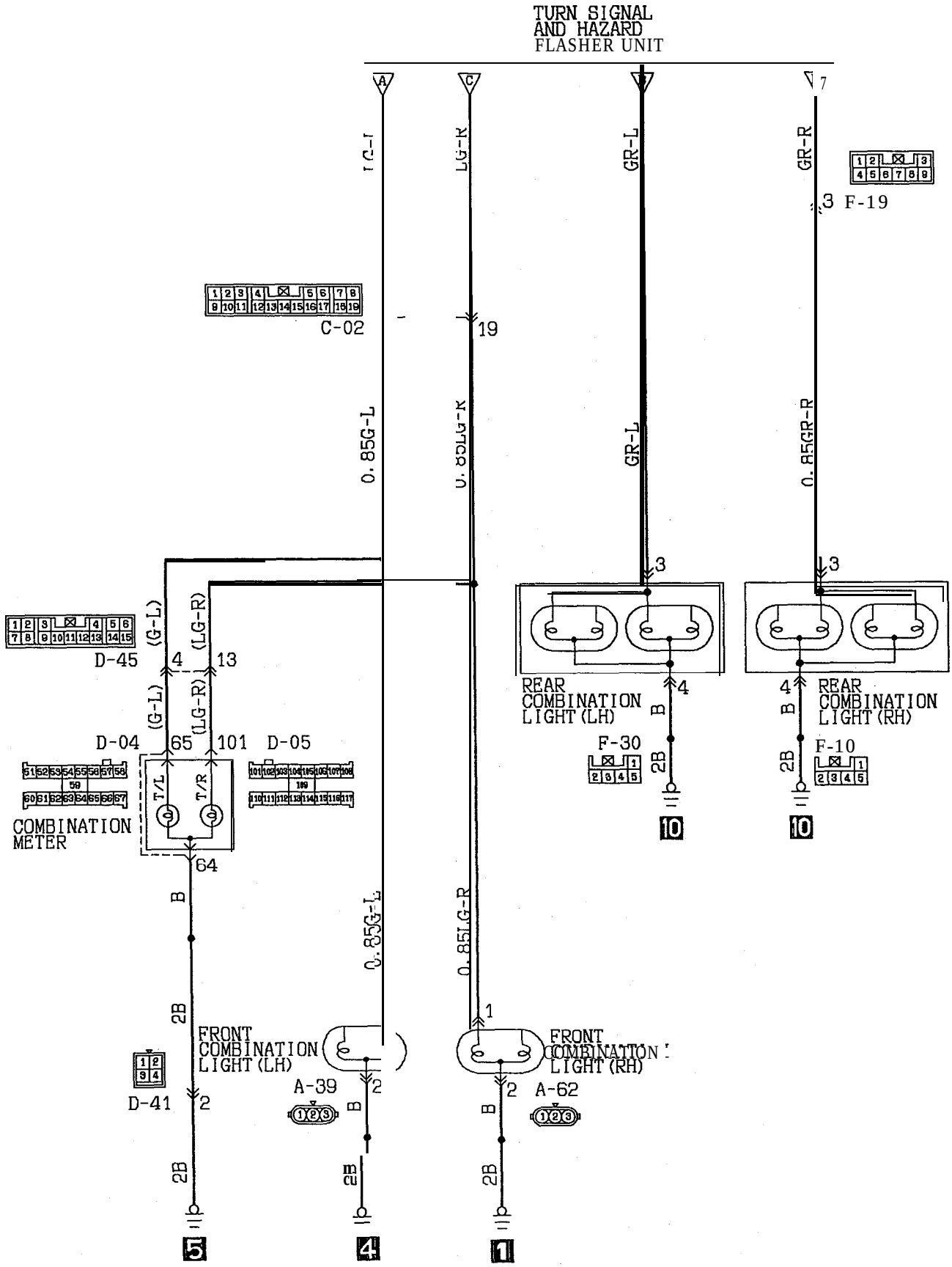
NOTE
For the troubleshooting hints of the automatic light shut-OFF system, refer to P.8-315.

<VEHICLES WITH SMALL BUMPER – TYPE 2>

CIRCUIT DIAGRAM



EX35-AC-R0911-NC


TURN SIGNAL
AND HAZARD
FLASHER UNIT
A
C
B
7
LG-R
GR-L
GR-R
C-02
19
3 F-19
0.85G-L
0.85LG-R
0.85GR-R
GR-L
3
3
(G-L)
(LG-R)
D-45
4
13
REAR
COMBINATION
LIGHT (LH)
REAR
COMBINATION
LIGHT (RH)
4
4
B
B
F-30
F-10
2B
2B
10
10
D-04
65
101
D-05
T/L
T/R
COMBINATION
METER
64
B
2B
0.85G-L
0.85LG-R
1
FRONT
COMBINATION
LIGHT (LH)
FRONT
COMBINATION
LIGHT (RH)
D-41
2
A-39
2
2
A-62
B
B
2B
2B
2B
5
4
1

OPERATION

1. When operation is normal
   - When the ignition switch is switched to the ON position, battery voltage is applied (via the multi-purpose fuse ⑪ and hazard switch)
   - When the turn-signal switch is switched to the LH position, Trl (within the flasher unit) is switched ON and OFF repeatedly. Then the contacts of the relay 1 (also within the flasher unit) repeatedly switch from ON to OFF, causing the turn-signal lights and turn-signal indicator light LH to flash.
   - When the turn-signal switch is switched to the RH position, Tr2 (within the flasher unit) is switched ON and OFF repeatedly. Then the contacts of relay 2 (also within the flasher unit) repeatedly switch from ON to OFF, causing the turn-signal lights and turn-signal indicator light RH to flash.
2. If one of the bulbs is burned out
   - If the LH (or RH) turn-signal light bulb is burned-out, the resistance of the turn-signal circuit as a whole increases, resulting in shorter ON and OFF intervals of the LH Trl (or RH Tr2) and a higher flashing rate of the LH lights (or RH lights).

<Hazard-warning lights>

- When the hazard-warning switch is switched to the "ON" position, the relay contact of the turn signal and hazard 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
(1) The number of flashes of the hazard-warning lights does not change if there is damaged or disconnected wiring of one light.
(2) The light automatic shut-OFF system is valid for the illumination light of the hazard switch. (Refer to P.8-315.)

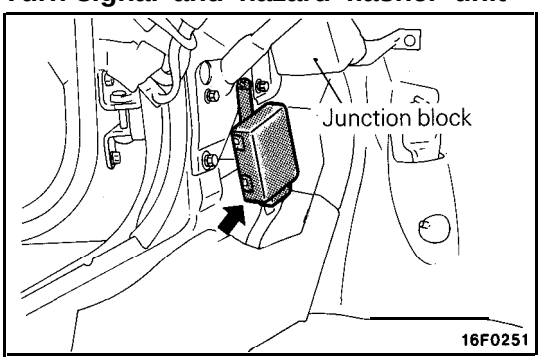
TROUBLESHOOTING HINTS

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

NOTE
For the troubleshooting hints of the automatic light shut-OFF system, refer to P.8-315.

COMPONENT LOCATION

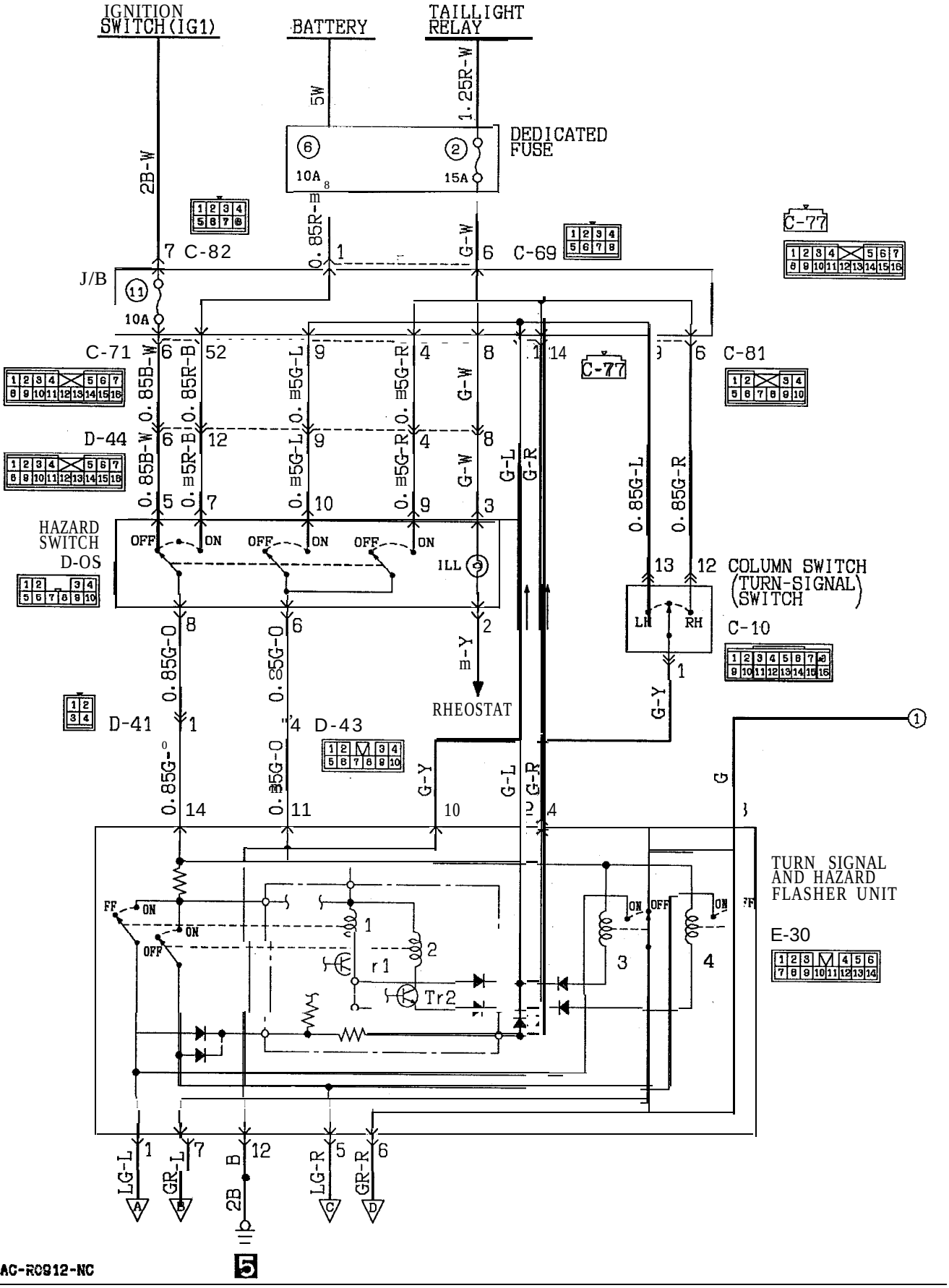
Turn-signal and hazard flasher unit



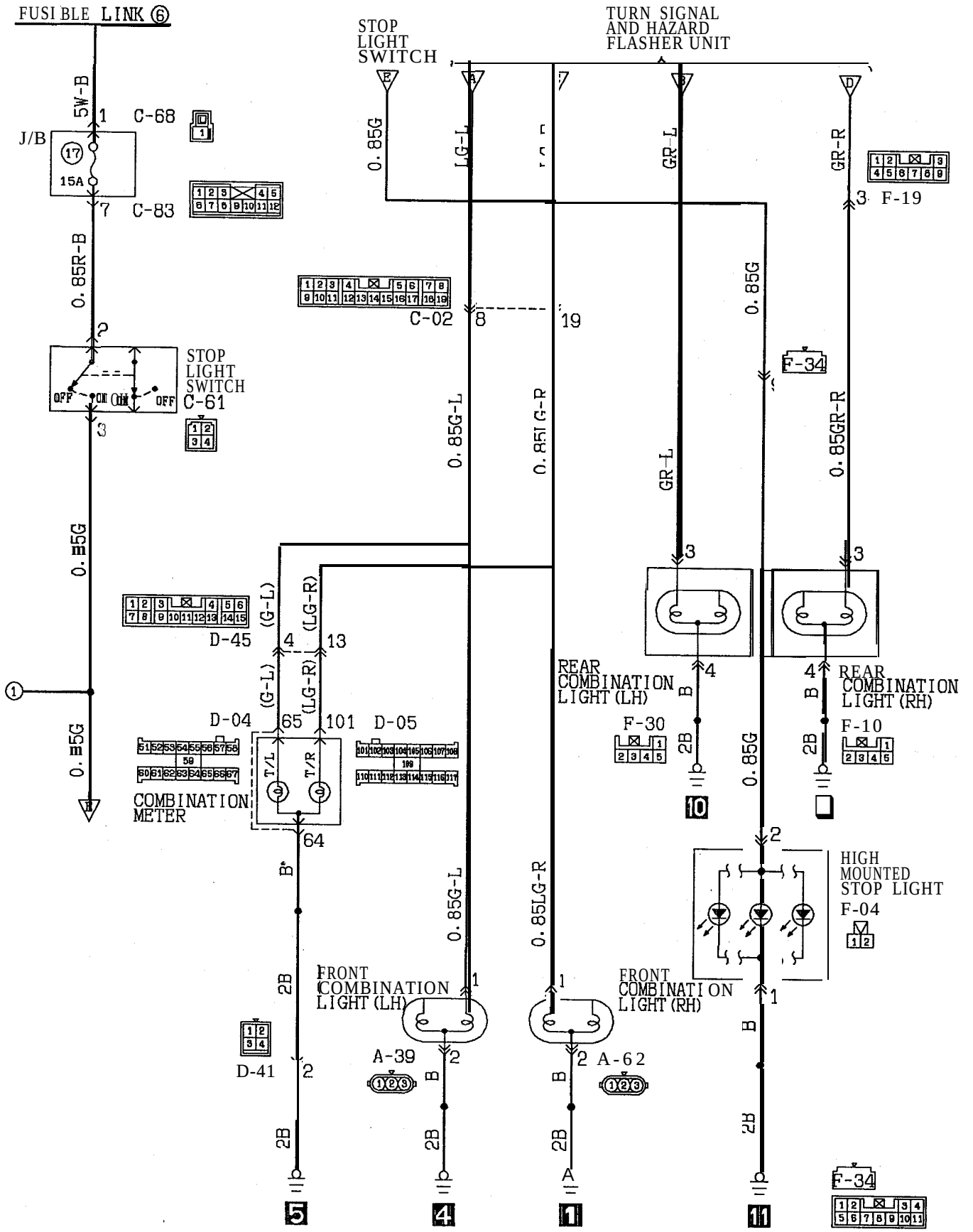
TURN-SIGNAL LIGHT, HAZARD LIGHT AND STOP LIGHT CIRCUIT

<VEHICLES WITH LARGE BUMPER>

CIRCUIT DIAGRAM



KX35-AC-RC912-NC

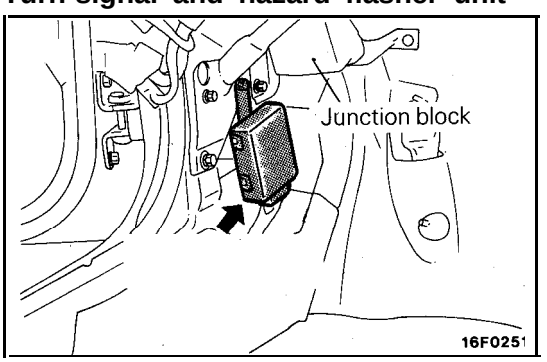

FUSIBLE LINK ⑥
5W-B
1
C-68
J/B
17
15A
7
C-83
0.85R-B
2
STOP LIGHT SWITCH
C-61
OFF
ON
OFF
3
0.85G
STOP LIGHT SWITCH
TURN SIGNAL AND HAZARD FLASHER UNIT
0.85G
LG-L
GR-L
GR-R
C-02
8
19
3
F-19
0.85G-L
0.85LG-R
0.85GR-R
F-34
D-45
(G-L)
(LG-R)
4
13
D-04
65
101
D-05
T/L
T/R
COMBINATION METER
64
B
2B
D-41
2
REAR COMBINATION LIGHT (LH)
REAR COMBINATION LIGHT (RH)
F-30
F-10
4
B
2B
10
HIGH MOUNTED STOP LIGHT
F-04
FRONT COMBINATION LIGHT (LH)
FRONT COMBINATION LIGHT (RH)
A-39
A-62
1
2
A
5
4
1
11

OPERATION

1. When operation is normal
   - When the ignition switch is switched to the ON position, battery voltage is applied (via the multi-purpose fuse ⑪ and hazard switch) to the turn-signal and hazard flasher unit. Battery voltage is also always applied via the multi-purpose fuse ⑰ and the stop light switch to the turn-signal and hazard flasher unit.
   - When the turn-signal switch is placed in the LH (or RH) position, the LH Trl (or RH Tr2) repeatedly switches from ON to OFF. At the same time, the contacts of LH relay 1 (or the contacts of RH Tr2) repeatedly switch from ON to OFF, causing the turn-signal lights and turn-signal indicator light LH (or RH) to flash.
   - When the brake pedal is depressed while the turn-signal lights LH (or RH) are flashing, the stop light switch enters the ON state. Then the LH (or RH) rear combination lights that are indicating the turning direction continue to flash. In the other rear combination lights that are not indicating the turning direction, however, the stop light comes on.
2. If one of the bulbs is burned-out
   - If the LH (or RH) turn-signal light bulb is burned-out, the resistance of the turn-signal circuit as a whole increases, resulting in shorter ON and OFF intervals of the LH Trl (or RH Tr2) and a higher flashing rate of the LH lights (or RH lights).
     When the turn-signal switch is placed in the LH (or RH) position, if the contacts of the LH relay 3 (or the contacts of the RH relay 4) continue to be OFF, the front combination lights alone will flash at a higher rate just like when a turn-signal light bulb is burned-out, whereas the rear combination lights cease to flash.

COMPONENT LOCATION

Turn-signal and hazard flasher unit



<Hazard-warning lights>

- When the hazard-warning switch is switched to the "ON" position, the relay contact of the turn signal and hazard 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
(1) The number of flashes of the hazard-warning lights does not change if there is damaged or disconnected wiring of one light.
(2) The light automatic shut-OFF system is valid for the illumination light of the hazard switch. (Refer to P.8-315.)

TROUBLESHOOTING HINTS

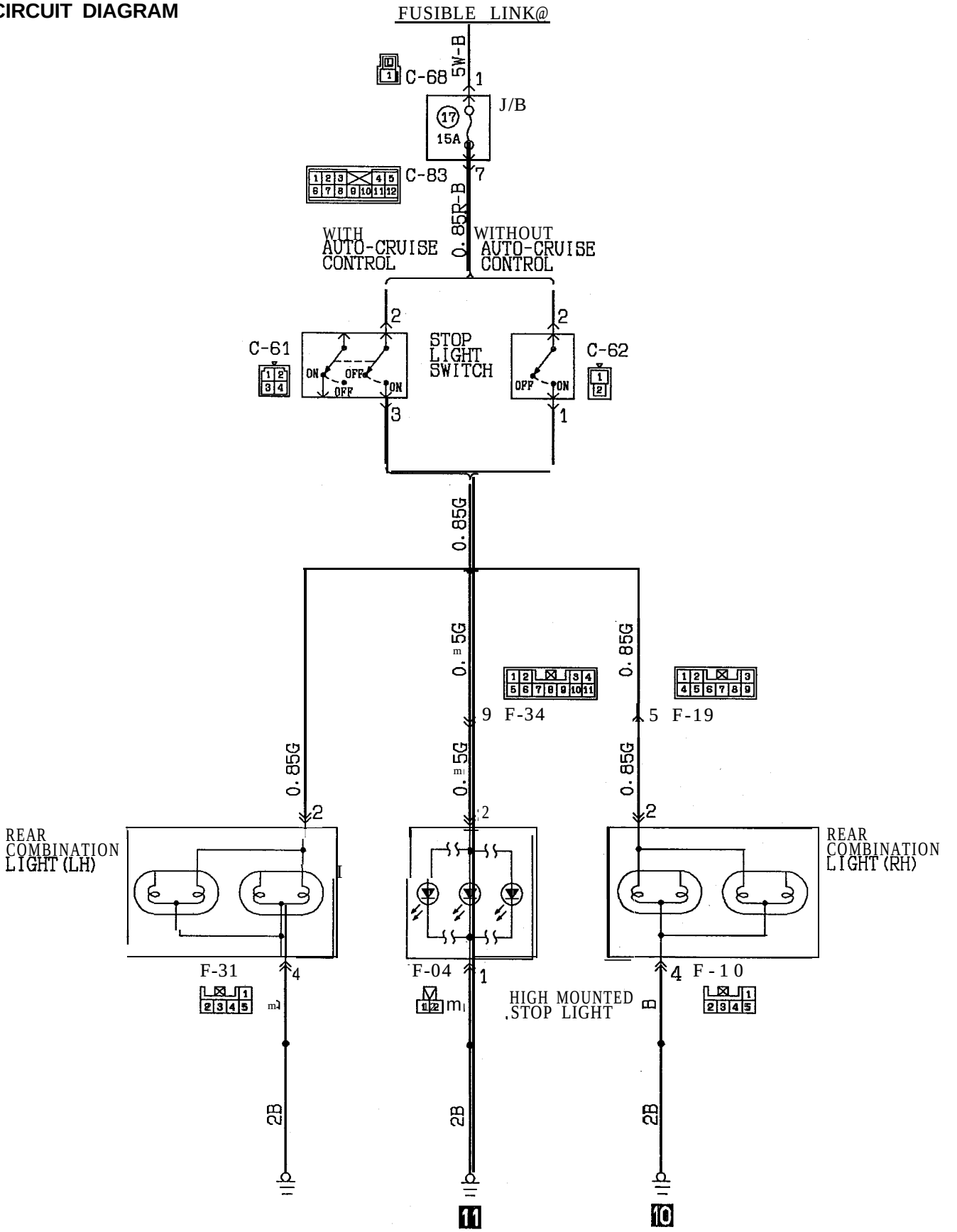
1. The turn-signal lights and hazard-warning lights do not operate at all.
   - Check the hazard switch contact (power supply side).
   - Check the turn-signal and hazard flasher unit.
2. All turn-signal lights at the left (or right) side do not function.
   (1) The hazard-warning lights function normally.
   - Check the hazard switch contact (turn-signal side).
   - Check the turn-signal switch.
3. The number of flashes of the turn-signal lights is excessive.
   - Check the bulbs.
4. The turn-signal lights of the front combination lights flash at a higher rate.
   (1) The turn-signal lights of the rear combination lights do not flash but the stop light illuminates.
   - Check the turn-signal and hazard flasher unit.
5. The hazard-warning lights do not function.
   (1) The turn-signal lights function normally.
   - Check the hazard switch contact (hazard-warning light side).

NOTE
For the troubleshooting hints of the automatic light shut-OFF system, refer to P.8-315.

STOP LIGHT CIRCUIT

<VEHICLES WITH SMALL BUMPER>

CIRCUIT DIAGRAM



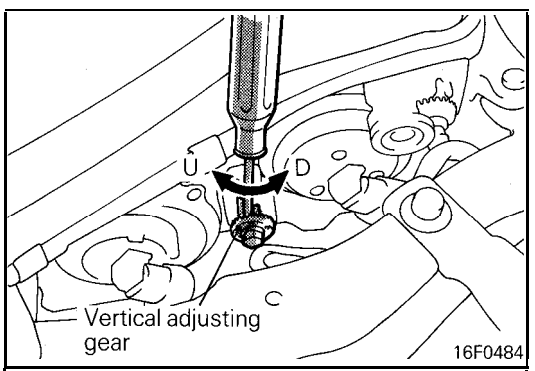
EX35-AC-R0913-NC

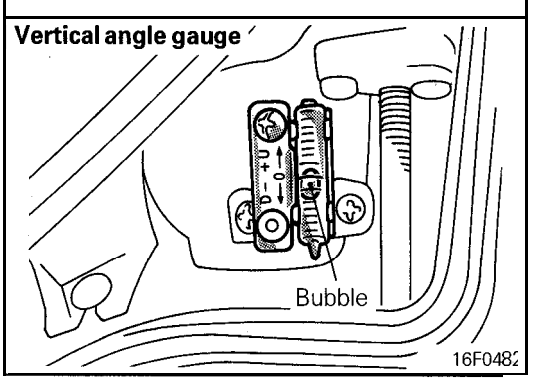
SERVICE ADJUSTMENT PROCEDURES

HEADLIGHT AIMING

PRE-AIMING INSTRUCTIONS

1. Inspect for badly rusted or faulty headlight assemblies. These conditions must be corrected before a satisfactory adjustment can be made.
2. Place vehicle on a level floor.
3. Bounce front suspension through three (3) oscillations by applying body weight to hood or bumper.
4. Inspect tire inflation.
5. Rock vehicle sideways to allow vehicle to assume its normal position.
6. 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].
7. 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.
8. Thoroughly clean headlight lenses.

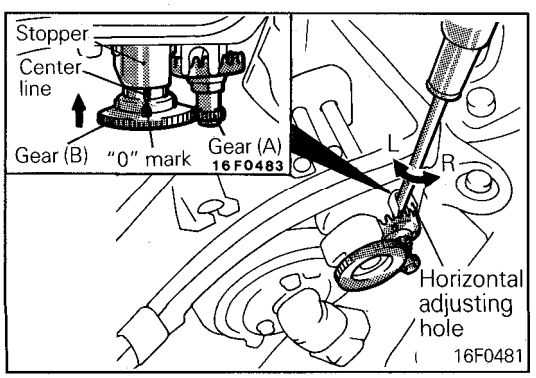




VERTICAL ADJUSTING

Adjust the vertical angle with the vertical adjusting gear so that the bubble of the vertical angle gauge is aligned with the "0" mark position.

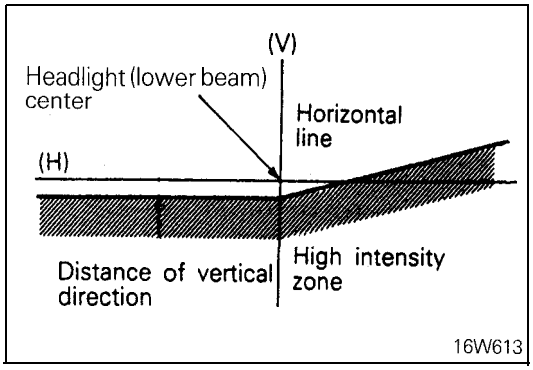
NOTE
The beam angle will change about 0°12′ with on mark.



HORIZONTAL ADJUSTING

Insert a screwdriver in the horizontal adjusting hole and turn until the "0" mark and the center line are in alignment.

NOTE
The beam angle will change about 0°23′ with on mark.



AIMING WITH SCREEN

HEADLIGHT AIM PREPARATION

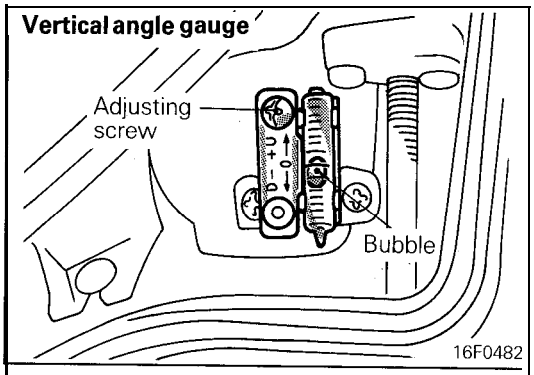
Place vehicle on a known level floor 7.6 m (25 feet) from aiming screen or light colored wall. Four lines of adhesive tape or like are required on screen or wall:

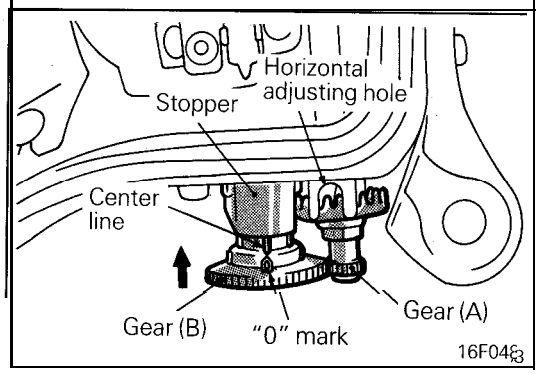
1. Position a vertical tape so that it is aligned with the vehicle center line.
2. Position a horizontal tape with reference to center line of headlight.
3. Position a vertical tape on the screen with reference to the center line of each of headlights.

VISUAL HEADLIGHT ADJUSTMENT

1. A properly aimed lower beam will appear on the aiming screen 7.6 m (25 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.

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





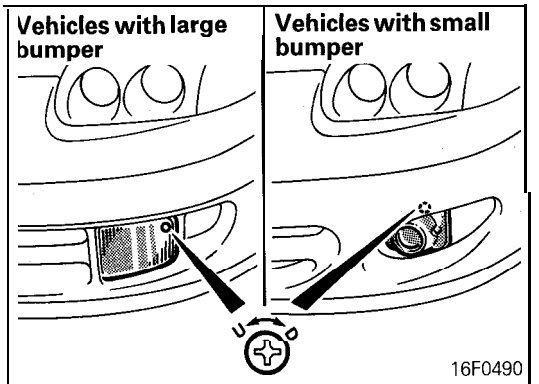
3. Check to see that the bubble in the headlight vertical angle gauge is in the illustrated position.
4. If the bubble is out of position, adjust by turning the adjusting screw.
5. Confirm that the "0" mark on the headlight horizontal angle adjusting gear (B) is in alignment with the center line.
6. If not, perform the adjustment as follows.
   (1) Pull up the stopper.
   (2) Push the gear (B) in the arrow direction to disengage it from the gear (A).
   (3) Align the "0" mark on the gear (B) with the center line.
   (4) Push down the stopper to engage the gear (B) with the gear (A).

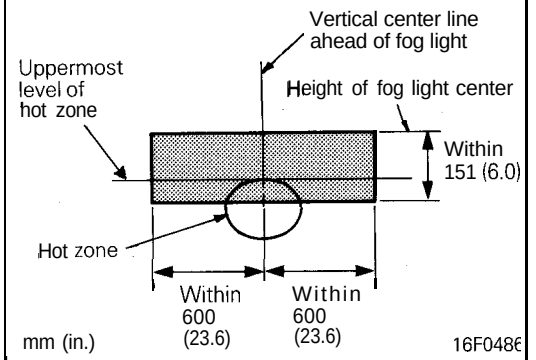
LUMINOUS INTENSITY MEASUREMENT

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: 20,000 cd or more

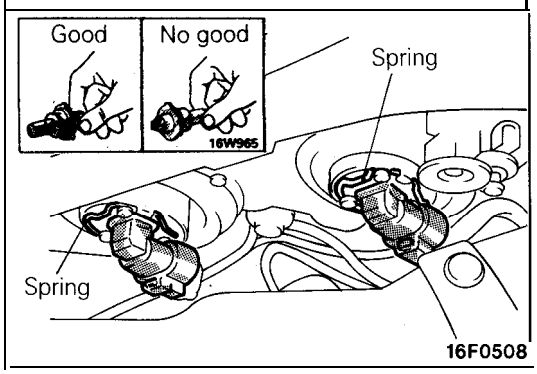
NOTE
(1) When measuring the luminous intensity of headlight, keep the engine at 2,000 rpm and have the battery charged.
(2) If there are specific regulations for luminous intensity of headlights in the region where the vehicle is operated, make sure that the intensity conforms to the requirements of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





FOG LIGHT AIMING

1. Place vehicle on a known level floor 7.6 m (25 feet) from aiming screen or light colored wall.
2. Adjust the adjusting screw so that the top end of high intensity area may come to the same level as the fog light center height.



BULB REPLACEMENT

1. Disconnect the connector.
2. Turn the bulb socket counterclockwise to pull it out.

Caution

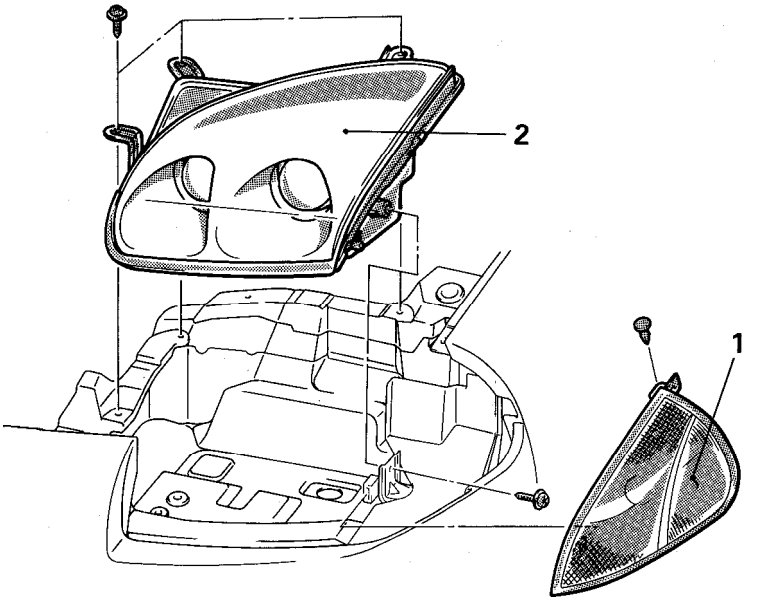
Do not touch the surface of the headlight bulb with hands or dirty gloves. If the surface dies become dirty, clean it with alcohol or thinner, and let it dry thoroughly before installing.

HEADLIGHT

REMOVAL AND INSTALLATION

Removal steps

1. Front combination light
2. Headlight

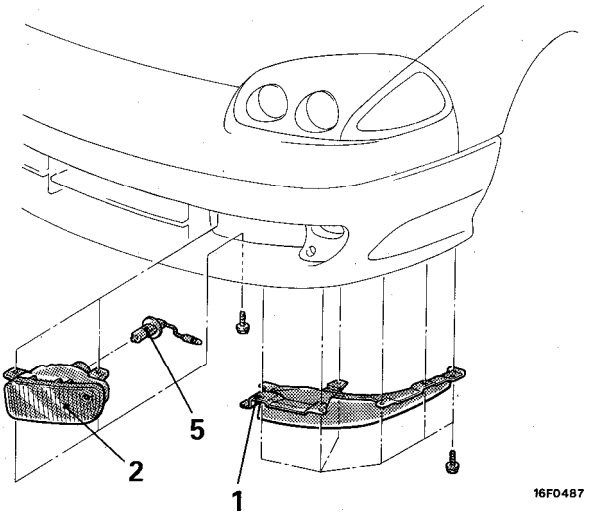


16F0480

FOG LIGHT

REMOVAL AND INSTALLATION

<Vehicles with small bumper>



16F0487

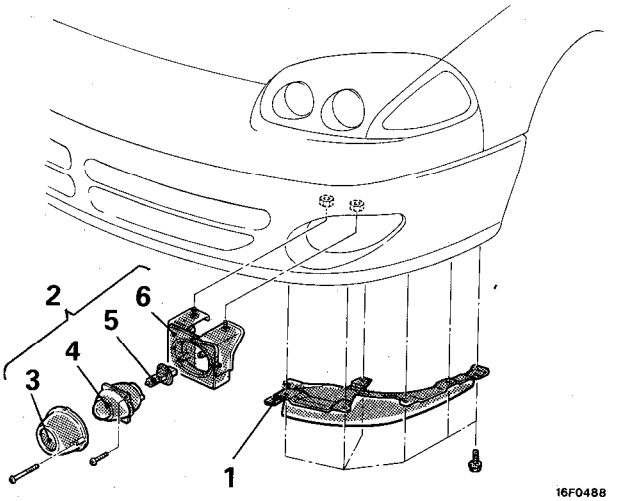
<Vehicles with small bumper>

Removal steps

1. Front air side spoiler
2. Fog light assembly

● + 5. Bulb

<Vehicles with large bumper>



16F0488

<Vehicles with large bumper>

Fog light removal steps

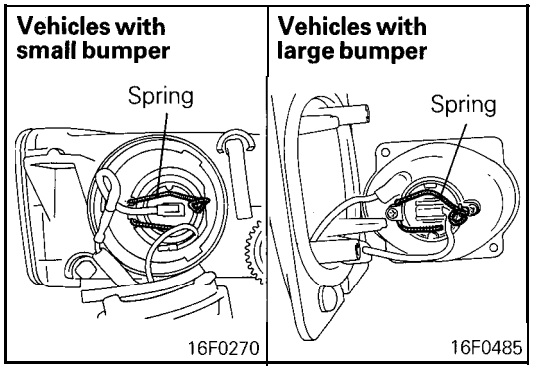
1. Front air side spoiler
2. Fog light assembly

Bulb replacement removal steps

3. Lens
4. Projector unit

● 4 5. Bulb

6. Bracket



SERVICE POINT OF REMOVAL

5. REMOVAL OF BULB

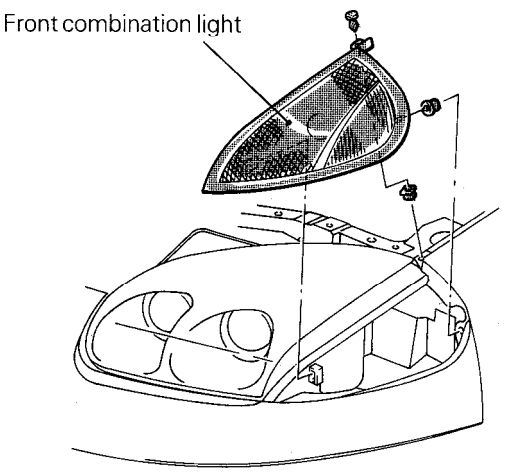
(1) Remove the socket cover (vehicles with small bumper fog light) or projector unit (vehicles with larger bumper fog light).

(2) Remove the bulb mounting spring and remove the bulb.

Caution
Do not touch the surface of the headlight bulb with bare hands or dirty gloves.
If there are deposits on the surface, loosen and remove the deposits with a cloth dipped in alcohol or thinner, and let the surface dry before mounting the bulb.

FRONT COMBINATION LIGHT

REMOVAL AND INSTALLATION

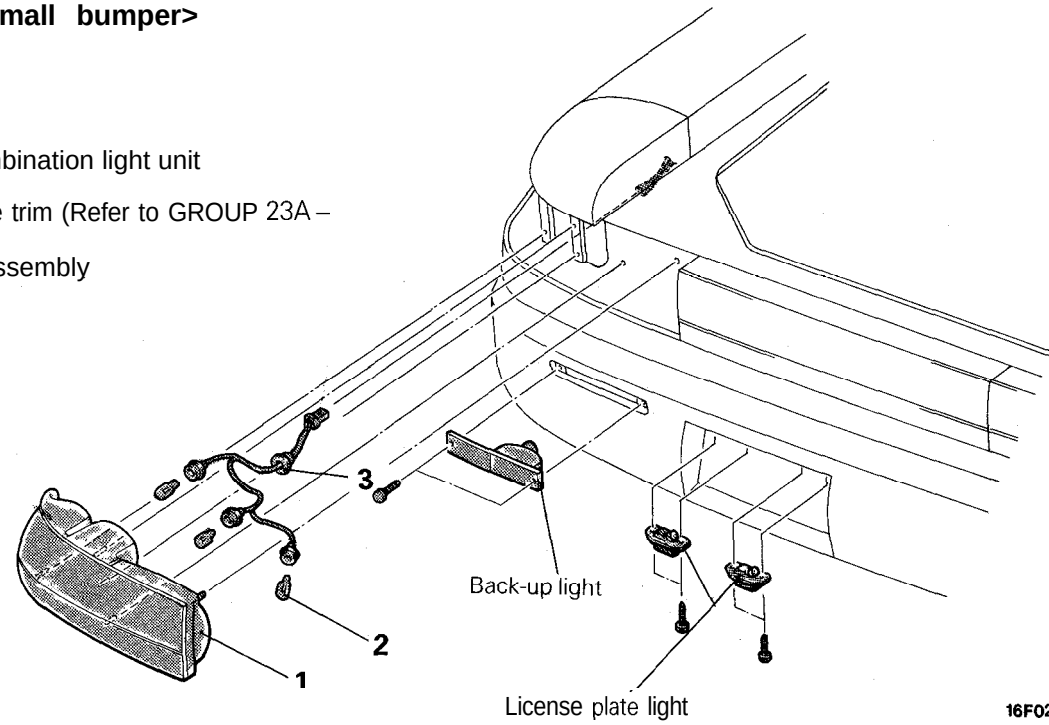


16F0477

REAR COMBINATION LIGHT - BACK-UP LIGHT AND LICENSE PLATE LIGHT

REMOVAL AND INSTALLATION

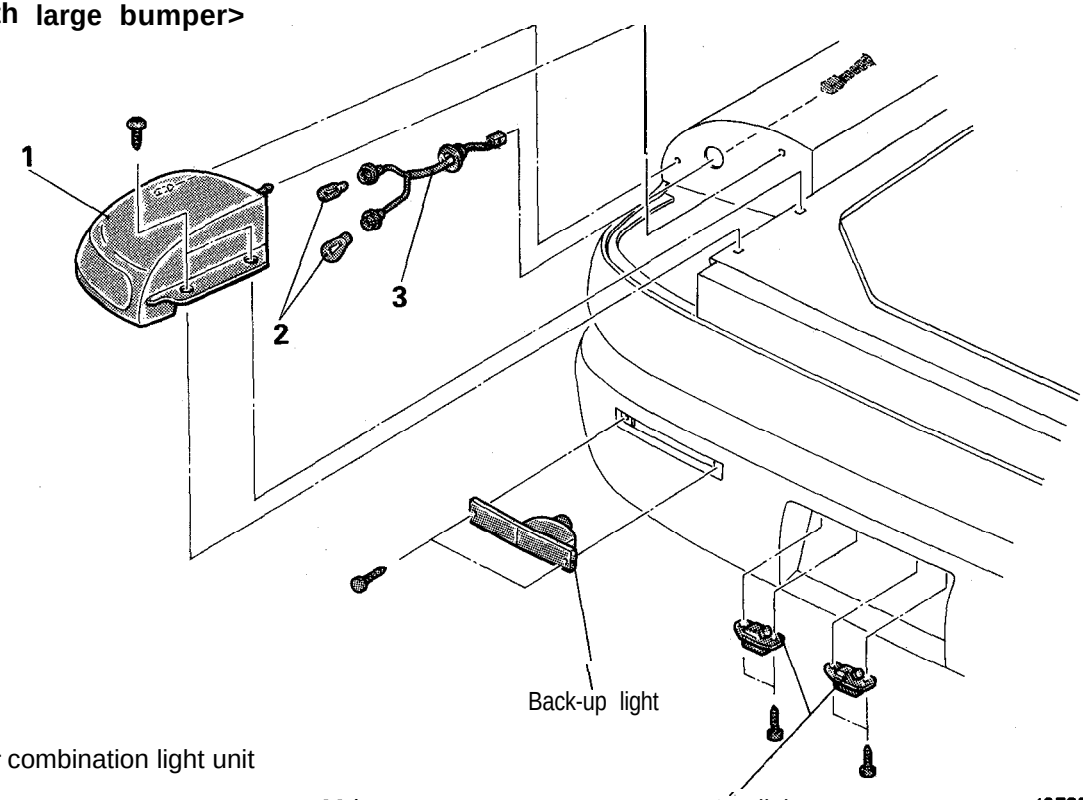
<Vehicles with small bumper>



Removal steps

1. Rear combination light unit
2. Bulb
   Rear side trim (Refer to GROUP 23A – Trims.)
3. Socket assembly

<Vehicles with large bumper>



Removal steps

1. Rear combination light unit
2. Bulb
   Rear side trim (Refer to GROUP 23A – Trims.)
3. Socket assembly

HIGH MOUNTED STOP LIGHT

N08IKAL

REMOVAL AND INSTALLATION

<Vehicles with rear spoiler>

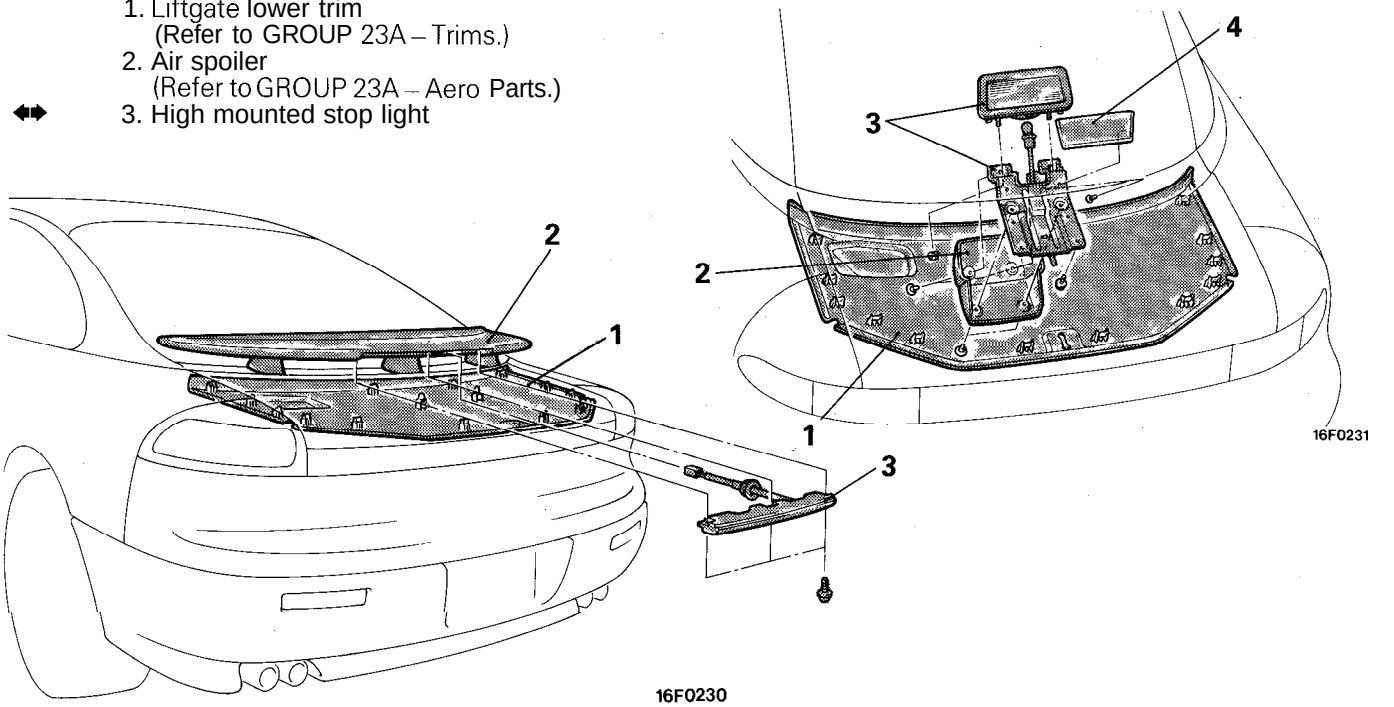
Removal steps

1. Liftgate lower trim
   (Refer to GROUP 23A – Trims.)
2. Air spoiler
   (Refer to GROUP 23A – Aero Parts.)
◆◆ 3. High mounted stop light

<Vehicles without rear spoiler>

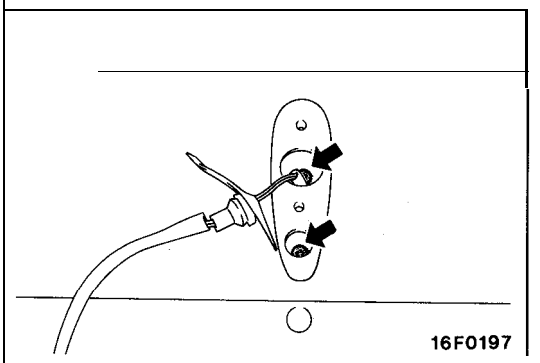
Removal steps

1. Liftgate lower trim
   (Refer to GROUP 23A – Trims.)
2. High mounted stop light cover
3. High mounted stop light lens and bracket
4. Gasket

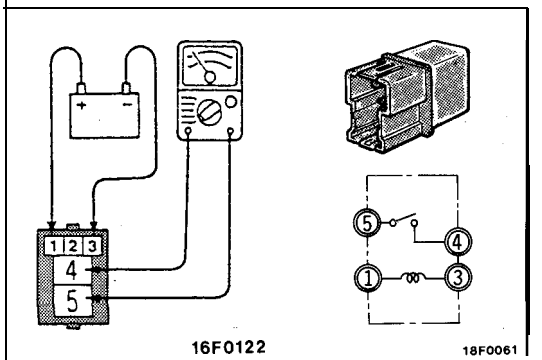


16F0231

16F0230



16F0197



16F0122 18F0061

SERVICE POINT OF REMOVAL

3. REMOVAL OF HIGH-MOUNTED STOP LIGHT (Vehicles with rear spoiler)

Remove the air spoiler center stay mounting screws before removing the high-mounted stop light.

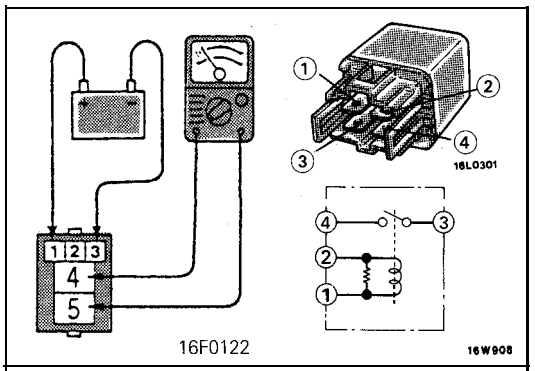
RELAY

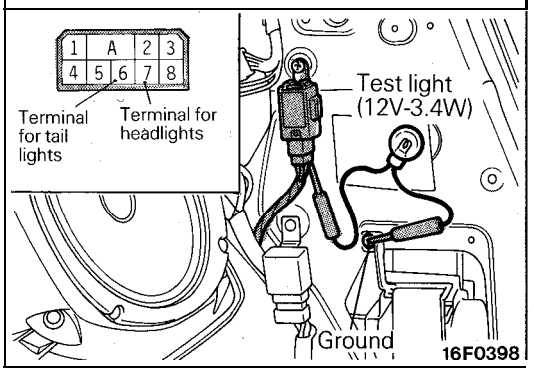
INSPECTION

HEADLIGHT RELAY / TAILLIGHT RELAY / FOG LIGHT RELAY

Connect battery to terminal 1 and check continuity between terminals with terminal 3 grounded.

Power is supplied	4 – 5 terminals	Continuity
Power is not supplied	4 – 5 terminals	No continuity
	1 – 3 terminals	Continuity





UPPER BEAM RELAY (VEHICLES FOR CANADA)

Connect battery to terminal 1 and check continuity between terminals with terminal 2 grounded.

Power is supplied	3 – 4 terminals	Continuity
Power is not supplied	3 – 4 terminals	No continuity
	1 – 2 terminals	Continuity

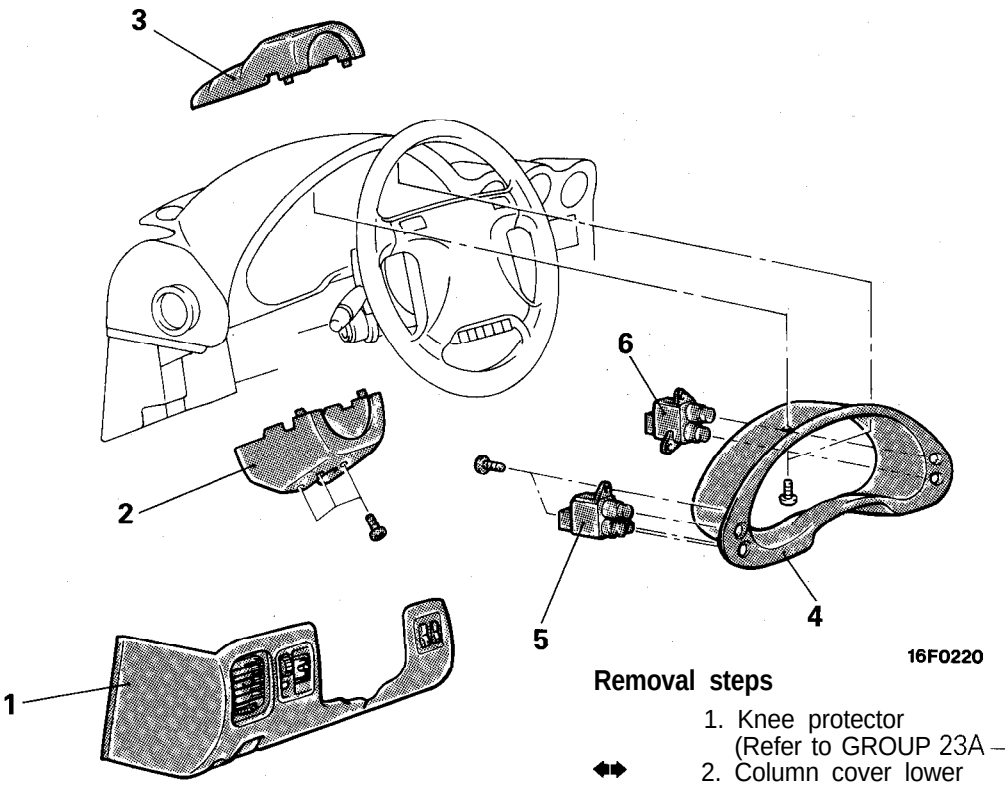
LIGHT AUTOMATIC SHUT-OFF UNIT

(1) Remove the quarter trim. (Refer to GROUP 23A – Trim.)
(2) Keeping the connector connected to the light automatic shut-OFF unit, connect the test light (12V – 3.4W) from the harness side to terminal No. 6 (for tail lights) or No. 7 (for headlights). Under the following conditions, check the operation of the test light.

	Conditions	Test light
(1)	Ignition switch and lighting switch are at "OFF" position.	Illuminated
(2)	Lighting switch is at "TAIL" or "HEAD" with ignition switch at "ACC" or "ON" position.	Illuminated
(3)	Driver's door is opened after ignition switch is turned from state (2) to "OFF" position. (Reverse procedure is also allowable.)	Illuminated
(4)	Ignition switch is once turned from state (3) "OFF", then turned to "TAIL" or "HEAD".	Extinguished
(5)	Ignition switch is turned from state (3) to "ACC" or "ON" position.	Illuminated

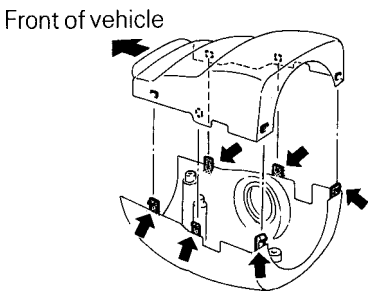
FOG LIGHT SWITCH

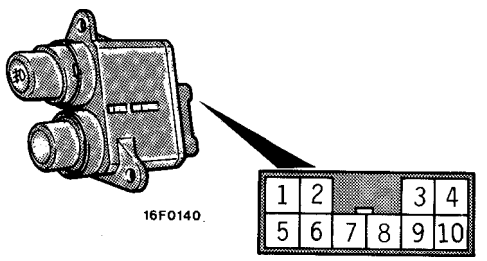
REMOVAL AND INSTALLATION



Removal steps

1. Knee protector
   (Refer to GROUP 23A – Instrument Panel.)
2. ◆◆ Column cover lower
3. ◆◆ Column cover upper
4. Meter bezel
5. Fog light switch
6. Rear window defogger switch





SERVICE POINTS OF REMOVAL

2. REMOVAL OF COLUMN COVER LOWER / 3. COLUMN COVER UPPER

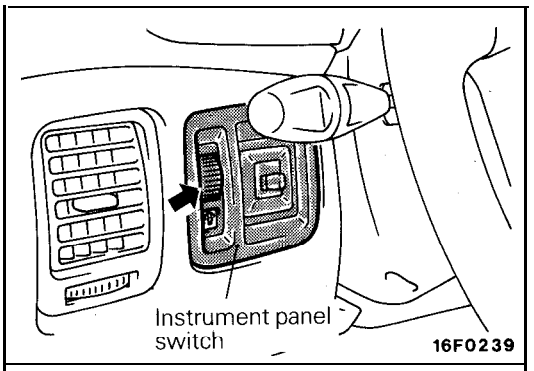
After the screws have been removed, remove the covers, while making sure not to break the grippers.

INSPECTION

Operate the switch to check for continuity between terminals.

Switch position \ Terminal	1	5	3	4
ON	○—○		Illumination light	
OFF				

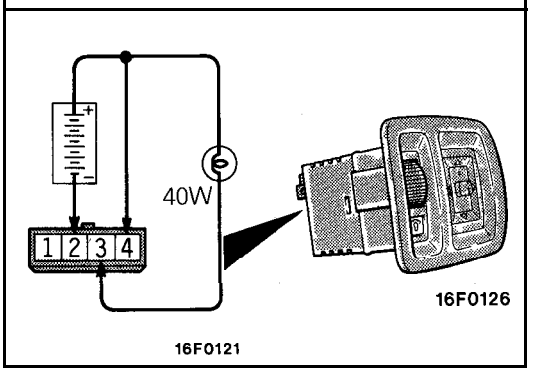
NOTE
(1) ○–○ indicates that there is continuity between the terminals.
(2) Refer to P.8-410. Check the rear window defogger switch.



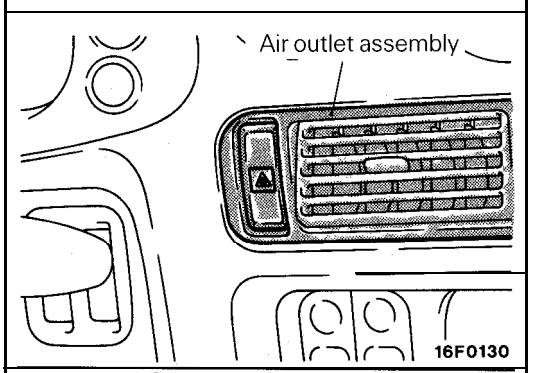
RHEOSTAT

INSPECTION

(1) Remove the instrument panel switch from the knee protector.



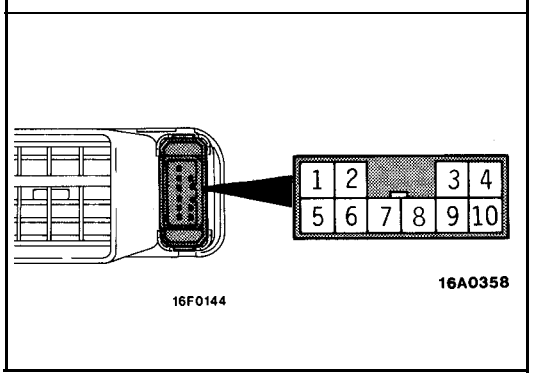
(2) Connect the battery and a test bulb (40W) as shown in the figure.
(3) The function of the rheostat is normal if the intensity of illumination changes smoothly, without flashing or flickering, when the rheostat is operated.



HAZARD SWITCH

INSPECTION

(1) Remove the center air outlet assembly from instrument panel. [Refer to GROUP 24 – VENTILATORS (Instrument Panel).]



(2) Operate the switch to check for continuity between terminals.

Switch position \ Terminal	1	5	6	7	8	9	10	2	3
ON			○	○	○	○	○		
OFF		0			○			Illumination light	

NOTE
○–○ indicates that there is continuity between the terminals.

COLUMN SWITCH

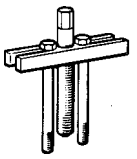
SPECIFICATIONS

GENERAL SPECIFICATIONS

Items	Specifications
Column switch	
Lighting switch	
Rated load A	0.22 ± 0.05
Voltage drop V	0.2 or less
Turn-signal switch	
Rated load A	6.6 ± 0.5
Voltage drop V	0.2 or less
Dimmer/passing switch	
Rated load A	
High beam	10.7 ± 0.8
Low beam	9.8 ± 0.7
Passing	20.5 ± 1.5
Voltage drop V	0.2 or less

NOTE
For the wiper and washer switch, refer to P.8-355.

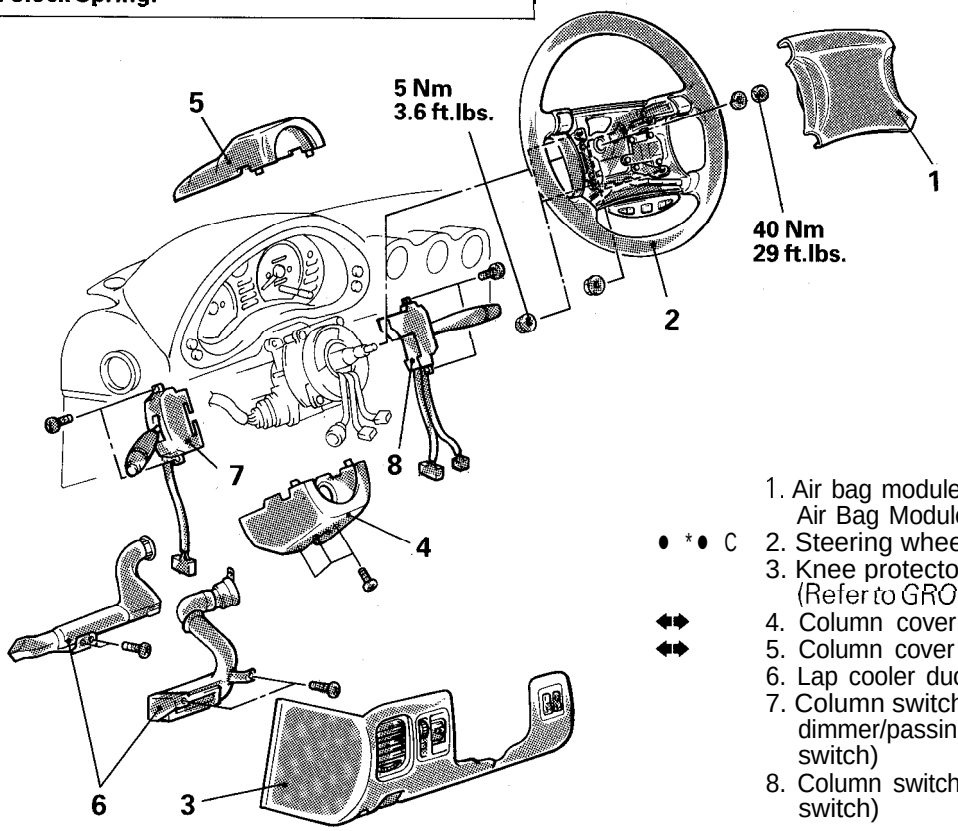
SPECIAL TOOL

Tool number and tool name	Replaced by Miller tool number	Application
 M 8990803 Steering wheel puller	General service tool	Removal of steering wheel

COLUMN SWITCH

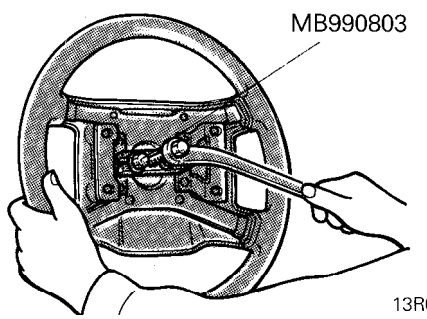
REMOVAL AND INSTALLATION

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

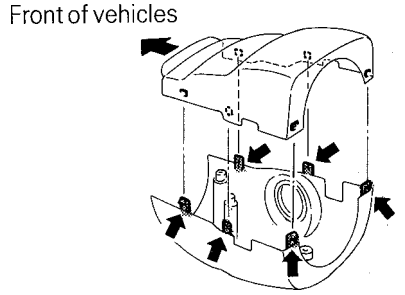


1. Air bag module (Refer to GROUP 23B – Air Bag Module and Clock Spring.)
2. Steering wheel
3. Knee protector (Refer to GROUP 23A – Instrument Panel.)
4. Column cover lower
5. Column cover upper
6. Lap cooler duct and foot shower duct
7. Column switch left (For lighting switch, dimmer/passing switch and turn signal switch)
8. Column switch right (For wiper and washer switch)

16F0506



13R0655



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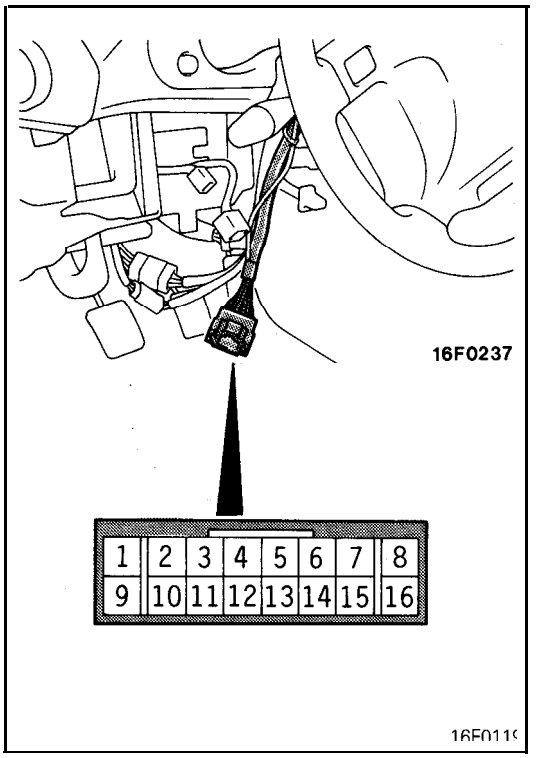
SERVICE POINTS OF REMOVAL

2. REMOVAL OF STEERING WHEEL

Remove the steering wheel by using the special tool.

Caution
Do not hammer on the steering wheel. Doing so may damage the collapsible column mechanism.

4. REMOVAL OF COLUMN COVER LOWER / 5. COLUMN COVER UPPER



INSPECTION

(1) Remove the knee protector and the column cover. (Refer to GROUP 23A – Instrument Panel.)
(2) Disconnect the column switch left connector (16 terminals) and check the continuity between the terminals for each switch.

LIGHTING SWITCH

Operate the switch and check the continuity between the terminals.

Switch position \ Terminal	3	5	6	7	10	14
OFF						
≡D	○	○		○	○	○

NOTE
○–○ indicates that there is continuity between the terminals.

TURN SIGNAL SWITCH

Operate the switch and check the continuity between the terminals.

Switch position \ Terminal	1	12	13
Left	○		○
Neutral			
Right	○	○	

NOTE
○–○ indicates that there is continuity between the terminals.

DIMMER/PASSING SWITCH

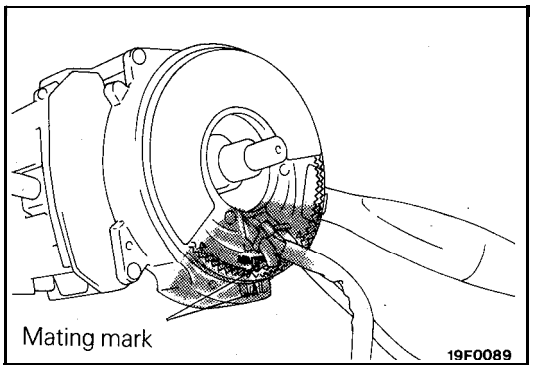
Operate the switch and check the continuity, between the terminals.

Switch position \ Terminal		2	8	9	16
Dimmer switch	LOW			○	○
	HIGH		○	○	
Passing switch		○	○	○	

NOTE
○–○ indicates that there is continuity between the terminals.

WIPER AND WASHER SWITCH

Refer to P.8-355.



SERVICE POINTS OF INSTALLATION

2. INSTALLATION OF STEERING WHEEL

To center the clock spring, line up the “NEUTRAL” mark of the clock spring with the mating mark.

Caution

If the clock spring’s mating mark is not properly aligned, the steering wheel may not be completely rotational during a turn, or the flat cable within the clock spring may be severed, obstructing normal operation of the SRS and possibly leading to serious injury to the vehicle’s driver.

WIPER AND WASHER SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS

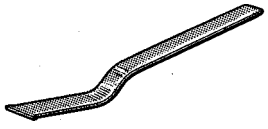
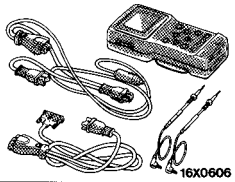
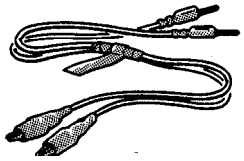
terns	Specifications
Windshield wiper motor	
Type	Ferrite-magnet type
Speed control system	Third brush system
Braking system	Dynamic brake system
rpm at load of 1 Nm (0.72 ft.lbs.)	
Low speed	48 ± 4
High speed	70 ± 7
Nominal torque Nm (ft.lbs.)	24 (17)
Rear wiper motor	
Motor type	Ferrite-magnet type
Braking system	Dynamic'braking system
rpm at load of 0.6 Nm (0.43 ft.lbs.)	38 ± 5
Windshield wiper blade	
Wiping angle	
Driver's side	89"
Passenger's side	91"
Wiper blade length mm (in.)	
Driver's side	525 (20.7)
Passenger's side	500 (19.7)
Rear wiper blade	
Wiping angle	87" ± 1.5"
Wiper blade length mm (in.)	550 (21.7)
Window washer motor and pump	
Motor type	Direct current ferrite magnet type
Pump type	Centrifugal type
Power consumption A	3.8 or less
Time of continuous use sec.	
With washer fluid	Max. 60
Empty operation	Max. 20
Nozzle jet pressure kPa (psi)	120 (17) or more
Tank capacity lit. (qts.)	2.0 (2.1) or more
Rear window washer motor and pump	
Motor type	Direct current ferrite magnet type
Pump type	Centrifugal type
Power consumption A	3.8 or less
Time of continuous use sec.	
With washer fluid	Max. 60
Empty operation	Max. 20
Nozzle jet pressure kPa (psi)	120 (17) or more
Tank capacity lit. (qts.)	1.2 (1.3) or more

Items	Specifications
Wiper and washer switch	
Rated load A	
Wiper switch	
LO, HI	4
INT	0.22 ± 0.05
Washer switch	Max. 4
Voltage drop (at 12V and the rated load) V	
Wiper switch	0.2 or less
Washer switch	0.5 or less
Rear wiper and washer switch	
Rated load A	
Wiper switch	5
Washer switch	5
Voltage drop V	0.1 or less
Intermittent wiper relay	
<Front (incorporated in column switch)>	
Intermittent interval (min.-max.) sec.	
Variable-interval intermittent wiper	Approx. 3 – 12
Delay time in washer moving sec.	0.6
<Rear>	
Intermittent interval sec.	8 ± 2

SERVICE SPECIFICATIONS

Items	Specifications
Standard value	
Front wiper blade park position (A) mm (in.)	$15^{+5}_{-0}(.6^{+.2}_{-0})$

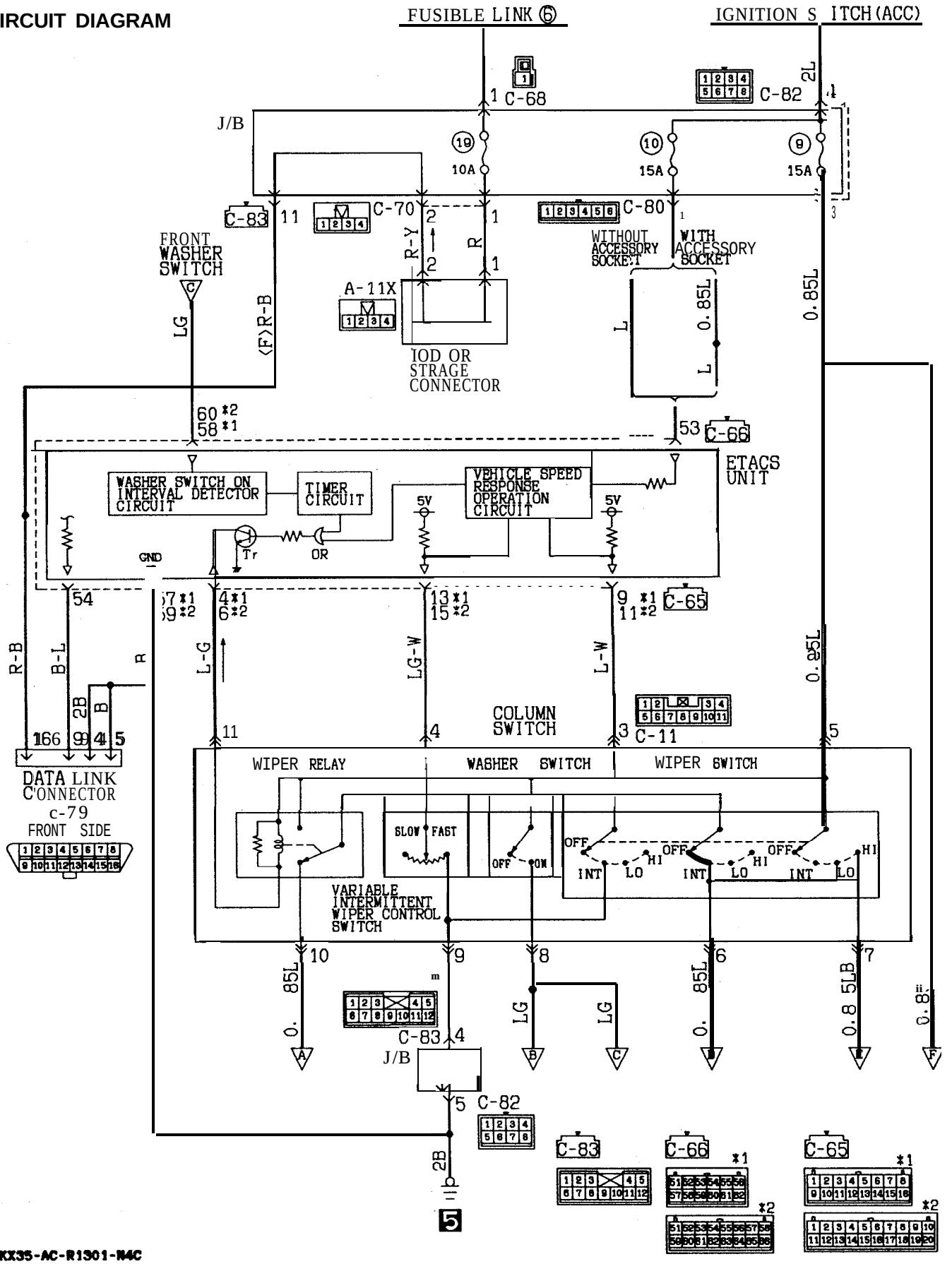
SPECIAL TOOL

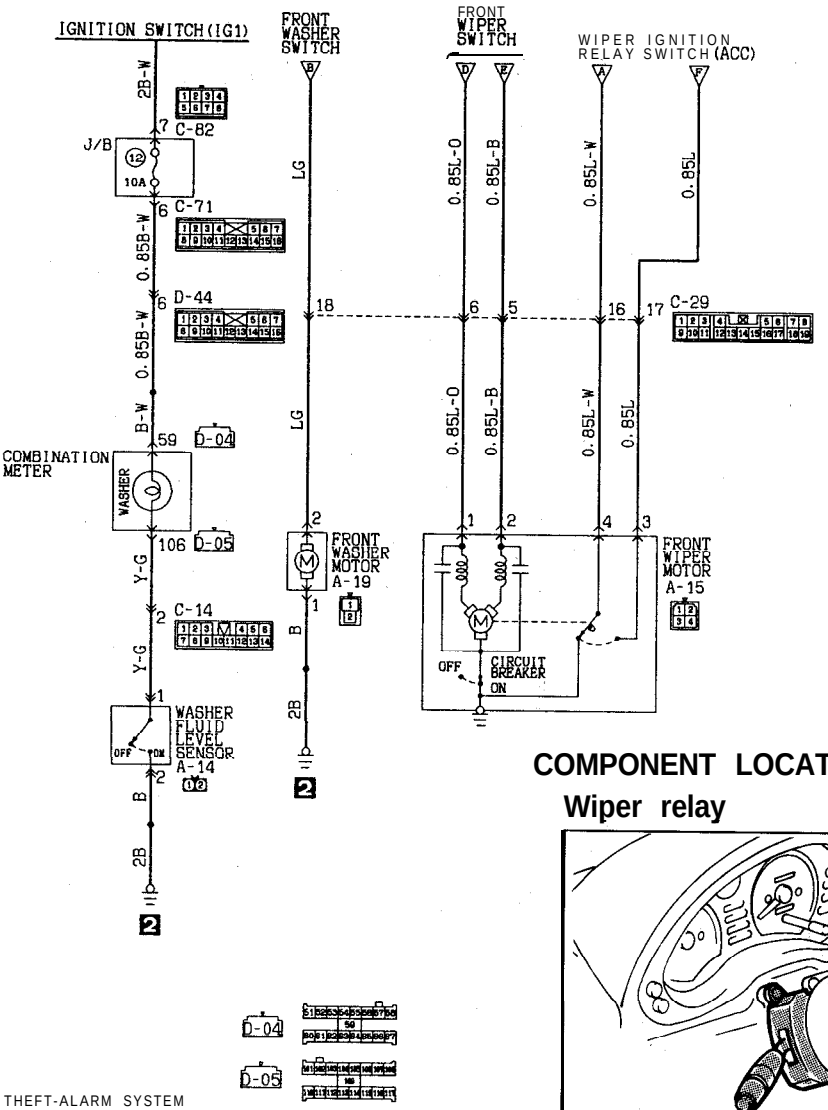
Tool number and tool name	Replaced by Miller tool number	Application
 MB990449 Window moulding remover	M B990449	Removal of liftgate moulding, upper
 MB991502 Scan Tool (MUT-II)	DRB-II Scan Tool	Checking the wiper and washer system
 MB991529 Diagnostic trouble code check harness	MB991529	Checking the wiper and washer system using a voltmeter

TROUBLESHOOTING

WINDSHIELD WIPER AND WASHER CIRCUIT

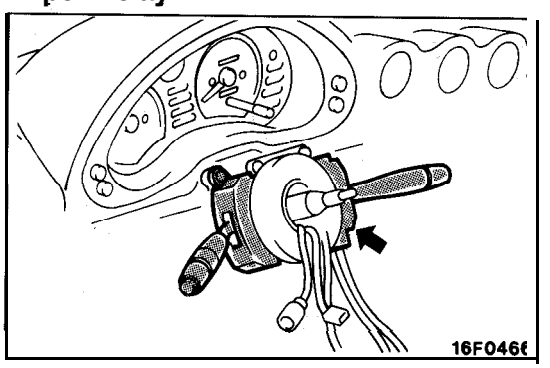
CIRCUIT DIAGRAM



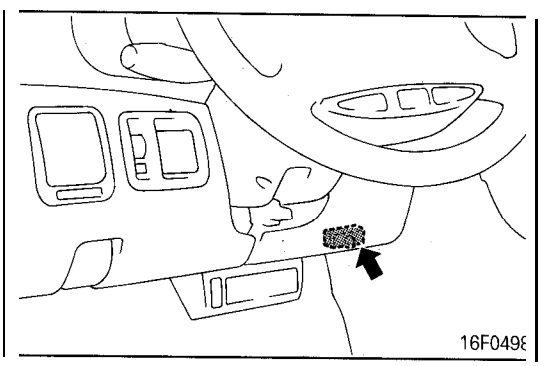


COMPONENT LOCATION

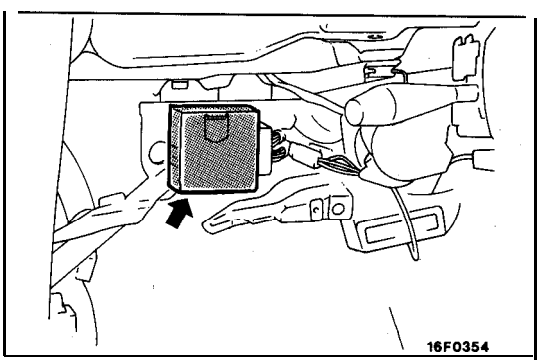
Wiper relay



Data link connector



ETACS unit



OPERATION

<Low-speed (and high-speed) wiper>

- When the wiper switch is placed in the LO position with the ignition switch in the ACC or ON position, wipers operate continuously at low speed.
- Placing the wiper switch in the HI position causes the wipers to operate at high speed.

<Intermittent wiper>

- If the wiper switch is turned to the INT position when the ignition switch is in the ON or ACC position, the voltage value from the intermittent variable volume switch is input to the intermittent time detection circuit.
- The intermittent time detection circuit outputs an H signal at the intermittent time according to the set value of the intermittent variable volume switch and, via OR, turns the Tr on and off to operate the wiper.

<Auto wiper stop>

- When the wiper switch is placed in the OFF position, the cam contacts of wiper motor causes current to flow through the auto wiper stop circuit, allowing the wiper blades to cycle before they reach to the stop positions.

<Mist wiper>

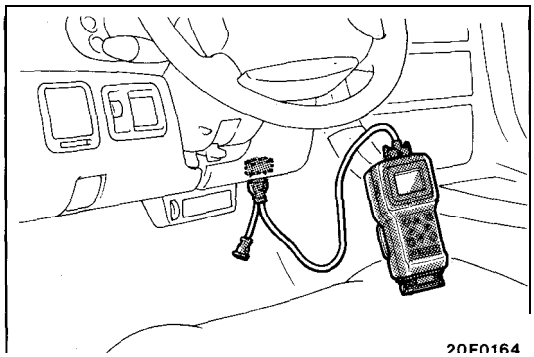
- If the washer switch is on for 0.6 second or less when the ignition switch is at ON or ACC with the wiper switch turned off, the washer liquid will not be poured but the transistor will be turned on to operate the wipers one time.

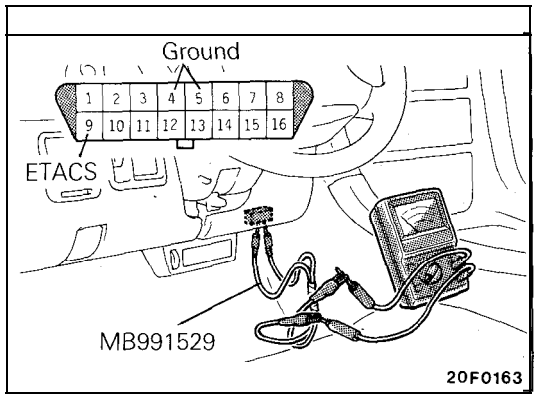
<Wiper linked with washer>

- If the washer switch is on for 0.6 second or more when the ignition switch is at ON or ACC with the wiper switch turned off, the washer liquid will be poured and the transistor will be turned on 0.6 second later to operate the wipers two or three times.

TROUBLESHOOTING HINTS

Phenomenon		Inspection method
Wipers do not operate continuously	Washer does not operate.	• Check the multi-purpose fuse No. ⑨.
	Washer operates.	• Check the wiper motor. (Refer to P.8-355.) • Check the column switch. (Refer to P.8-355.)
Low-speed (or high-speed) wiper operation only is inoperative.		• Check the column switch. (Refer to P.8-355.)
Wipers do not operate intermittently. (They operate continuously.)		• Check the wiper switch “INT” input signal. (Refer to P.8-351.) • Check the column switch. (Refer to P.8-355.)
Wipers do not stop.		• Check the wiper switch “INT” input signal. (Refer to P.8-351.) • Check the column switch; (Refer to P.8-355.) • Check the wiper motor. (Refer to P.8-355.)
The intermittent time will not vary even if the variable intermittent wiper control switch is operated.		• Check the variable intermittent wiper control switch input signal. (Refer to P.8-351.) • Check the column switch. (Refer to P.8-355.)
Even if the washer switch is on for 0.6 second or more, the washer will not operate.	The wipers linked with the washer operate.	• Check the washer motor. (Refer to P.8-355.) • Check the washer nozzle and washer tube.
	The wipers linked with the washer do not operate.	• Check the washer switch input signal. (Refer to P.8-351.) • Check the washer switch. (Refer to P.8-355.)





INPUT SIGNAL

Using the scan tool or voltmeter, check whether or not the input signals from each switch are being input to the ETACS unit.

When using the scan tool

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

Caution
Turn off the ignition switch beforehand whenever the scan tool is connected or disconnected.

(2) If the scan tool makes a peep sound when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

When using a voltmeter

(1) Connect a voltmeter to the ETACS terminal and the ground terminal of the data link connector using the special tool.

(2) If the voltmeter pointer deflects once when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

REAR WIPER AND WASHER CIRCUIT

OPERATION

<Low-speed wiper>

- When the rear wiper switch is placed in the ON position with the ignition switch in the ACC or ON position, wipers operate continuously at low speed.

<Auto wiper stop>

- When the rear wiper switch is placed in the OFF position, the cam contacts of wiper motor cause current to flow through the auto wiper stop circuit, allowing the wiper blades to cycle before they reach to the stop positions.

<Intermittent wiper>

- When the rear wiper switch is placed in the INT position with the ignition switch in ACC or ON position, the rear intermittent wiper relay is energized causing the rear intermittent wiper relay contacts to close and open repeatedly.
- When the contacts are closed, the wiper motor is energized.
- When the rear wiper motor is energized, the rear intermittent wiper relay contacts open; however, the cam contacts keep the rear wiper motor energized until the wiper blades return to their stop position.

TROUBLESHOOTING HINTS

1. Wipers do not operate.
   (1) Washer is not operative, either.
   - Check multi-purpose fuse No. ⑨.
   - Check ground.
2. Low-speed wiper operation only is inoperative.
   - Check wiper switch.
3. Wipers do not stop.
   - Check wiper motor.
   - Check rear intermittent wiper relay.
   - Check rear wiper switch.
4. Intermittent wiper operation is inoperative.
   - Check terminal voltage of the rear intermittent wiper relay energized.
     (Refer to P.8-359 for information concerning the installation position of the intermittent wiper relay.)

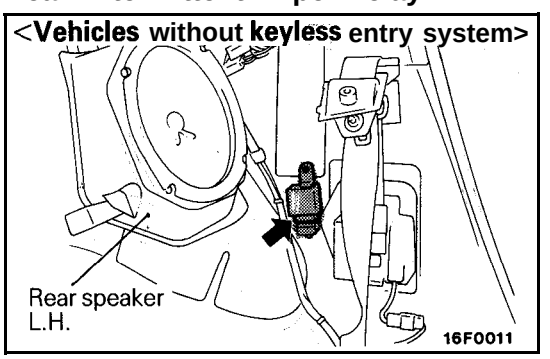
Terminal No.	Voltage	Check
2	0v	Rear intermittent wiper relay or rear wiper switch
	12v	Rear intermittent wiper relay
	0 ↔ 12v (alternating)	– (Normal)

5. Washer is inoperative.
   - Check washer motor.
   - Check washer switch.

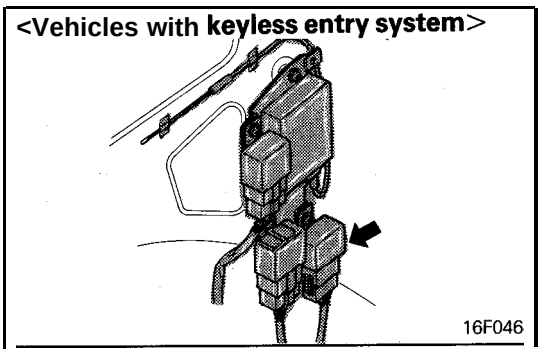
COMPONENT LOCATION

Rear intermittent wiper relay

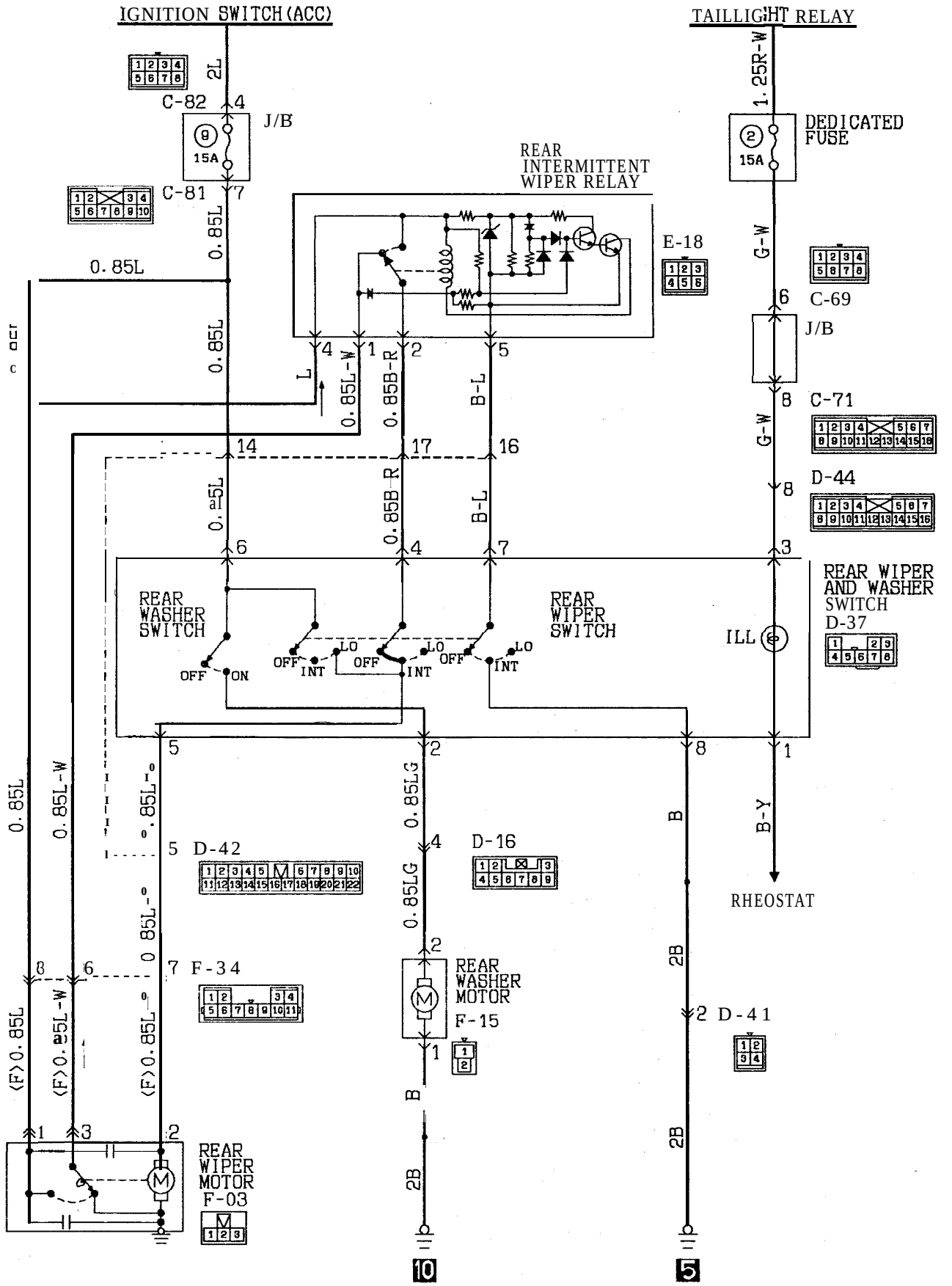
<Vehicles without keyless entry system>



<Vehicles with keyless entry system>

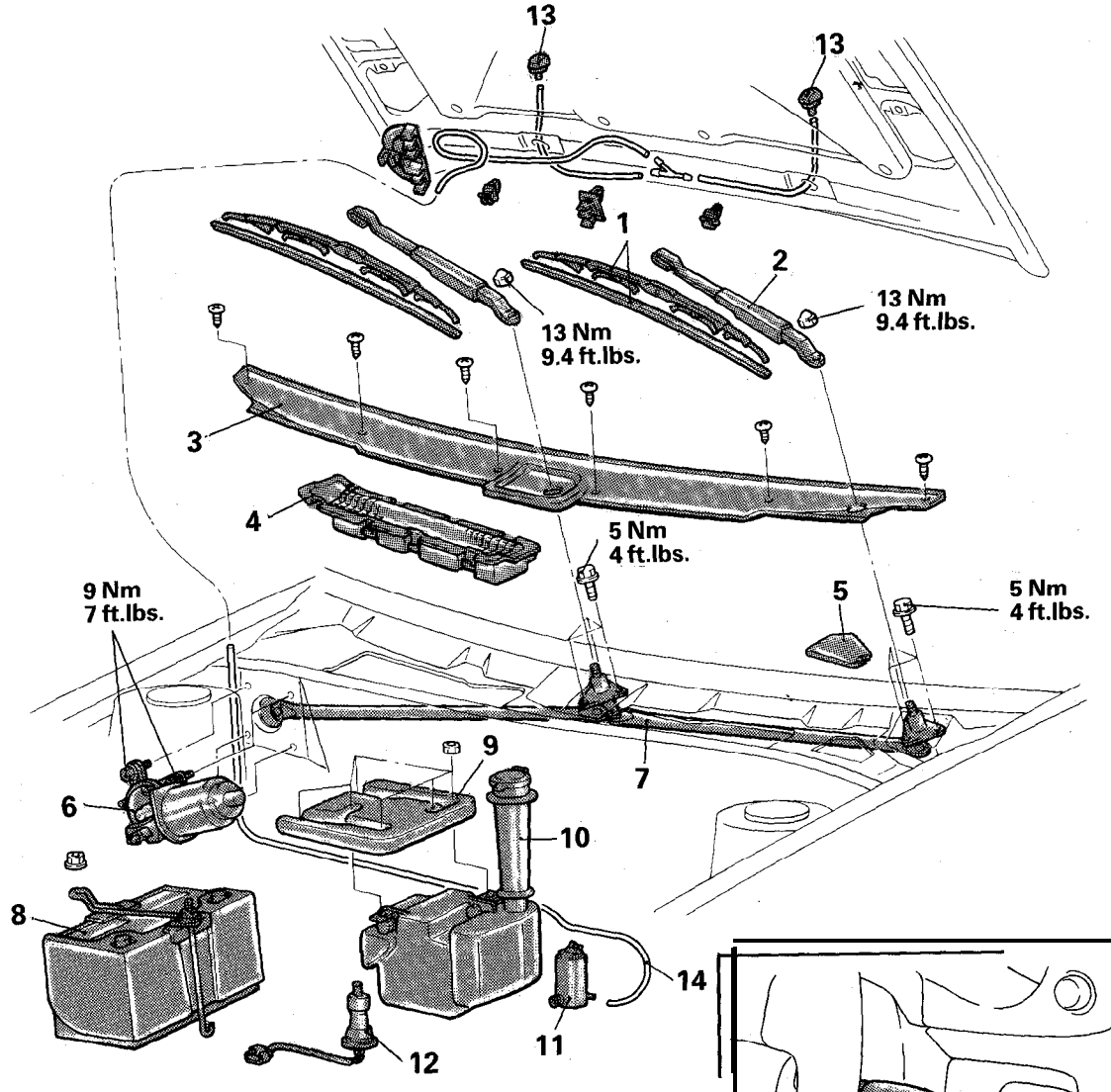


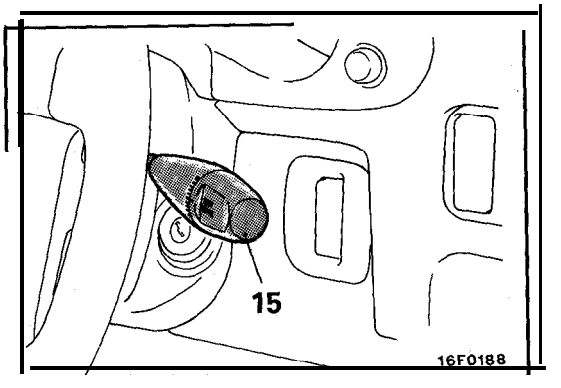
CIRCUIT DIAGRAM



WINDSHIELD WIPER AND WASHER

REMOVAL AND INSTALLATION





Removal steps of linkage

1. Wiper blade
- * **2.** Wiper arm
3. Front deck garnish
'4. Air inlet garnish (RH)
5. Hole cover
- ◆◆ 6. Wiper motor
7. Linkage

Removal steps of wiper motor

1. Wiper blade
- ◆◆ 2. Wiper arm
5. Hole cover
- ◆◆ 6. Wiper motor

Removal of column switch (wiper washer switch)

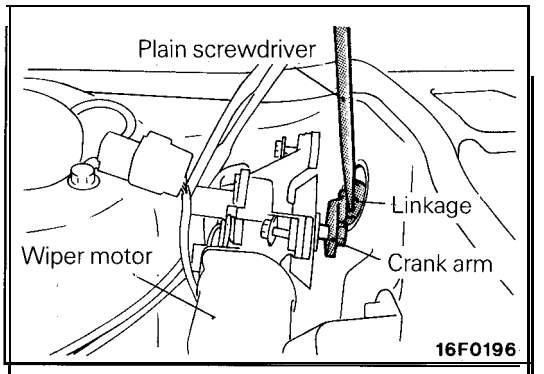
15. Column switch (Refer to P.8-343.)

Removal steps of washer tank

8. Battery
9. Battery tray
10. Washer tank
11. Washer motor
12. Washer fluid level sensor

Removal steps of washer tube

8. Battery
9. Battery tray
13. Washer nozzle
14. Washer tube



SERVICE POINTS OF REMOVAL

6. REMOVAL OF WIPER MOTOR

(1) Remove the wiper motor mounting bolts.
(2) Using a plain screwdriver, detach the crank arm of the wiper motor from the linkage to remove the wiper motor.

Caution
Do not remove the crank arm from the wiper motor except when necessary, as the auto stop angle has been preset. When the crank arm is to be removed, make a mark on both of them before removal.

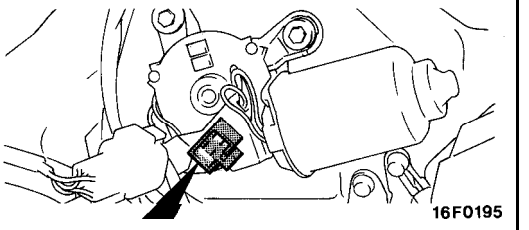
INSPECTION

INSPECTION OF WIPER MOTOR

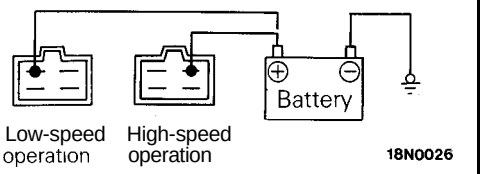
Inspect the wiper motor mounted on the vehicle with its connector disconnected.

Inspection of Wiper Motor Operation at LOW and HIGH Speeds

Connect the battery to the wiper motor as shown, and check its operation at LOW and HIGH speeds.



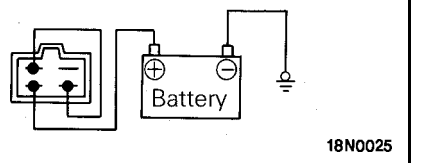
Inspection of Operation



Inspection of Wiper Motor STOP Position

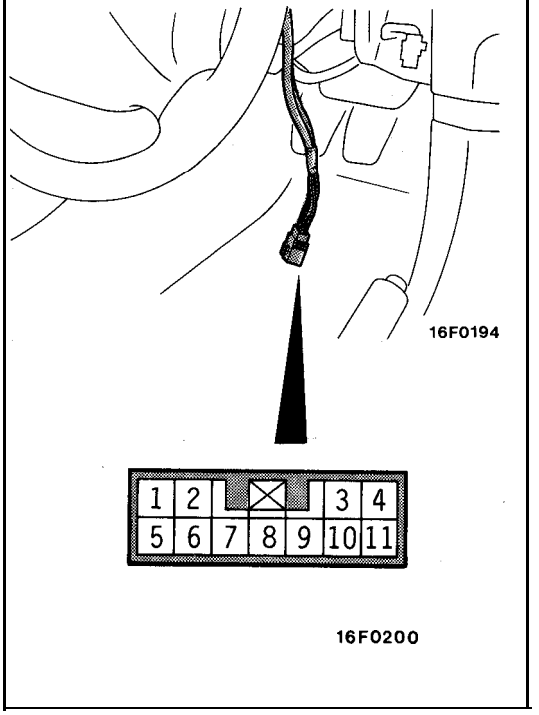
(1) Operate the wiper motor at LOW speed and intermediately disconnect the battery to let the wiper motor stop.
(2) Connect the terminals as well as the battery, as shown, and check that the wiper motor stops at the automatically-stopped position following LOW-speed operation.

Inspection of Stop Position



INSPECTION OF COLUMN SWITCH

(1) Remove the knee protector.
(Refer to GROUP 23A – Instrument Panel.)
(2) Remove the column cover.
(3) Remove the column switch right coupling connector (11 terminals).

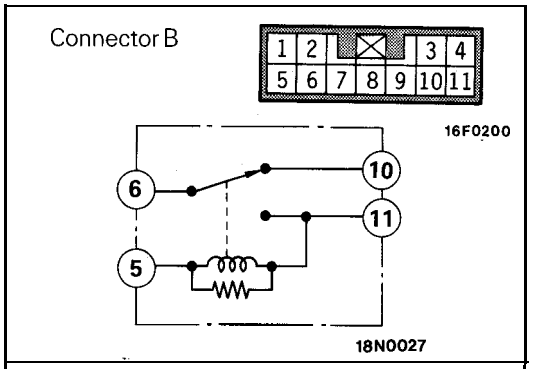


Inspection of Wiper and Washer Switch

Operate the switch to check for continuity between the terminals.

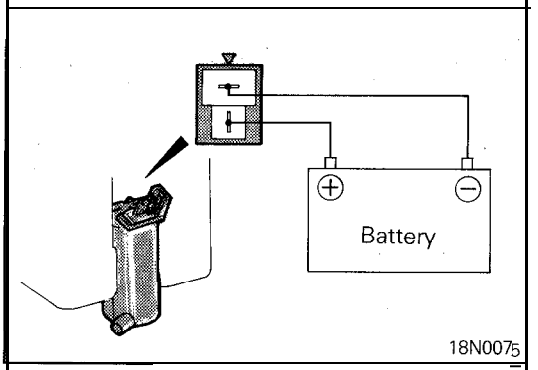
Switch position \ Terminal No.		3	4	5	6	7	8	9	10
Wiper switch	OFF				○				○
	INT	○						○	
					○				○
	LO			○	○				
	HI			○		○			
Variable intermittent wiper control switch			○					○	
Washer switch				○			○		

NOTE
○–○ denotes that there is continuity between the terminals.



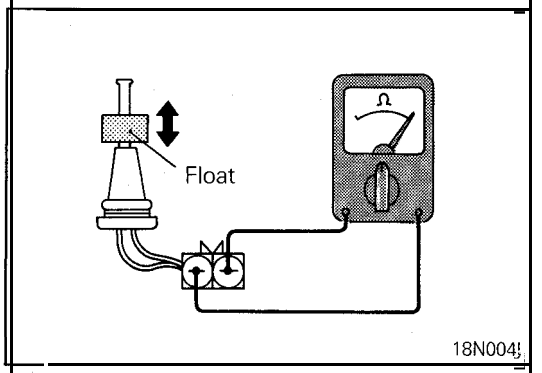
Inspection of Wiper Relay (Built-in Column Switch)

(1) Check to ensure that there is continuity between terminals ⑤ and ⑪ and between the terminals ⑥ and ⑩, and that there is no continuity between terminals ⑥ and ⑪.
(2) Connect the positive terminal of the battery to terminal ⑤ and the negative terminal to terminal ⑪ to check that the battery voltage is available at terminal ⑥.



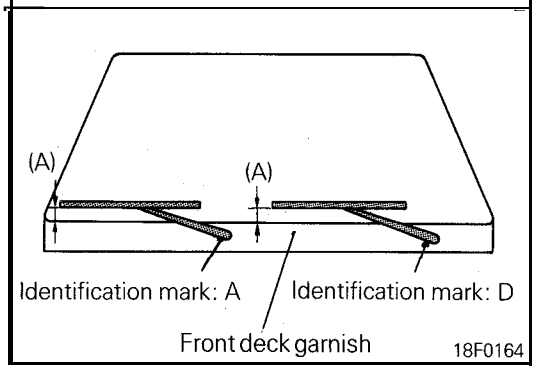
INSPECTION OF WASHER MOTOR

(1) When the washer motor is inspected, make sure that it is mounted on the washer tank and that the washer tank is filled with water.
(2) Connect the battery as shown to check whether water is pumped out.



INSPECTION OF WASHER FLUID LEVEL SENSOR

(1) Connect a circuit tester to the connector of the level sensor as shown.
(2) Check that when the float is moved down, the circuit is closed and that when the float is moved up, the circuit is opened.



SERVICE POINTS OF INSTALLATION

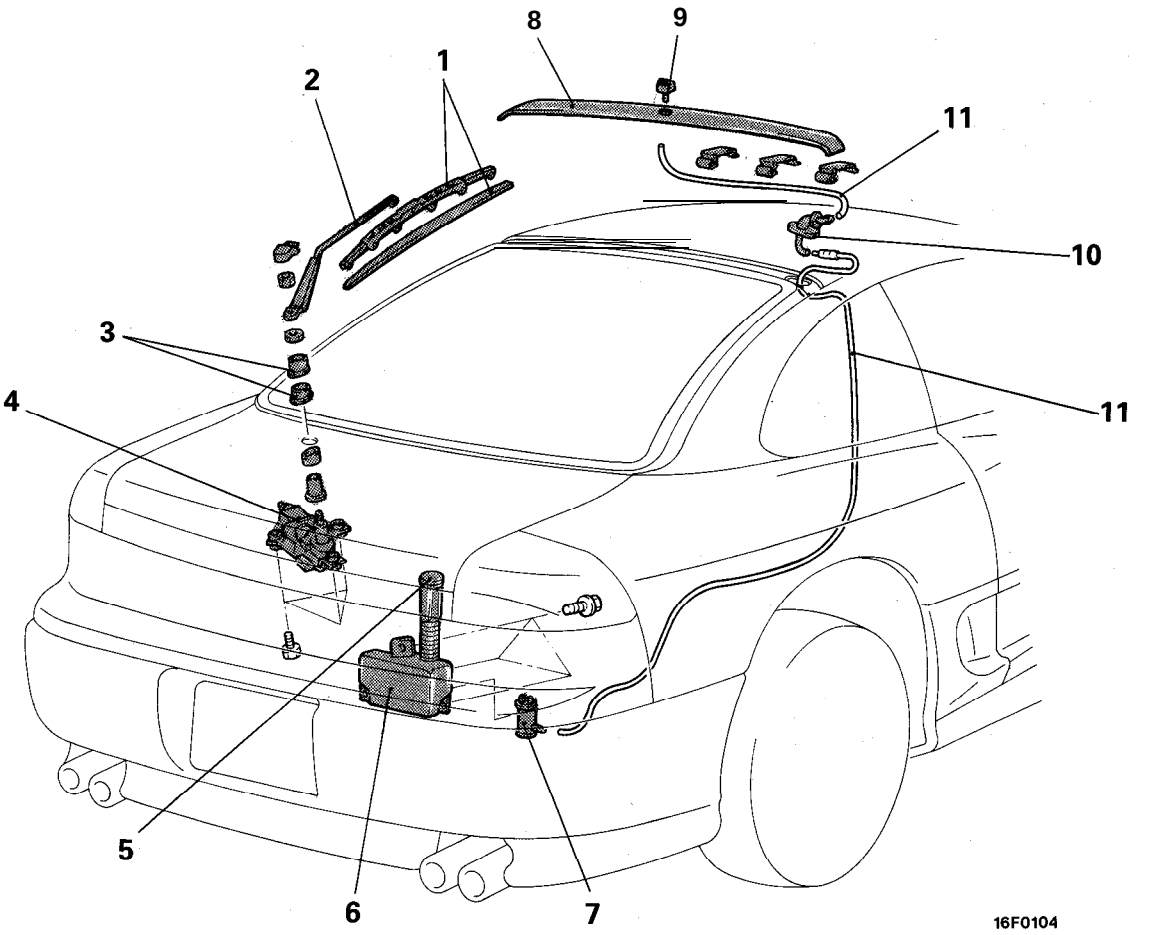
2. INSTALLATION OF WIPER ARM

(1) The wiper arms, right and left, are different in shape. Check the identification symbol.
(2) After the wiper blades have been set, install them in such a way that the ends of the wiper blades will stop at the specified positions (standard values).

Standard value: (A) 15 $^{+5}_{-0}$ (.6 $^{+.2}_{-0}$ in.)

REAR WIPER AND WASHER

REMOVAL AND INSTALLATION



Removal steps of wiper motor

Rear spoiler (Refer to GROUP 23A – Aero Parts.)

1. Wiper blade
2. Wiper arm
3. Spacer

Liftgate lower trim (Refer to GROUP 23A – Trim.)

4. Wiper motor

Removal steps of washer tank

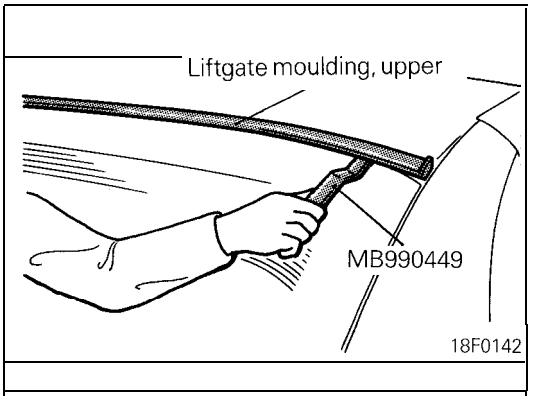
Rear end trim (Refer to GROUP 23A – Trim.)

5. Cap
6. Washer tank
7. Washer motor

Removal steps of washer tube

Front pillar trim (RH)
Quarter trim (RH)
Quarter upper trim (RH)
Rear roof rail trim
Rear side trim (RH)
(Refer to GROUP 23A – Trim.)

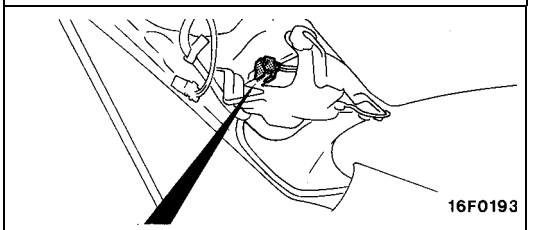
8. Liftgate moulding, upper
9. Washer nozzle
10. Tube and grommet assembly
11. Washertube



SERVICE POINT OF REMOVAL

8. REMOVAL OF LIFTGATE MOULDING, UPPER

Using a special tool, pry the clip portion to remove the upper liftgate moulding.



INSPECTION

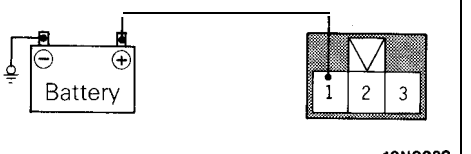
WIPER MOTOR

Check the wiper motor with it mounted on the vehicle and with its harness connector disconnected.

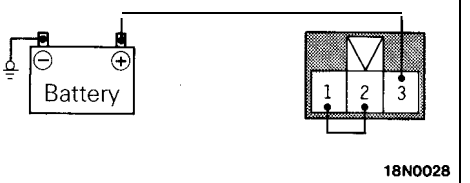
Operation of Wiper Motor

Connect a battery to the wiper motor, as shown, to check the operation of the wiper motor.

Inspection of operation

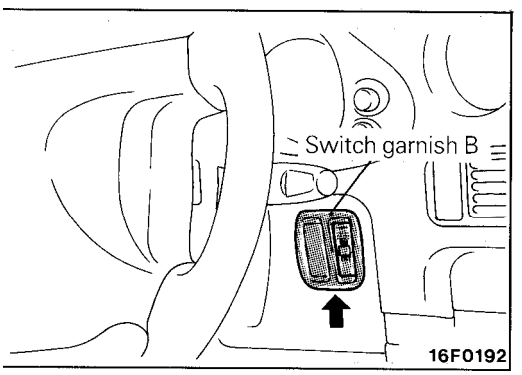


Inspection of stop position



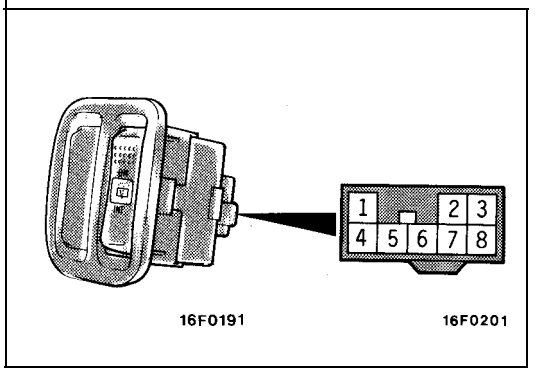
Wiper Motor Stop Position

(1) Operate the wiper motor by the procedure described above and intermediately disconnect the battery to let the wiper motor stop.
(2) Reconnect the battery as shown and check that the wiper motor stops at the automatically-stopped position after operation.



WIPER WASHER SWITCH

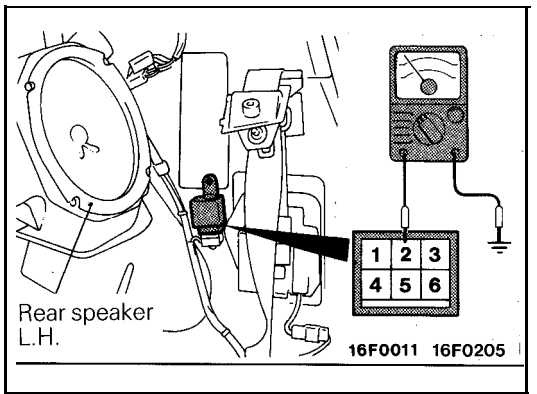
(1) Remove switch garnish B from the knee protector.

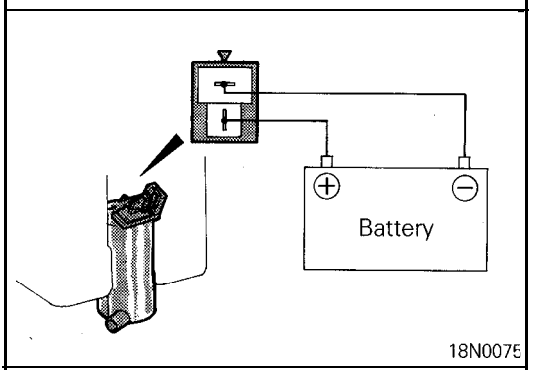


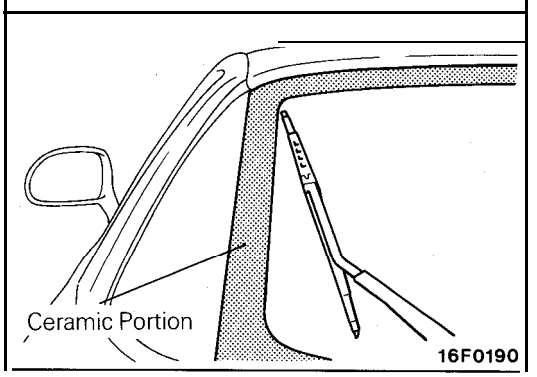
(2) Operate the switch to check for continuity between the terminals.

Switch position		Terminal 2	4	5	6	7	8	1	3
Wiper switch	OFF		○—○					ILL	
	INT		○—○			○—○			
	ON			○—○					
Washer switch	OFF								
	ON	○			○				

NOTE
O-O denotes that there is continuity between the terminals







INTERMITTENT WIPER RELAY

(1) Remove the quarter trim. (Refer to Group 23A – Trim.)
(2) With the intermittent wiper relay connected to the wiring harness connector, let the wiper operate intermittently and check the voltage at terminal ②.

Condition	Standard
When wiper is stationary	0V
When wiper is in operation	Battery voltage

WASHER MOTOR

(1) When the washer motor is inspected, make sure that it is mounted on the washer tank and that the washer tank is filled with water.
(2) Connect the battery as shown to check whether water is pumped out.

SERVICE POINT OF INSTALLATION

2. INSTALLATION OF WIPER ARM

After assembling the wiper blade to the wiper arm, install the wiper arm with its tip positioned along the ceramic part.

HORN

SPECIFICATIONS

GENERAL SPECIFICATIONS

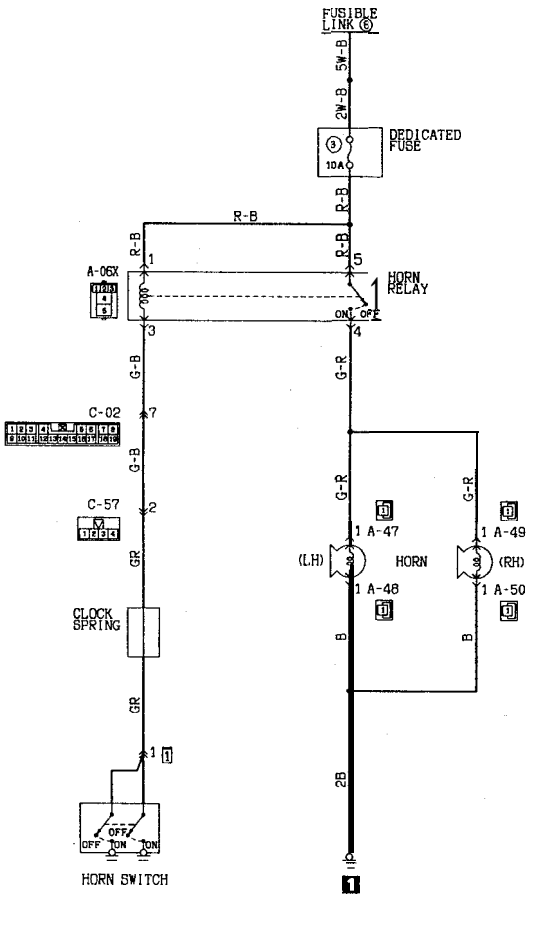
Items	Specifications	
Type	Flat type	Flat type*
Effective sounding voltage V	11.5-15	11 – 14.5”
Power consumption A	3.0	Max. 3.5”
Sound level dB		
“low” sound	100-112	–
“high” sound	100-112	105 – 120*
Fundamental frequency Hz		
“low” sound	350 – 390	–
“high” sound	395 – 435	405 – 435”

NOTE: The * symbol is applicable to vehicles equipped with the theft-alarm horn.

TROUBLESHOOTING

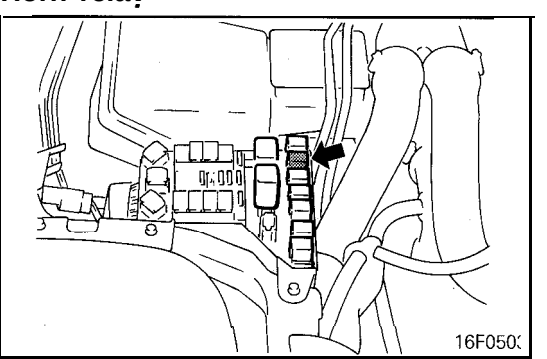
<VEHICLES WITHOUT THEFT-ALARM SYSTEM>

CIRCUIT DIAGRAM



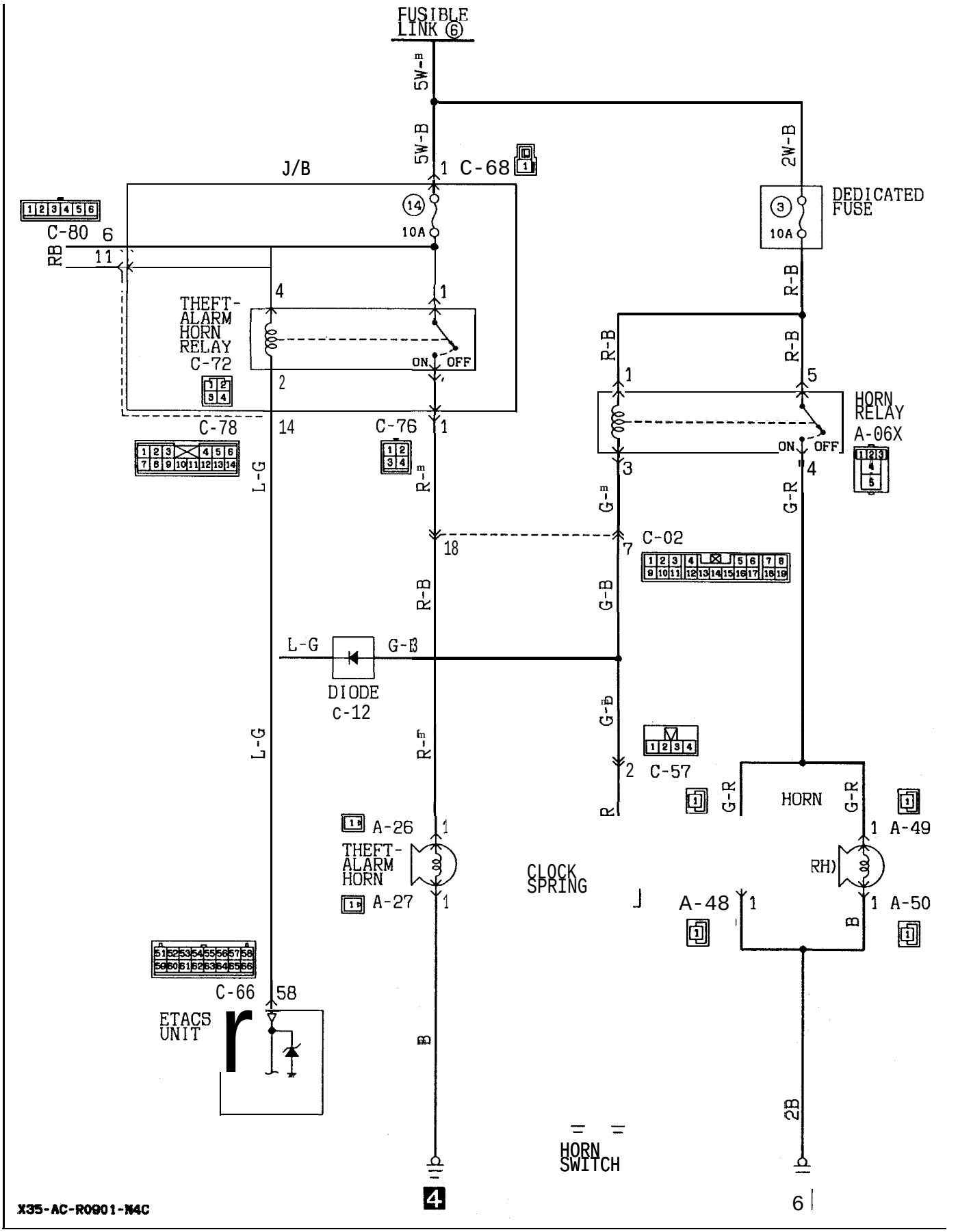
COMPONENT LOCATION

Horn relay



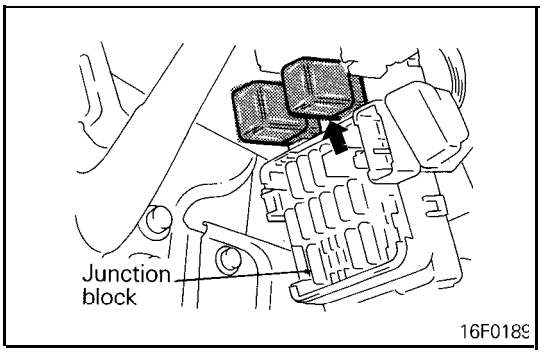
<VEHICLES WITH THEFT-ALARM SYSTEM>

CIRCUIT DIAGRAM

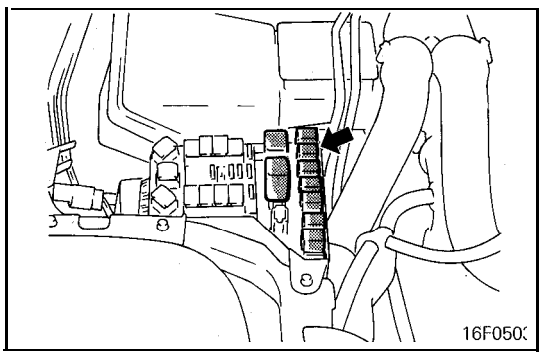


COMPONENT LOCATION

Theft-alarm horn relay



Horn relay



OPERATION

- The horn switch always receives battery voltage via the dedicated fuse ⑥ and the coil of the horn relay.
- When the horn switch is set to ON, the contacts of the horn relay close.
  Then current flows through the dedicated fuse ⑥ to the contacts of the horn relay, the horn and ground, causing the horn to sound.

TROUBLESHOOTING HINTS

One of the horn does not sound.
- Check the horn.

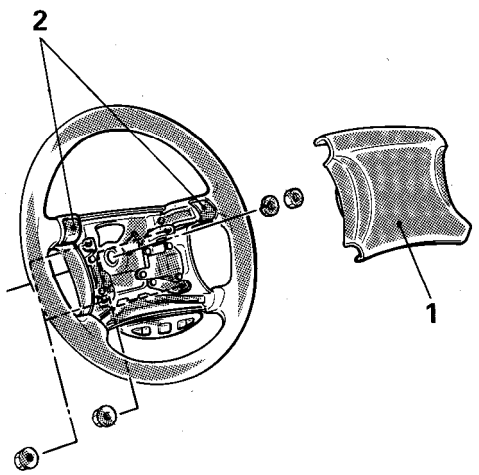
2. Horns do not sound.
   - Check the horn switch.
   - Check the dedicated fuse ⑥.

NOTE
(1) For vehicles equipped with the theft-alarm system, refer to P.8-412.
(2) For information concerning the horn relay and theft-alarm horn relay, refer to P.8-363.

HORN SWITCH

REMOVAL AND INSTALLATION

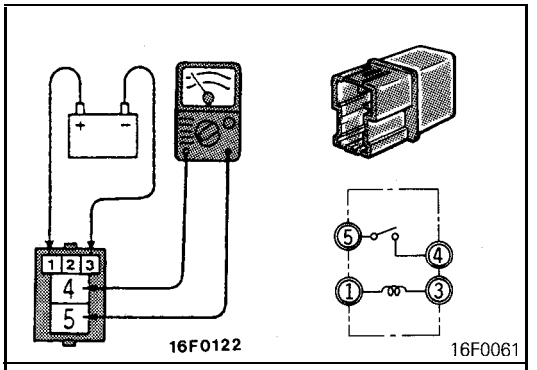
CAUTION: SRS
Before removal of air bag module, refer to GROUP 23B – SRS Service Precautions and Air Bag Module and Clock Spring.

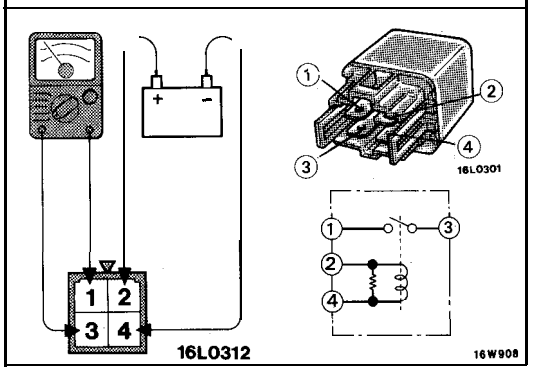


Removal steps

1. Air bag module (Refer to GROUP 23B – Air Bag Module and Clock Spring.)
2. Horn switch (Steering wheel assembly)

16F0506





RELAY

INSPECTION

HORN RELAY

Connect battery to terminal 1 and check continuity between terminals with terminal 3 grounded.

Power is supplied	4 – 5 terminals	Continuity
Power is not supplied	4 – 5 terminals	No continuity
	1 – 3 terminals	Continuity

THEFT-ALARM HORN RELAY

Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

Power is supplied	1 – 3 terminals	Continuity
Power is not supplied	1 – 3 terminals	No continuity
	2 – 4 terminals	Continuity

CIGARETTE LIGHTER

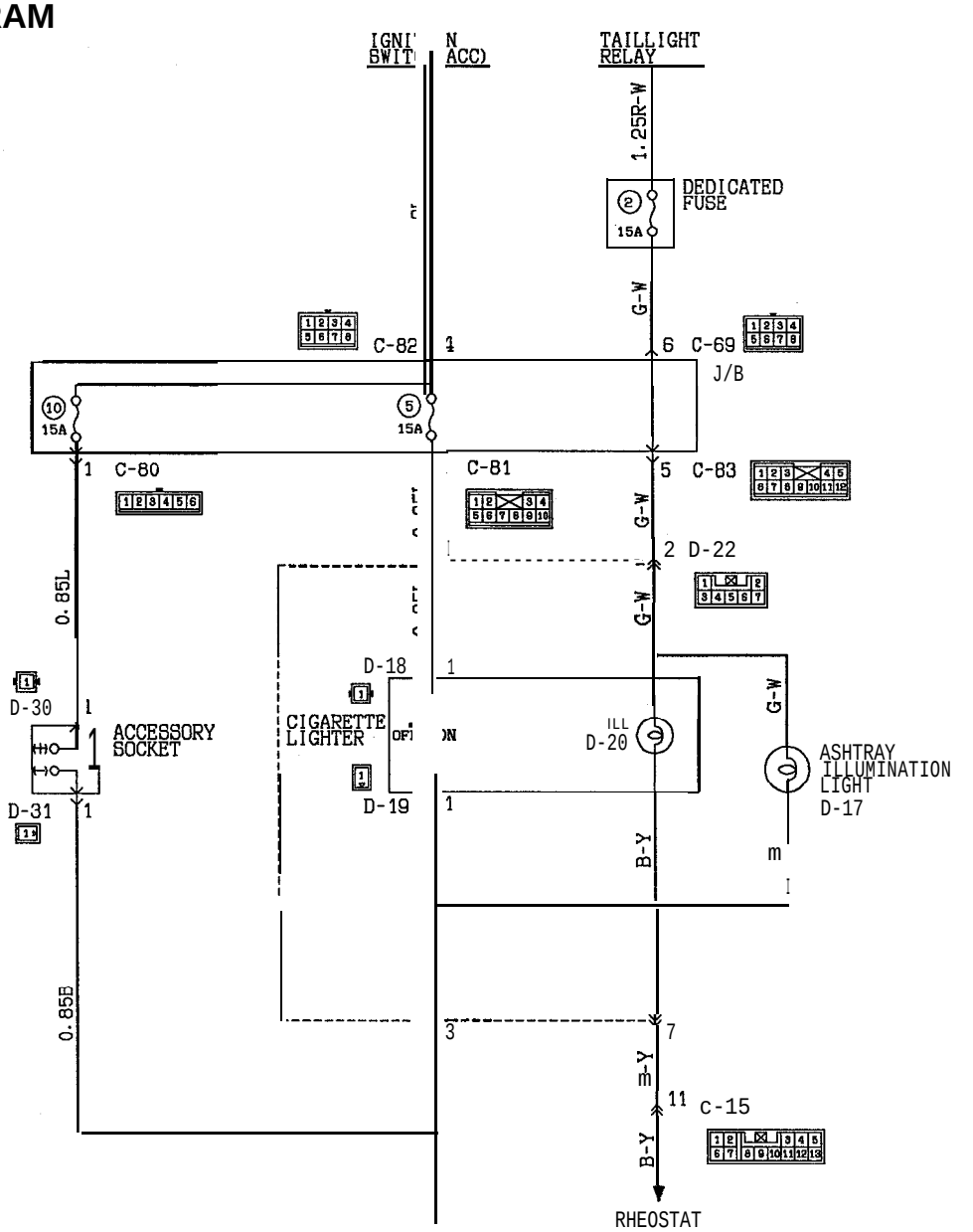
SPECIFICATIONS

GENERAL SPECIFICATIONS

Items	Specifications
Max. input W	120
Reset time second	Within 18
Thermal fuse fusion temperature °C (°F)	180 – 250 (356 – 482)

TROUBLESHOOTING

CIRCUIT DIAGRAM

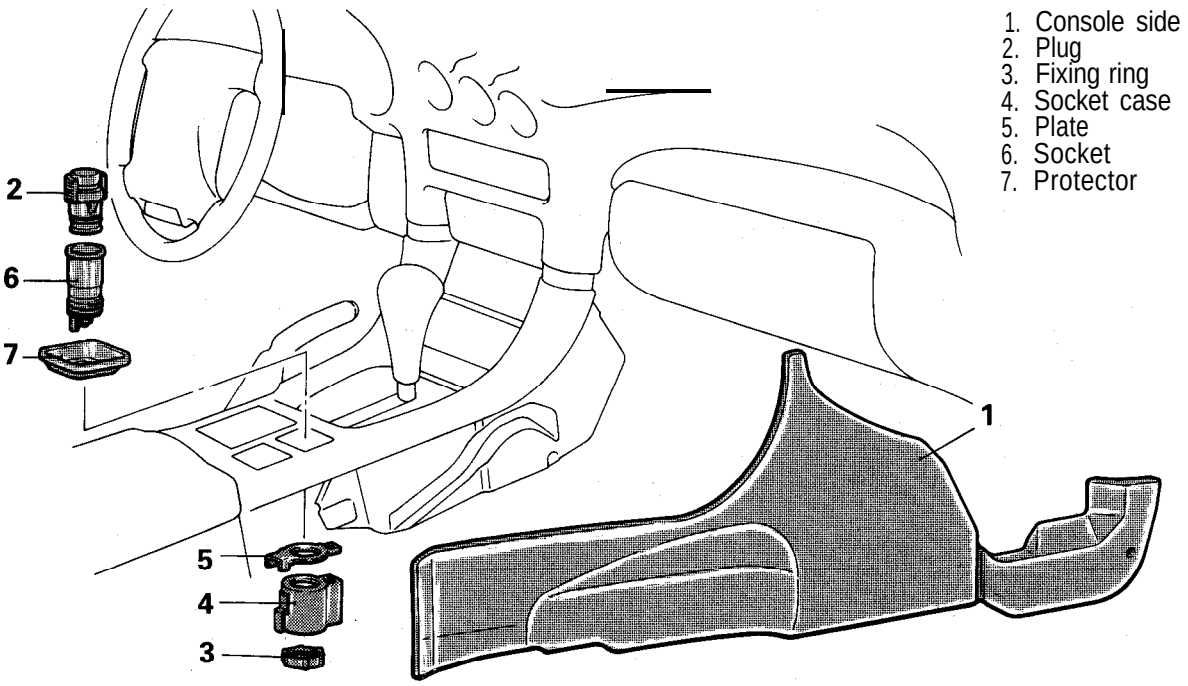


5

KX35-AC-R1404-NC

CIGARETTE LIGHTER

REMOVAL AND INSTALLATION



Removal steps

1. Console side cover (RH)
2. Plug
3. Fixing ring
4. Socket case
5. Plate
6. Socket
7. Protector

16F0274

INSPECTION

- Take out the plug, and check for a worn edge on the element spot connection, and for shreds of tobacco or other material on the element.
- Using an ohmmeter, check the continuity of the element.

CAUTIONS FOR USE OF THE CIGARETTE LIGHTER SOCKET AS AUXILIARY POWER SOURCE

1. **When using a "plug-in" type of accessory, do not use anything with a load of more than 120W.**
2. **It is recommended that only the lighter be inserted in the receptacle.**
   Use of "plug-in" type accessories may damage the receptacle and result in poor retention of the lighter.

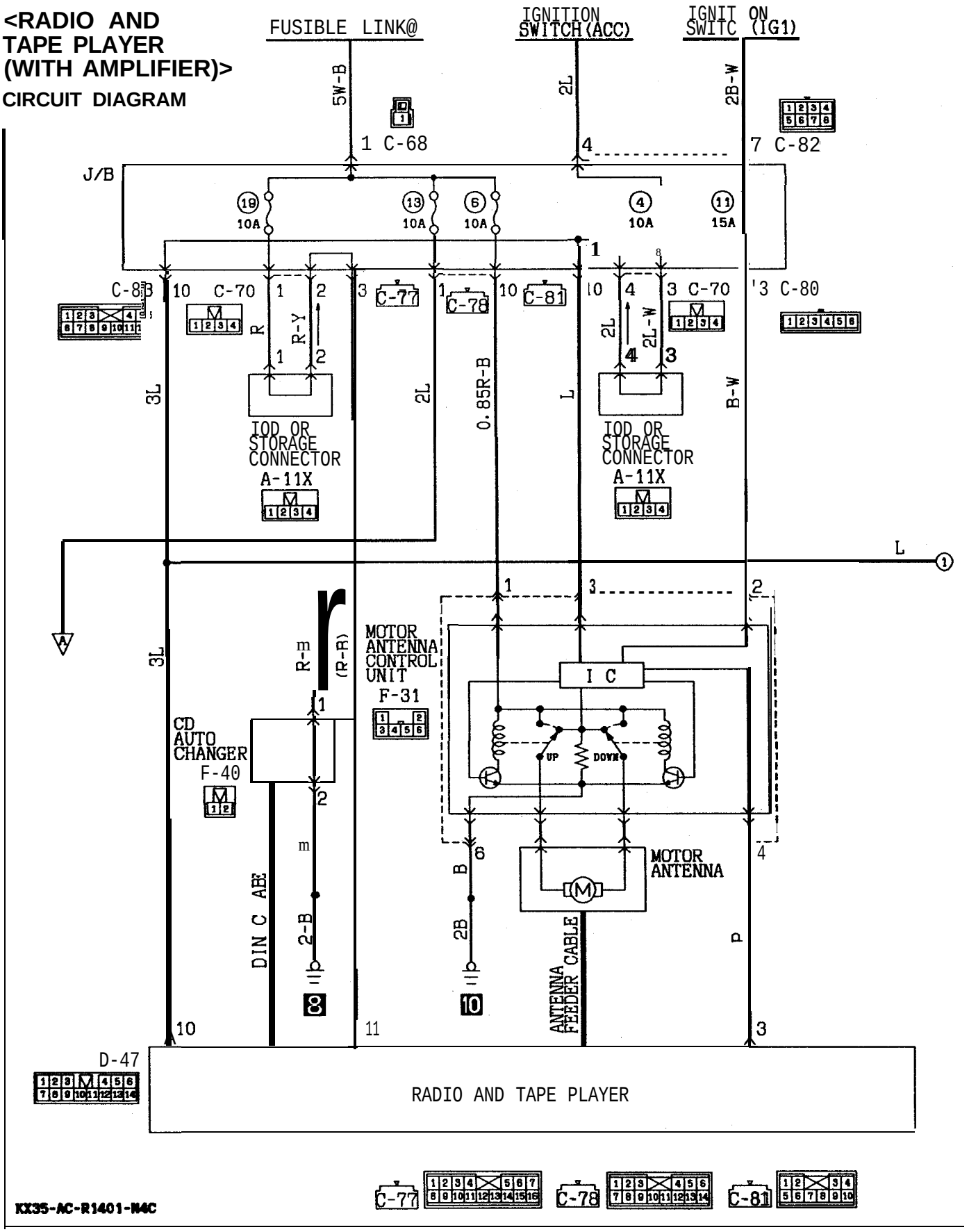
   NOTE
   The specified load should be strictly observed, because overloaded cord burns the ignition switch and harness.

RADIO AND TAPE PLAYER

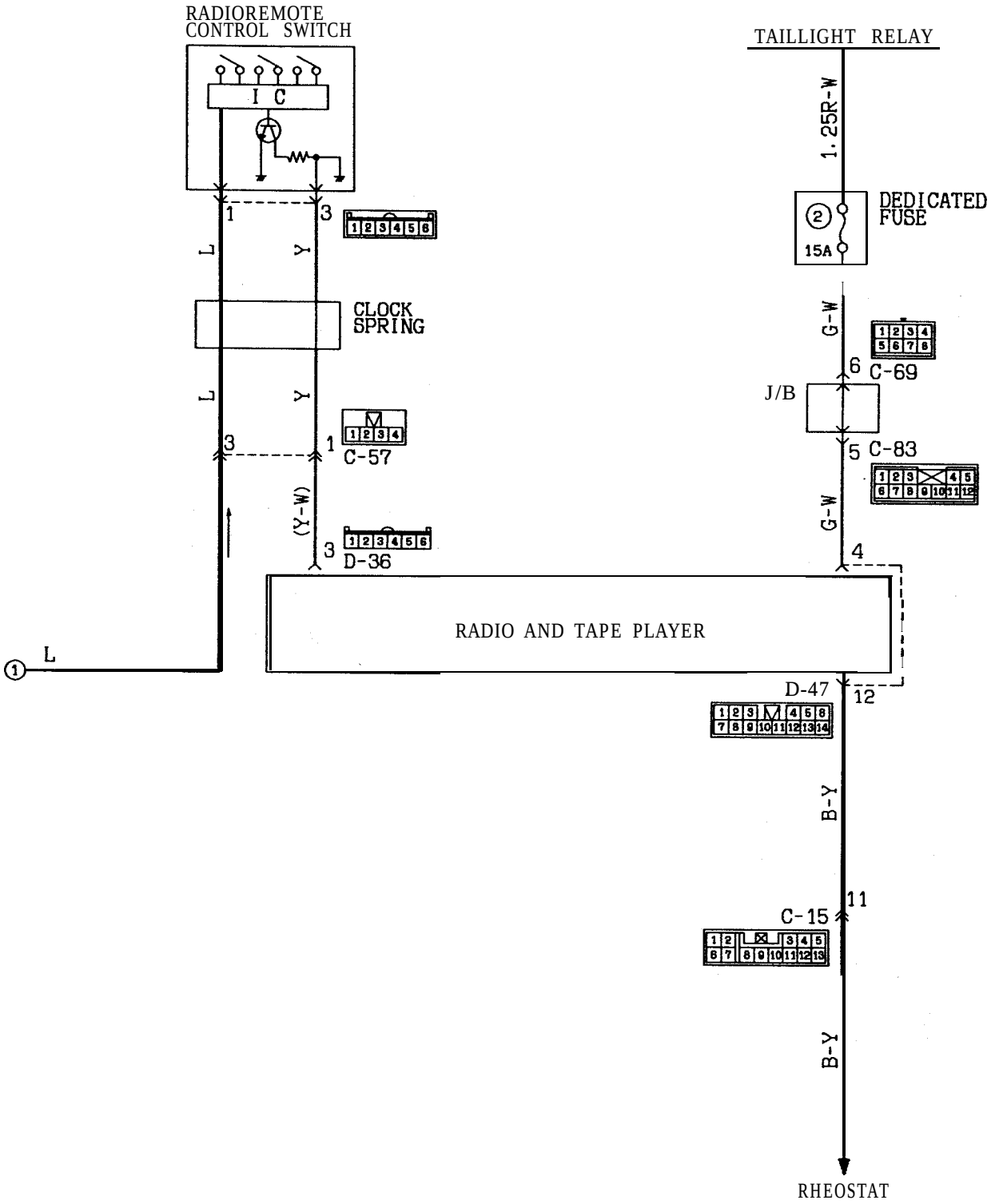
TROUBLESHOOTING

<RADIO AND TAPE PLAYER (WITH AMPLIFIER)>

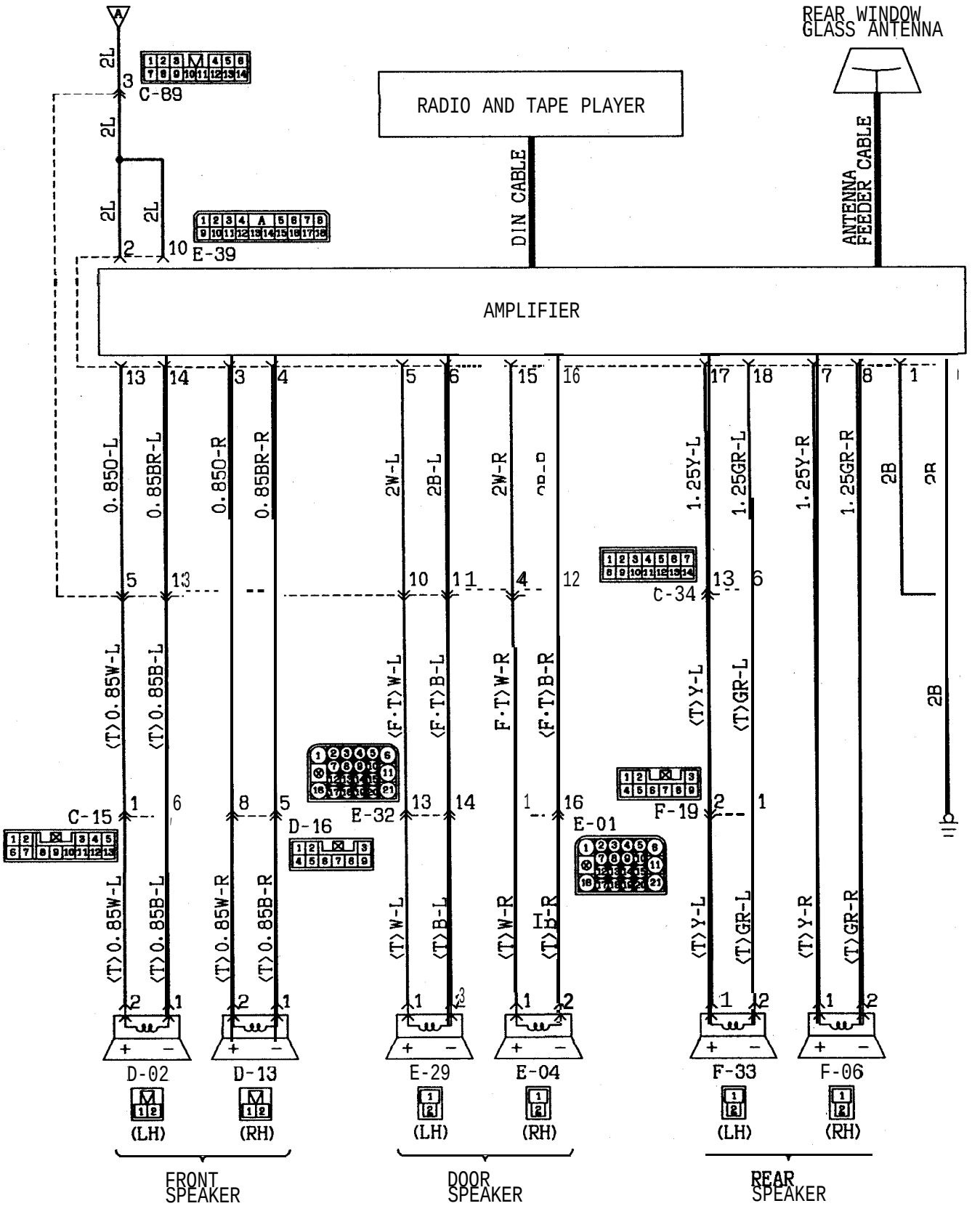
CIRCUIT DIAGRAM



KX35-AC-R1401-N4C


RADIOREMOTE CONTROL SWITCH
I C
TAILLIGHT RELAY
1.25R-W
DEDICATED FUSE
15A
CLOCK SPRING
G-W
C-69
J/B
C-83
C-57
(Y-W)
D-36
G-W
RADIO AND TAPE PLAYER
L
D-47
B-Y
C-15
B-Y
RHEOSTAT

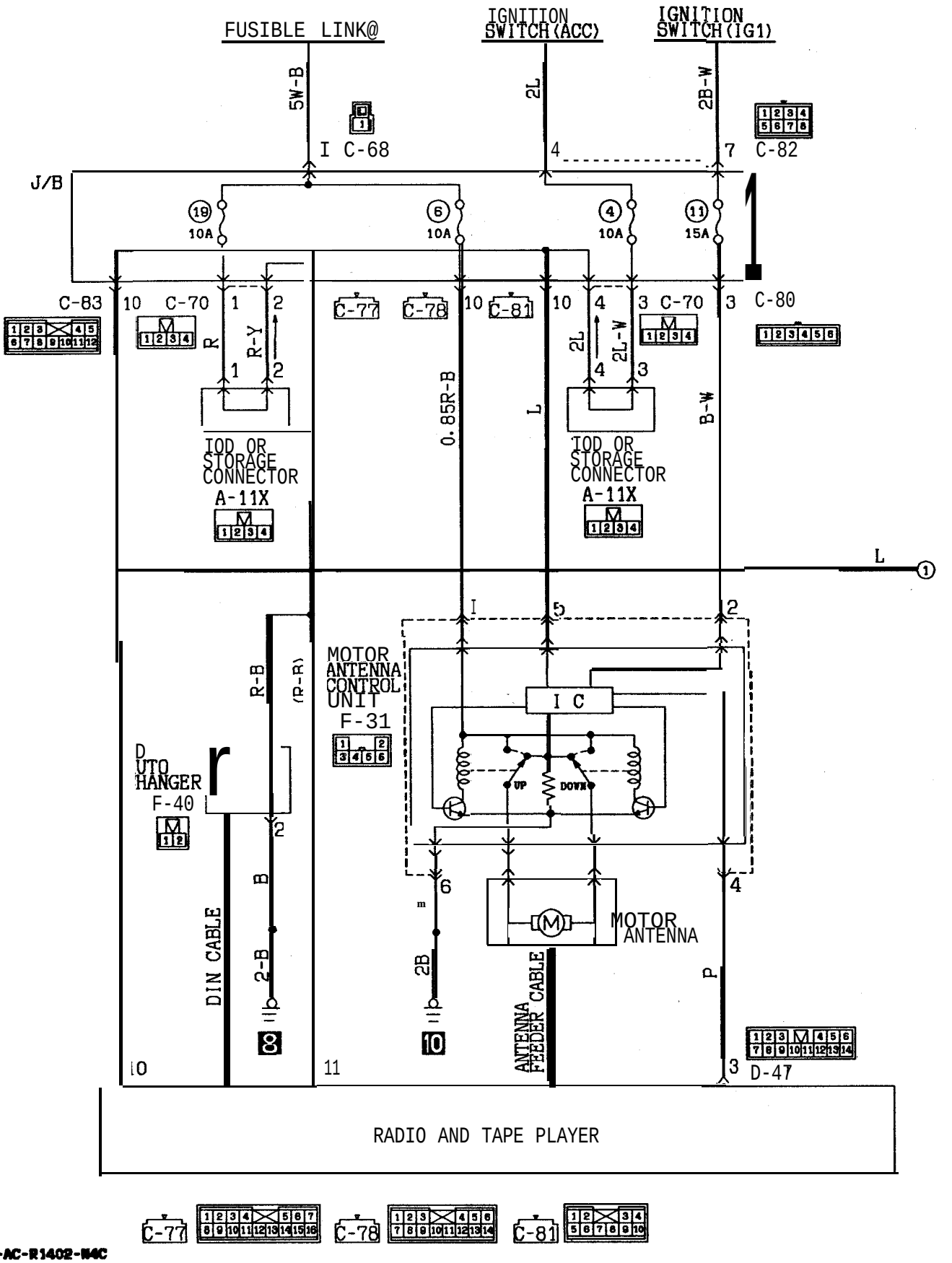
<RADIO AND TAPE PLAYER (WITH AMPLIFIER)> (CONTINUED)



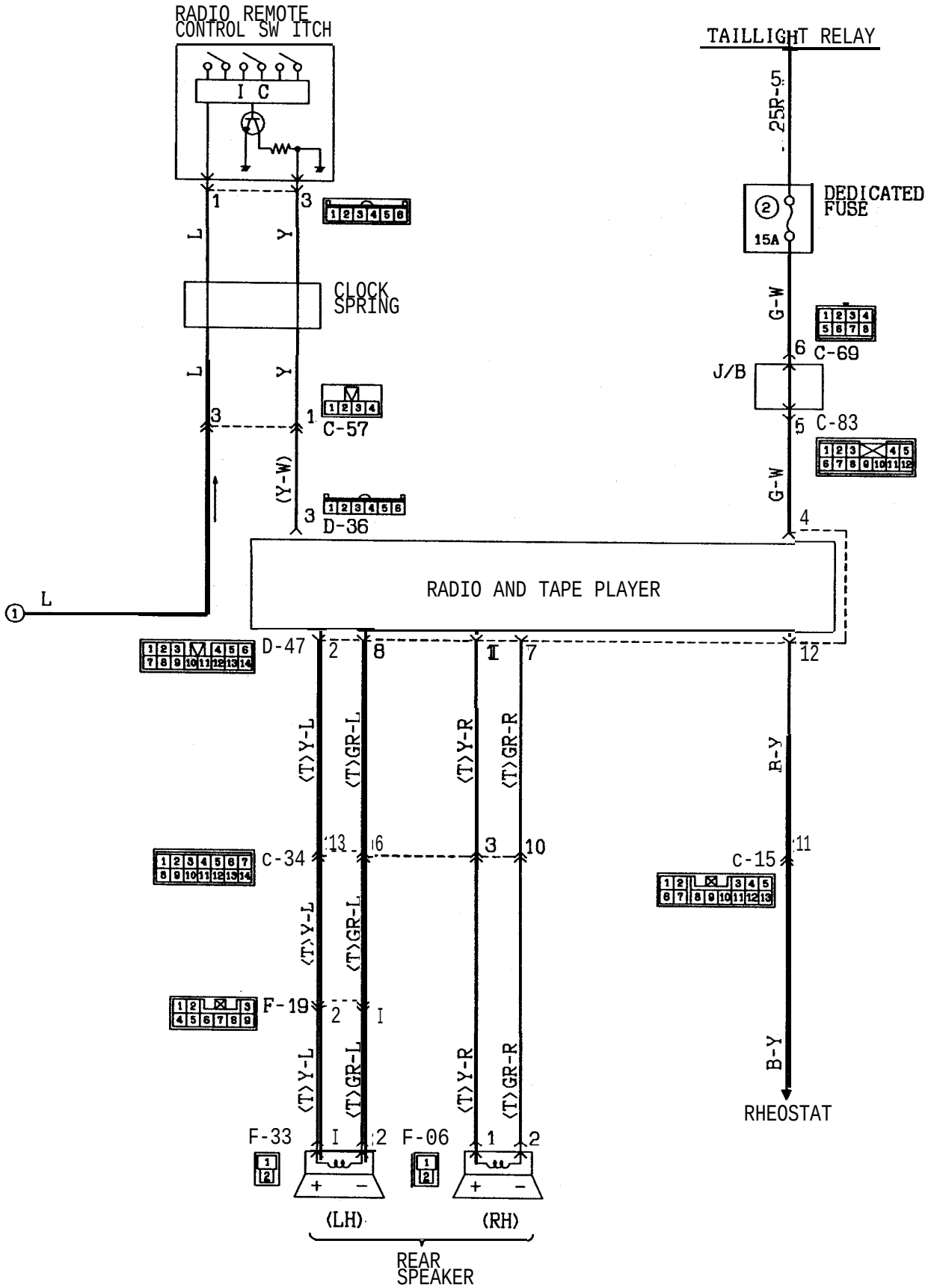
EX35-AC-R1401A-M4C

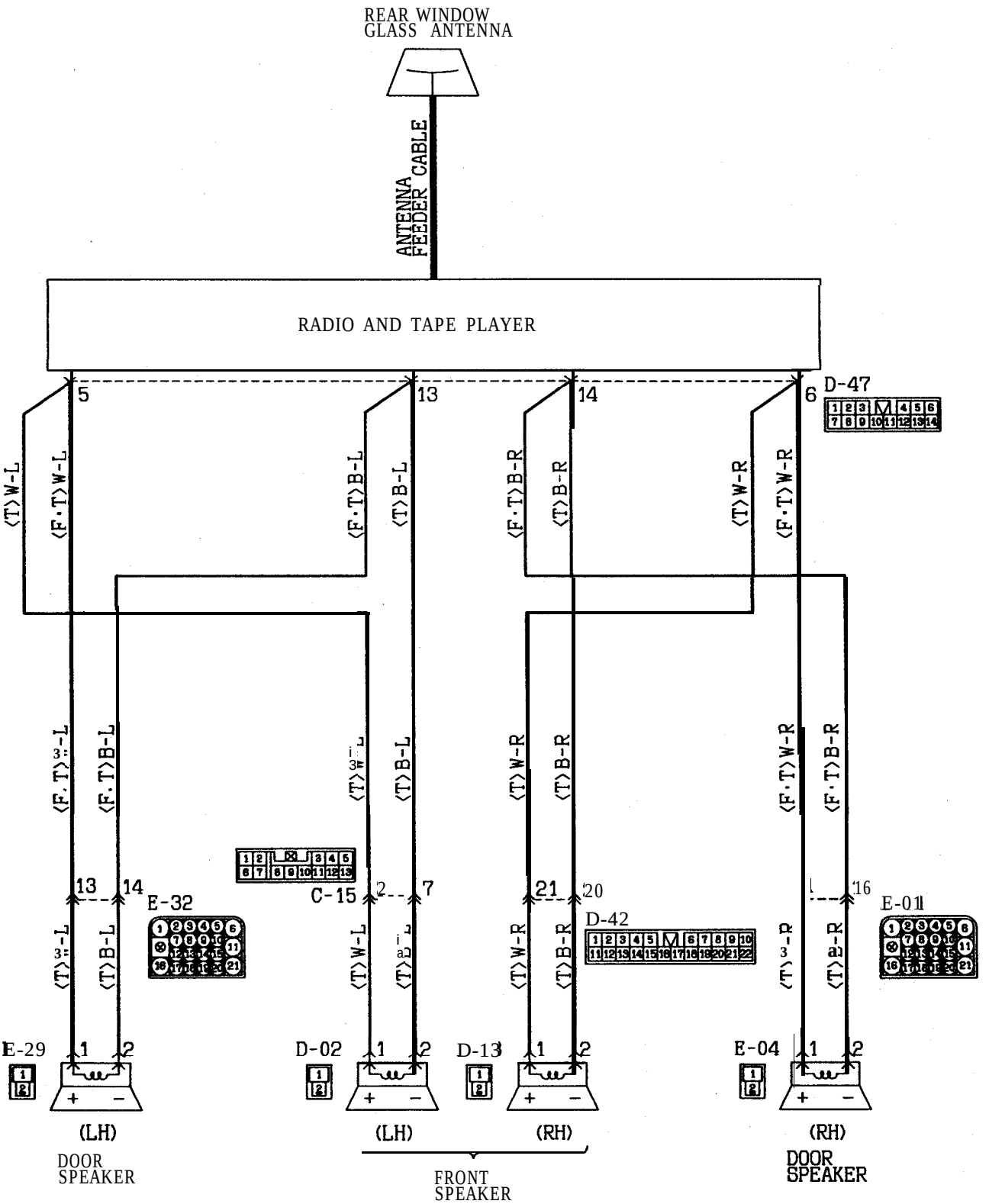
<RADIO AND TAPE PLAYER (WITHOUT AMPLIFIER)>

CIRCUIT DIAGRAM



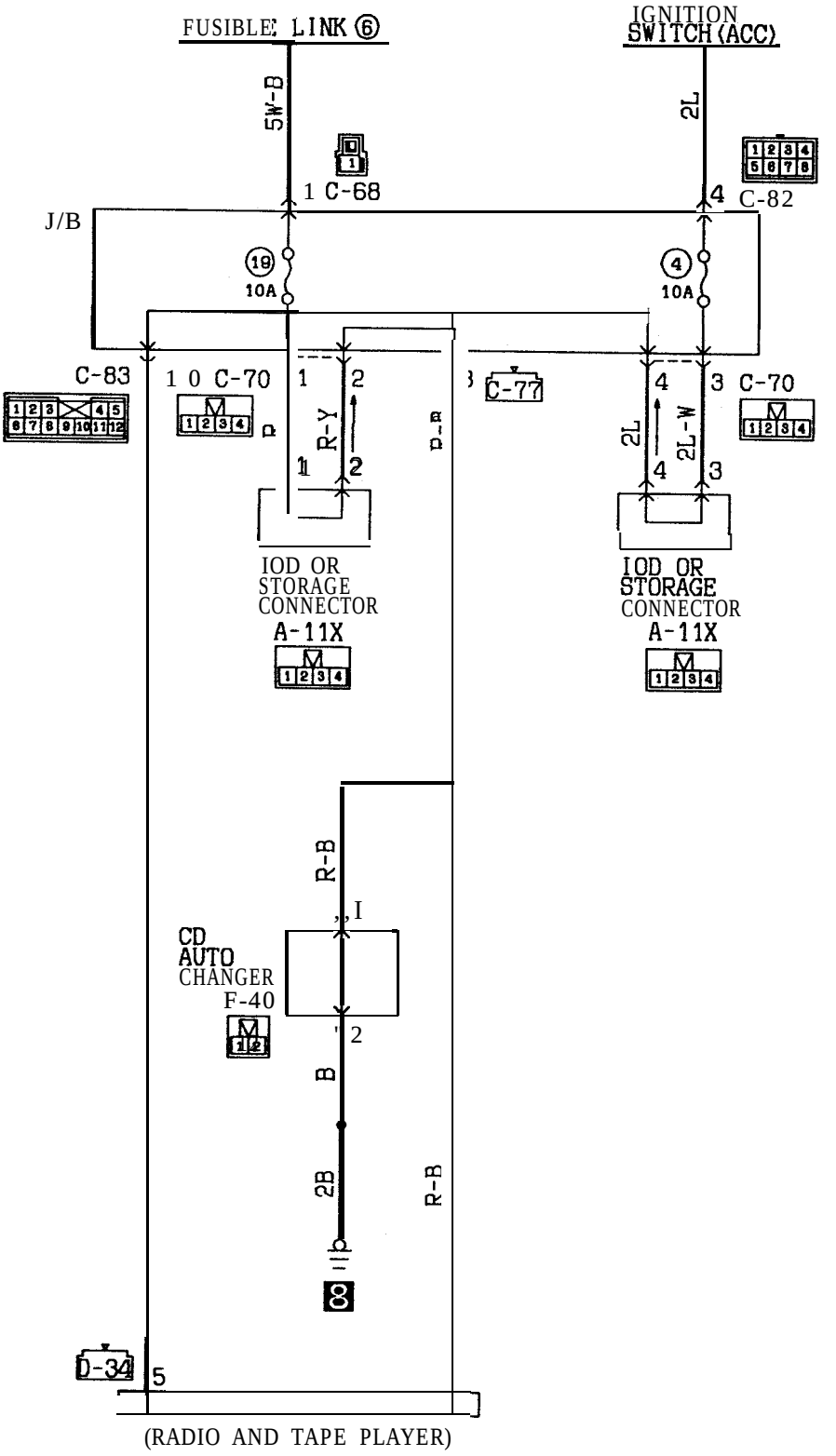
<RADIO AND TAPE PLAYER (WITHOUT AMPLIFIER)> (CONTINUED)



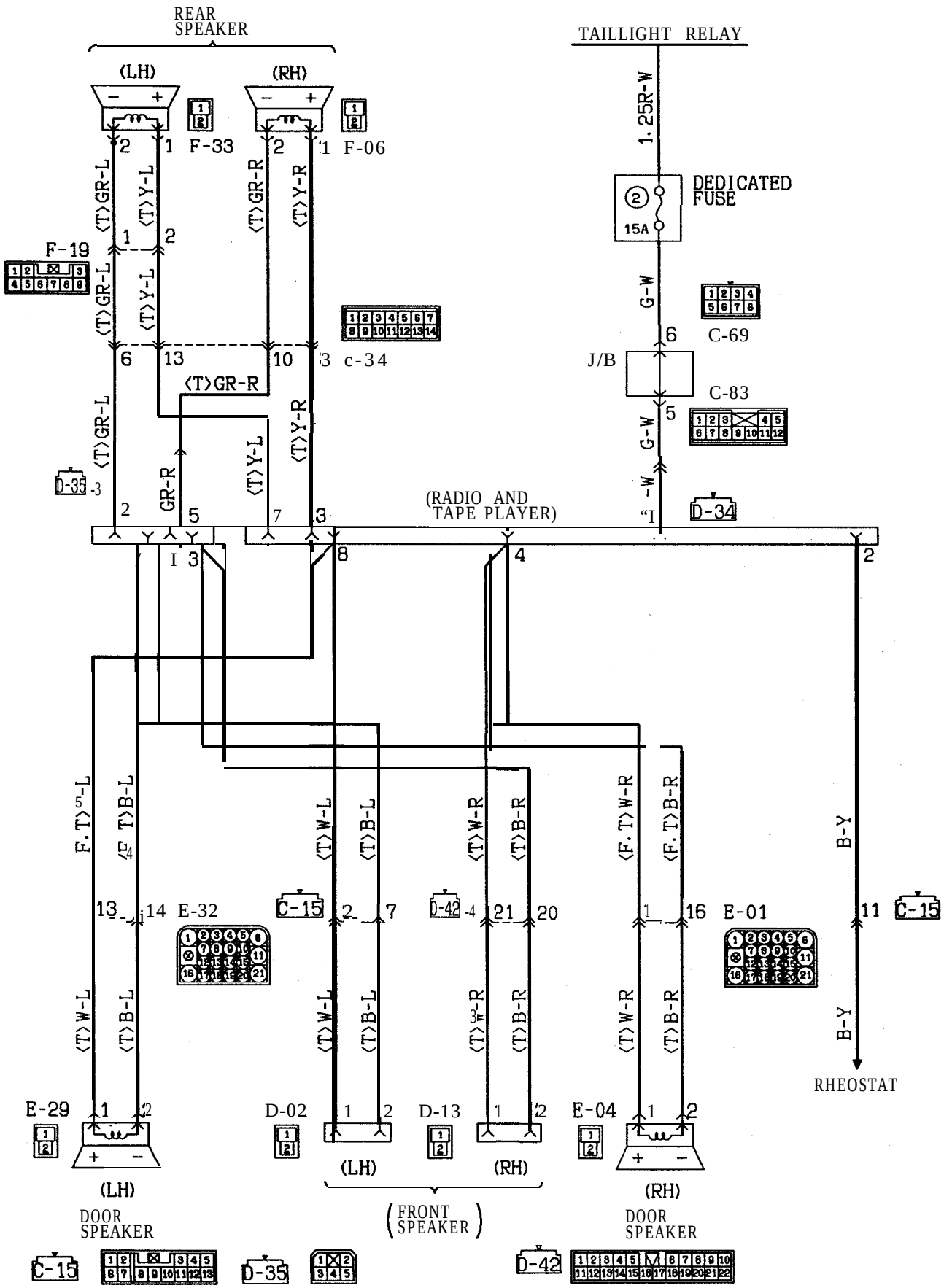

REAR WINDOW
GLASS ANTENNA
ANTENNA
FEEDER CABLE
RADIO AND TAPE PLAYER
5
13
14
6
D-47
⟨T⟩W-L
⟨F·T⟩W-L
⟨F·T⟩B-L
⟨T⟩B-L
⟨F·T⟩B-R
⟨T⟩B-R
⟨T⟩W-R
⟨F·T⟩W-R
13
14
E-32
C-15
21
20
D-42
16
E-01
E-29
D-02
D-13
E-04
(LH)
DOOR
SPEAKER
(LH)
(RH)
FRONT
SPEAKER
(RH)
DOOR
SPEAKER

<VEHICLES HARNESS WITHOUT RADIO AND TAPE PLAYER>

CIRCUIT DIAGRAM

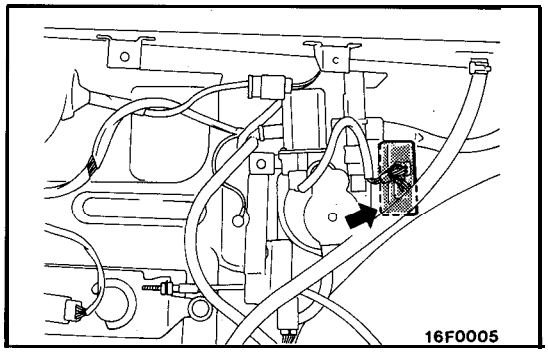


KX35-AC-R1403-N4C


REAR SPEAKER
(LH)
(RH)
F-33
F-06
TAILLIGHT RELAY
1.25R-W
DEDICATED FUSE
15A
G-W
C-69
J/B
C-83
F-19
c-34
(T)GR-L
(T)Y-L
(T)GR-R
(T)Y-R
GR-R
D-35
(RADIO AND TAPE PLAYER)
D-34
(F.T)Y-L
(F.T)B-L
(T)W-L
(T)B-L
(T)W-R
(T)B-R
(F.T)W-R
(F.T)B-R
B-Y
E-32
C-15
D-42
E-01
RHEOSTAT
E-29
D-02
D-13
E-04
(LH)
(RH)
DOOR SPEAKER
FRONT SPEAKER
C-15
D-35
D-42

COMPONENT LOCATION

Motor antenna control unit



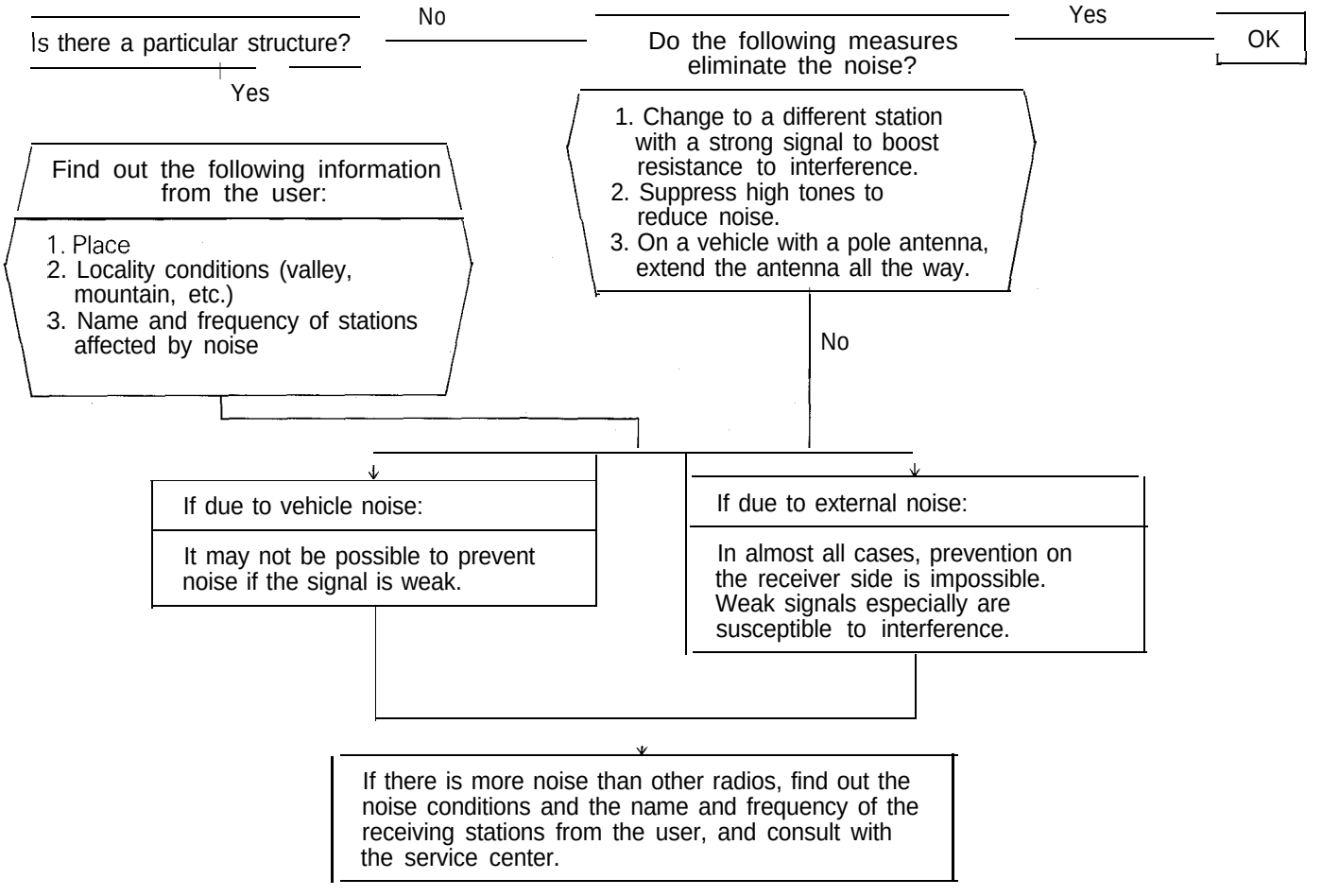
TROUBLESHOOTING CHART

Item	Problem symptom	Relevant chart
Noise	Noise appears at certain places when traveling (AM).	A–1
	Noise appears at certain places when traveling (FM).	A–2
	Mixed with noise, only at night (AM).	A–3
	Broadcasts can be heard but both AM and FM have a lot of noise.	A–4
	There is more noise either on AM or on FM.	A–5
	There is noise when starting the engine.	A–6
	Some noise appears when there is vibration or shocks during traveling.	A–7
	Noise sometimes appears on FM during traveling.	A–8
	Ever-present noise.	A–9
Radio	When switch is set to ON, no power is available.	B–1
	No sound from one speaker.	B–2
	There is noise but no reception for both AM and FM or no sound from AM, or no sound from FM.	B–3
	Insufficient sensitivity.	B–4
	Distortion on AM or on both AM and FM.	B–5
	Distortion on FM only.	B–6
	Too few automatic select stations.	B–7
	Insufficient memory (preset stations are erased).	B–8
Cassette player	Cassette tape will not insert.	C–1
	No sound.	C–2
	No sound from one speaker.	C–3
	Sound quality is poor, or sound is weak.	C–4
	Cassette tape will not eject.	C–5
	Uneven revolution. Tape speed is fast or slow.	C–6
	Automatic search does not work	C–7
	Faulty auto reverse.	C-8
	Tape gets caught in mechanism.	c-9
CD player	CD will not be accepted.	D-I
	No sound.	D-2
	CD sound skips.	D-3
	Sound quality is poor.	D-4
	CD will not be ejected.	D-5
	No sound from one speaker.	D-6
Motor antenna	Motor antenna won't extend or retract.	E-I
	Motor antenna extends and retracts but does not receive.	E-2

CHART

A. NOISE

A-1	Noise appears at certain places when traveling (AM).



A-Z | Noise appears at certain places when traveling (FM).

Do the following measures eliminate the noise?

- Change to a different station with a strong signal to boost resistance to interference.
- Suppress high tones to reduce noise.
- Extend antenna completely. (Whip antenna)

Yes → OK

No ↓

If there is more noise than other radios, find out the noise conditions and the name and frequency of the receiving stations from the user, and consult with the service center.

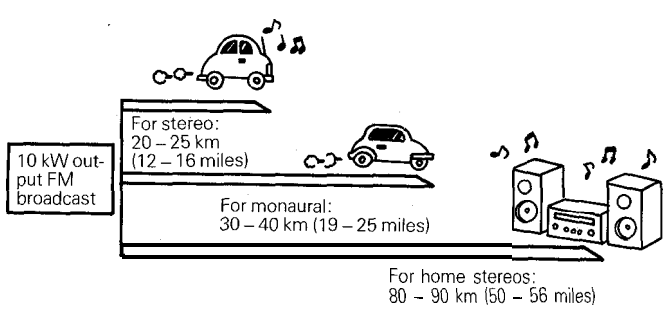
NOTE

About FM waves:

FM waves have the same properties as light, and can be deflected and blocked. Wave reception is not possible in the shadow of obstructions such as buildings or mountains.

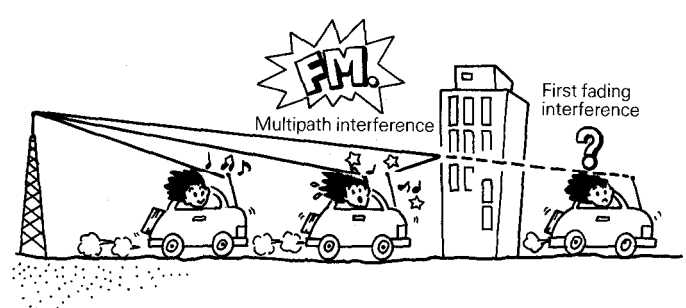
1. The signal becomes weak as the distance from the station's transmission antenna increases. Although this may vary according to the signal strength of the transmitting station and intervening geographical formations or buildings, the area of good reception is approx. 20 – 25 km (12 – 16 miles) for stereo reception, and 30 – 40 km (19 – 25 miles) for monaural reception.
2. The signal becomes weak when an area of shadow from the transmitting antenna (places where there are obstructions such as mountains or buildings between the antenna and the car), and noise will appear. <This is called first fading, and gives a steady buzzing noise.>
3. If a direct signal hits the antenna at the same time as a signal reflected by obstructions such as mountains or buildings, interference of the two signals will generate noise. During traveling, noise will appear each time the vehicle's antenna passes through this kind of obstructed area. The strength and interval of the noise -varies according to the signal strength and the conditions of deflection. <This is called multipath noise, and is a repetitious buzzing.>
4. Since FM stereo transmission and reception has a weaker field than monaural, it is often accompanied by a hissing noise.

FM Broadcast Good Reception Areas



16A0663

FM Signal Characteristics and Signal Interference

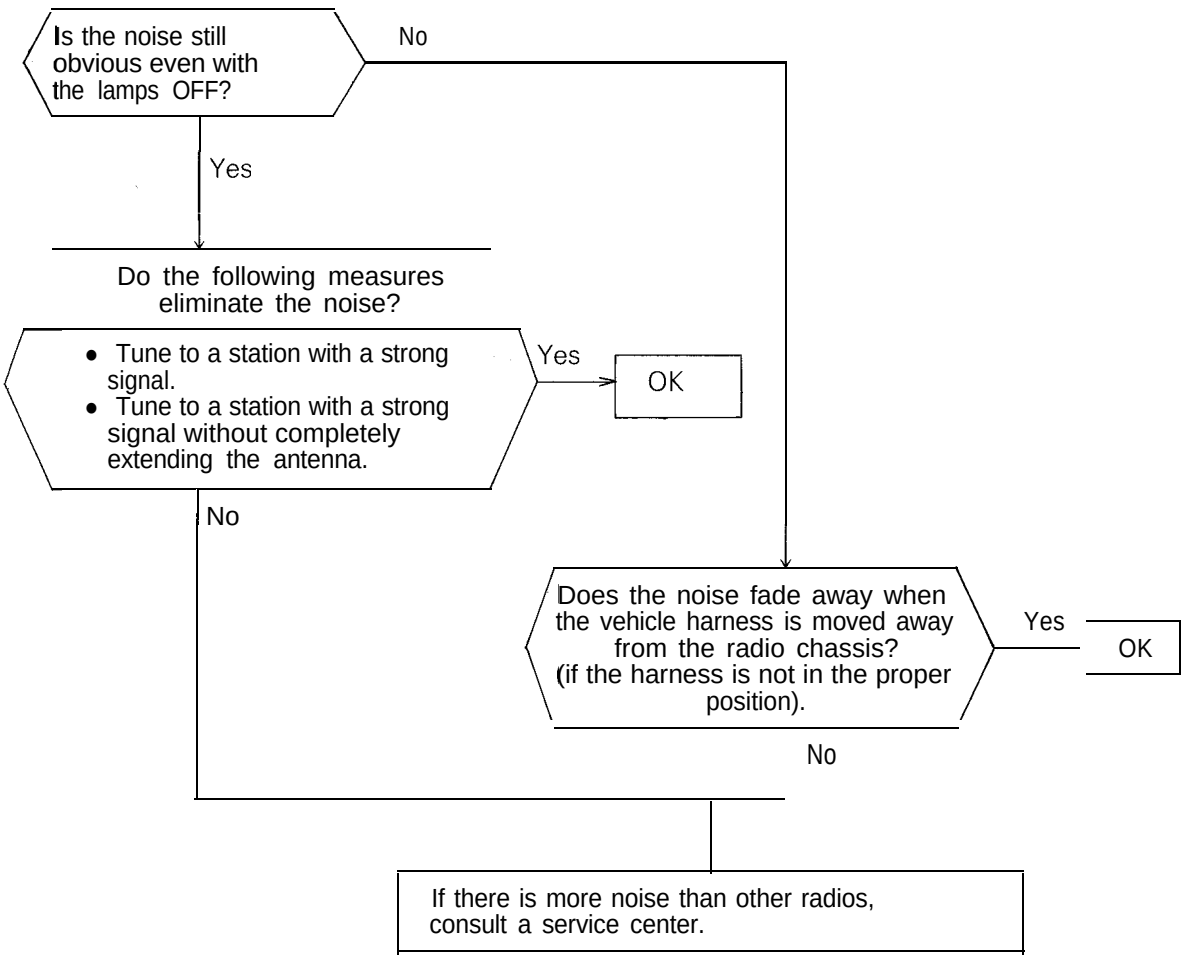


16A0664

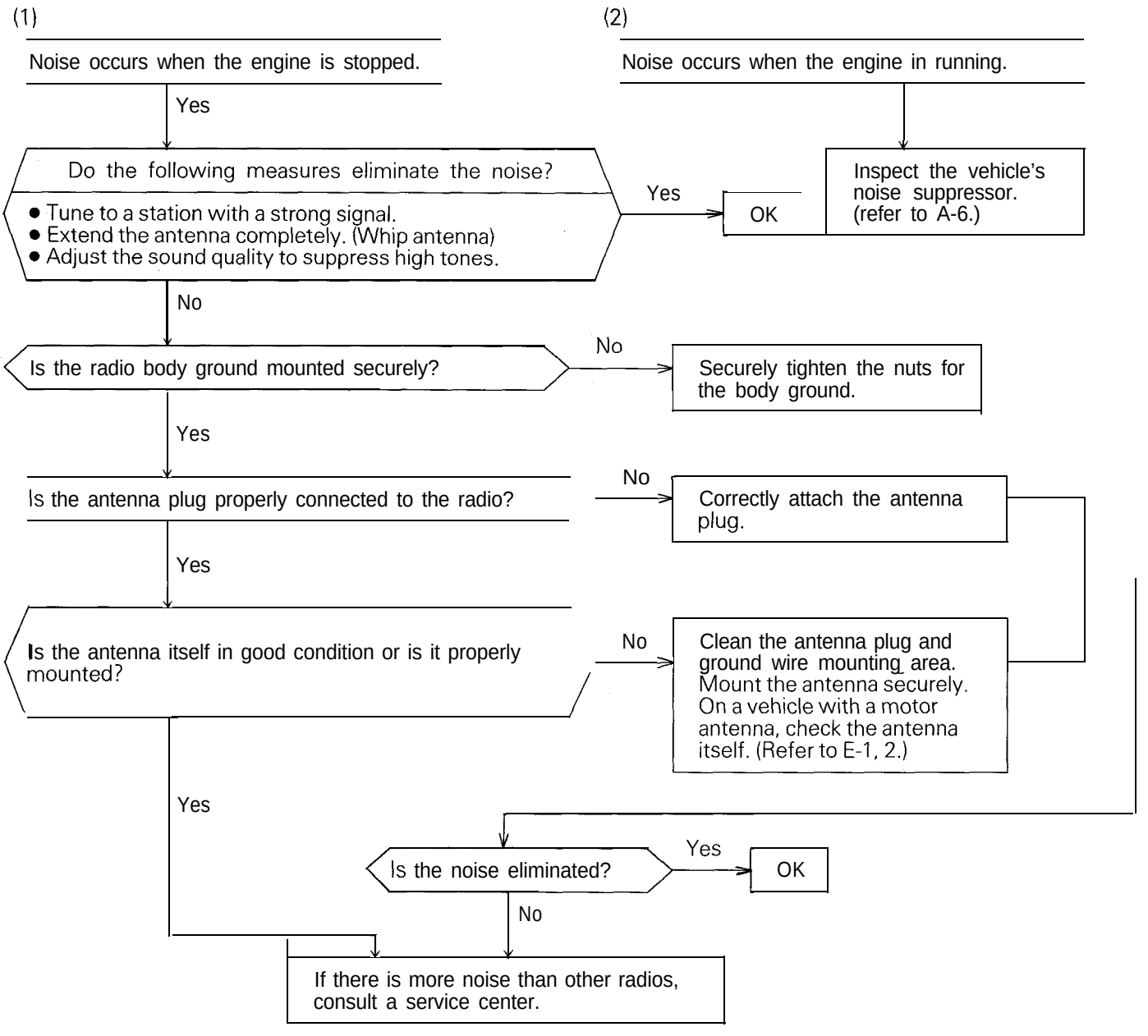
A-3 Mixed with noise, only at night (AM).

The following factors can be considered as possible causes of noise appearing at night.

1. Factors due to signal conditions: Due to the fact that long-distance signals are more easily received at night, even stations that are received without problem during the day may experience interference in a general worsening of reception conditions. The weaker a station is the more susceptible it is to interference, and a change to a different station or the appearance of a beating sound* may occur.
   Beat sound*: Two signals close in frequency interfere with each other, creating a repetitious high-pitched sound. This sound is generated not only by sound signals but by electrical waves as well.
2. Factors due to vehicle noise: Generator noise may be a cause.



A-4	Broadcasts can be heard but both AM and FM have a lot of noise.



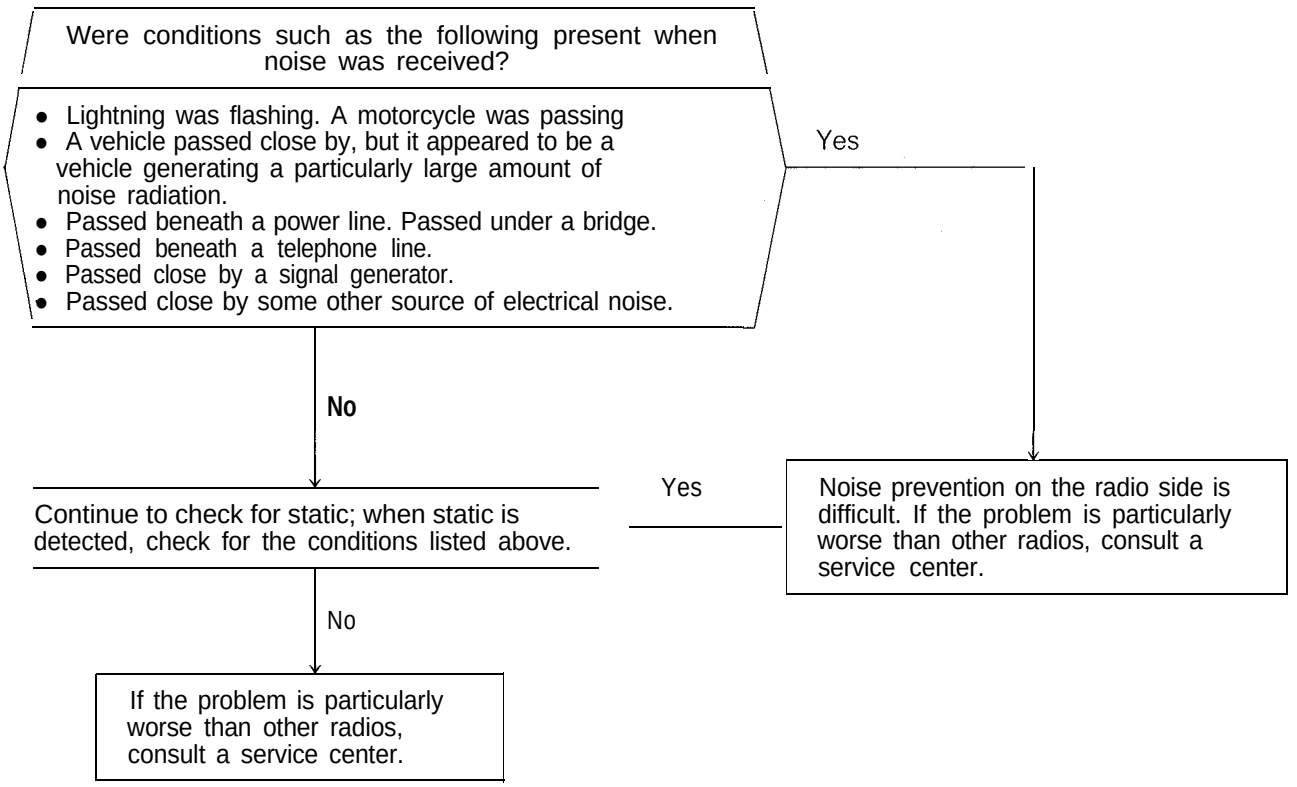
NOTE

About noise encountered during FM reception only. Due to differences in FM and AM systems, FM is not as susceptible as AM to interference from engines, power lines, lightning, etc. On the other hand, there are cases due to the characteristics of FM waves of noise or distortion generated by typical noise interference (first fading and multipath). (Refer to A-2.)

<Noise (hissing) occurs in weak signal areas such as mountainous regions, but this is not due to a problem with the radio.>

A-5 There is more noise either on AM or on FM.

1. There is much noise only on AM
   Due to differences in AM and FM systems, AM is more susceptible to noise interference.



2. There is much noise only on FM
   Due to differences in FM and AM systems, FM is not as susceptible as AM to interference from engines, power lines, lightning, etc. On the other hand, there are cases due to the characteristics of FM waves of noise or distortion generated by typical noise interference (first fading and multipath). (Refer to A-2) <Noise (hissing) occurs in weak signal areas such as mountainous regions, but this is not due to a problem with the radio.>

A-6 There is noise when starting the engine.

Noise type Sounds are in parentheses ( ).	Conditions	Cause	Inspection or replacement	
			Noise-preventive part	Mounting place (next page)
AM, FM: Ignition noise (Popping, Snapping, Cracking, Buzzing)	• Increasing the engine speed causing the popping sound to speed up, and volume decreases. • Disappears when the ignition switch is turned to ACC.	• Mainly due to the spark plugs. • Due to the engine noise.	• Noise filter • Ground cable • Noise condenser	2 2, 3, 4 1, 2
Other electrical components		Noise may appear as electrical components become older.	Repair or replace electrical components.	
Static electricity (Cracking, Crinkling)	• Disappears when the vehicle is completely stopped. • Severe when the clutch is engaged.	Occurs when parts or wiring move for some reason and contact metal parts of the body.	Return parts or wiring to their proper position.	
	• Various noises are produced depending on the body part of the vehicle.	Due to detachment from the body of the front hood, bumpers, exhaust pipe and muffler, suspension, etc.	Ground parts by bonding. Cases where the problem is not eliminated by a single response to one area are common, due to several body parts being imperfectly grounded.	

Caution

1. **Connecting a high tension cable to the noise filter may destroy the noise filter and should never be done.**
2. **Check that there is no external noise. Since failure to do this may result in misdiagnosis due to inability to identify the noise source, this operation must be performed.**
3. **Noise prevention should be performed by suppressing strong sources of noise step by step.**

NOTE

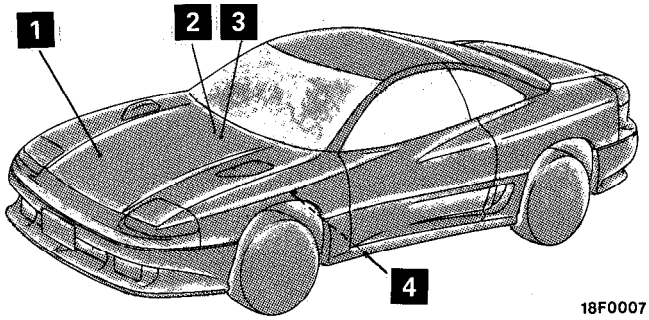
1. Condenser

The condenser does not pass D.C. current, but as the number of waves increases when it passes A.C. current, impedance (resistance against A.C.) decreases, and current flow is facilitated. A noise suppressing condenser which takes advantage of this property is inserted between the power line for the noise source and the ground. This suppresses noise by grounding the noise component (A.C. or pulse signal) to the body of the vehicle.

2. Coil

The coil passes D.C. current, but impedance rises as the number of waves increases relative to the A.C. current. A noise suppressing coil which takes advantage of this property is inserted into the power line for the noise source, and works by preventing the noise component from flowing or radiating out of the line.

NOISE SUPPRESSION PARTS MOUNTING POSITIONS



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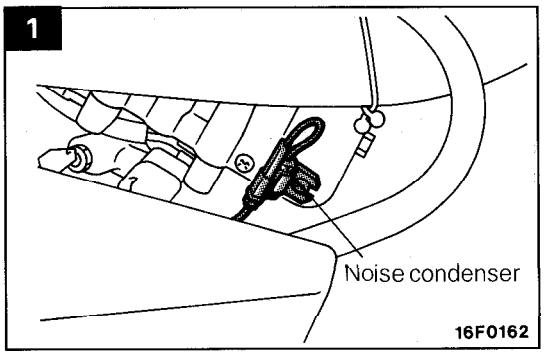
1



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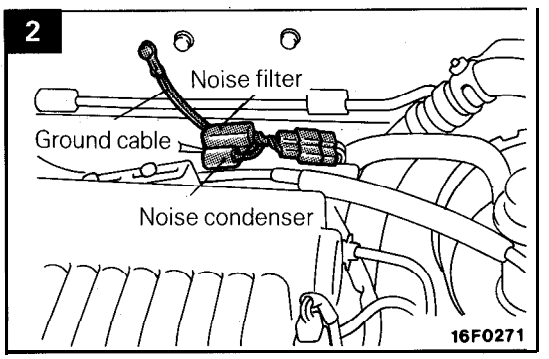
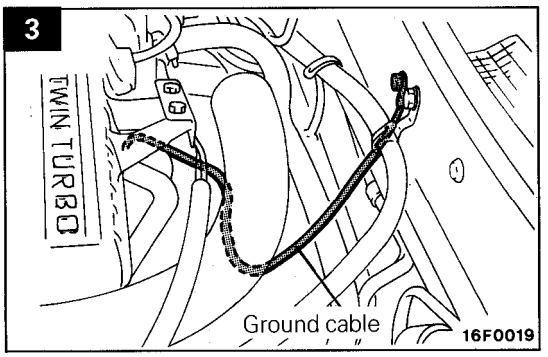
2



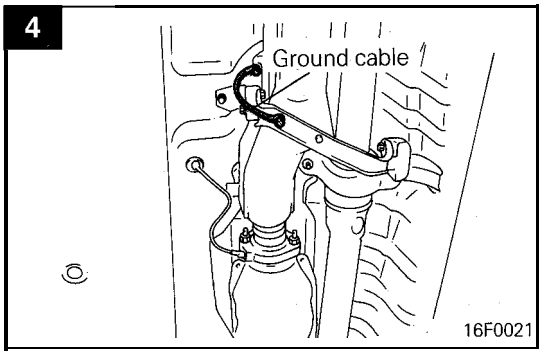
16F0271

3



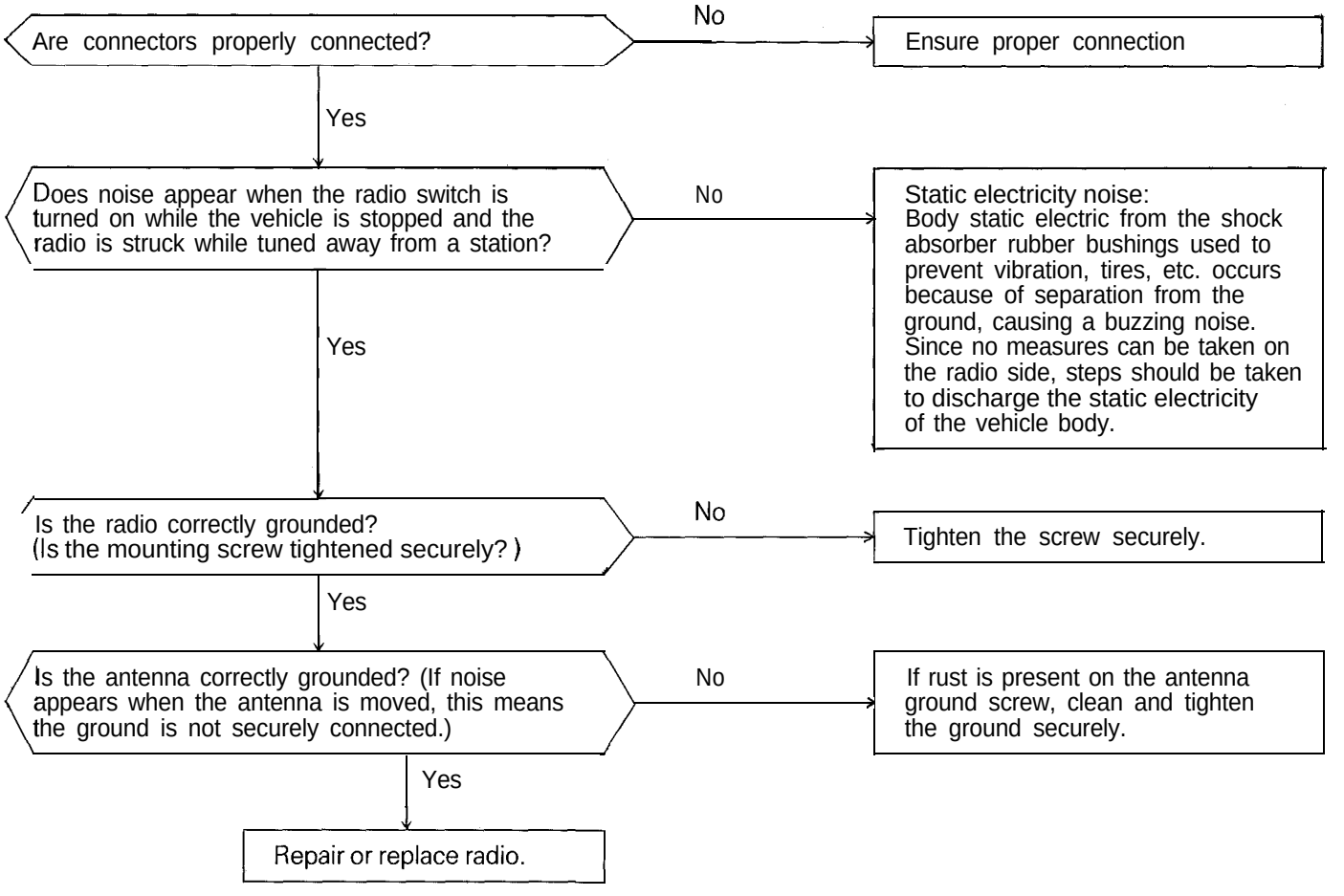
16F0019

4

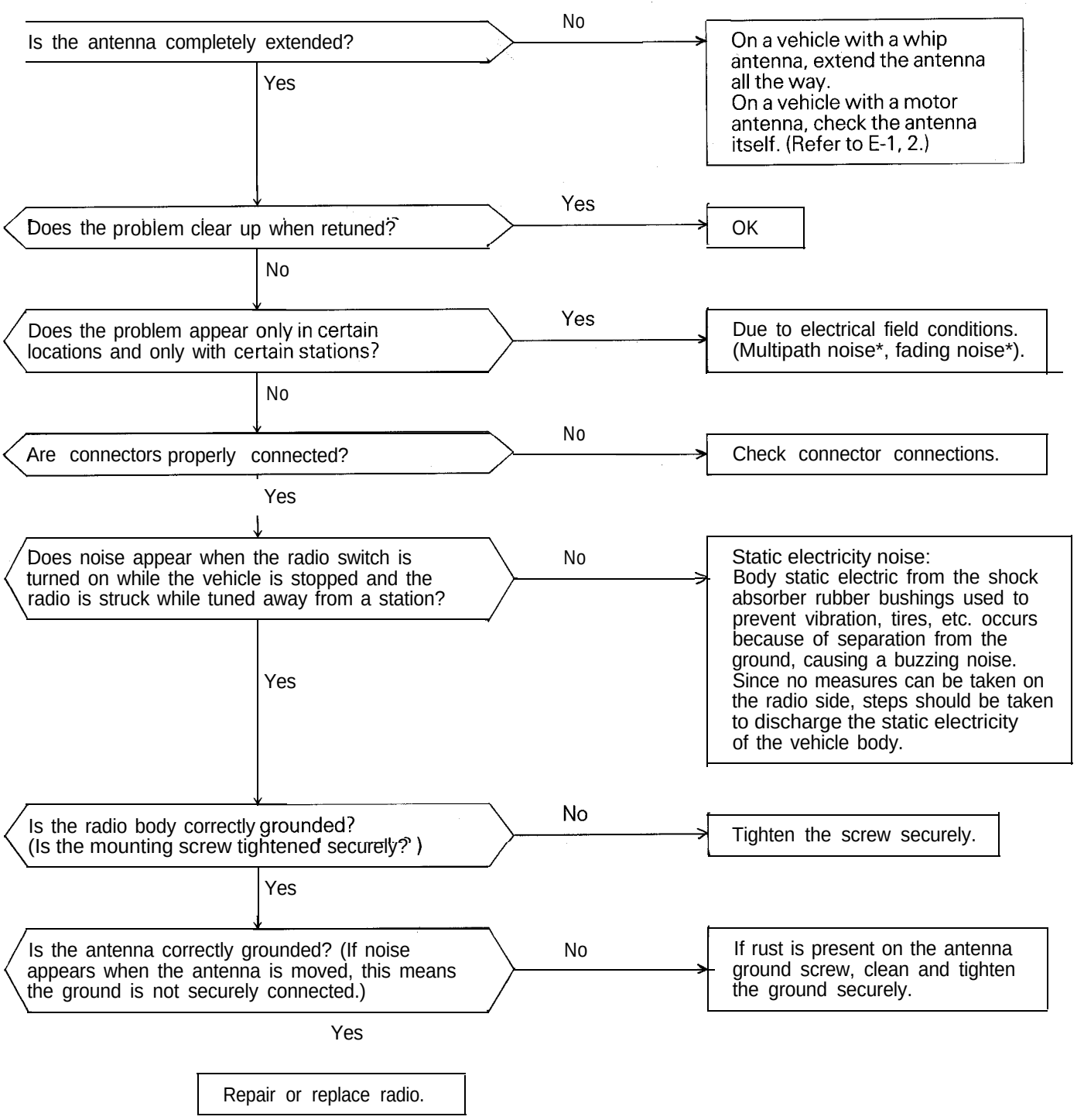


16F0021

A-7	Some noise appears when there is vibration or shocks during traveling.



A-8 Noise sometimes appears on FM during traveling.



* About multipath noise and fading noise

Because the frequency of FM waves is extremely high, it is highly susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in several ways.

- Multipath noise

  This describes the echo that occurs when the broadcast signal is reflected by a large obstruction and enters the receiver with a slight time delay relative to the direct signal (repetitious buzzing).

- Fading noise

  This is a buzzing noise that occurs when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates intricately within a narrow range.

A-9	Ever-present noise.

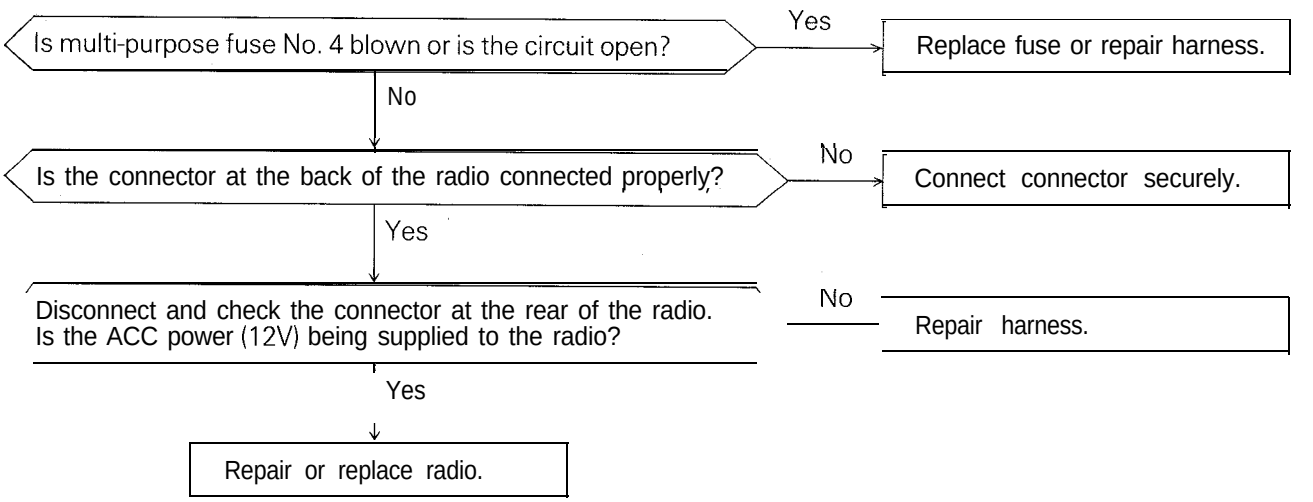
Noise is often created by the following factors, and often the radio is OK when it is checked individually.

- Traveling conditions of the vehicle
- Terrain of area traveled through
- Surrounding buildings
- Signal conditions
- Time period

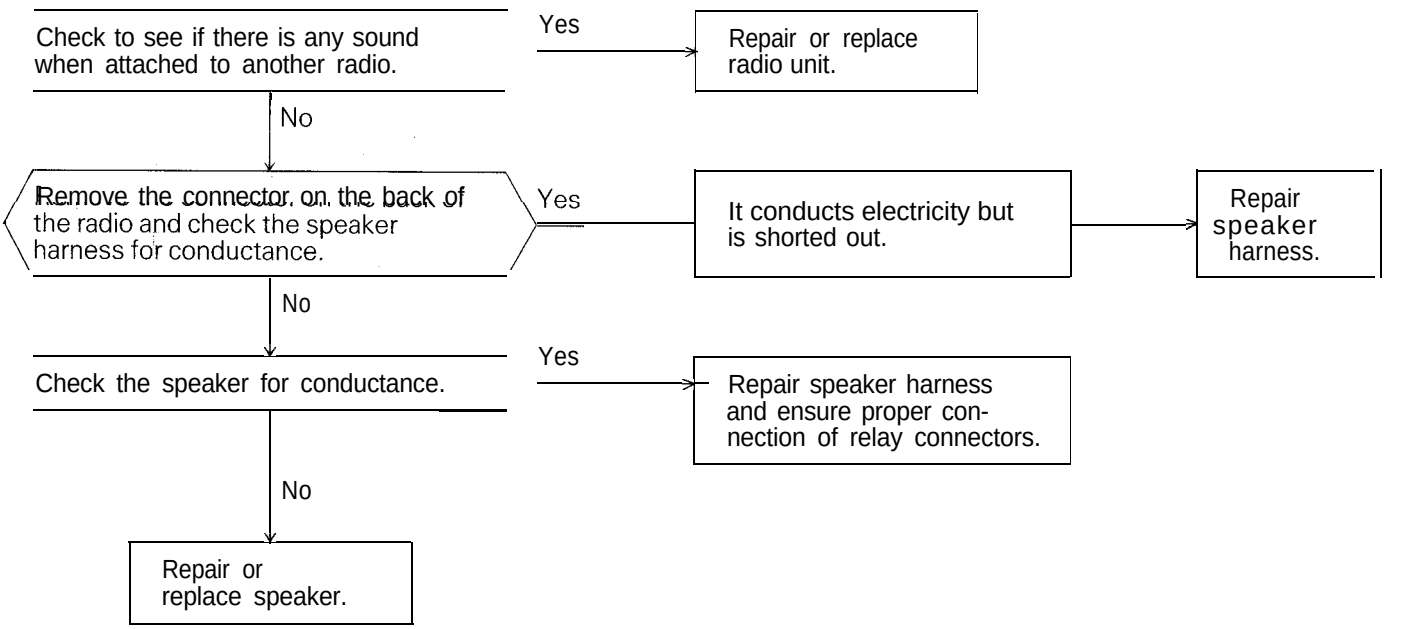
For this reason, if there are still problems with noise even after the measures described in steps A-l to A-8 have been taken, get information on the factors listed above as well as determining whether the problem occurs with AM or FM, the station names, frequencies, etc., and contact a service center.

B. RADIO

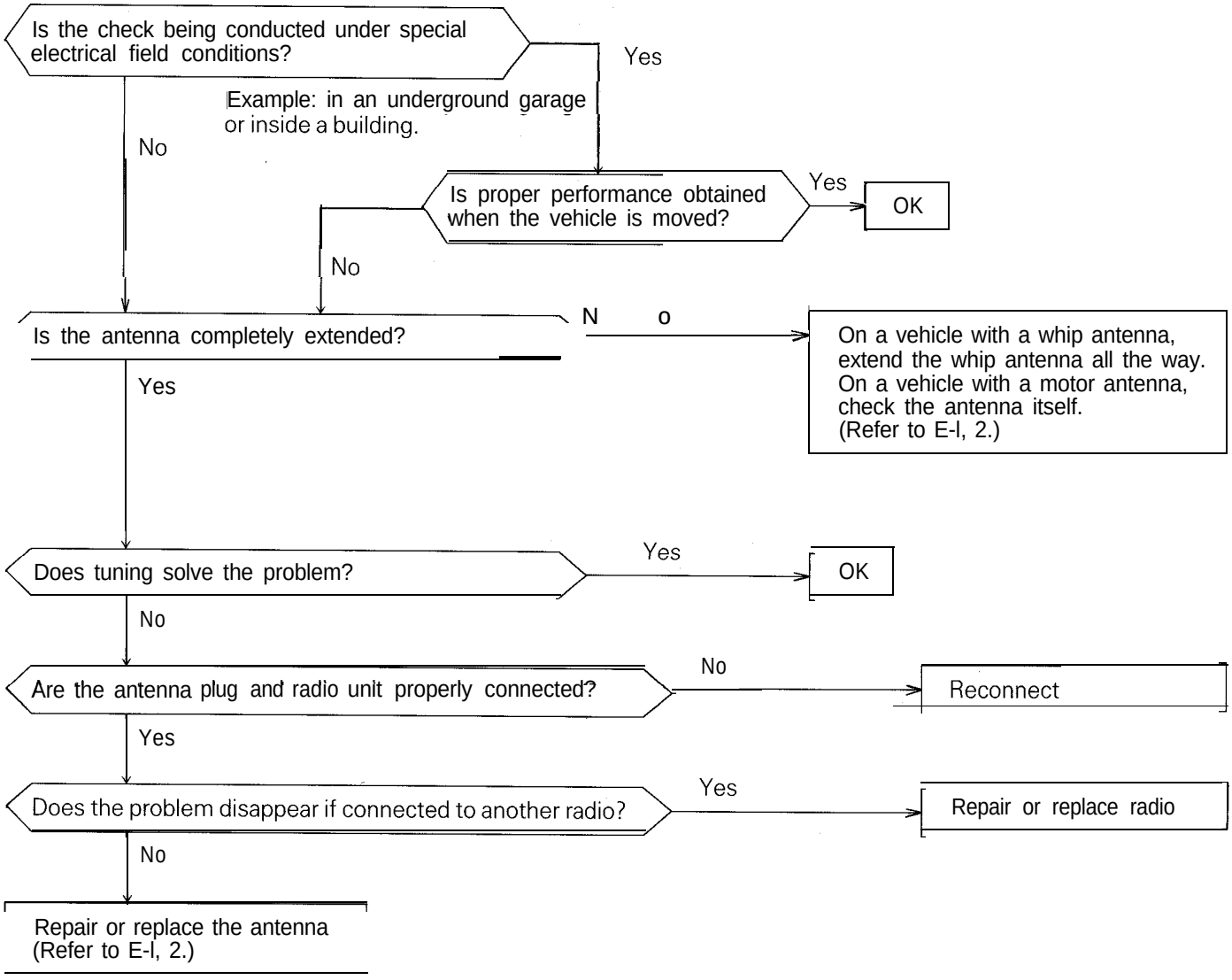
B-l	No power is supplied when the switch is set to ON.



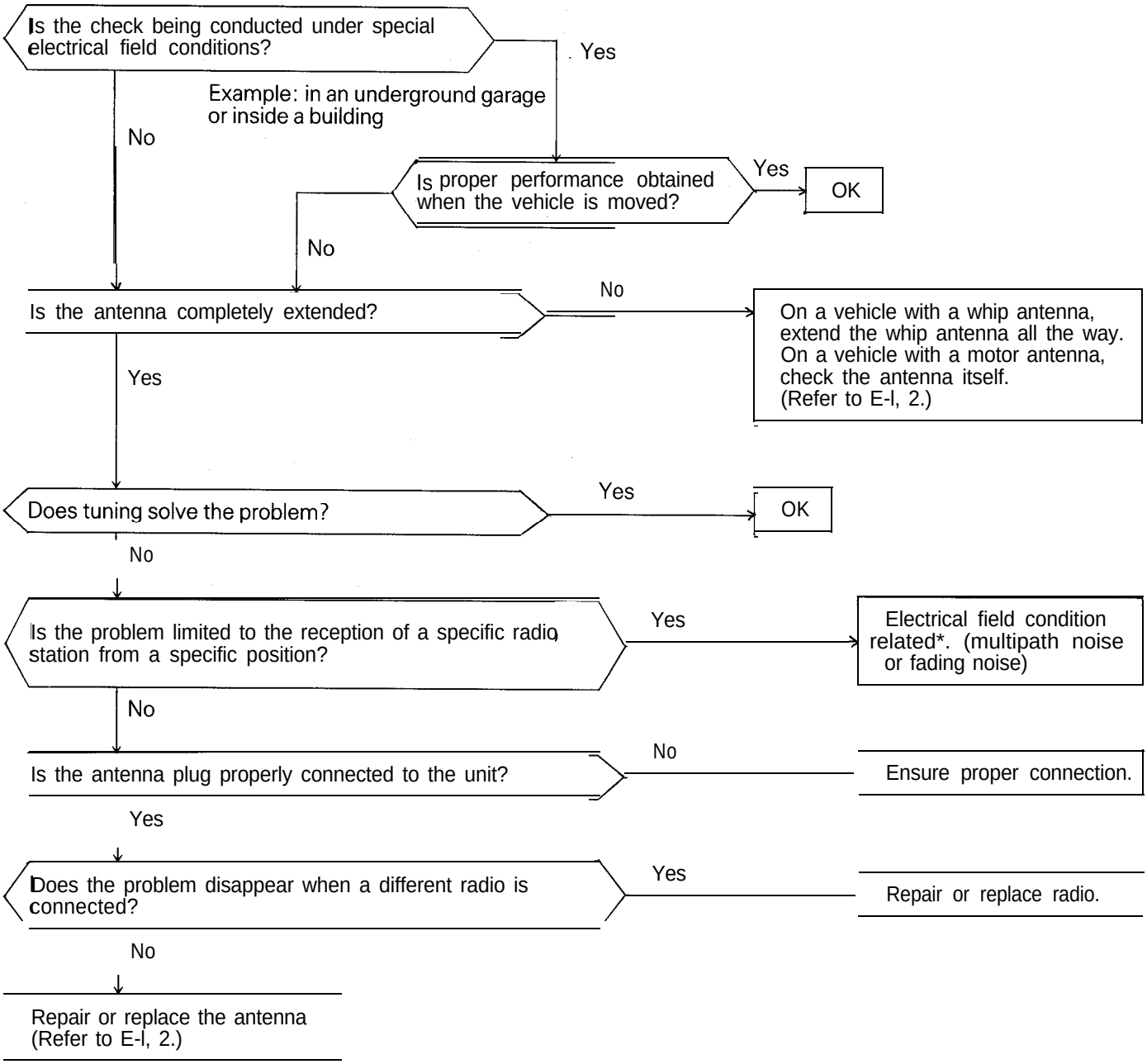
B-2	No sound from one speaker.



B-3	There is noise but no reception for both AM and FM or no sound from AM, or no sound from FM.

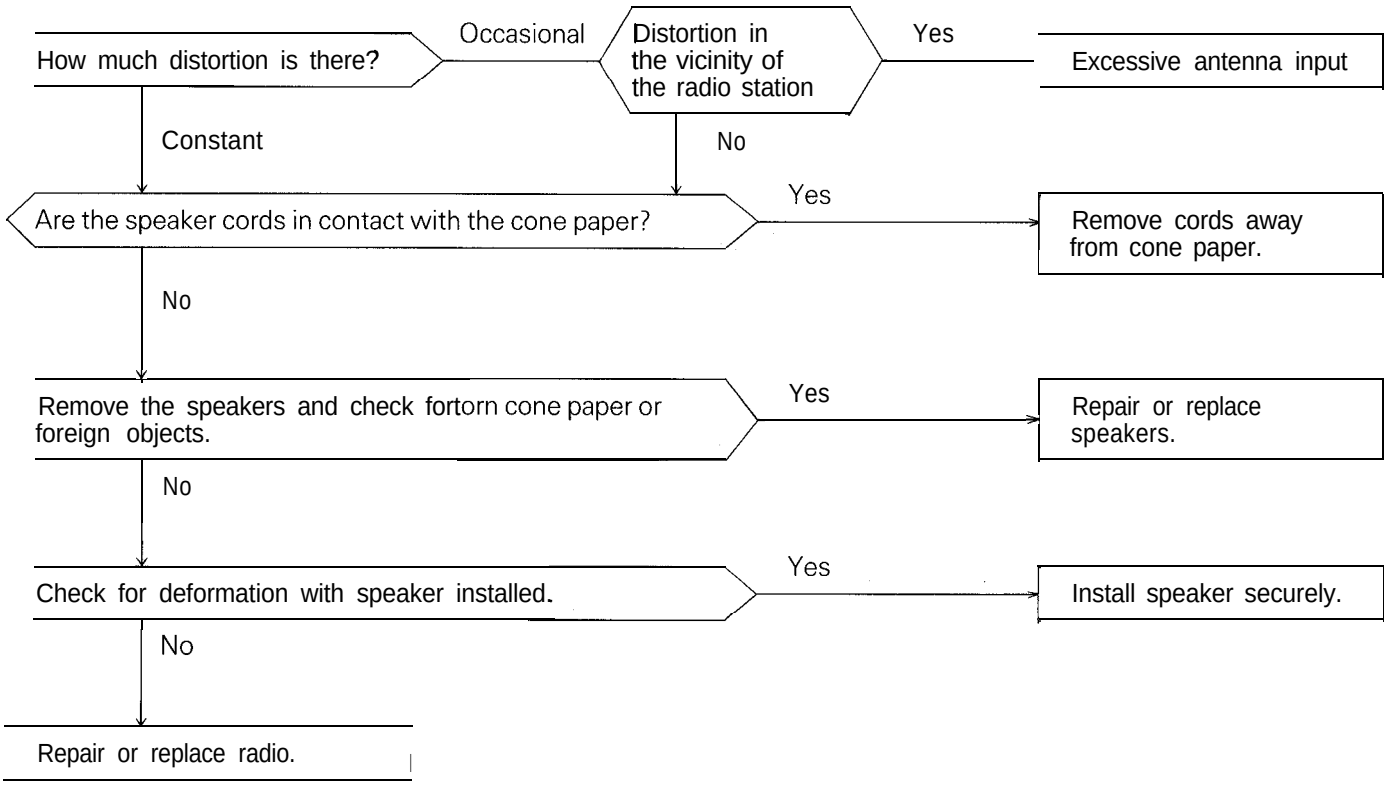


B-4 Insufficient sensitivity.

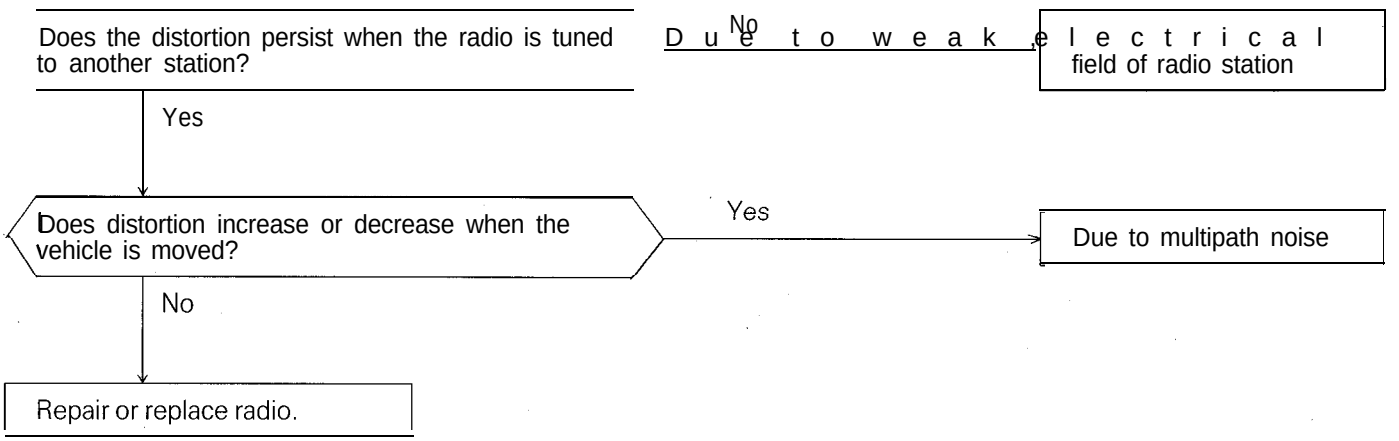


* For multipath noise and fading noise problems, refer to P.8-384.

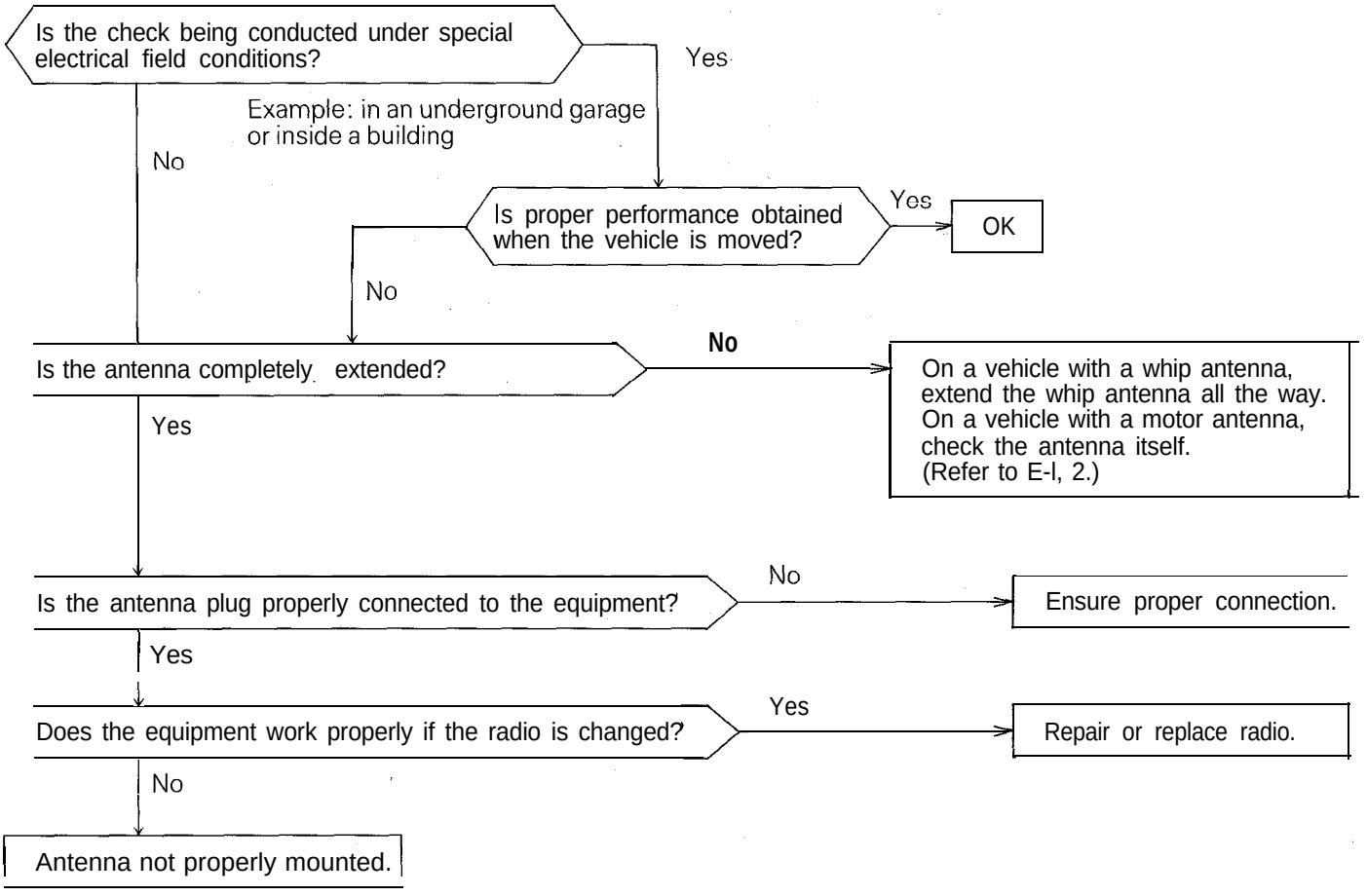
B-5 Distortion on AM or on both AM and FM.



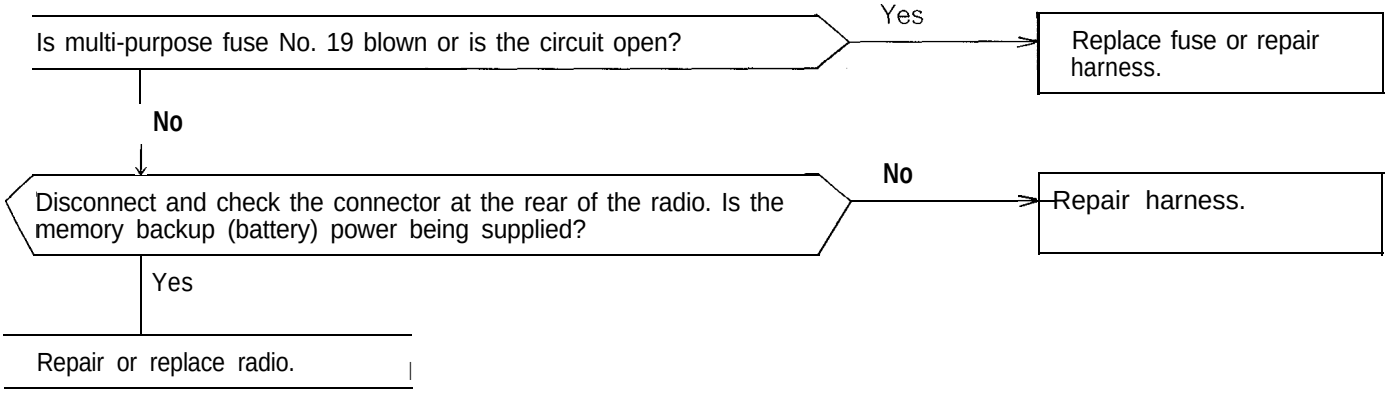
B-6 Distortion on FM only



B-7 Too few automatic select stations.



B-8 Insufficient memory (preset stations are erased).



C. CASSETTE PLAYER

C-1 Cassette tape will not be inserted.

Are there any foreign objects in the cassette player?
- Yes → Remove the object(s)*1
- No ↓

*1
Attempting to force a foreign object (e.g., a coin or clip, etc.) out of the cassette player may damage the mechanism. The player should be taken to a service dealer for repair.

Does the cassette player work if another tape is inserted?
- Yes → Replace tape *2
- No ↓

*2
Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound. Also, tape of C-I 20 or greater length often get caught in the mechanism and should not be used.

Repair or replace cassette player.

C-2 No sound (even after a #ape has been inserted).

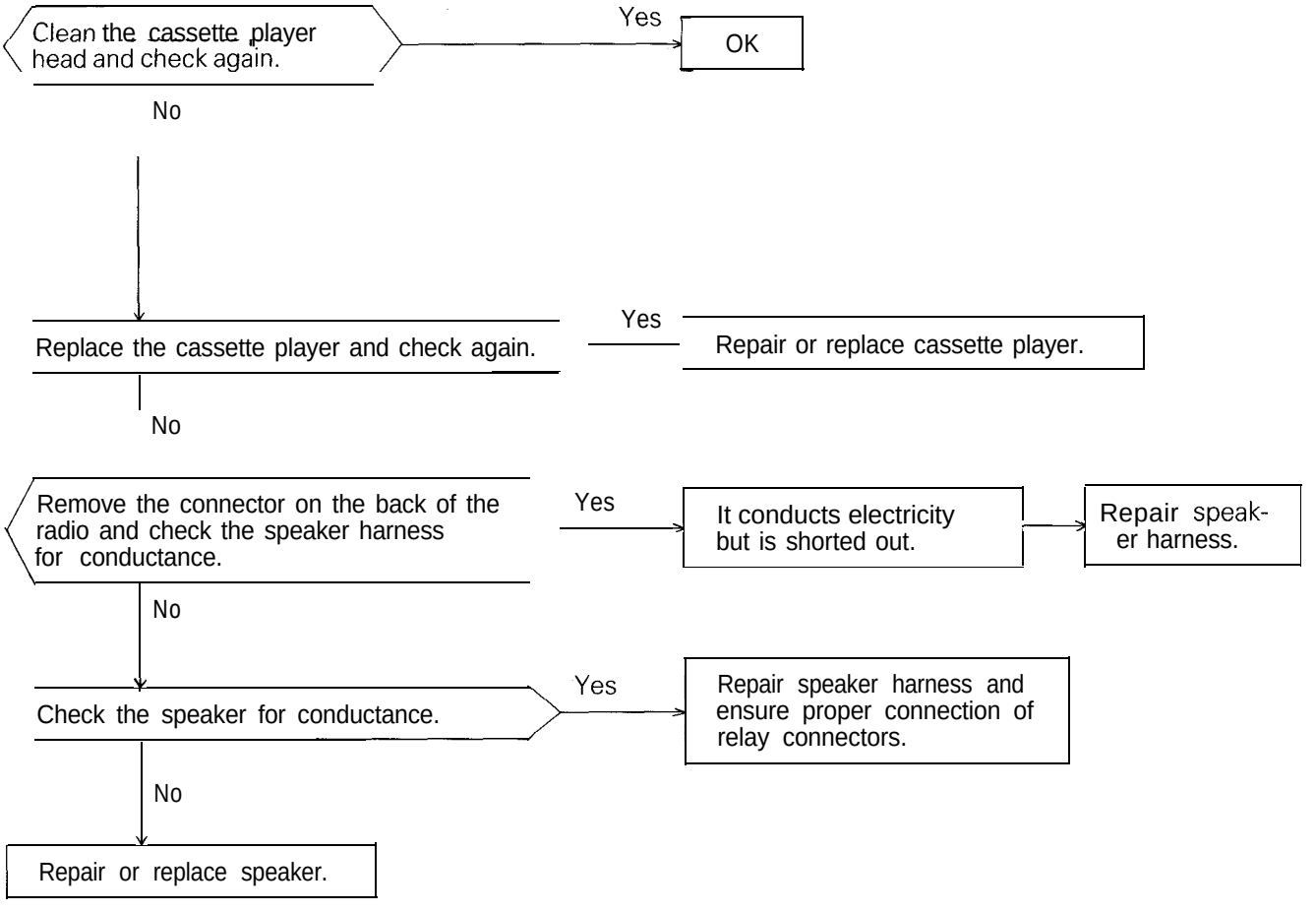
Is multi-purpose fuse No. 4 blown or is the circuit open?
- Yes → Replace fuse or repair harness.
- No ↓

Is connector at rear of radio connected tightly?
- No → Connect connector firmly.
- Yes ↓

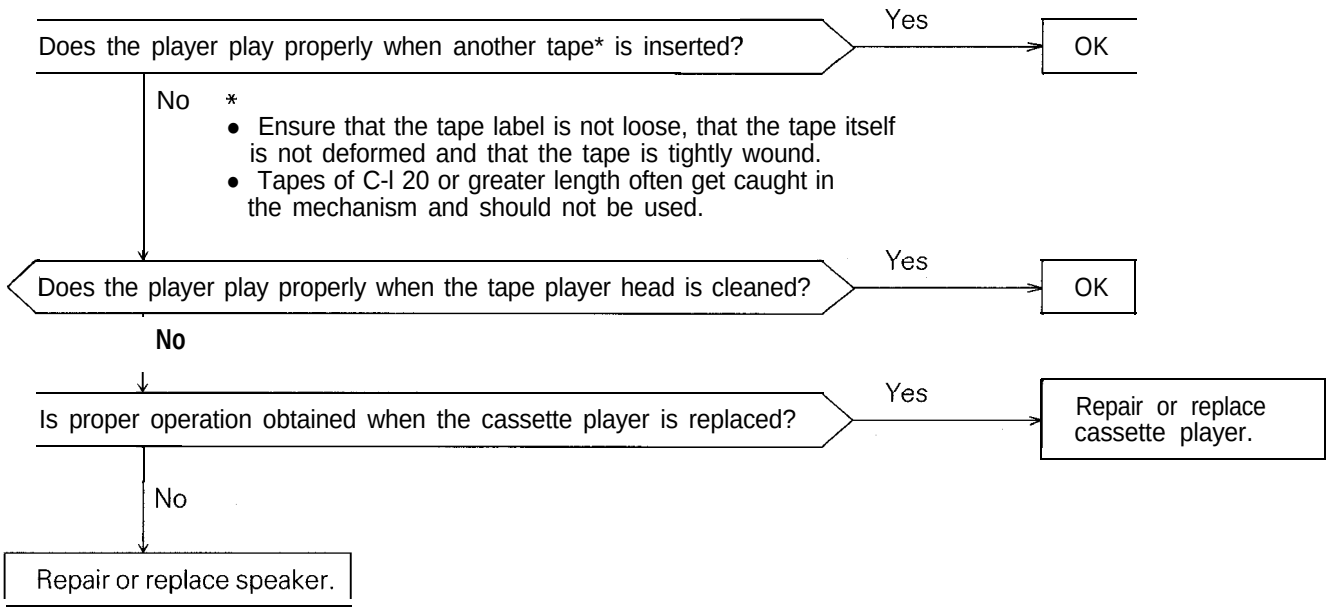
Disconnect connector at rear of radio. Is ACC power being supplied to the radio?
- Yes → Repair or replace cassette player.
- No ↓

Repair harness.

C-3 No sound from one speaker.



C-4 Sound quality is poor, or sound is weak.

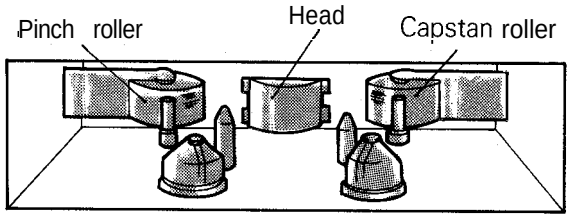


C-5 Cassette tape will not eject.

The problems covered here are all the result of the use of a bad tape (deformed or not properly tightened) or of a malfunction of the cassette player itself. Malfunctions involving the tape becoming caught in the mechanism and ruining the case are also possible, and attempting to force the tape out of the player can cause damage to the mechanism. The player should be taken to a service dealer for repair.

C-6 Uneven revolution. Tape speed is fast or slow.

Does the player play OK if the tape is changed?
- Yes → OK
- No → Are there any foreign objects inside the cassette player?
  - Yes → Remove foreign object(s).
  - No → Is the head or capstan roller dirty?
    - Yes → Clean.
    - No → Repair or replace cassette player.



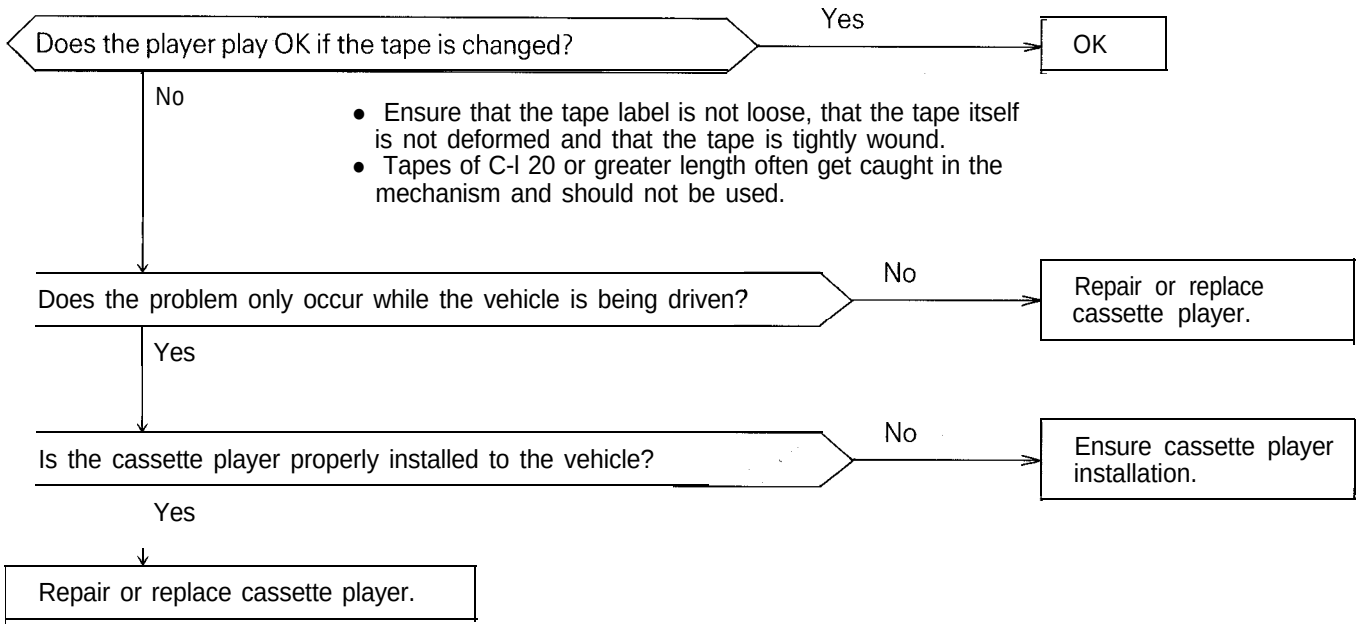
C-7 Automatic search does not work.

Does the MSS (automatic search) button*1 depress properly?
- No → Button improperly operated.
- Yes → Does the player play OK if the tape*2 is changed?
  - Yes → Tape used is bad.
  - No → Repair or replace the cassette player

*1
- When the time between songs on a tape is less than three seconds, or when there is a three second period in the middle of a song in which the volume level is extremely low, the automatic search function may not work properly.

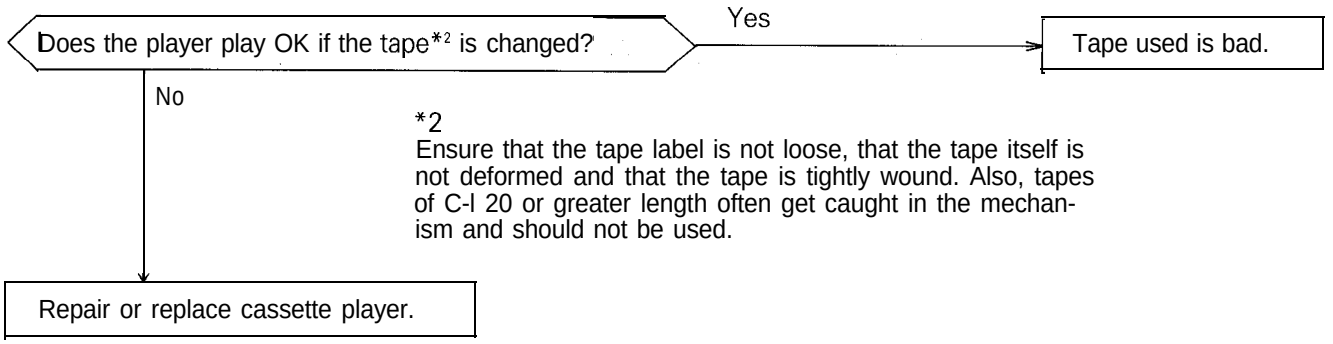
*2
- Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound. Also, tapes of C-l 20 or greater length often get caught in the mechanism and should not be used.

C-9 Faulty auto reverse.



C-9 Tape gets caught in mechanism*1.

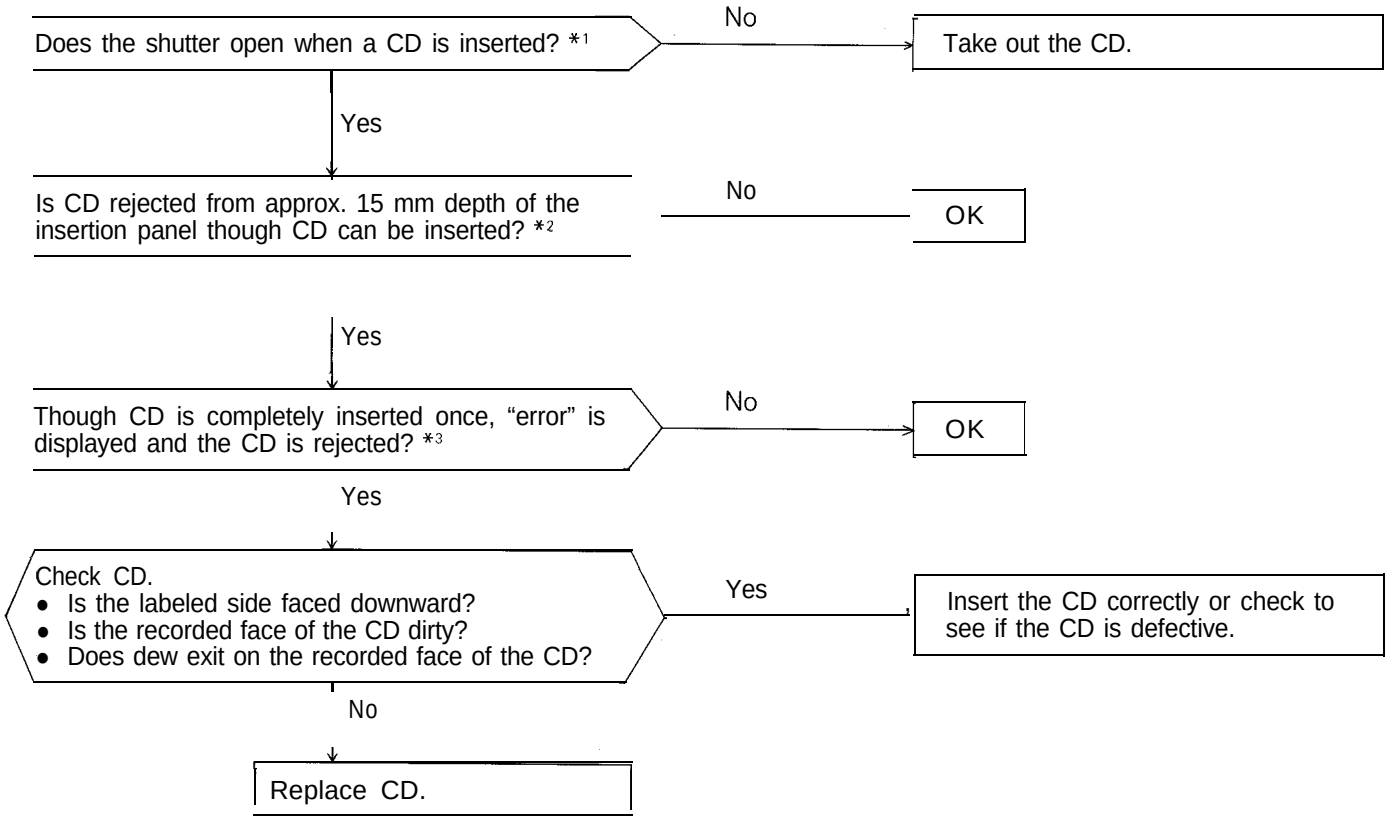
*1
When the tape is caught in the mechanism, the case may not eject. When this occurs, do not try to force the tape out as this may damage the tape player mechanism. Take the cassette to a service dealer for repair.



*2
Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound. Also, tapes of C-l 20 or greater length often get caught in the mechanism and should not be used.

D. CD PLAYER

D-l CD will not be accepted.

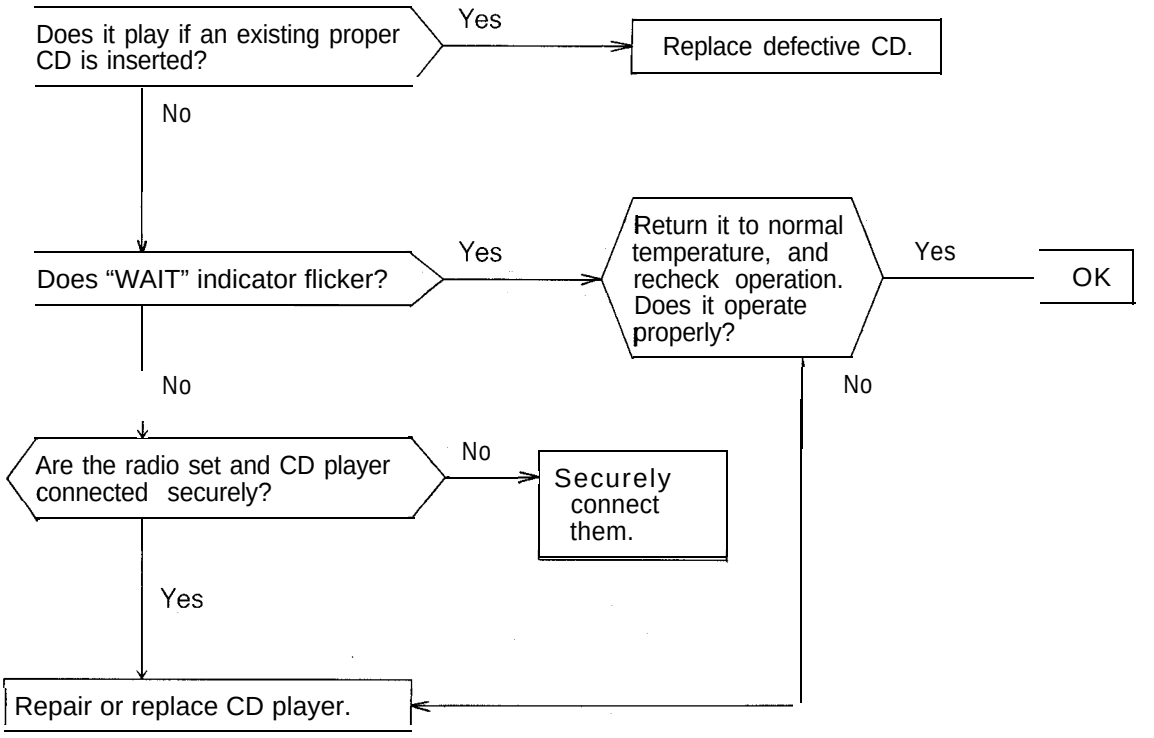


*1 If the CD is already loaded, doesn't the shutter open to allow insertion when another CD is inserted?

*2 If the key switch is not at ACC or ON, the CD stops at depth of 15 mm below the panel surface even when it is inserted, and it will be rejected when pushed farther?

*3 Even though the CD is loaded, E (error) is sometimes displayed with the CD rejected because of vibration/ shock or dew on the CD face or optical lens.

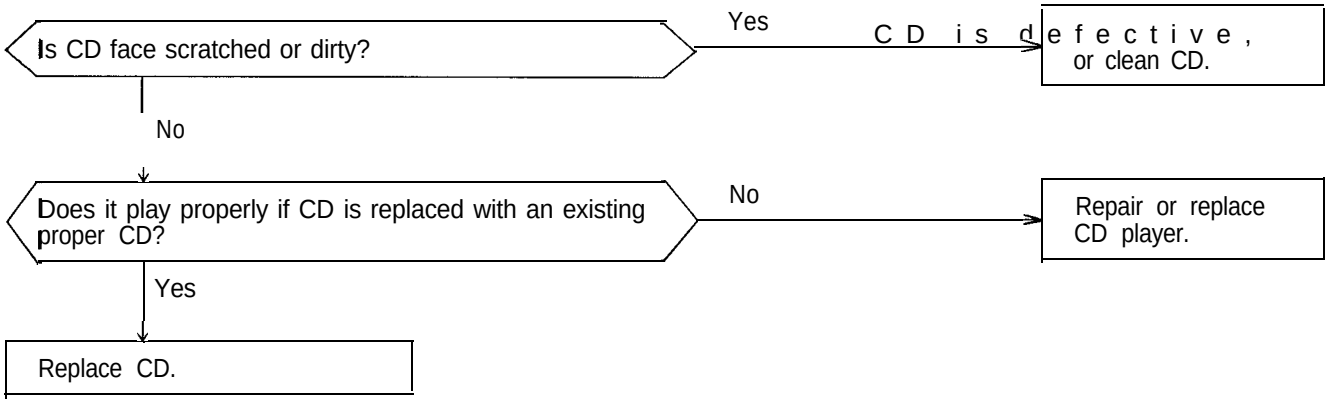
D-2 No sound.



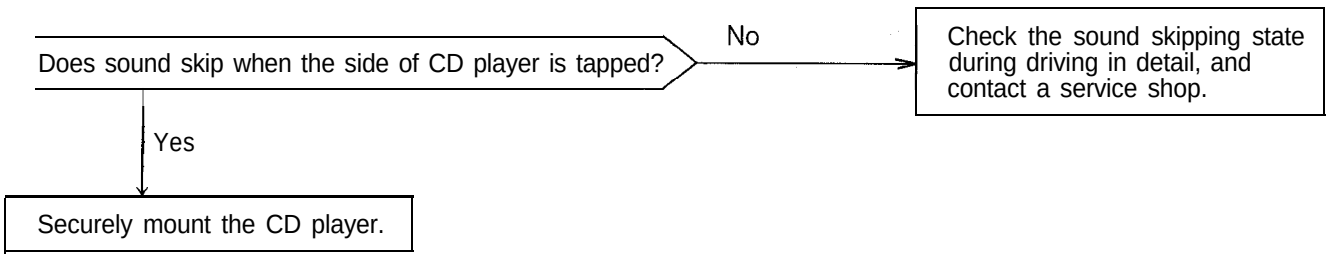
(The combined radio cassette must operate properly.)

D-3 CD sound skips.

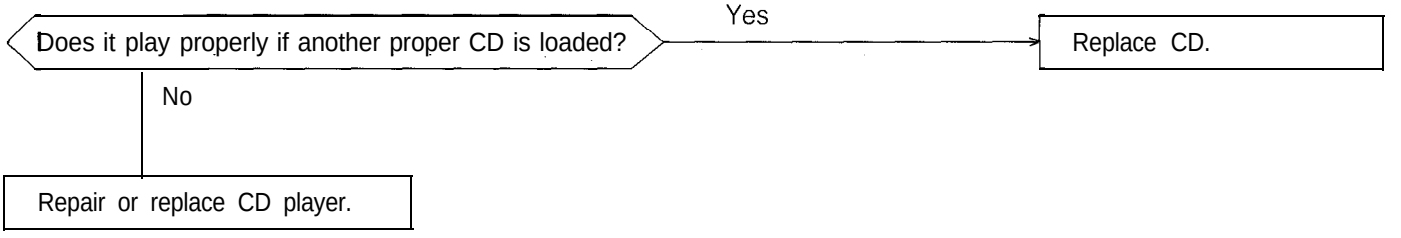
1. Sound sometimes skips during parking.



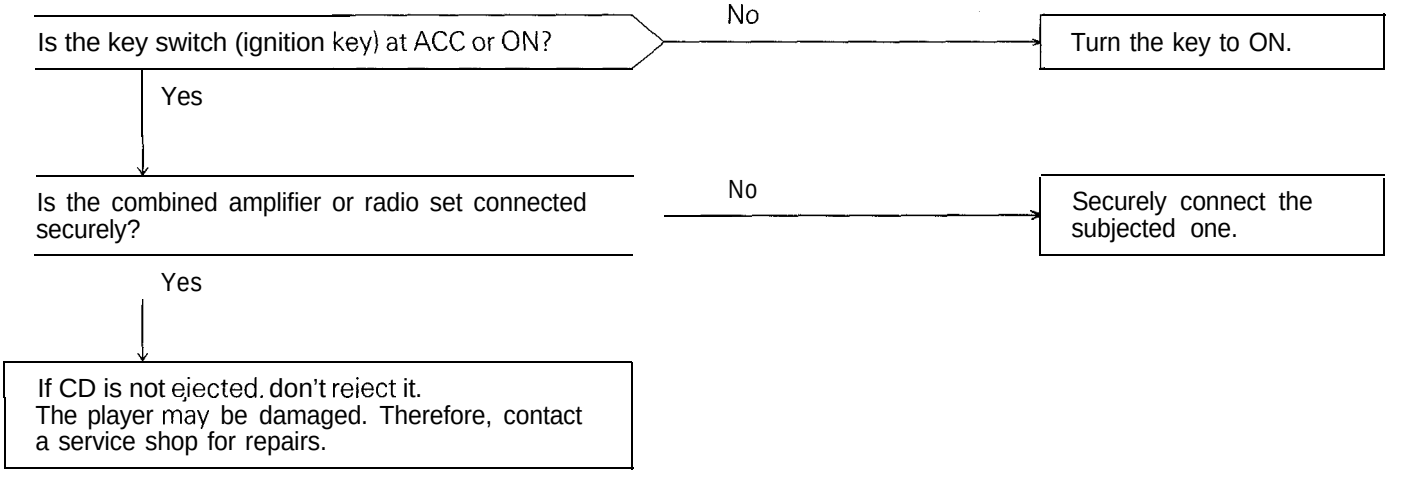
2. Sound sometimes skips during driving.
   (Stop vehicle, and check it.)
   (Check it by using a proper CD which is free of scratch, dirt or other abnormality.)



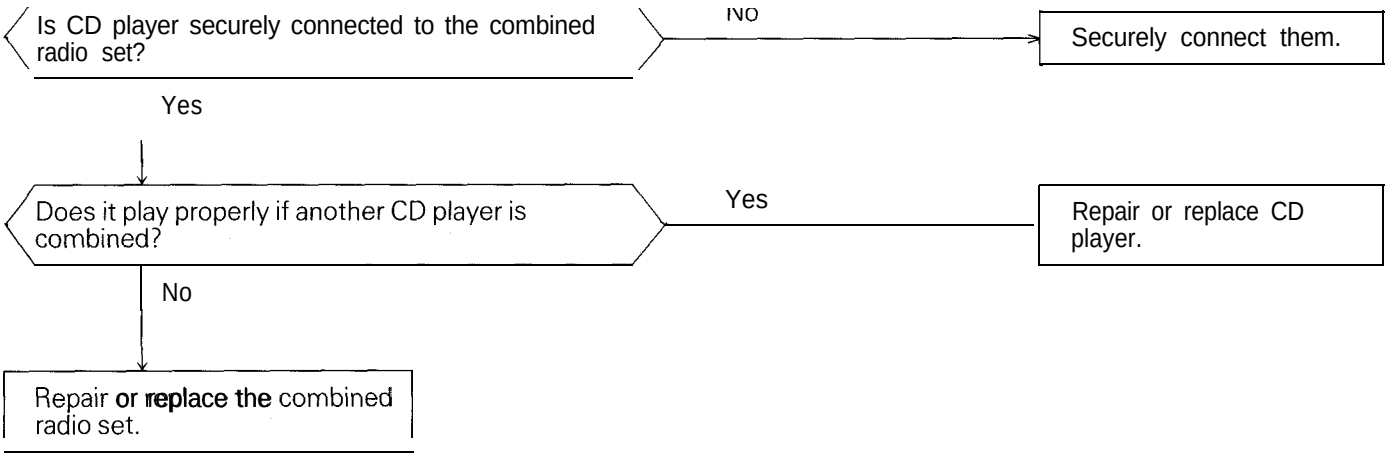
D-4 Sound quality is poor.



D-5 CD will not be ejected.



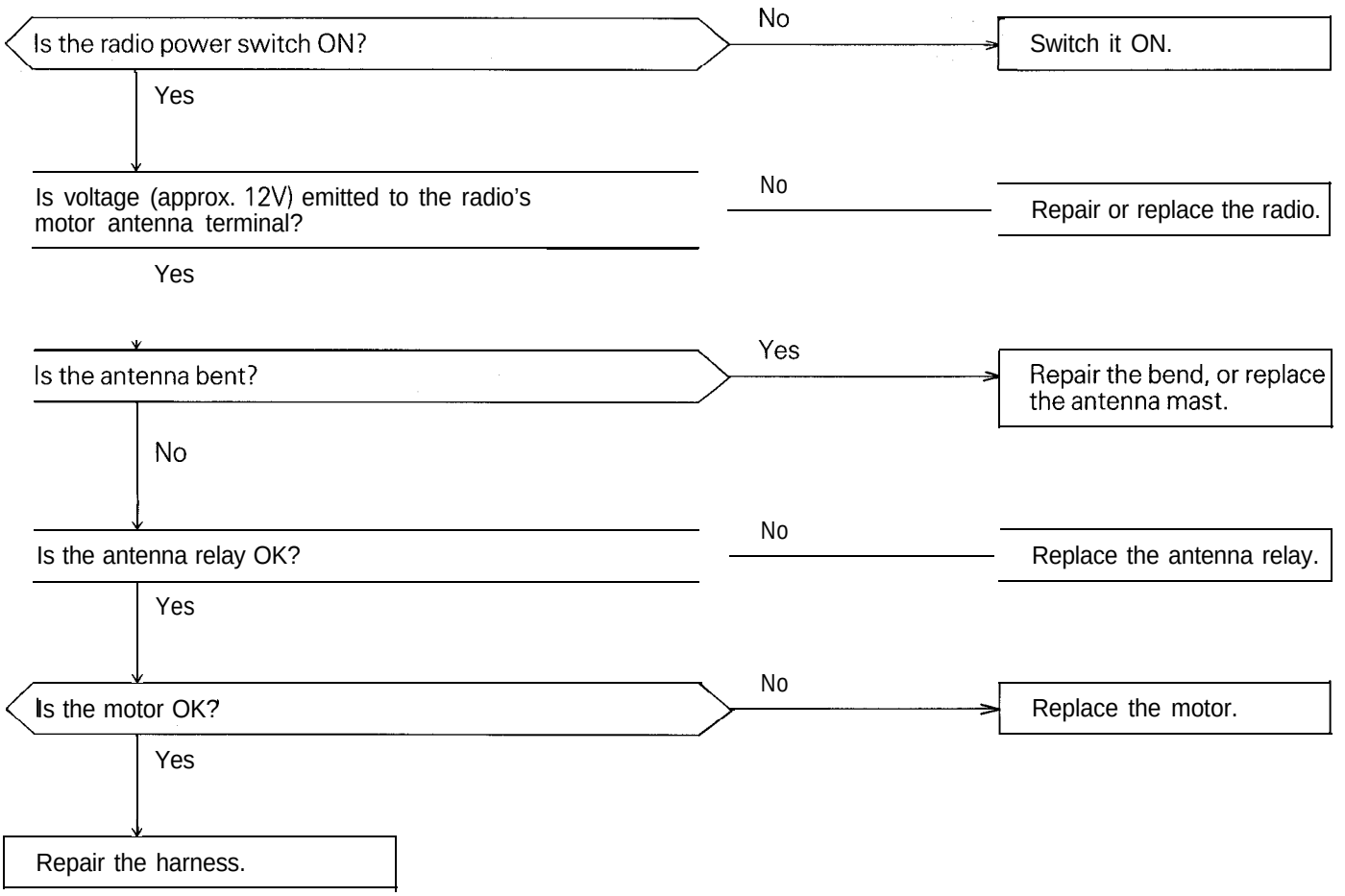
D-6 No sound from one speaker.



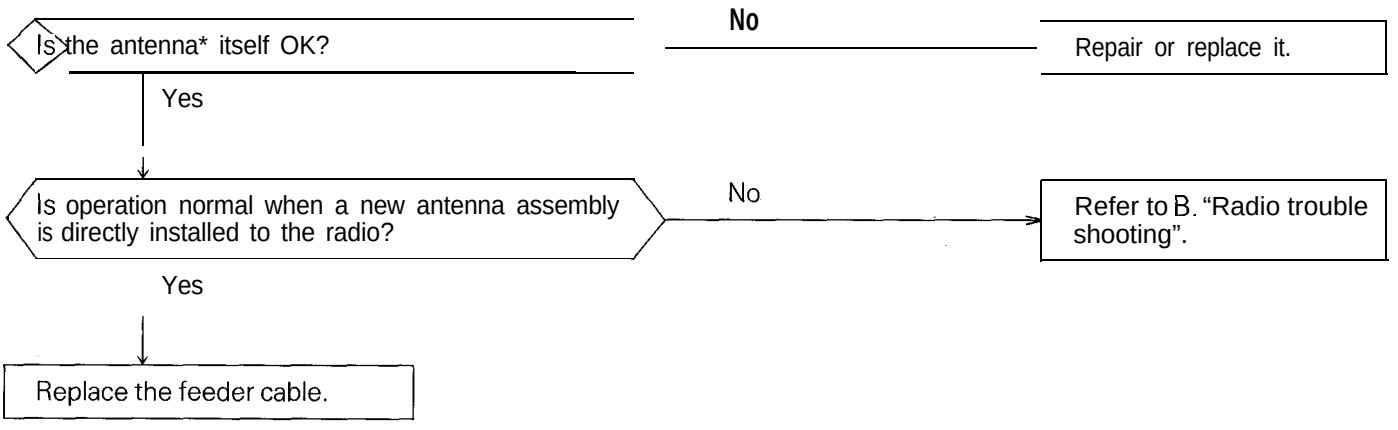
E. MOTOR ANTENNA

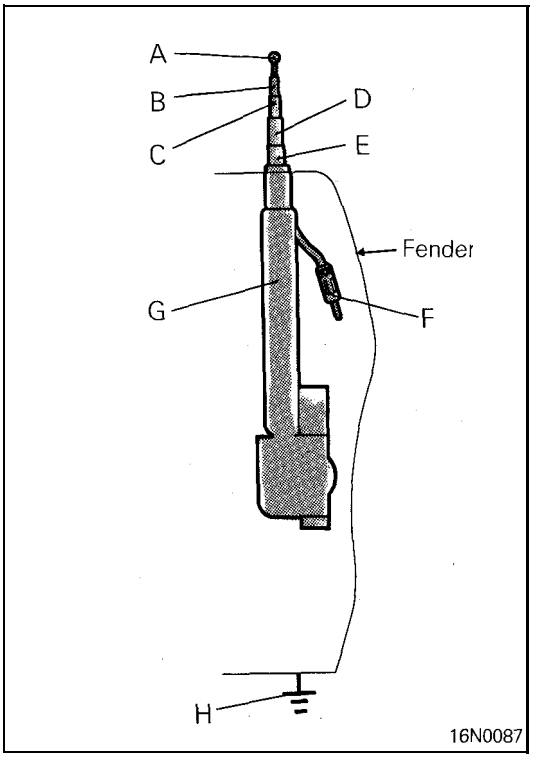
E-1 Motor antenna won't extend or retract.

Clean and polish the surface of the antenna rod.



E-2	Motor antenna extends and retracts but does not receive.





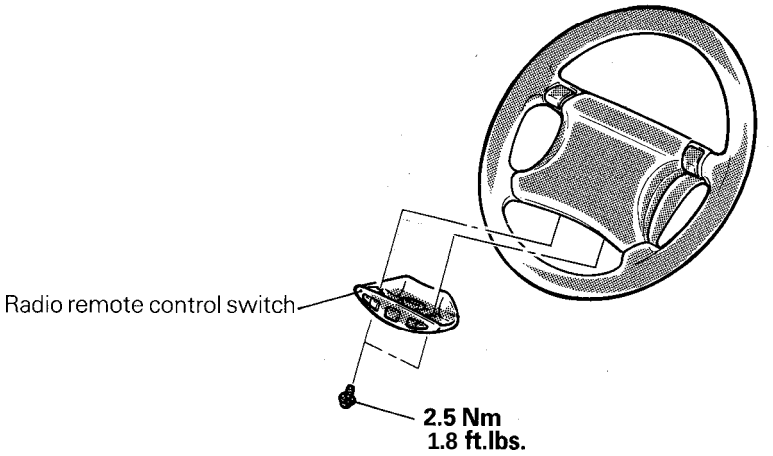
Checking the antenna*

Ohmmeter measurement locations	Result
Circuits from F to A, B, C, D and E	Continuity
Circuit between G and H	Continuity
Circuits from H to A, B, C, D and E	No continuity

RADIO REMOTE-CONTROL

REMOVAL AND INSTALLATION

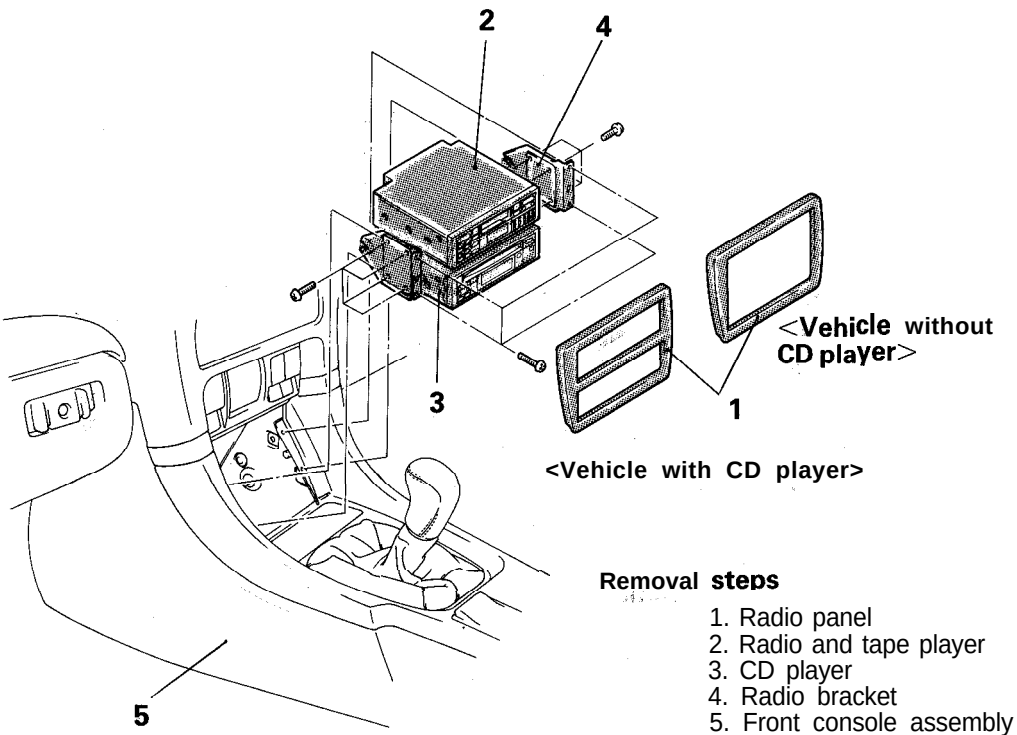
CAUTION: SRS
When removing and installing the radio remote control switch, don't allow any impact or shock to the air bag module.



16F0491

RADIO AND TAPE PLAYER

REMOVAL AND INSTALLATION



<Vehicle with CD player>

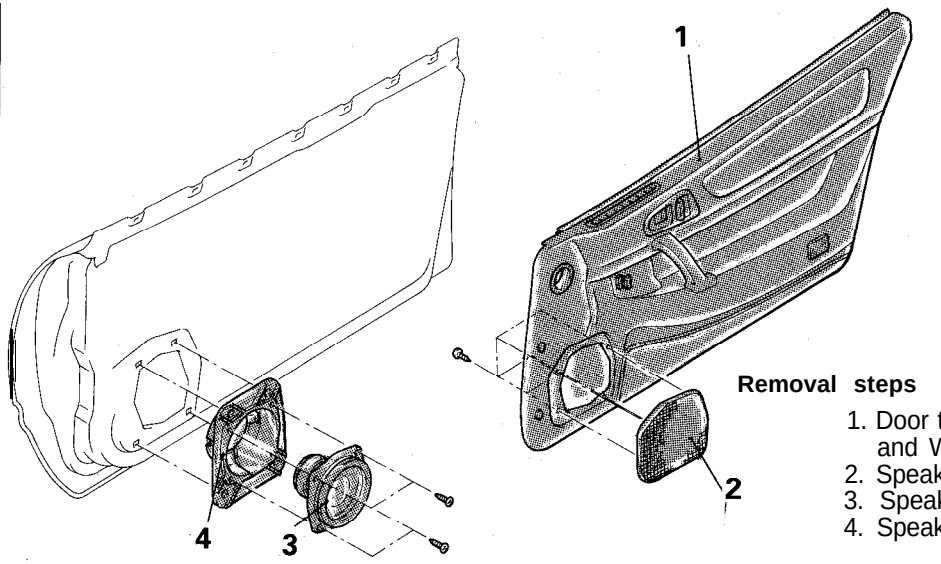
Removal steps

1. Radio panel
2. Radio and tape player
3. CD player
4. Radio bracket
5. Front console assembly (Refer to GROUP 23A – Console Box.)

16F0096

SPEAKER
<DOOR SPEAKER>

REMOVAL AND INSTALLATION



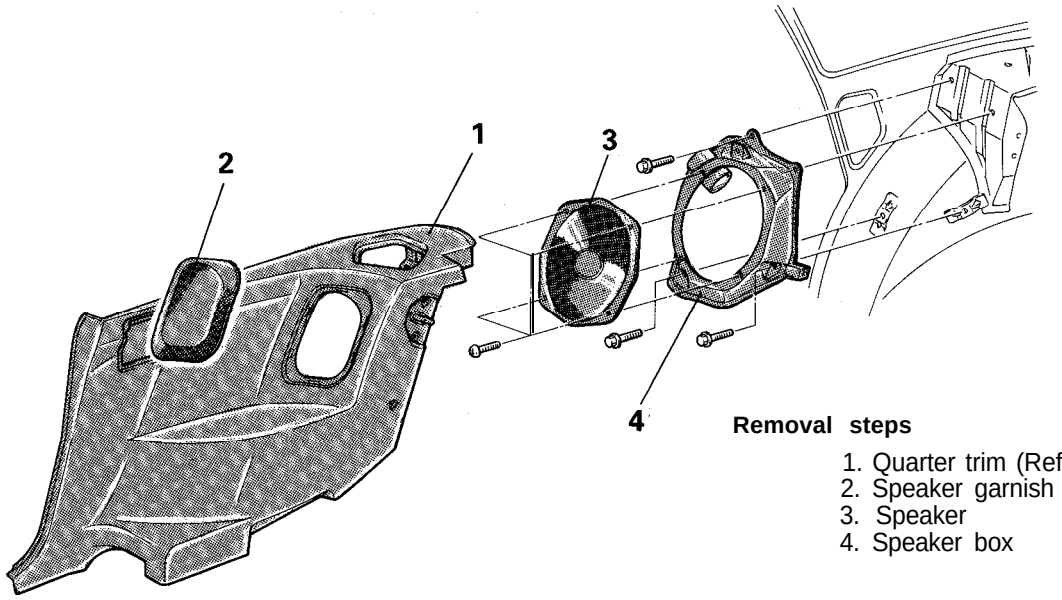
Removal steps

1. Door trim (Refer to GROUP 23A – Door Trim and Waterproof Film.)
2. Speaker garnish
3. Speaker
4. Speaker cover

16F0279

<REAR SPEAKER>

REMOVAL AND INSTALLATION



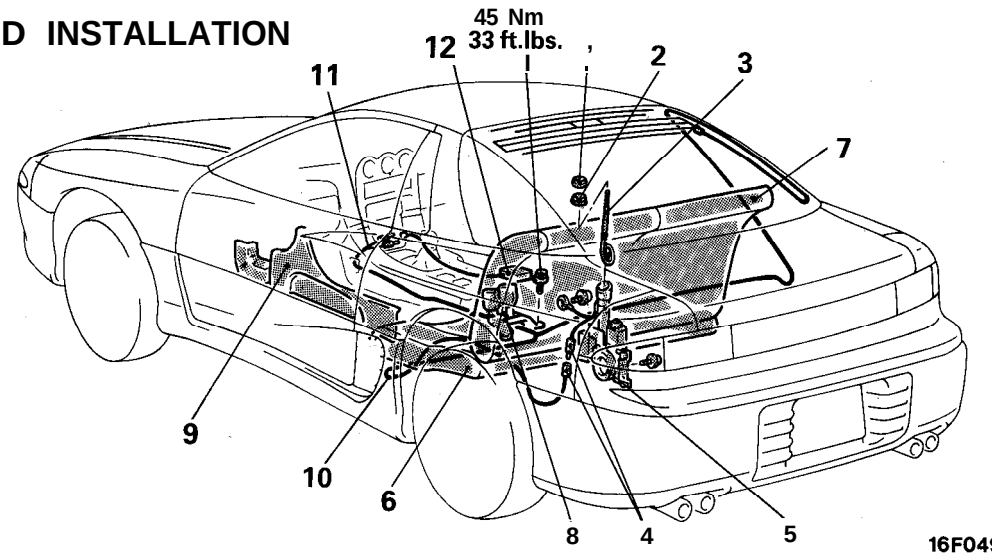
Removal steps

1. Quarter trim (Refer to GROUP 23A – Trim.)
2. Speaker garnish
3. Speaker
4. Speaker box

16F0097

MOTOR ANTENNA · ANTENNA FEEDER CABLE · AMPLIFIER

REMOVAL AND INSTALLATION



Removal steps of motor antenna

Rear side trim (LH)
(Refer to GROUP 23A – Trim.)

1. Ring nut
2. Base
3. Antenna pole
4. Antenna feeder cable and motor antenna connection
5. Motor antenna

Removal steps of antenna feeder cable

Rear side trim (LH) } (Refer to GROUP 23A
Quarter trim (LH) } –Trim.)
Rear console assembly
(Refer to GROUP 23A–Console Box.)
Radio and tape player
(Refer to P.8-400)

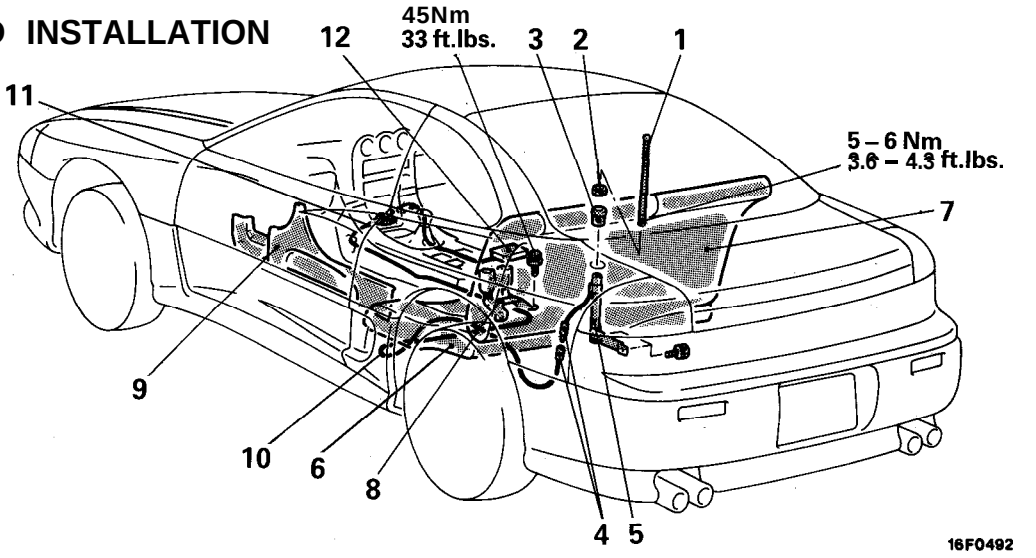
4. Antenna feeder cable and motor antenna connection
- ◆▶ ● a 6. Rear seat cushion
7. Rear seatback
8. Inner seat belt
9. Console side cover (LH)
10. Antenna feeder cable
11. Sub antenna feeder cable

Amplifier removal

12. Amplifier (under passenger's seat)

WHIP ANTENNA · ANTENNA FEEDER CABLE · AMPLIFIER

REMOVAL AND INSTALLATION



Removal steps of whip antenna

Rear side trim (LH)
(Refer to GROUP 23A – Trim.)

1. Mast antenna
2. Mounting nut
3. Mounting insulator and packing
4. Antenna base and antenna feeder connection
5. Antenna base

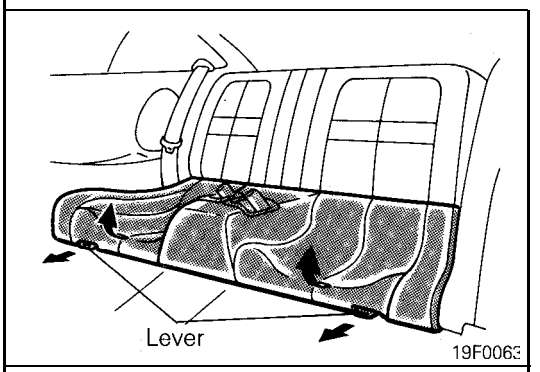
Removal steps of antenna feeder

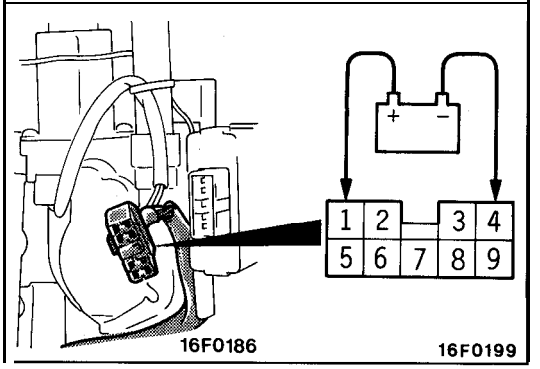
Rear side trim (LH) } (Refer to GROUP 23A
Quarter trim (LH) } –Trim.)
Rear console assembly
(Refer to GROUP 23A–Console Box.)
Radio and tape player
(Refer to P.8-400)

4. Antenna feeder cable and antenna base connection
6. Rear seat cushion
7. Rear seatback
8. Inner seat belt
9. Console side cover (LH)
10. Antenna feeder cable
11. Sub antenna feeder cable

Amplifier removal

12. Amplifier (under passenger's seat)





SERVICE POINT OF REMOVAL

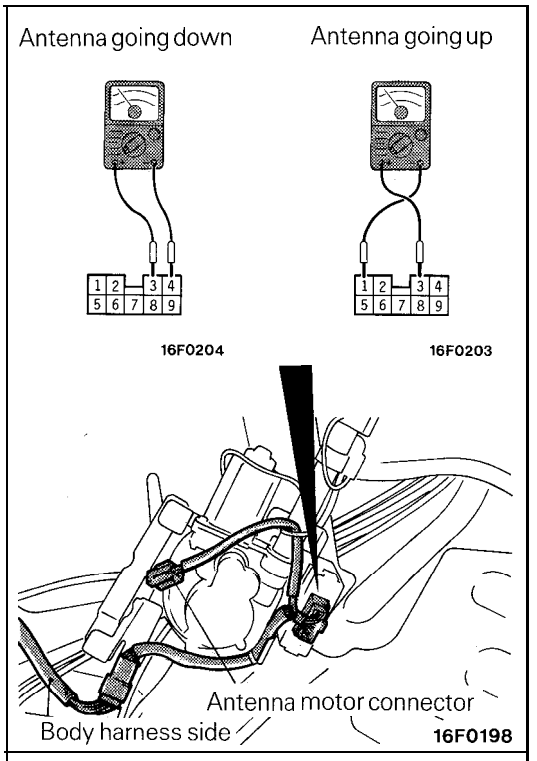
6. REMOVAL OF REAR SEAT CUSHION

Raise and remove the seat cushion with the lever pulled.

INSPECTION

INSPECTION OF ANTENNA MOTOR <VEHICLE WITH MOTOR ANTENNA>

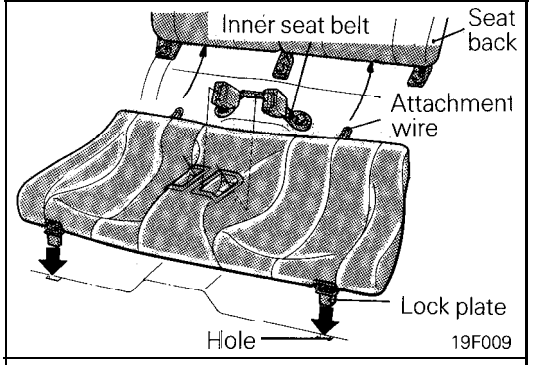
Disconnect the motor antenna control unit connector, connect the positive terminal of the power supply to terminal ① and connect the negative terminal to terminal ④ to check that the antenna goes up, and that when the connections are reversed, the antenna goes down.



INSPECTION OF MOTOR ANTENNA CONTROL UNIT <VEHICLE WITH MOTOR ANTENNA>

(1) Connect the harness connector to the motor antenna. (Body harness)
(2) Disconnect the antenna motor connector.
(3) With the ignition switch in the ACC or ON position, operate the radio switch and check the voltage between the terminals during the period when the antenna is going up or going down.

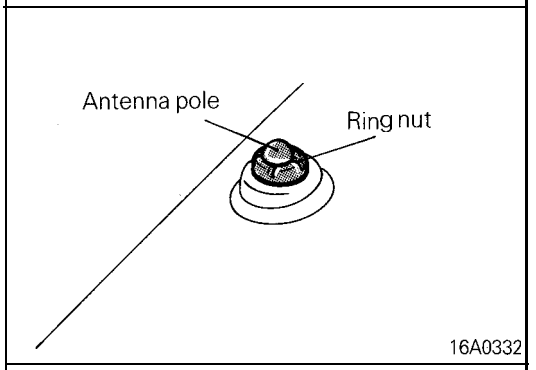
Antenna operating direction	Terminals to check	Voltage (V)
Down	I - 3	10 – 13
Up	3 - 4	10 – 13



SERVICE POINT OF INSTALLATION

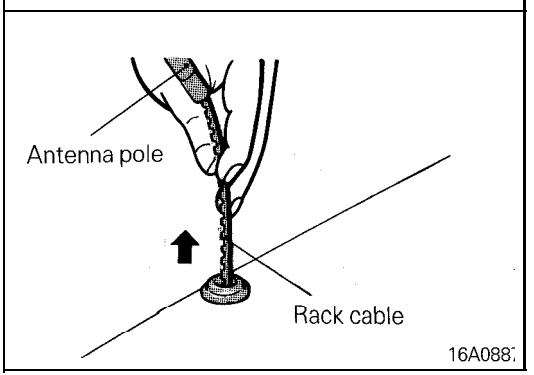
6. INSTALLATION OF REAR SEAT CUSHION

(1) Securely fit the attachment wire of the seat cushion under the seatback.
(2) Pass the inner seat belt buckles through the cushion.
(3) Securely fit the lock plates of the seat cushion into the holes in the floor.

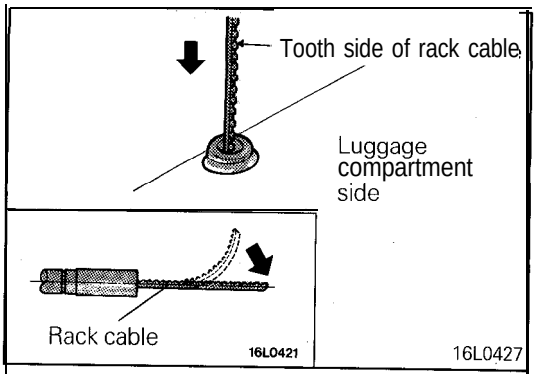


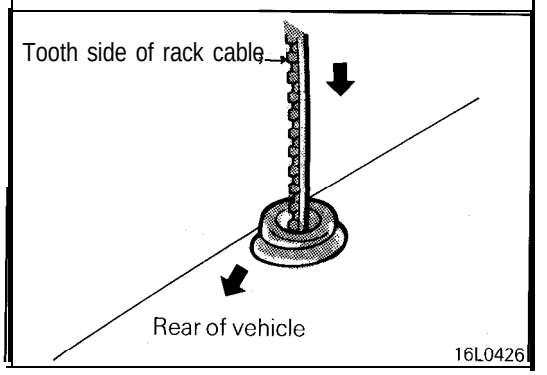
REPLACEMENT OF ANTENNA POLE <VEHICLE WITH MOTOR ANTENNA>

(1) Remove the ring nut.



(2) Set the radio switch to ON. After the antenna pole has extended, remove the antenna pole and rack cable as an assembly.





(3) Extend the antenna pole up to its farthest point.

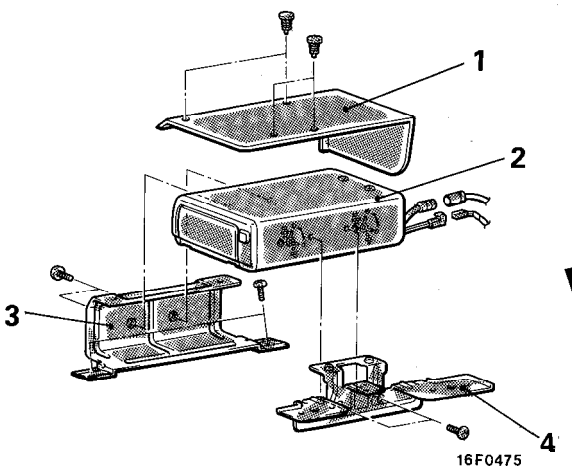
NOTE
If the motor end of the rack cable is bent, straighten it.

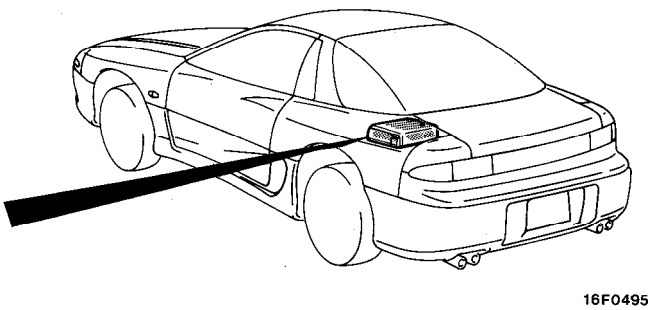
(4) Force the rack cable into the motor assembly with the tooth side of the rack cable toward the luggage compartment.

(5) Turn the tooth side of the rack cable toward the rear of the vehicle (90° clockwise) to bring the rack cable into mesh with the motor gear.
(6) Lightly pull the rack cable. If it comes out without resistance, it means that the rack cable is not in mesh with the motor gear. Recheck that the rack cable end is not bent before repeating the above-mentioned steps (2) and (3).
(7) With the antenna pole upright and the radio switch at OFF, take up the rack cable. As the rack cable is taken up, insert the antenna pole toward the motor antenna.
(8) After the ring nut has been tightened, set the radio switch to ON and OFF to check the operation of the antenna pole.

CD AUTO CHANGER

REMOVAL AND INSTALLATION



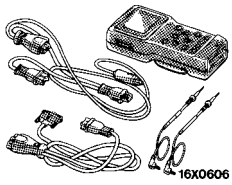
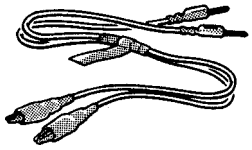


Removal steps

1. CD changer cover
   Luggage compartment floor carpet, high floor center board.
2. CD auto changer
3. CD changer bracket (front)
4. CD changer bracket (rear)

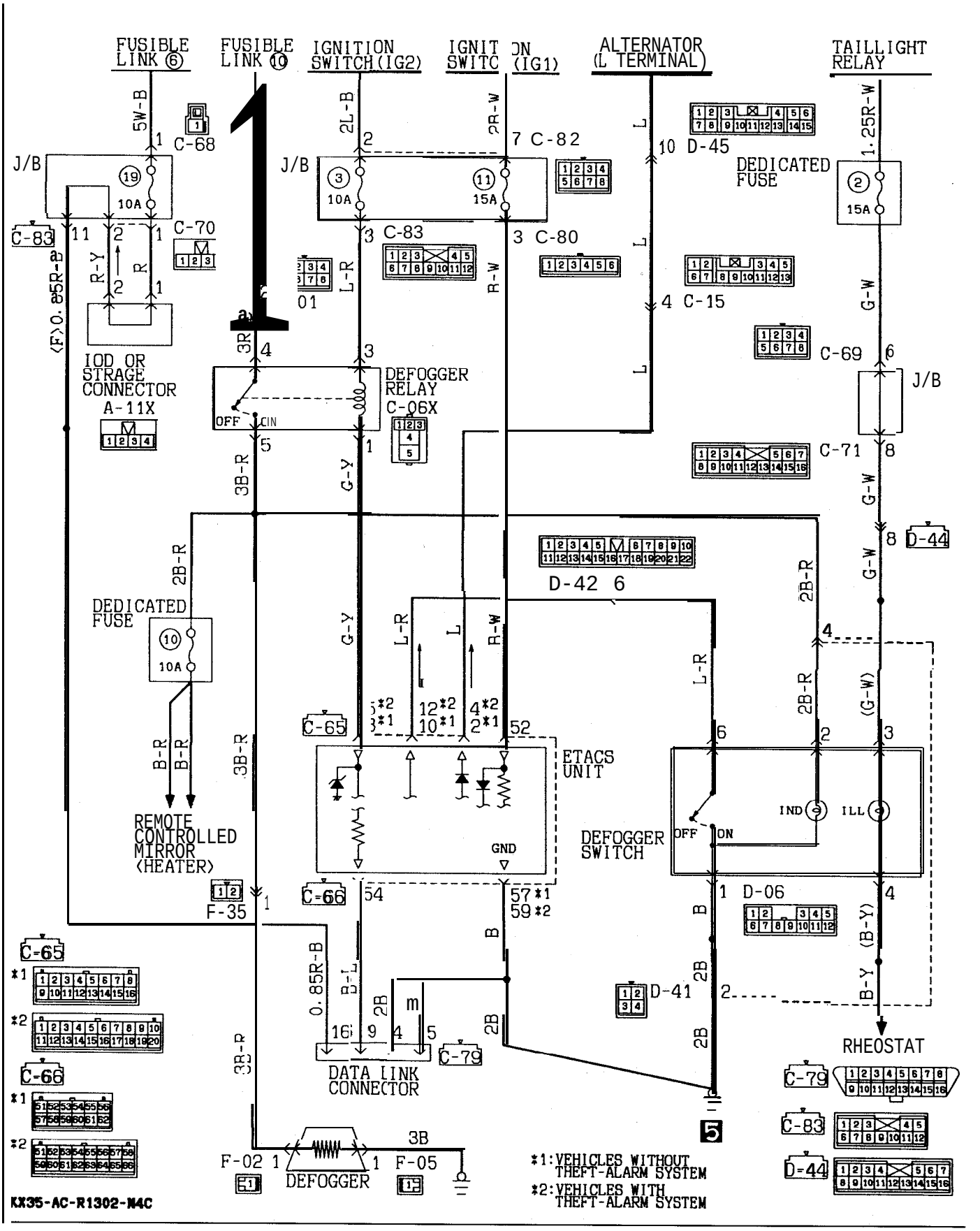
REAR WINDOW DEFOGGER

SPECIAL TOOL

Tool number and tool name	Replaced by Miller tool number	Application
 16X0606 MB991 502 Scan Tool (MUT-II)	DRB-II Scan Tool	Checking the rear window defogger system
 MB991 529 Diagnostic trouble code check harness	M B991529	Checking the rear window defogger system using a voltmeter

TROUBLESHOOTING

CIRCUIT DIAGRAM



OPERATION

- If the defogger switch is turned to "ON" when the generator is generating electricity (L terminal exceeds 1 OV.) with the ignition switch at the "ON" position, the timer circuit in the ETACS unit will be operated to keep the transistor "on" for 11 minutes to close the contact point of the defogger relay. When the defogger relay is "on", the defogger and mirror heater will be activated. Moreover, the indicator light of the defogger switch is lit to inform that the defogger and mirror heater are activated.
- When 11 minutes have passed, the defogger and mirror heater will stop activating even if the defogger switch is at "ON". When the defogger and mirror heater are activated (the timer is activated), they will also stop activating even if the defogger switch is set at "ON" again or if the generator stops generating electricity (the terminal is 3.5V or less.)

NOTE
The light automatic shut-off system is valid for the illumination light of the defogger switch. (Refer to P.8-304.)

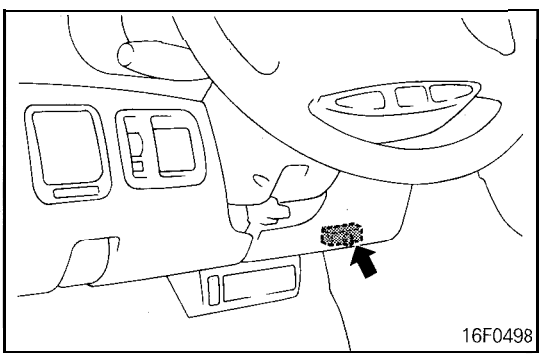
TROUBLESHOOTING HINTS

Phenomenon	Checking method
Mirror heater operates but defogger does not operate.	• Check the defogger (Refer to P.8-410.)
Defogger operates but mirror heater does not operate.	• Check the dedicated fuse No. ⑩. • Check the mirror heater. (Refer to GROUP 23A – Door Mirror.)
Neither defogger nor mirror heater operates.	• Check the multi-purpose fuse No. ③. • Check the defogger relay. (Refer to P.8-411.) • Check the defogger switch. (Refer to P.8-410.) • Check the defogger switch input signal. (Refer to P.8-409.) • Check the ignition switch input signal. (Refer to P.8-409.) • Check the generator. (Refer to P.8-233.)
Illumination light of defogger switch does not come on or is dim.	• Check the illumination light bulb. • Check the rheostat. (Refer to P.8-341.)

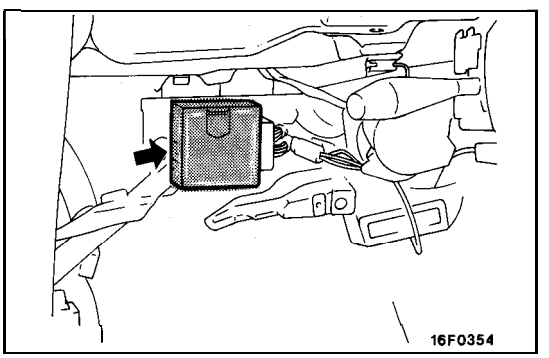
NOTE
For the troubleshooting hints of the automatic light shut-OFF system, refer to P.8-315

COMPONENT LOCATION

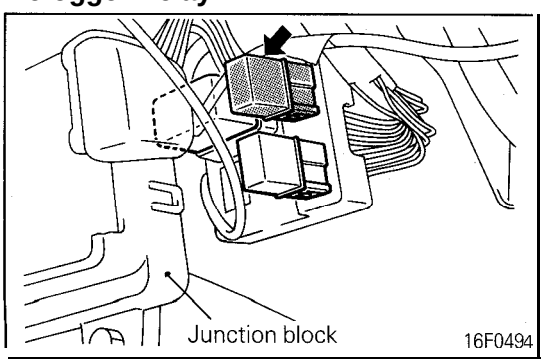
Data link connector

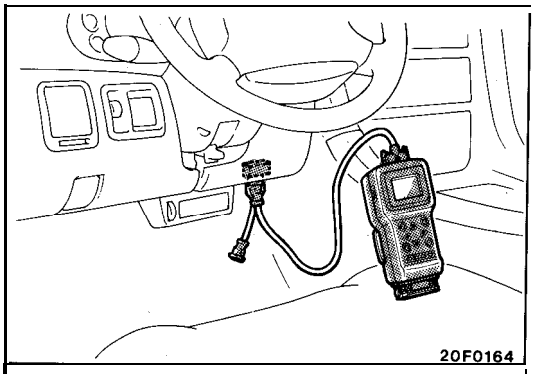


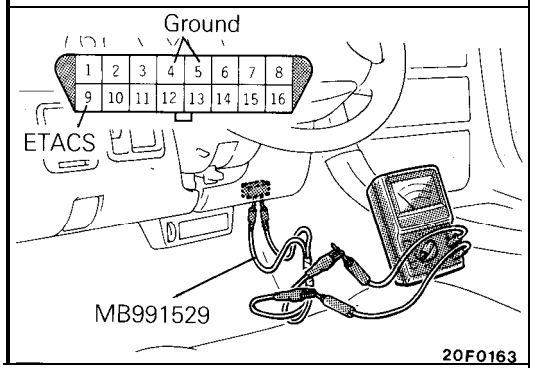
ETACS unit



Defogger relay







Input Signal

Using the scan tool or voltmeter, check whether or not the input signals from each switch are being input to the ETACS unit.

When using the scan tool

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

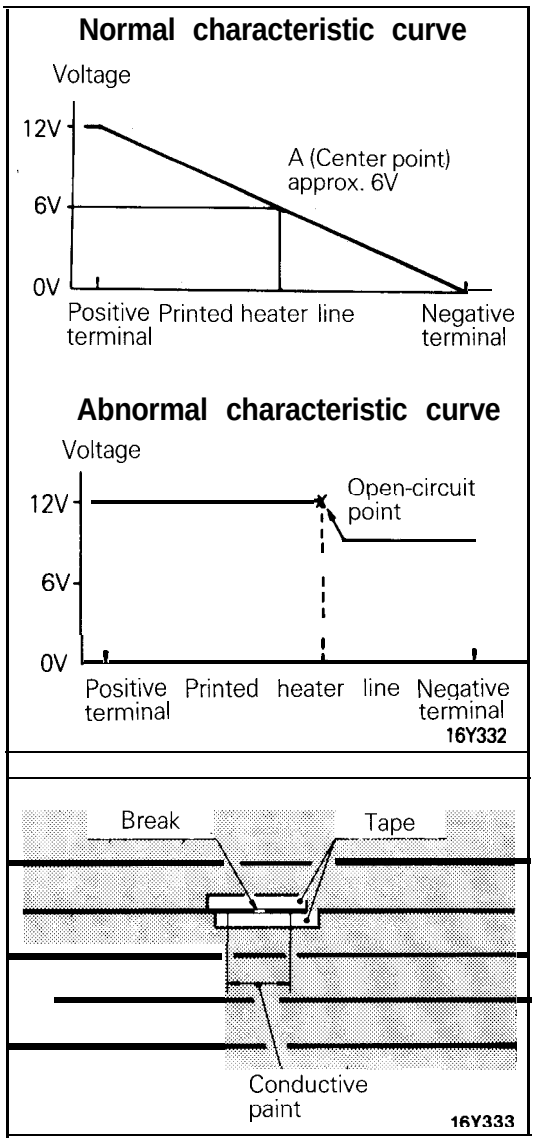
Caution
Turn off the ignition switch beforehand whenever the scan tool is connected or disconnected.

(2) If the scan tool makes a peep sound when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

When using a voltmeter

(1) Connect a voltmeter to the ETACS terminal and the ground terminal of the data link connector using the special tool.

(2) If the voltmeter pointer deflects once when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.



SERVICE ADJUSTMENT PROCEDURES

THE PRINTED-HEATER LINES CHECK

(1) Run engine at 2,000 rpm. Check heater element with battery at full.
(2) Turn ON rear window defogger switch. Measure heater element voltage with circuit tester at rear window glass center A.
Condition good if indicating about 6 V.
(3) If 12 V is indicated at A, there is a break in the negative terminals from A.
Move test bar slowly to negative terminal to detect where voltage changes suddenly (0 V).
(4) If 0 V is indicated at A, there is a break in the positive terminals from A. Detect where the voltage changes suddenly (12 V) with the same method described.

THE PRINTED-HEATER LINES REPAIR

REQUIRED MATERIALS

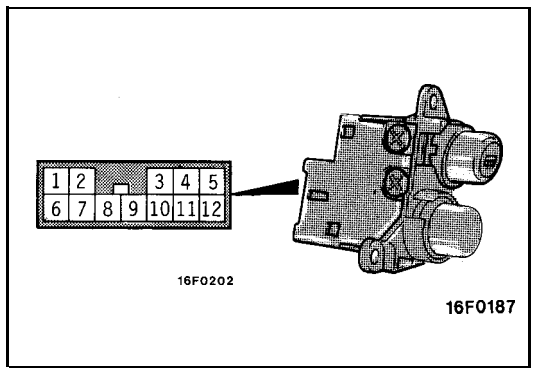
- Thinner
- Tape
- Conductive paint
- Lead-free gasoline
- Fine brush

(1) Clean disconnected area with lead-free gasoline. Tape along both sides of heater element.
(2) Mix conductive paint thoroughly. Thin the required amount of paint in a separate container with a small amount of thinner and paint break three times at 15 minute intervals.
(3) Remove tape and leave for a while before use (circuit complete).
(4) When completely dry (after 24 hours) finish exterior with a knife.

Caution
Clean glass with a soft cloth (dry or damp) along defogger heater element.

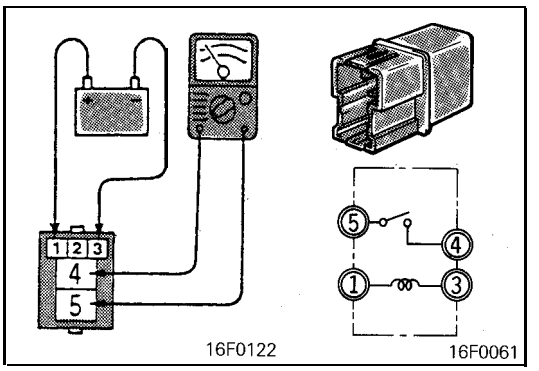
REAR WINDOW DEFOGGER SWITCH

(1) Remove rear window defogger switch from the meter bezel. (Refer to P.8-340.)
(2) Operate the switch and check the continuity between the terminals.



Terminal / Switch position	1	2	3	4	5	6
OFF						
ON	0	IND		ILL		0

NOTE
○–○ indicates that there is continuity between the terminals.



DEFOGGER RELAY

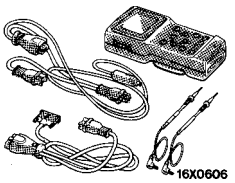
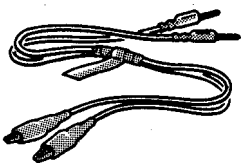
INSPECTION

Connect battery power source to terminal 1. Check circuit between terminals with terminal 3 grounded.

Power is supplied	4 – 5 terminals	Continuity
Power is not supplied	4 – 5 terminals	No continuity
	1 – 3 terminals	Continuity

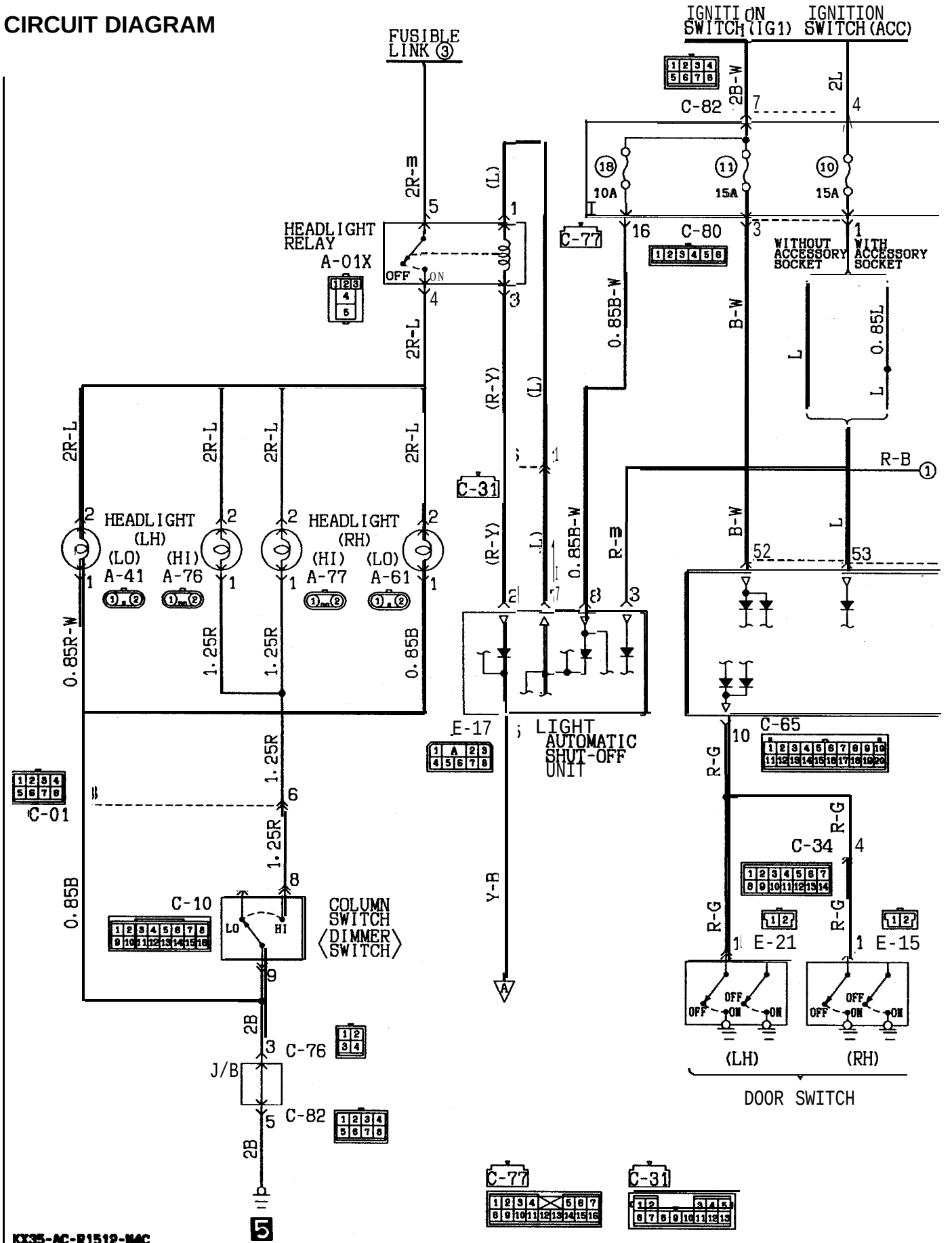
THEFT-ALARM SYSTEM

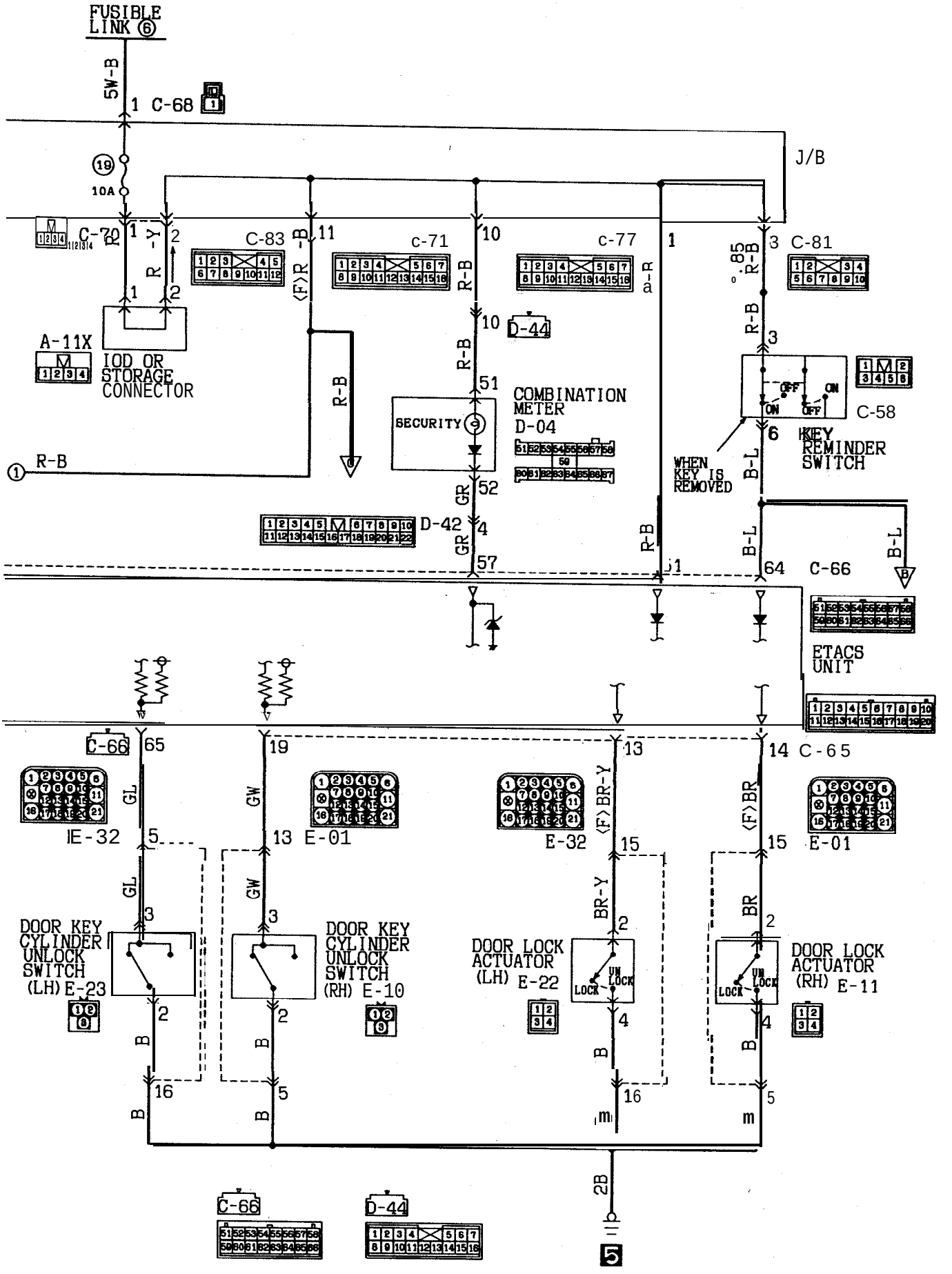
SPECIAL TOOL

Tool number and tool name	Replaced by Miller tool number	Application
 MB991 502 Scan Tool (MUT-II)	DRB-II Scan Tool	Checking the theft-alarm system
 MB991 529 Diagnostic trouble code check harness	MB991529	Checking the theft-alarm system using a voltmeter

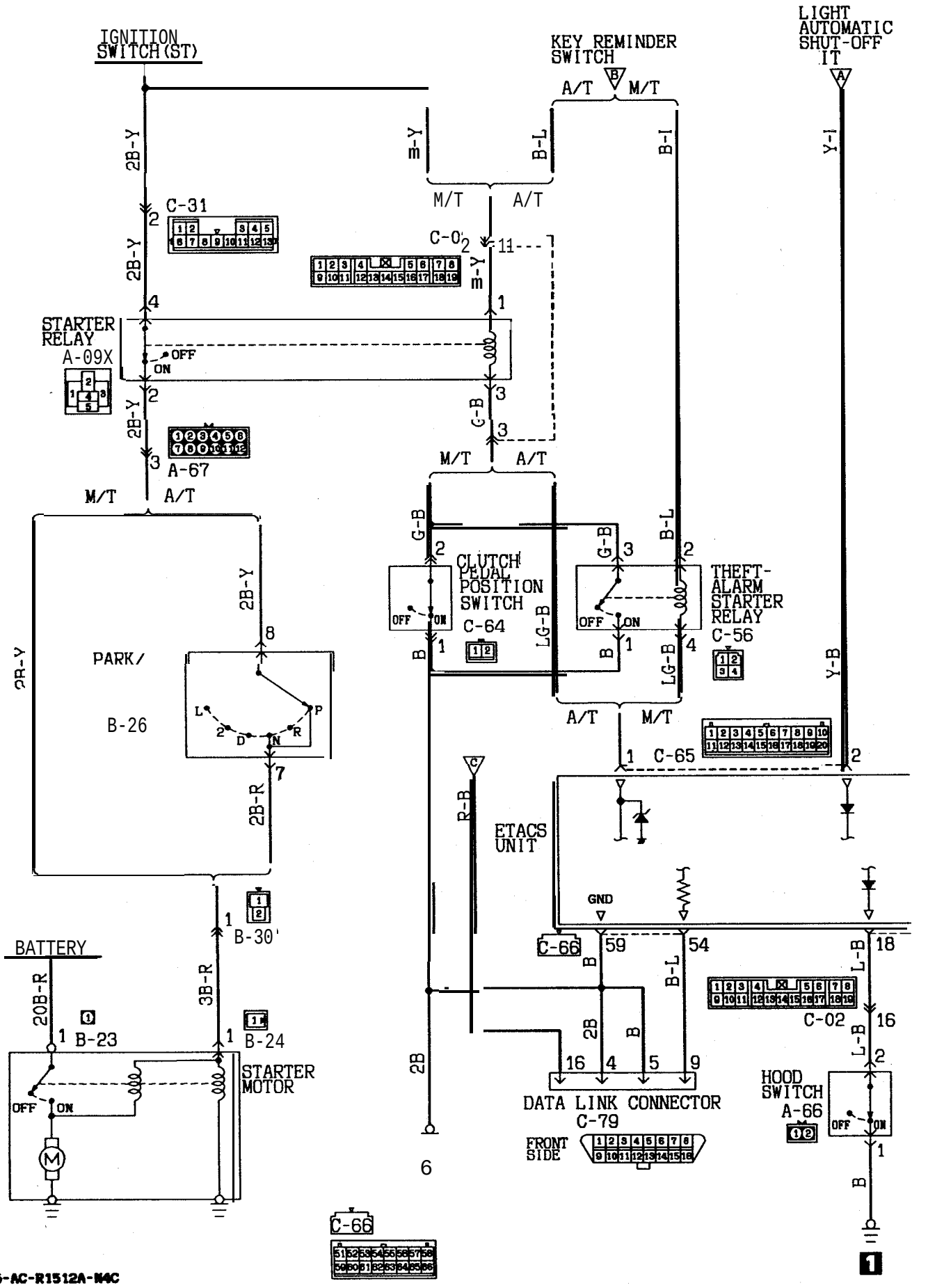
TROUBLESHOOTING

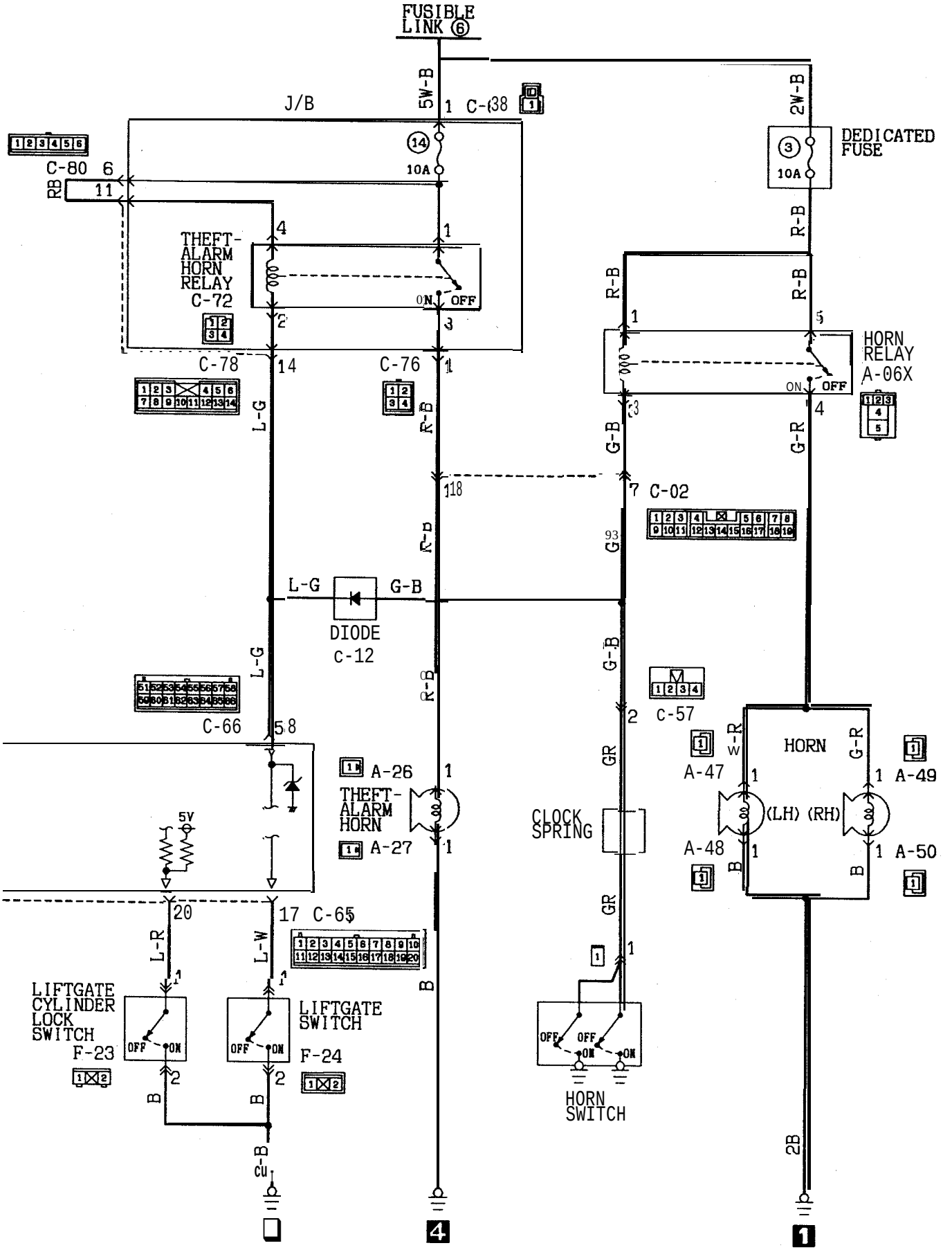
CIRCUIT DIAGRAM




FUSIBLE LINK ⑥
5W-B
1 C-68
⑲
10A
J/B
C-70
C-83
c-71
c-77
C-81
A-11X
IOD OR STORAGE CONNECTOR
D-44
COMBINATION METER
D-04
SECURITY
C-58
KEY REMINDER SWITCH
WHEN KEY IS REMOVED
D-42
C-66
ETACS UNIT
C-65
E-32
E-01
DOOR KEY CYLINDER UNLOCK SWITCH (LH) E-23
DOOR KEY CYLINDER UNLOCK SWITCH (RH) E-10
DOOR LOCK ACTUATOR (LH) E-22
DOOR LOCK ACTUATOR (RH) E-11
2B
5

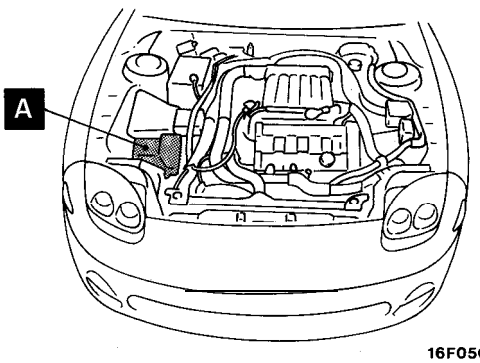
CIRCUIT DIAGRAM (CONTINUED)

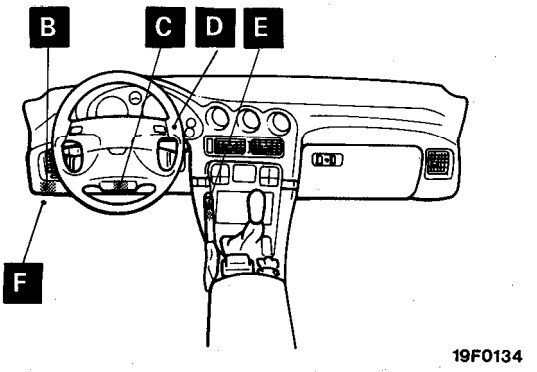


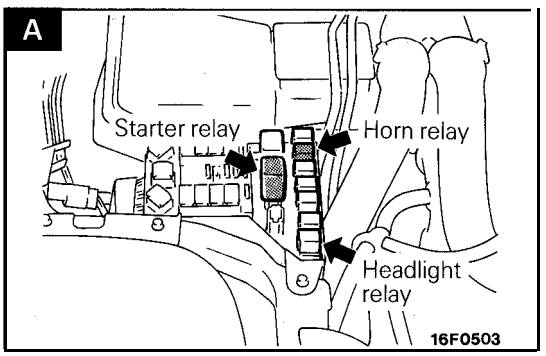

FUSIBLE LINK ⑥
J/B
5W-B
C-138
2W-B
DEDICATED FUSE
10A
C-80
RB
THEFT-ALARM HORN RELAY C-72
ON OFF
HORN RELAY A-06X
C-78
C-76
L-G
R-B
G-B
G-R
C-02
L-G
G-B
DIODE C-12
C-66
C-57
A-26
THEFT-ALARM HORN
A-27
5V
CLOCK SPRING
HORN
A-47
A-48
A-49
A-50
(LH) (RH)
C-65
L-R
L-W
GR
LIFTGATE CYLINDER LOCK SWITCH F-23
LIFTGATE SWITCH F-24
HORN SWITCH
2B
OFF
ON

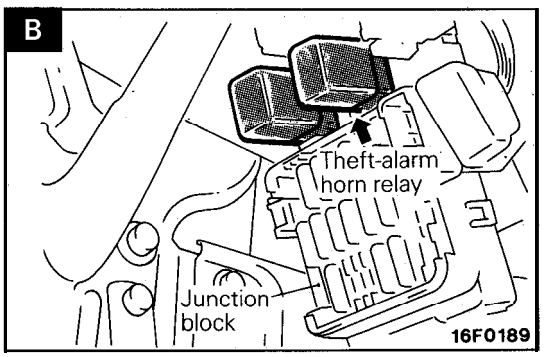
COMPONENT LOCATION

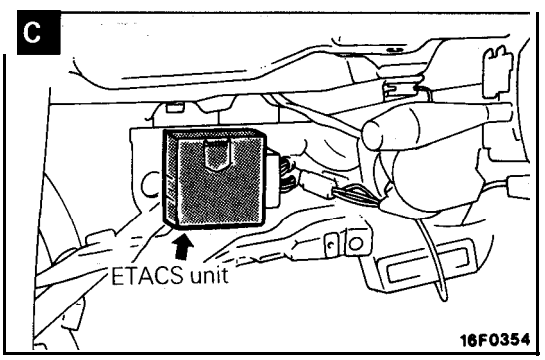
Name	Symbol	Name	Symbol
Data link connector	F	Light automatic shut-off unit	G
Diode	D	Starter relay	A
ETACS unit	C	Theft-alarm horn relay	B
Headlight relay	A	Theft-alarm starter relay	E
Horn relay	A	–	–

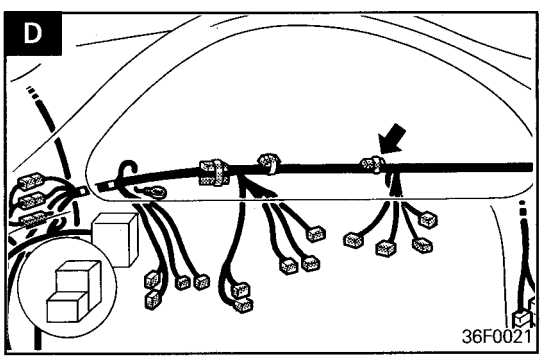


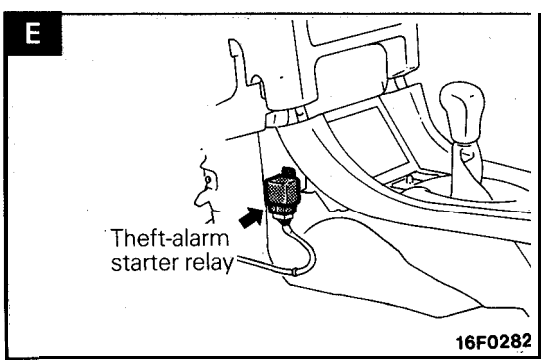


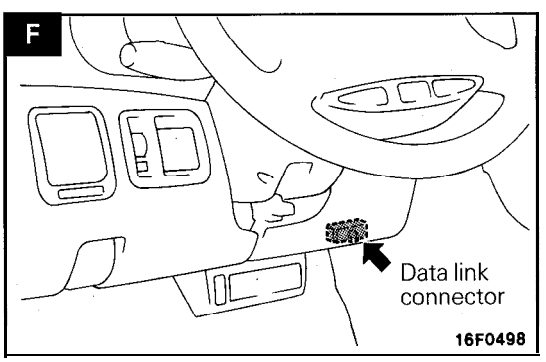


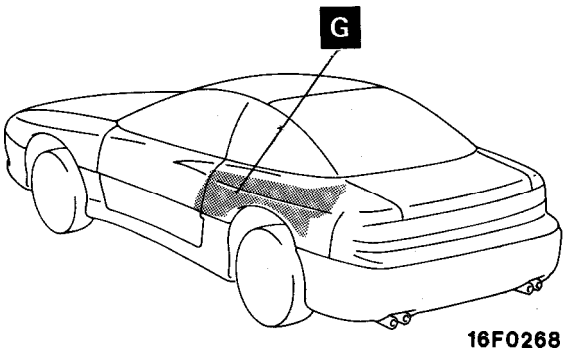


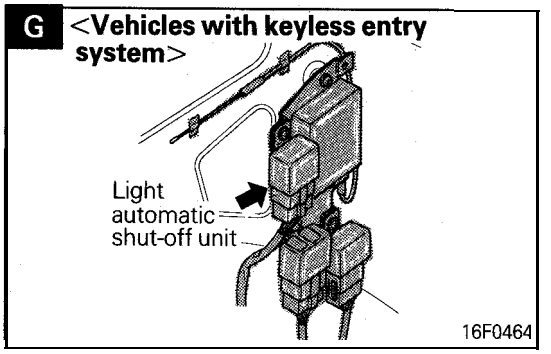


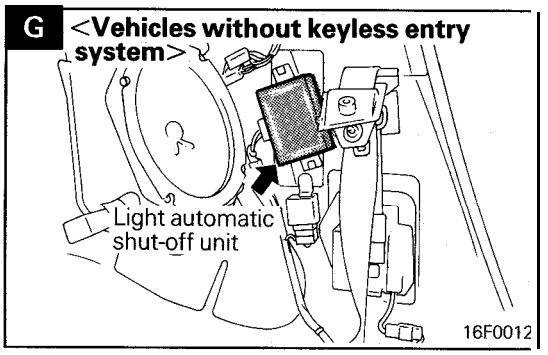


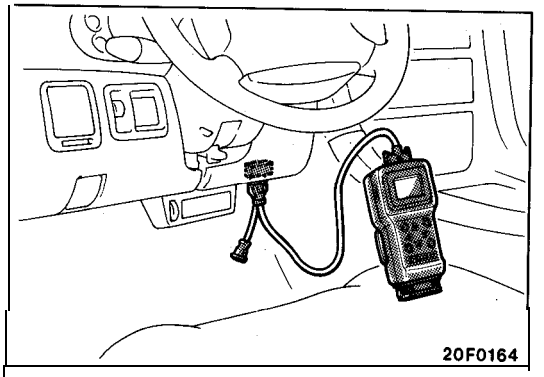


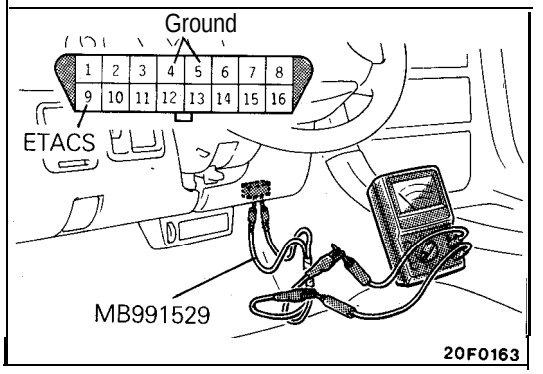



G
16F0268


G <Vehicles with keyless entry system>
Light automatic shut-off unit
16F0464


G <Vehicles without keyless entry system>
Light automatic shut-off unit
16F0012





TROUBLESHOOTING GUIDE

CHECKING THE INPUT

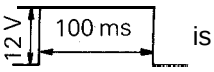
When using the scan tool

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

Caution
Turn off the ignition switch beforehand whenever the scan tool is connected or disconnected.

When using a voltmeter

1. Connect a voltmeter to the ETACS terminal and the ground terminal of the data link connector using the special tool.
2. Make sure that when the following switches are turned on, the output shown in the illustration is delivered. (Only those switches which are related to the theft-alarm system are listed here.)
   - Driver and front passenger door switches
   - Headlight switch
   - Driver and front passenger door lock switches
   - Passing light switch
   - Hood switch
   - Liftgate switch
   - Door key cylinder switch
   - Liftgate switch

Tester	output
Voltmeter	Rectangular wave  is output
Scan tool	Buzzer sound

If there is no output of a voltage pattern at all, check for a malfunction of that switch or for damaged or disconnected wiring.

TROUBLESHOOTING QUICK-REFERENCE TABLE

For information concerning the locations of electrical components, refer to P.8-416.

1. ARMING / DISARMING RELATIONSHIP

Trouble symptom	Cause	Check method	Remedy
The system is not armed (The SECURITY light doesn't illuminate, and the alarm doesn't function.) (The central door locking system functions normally. If the central locking system does not function normally, refer to P.8-423.	Damaged or disconnected wiring of ECU power supply circuit	Check by using check chart P.8-421.	Replace the fusible link No. ⑥ or the fuse No. ⑲. Repair the harness.
	Damaged or disconnected wiring of door switch input circuit	Check by using check chart P.8-422.	Repair the harness or replace the door switch.
The arming procedures are followed, but the SECURITY light does not illuminate. (There is an alarm, however, when an alarm test is conducted after about 20 seconds have passed.)	Damaged or disconnected wiring of SECURITY light activation circuit	Check by using check chart P.8-426.	Replace the fusible link No. ⑥ or the fuse No. ⑲. Repair the harness.
	Blown SECURITY light bulb		Replace the bulb.
	Malfunction of the ECU.		Replace the ECU.
The alarm sounds in error when, while the system is armed, a door or the liftgate is unlocked by using the key.	Damaged or disconnected wiring of a door key cylinder and the liftgate unlock switch input circuit.	If input checks P.8-418 indicate a malfunction, check by using check chart P.8-423.	Repair the harness or replace a door key cylinder and the liftgate unlock switch.
	Malfunction of a door key cylinder and the liftgate unlock switch.		
	Malfunction of the ECU.		Replace the ECU.

2. ACTIVATION / DEACTIVATION RELATIONSHIP

Trouble symptom	Cause	Check method	Remedy
There is no alarm when, as an alarm test, a door is opened without using the key. (The arming and disarming are normal, and the alarm is activated when the liftgate or hood is opened.)	Damaged or disconnected wiring of door switch (all doors) input circuit	If input checks P.8-418 indicate a malfunction, check by using check chart P.8-422.	Repair the harness or replace the door switch.
	Malfunction of the door switch		
	Malfunction of the ECU	–	Replace the ECU.
There is no alarm when, as an alarm test, the liftgate is opened without using the key. (The alarm is activated, however, by opening a door or the hood.)	Damaged or disconnected wiring of liftgate switch input circuit	If input checks P.8-418 indicate a malfunction, check by using check chart P.8-425.	Repair the harness or replace the liftgate switch.
	Malfunction of the liftgate switch.		
	Malfunction of the ECU.		Replace the ECU.
There is no alarm when, as an alarm test, the hood is opened from within the vehicle. (The alarm is activated, however, by opening a door or the liftgate.)	Damaged or disconnected wiring of hood switch input circuit.	If input checks P.8-418 indicate a malfunction, check by using check chart P.8-422.	Repair the harness or replace the hood switch.
	Malfunction of the hood switch.		
	Malfunction of the ECU.	–	Replace the ECU.

Trouble symptom	Cause	Check method	Remedy
Engine would not start [Engine starting is possible when the starter relay is in the switched-off (normally closed) condition, with the clutch switch in the switch-off and the ECU harness connector disconnected.]	There is a short-circuit of the starter relay activation circuit	Check by using check chart P.8-429.	Repair the harness.
When, as a test of the alarm, a door or the liftgate is opened without using the key, or the hood is opened from within the vehicle, the horn and the theft-alarm horn sound but the headlights don't flash. (The headlights can, however, be switched ON by using the passing switch.)	Damaged or disconnected wiring of headlight power supply circuit or headlight activation circuit	Check by using check chart P.8-428, 429.	Repair the harness or replace the diode D_2. Replace the headlight relay or the headlight,
	Malfunction of the ECU.		Replace the ECU.
The headlights flash during an alarm test but the horn or the theft alarm horn does not sound.	Damaged or disconnected wiring of horn relay power supply circuit or horn activation circuit Damaged or disconnected wiring of the theft-alarm horn relay power supply circuit or the theft-alarm horn activation circuit.	Check by using check chart P.8-426, 427, 428.	Repair the harness. Replace the horn. Replace dedicated fuse No. ⑥ or the fusible link No. ⑥.
	Malfunction of the ECU.		Replace the ECU.
The system is not deactivated when, during an alarm test in which the alarm is intentionally activated, the door or liftgate is unlocked by using the key. (The system also cannot be disarmed.)	Damaged or disconnected wiring of door key cylinder and liftgate unlock switch input circuit	If input checks (P.8-418) indicate a malfunction, check by using check chart P.8-424, 425.	Repair the harness. Replace the key cylinder switch or the liftgate switch.
	Malfunction of door key cylinder and liftgate unlock switch.		
	Malfunction of the ECU		Replace the ECU.

ECU: Electronic Control Unit

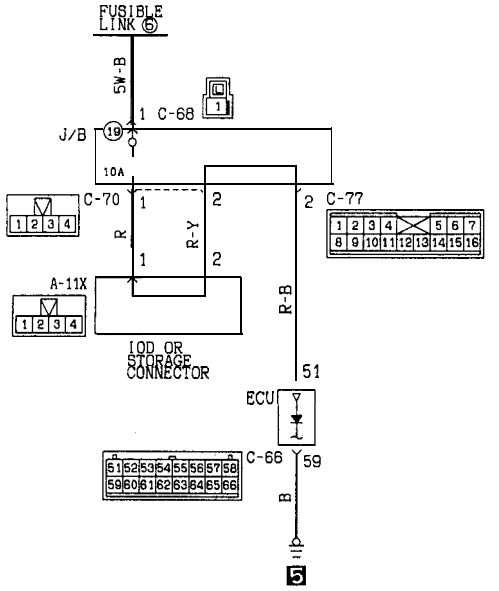
NOTE

(1) If the liftgate unlock switch or door key cylinder unlock switch is operated roughly, or if these switches have been installed incorrectly or switches themselves are defective the ECU may not accept the warning or alarm cancelling signal. In such case, the alarm operation will take place when the door is opened using a key.
[When the door key cylinder switch has been shorted, however, if the ignition switch is turned ON, the ECU judges the detection switch as faulty and thereafter, it will prevent setting of (warning) alarm until the shorting is corrected.]

(2) If the liftgate is opened using a key and is left opened when the door key cylinder switch system has a trouble (wiring harness damage, open circuit, etc.), the ECU judges it as the liftgate holding mode and does not produce alarm even when the door is opened.

CHECKING THE CIRCUIT AND INDIVIDUAL PART

1. ETACS POWER-SUPPLY AND GROUND CIRCUITS



KX35-AK-R5401-N4

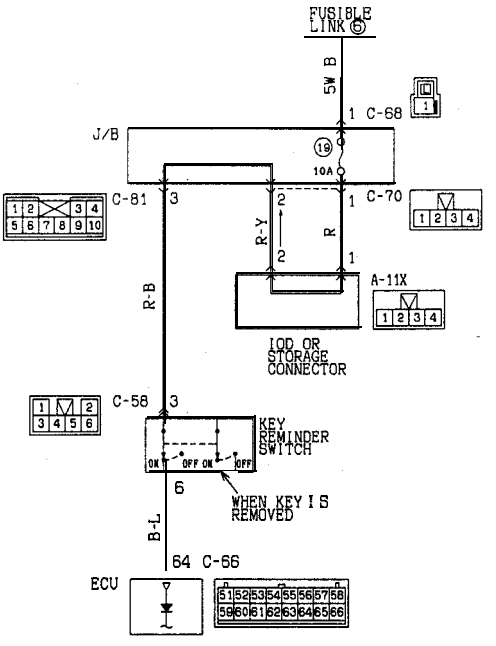
Description of operation

The battery supplies a stabilized 5V power supply to the ECU, via the constant-voltage circuit and terminal 51 (which is directly connected to the battery).

ECU terminal voltage (Connection condition of the ECU connector).

ECU terminal No.	Signal	Condition	Terminal voltage
51	ECU power supply	At all times	12V

2. KEY-REMINDER SWITCH INPUT CIRCUIT



KX35-AK-R5402-N4

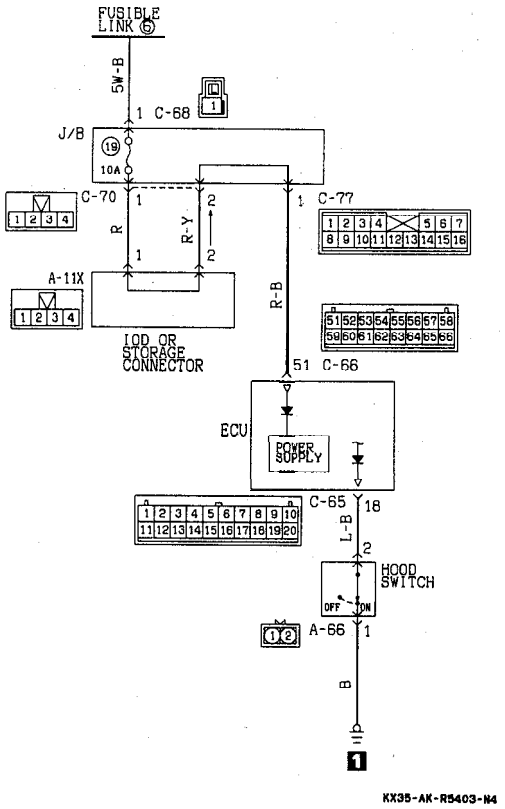
Description of operation

The key-reminder switch is switched OFF and HIGH-level signals are sent to the ECU when the key is inserted into the ignition key cylinder: when the key is removed, the key-reminder switch is switched ON and LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector).

ECU terminal No.	Signal	Condition	Terminal voltage
64	Key-reminder switch	Key removed	12V
		Key inserted	0V

3. HOOD SWITCH INPUT CIRCUIT



Description of operation

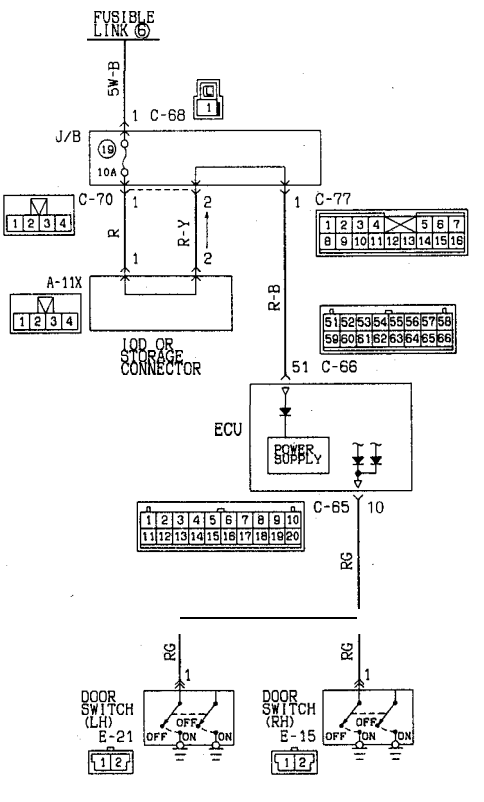
When the hood is closed (the hood switch is switched OFF), HIGH-level signals are sent to the ECU:
When the hood is opened (the hood switch is switched ON), LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector).

ECU terminal No.	Signal	Condition		Terminal voltage
18	Hood switch	Hood	Open	0V
			Closed	5V*

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

4. DOOR SWITCH INPUT CIRCUIT



Description of operation

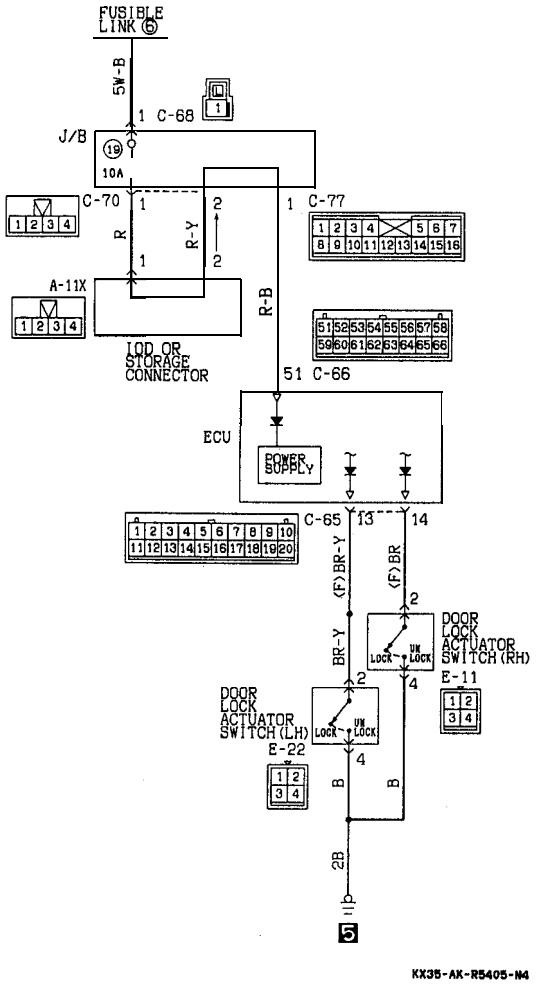
When the door is closed (the door switch is switched OFF), HIGH-level signals are sent to the ECU:
When the door is opened (the door switch is switched ON), LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU)

ECU terminal No.	Signal	Condition		Terminal voltage
10	Driver door switch	Driver door	Open	0V
			Closed	5V*
	Passenger door switch	Passenger door	Open	0V
			Closed	5V*

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

5. DOOR LOCK ACTUATOR SWITCH INPUT CIRCUIT



Description of operation

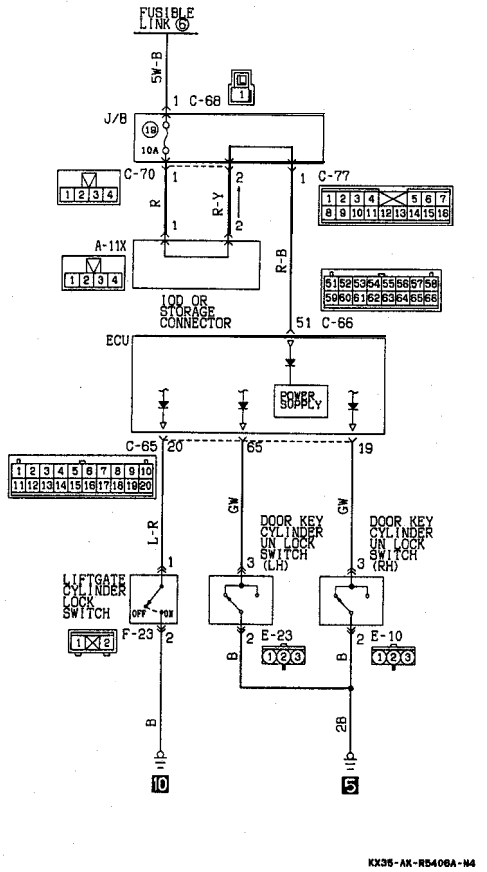
When a door is locked by the lock knob or the key, the door lock actuator switch is switched OFF, and HIGH-level signals are sent to the ECU. These signals activate the timer circuit of the ECU, thereby causing the activation circuit to function, thus activating the door lock actuator of all doors.

ECU terminal voltage (Connection condition of the ECU connector).

ECU terminal No.	Signal	Condition		Terminal voltage
13	Door lock actuator switch (driver door)	Door lock actuator switch	Lock: OFF	5V*
			Unlock: ON	0V
14	Door lock actuator switch (passenger door)	Door lock actuator switch	Lock: OFF	5V*
			Unlock: ON	0V

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

6. DOOR KEY CYLINDER UNLOCK AND LIFTGATE CYLINDER LOCK SWITCH INPUT CIRCUIT



KX35-AK-R5406A-M4

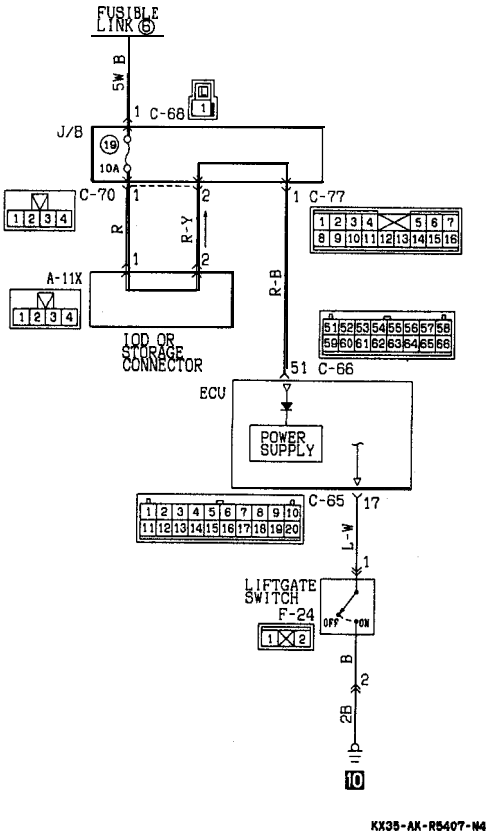
Description of operation

When the door key is rotated or the liftgate key is unlocked, LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector).

ECU terminal No.	Signal	Condition		Terminal voltage
19	Door key cylinder unlock switch	Door key cylinder (LH)	Not rotate	5V
			Rotate	0V
		Door key cylinder (RH)	Not rotate	5V
			Rotate	0V
20	Liftgate unlock switch	Liftgate	Lock	5V
			Unlock	0V

7. LIFTGATE SWITCH INPUT CIRCUIT



KX35-AK-R5407-N4

Description of operation

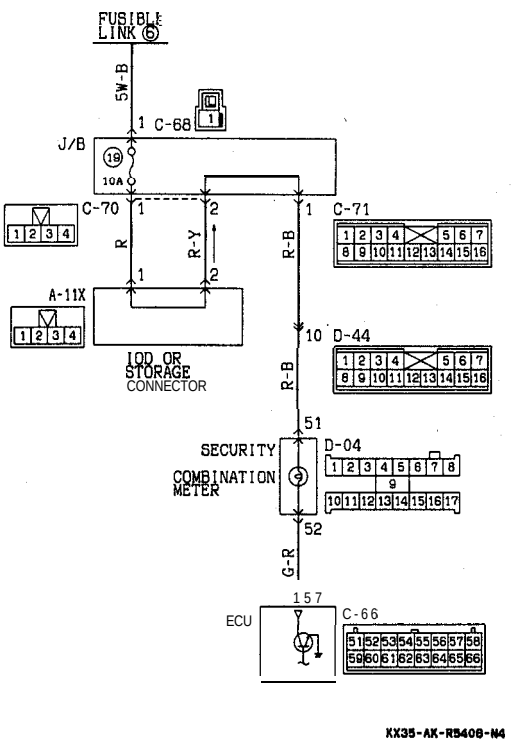
When the liftgate is closed (the liftgate switch is switched OFF), HIGH-level signals are sent to the ECU.
When the liftgate is opened (the liftgate switch is switched ON), LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector).

ECU terminal No.	Signal	Condition		Terminal voltage
17	Liftgate switch	Liftgate	Open	0V
			Closed	5V*

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

8. SECURITY LIGHT ACTIVATION CIRCUIT



KX35-AK-R5408-N4

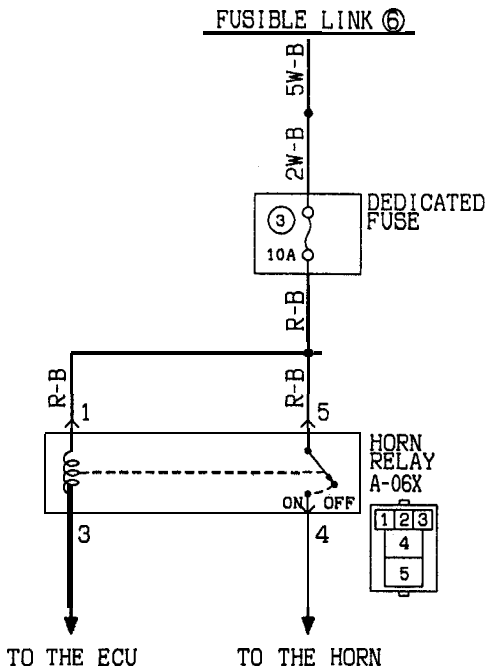
Description of operation

If all doors are in locked state after key-less locking, the ECU transistor is turned ON and the security light comes on.

Checking the security light activation circuit (Disconnect the connector of the ECU and check at the wiring harness side.)

Step	Check object	Judgement		Cause	Remedy
		Normal	Mal-function		
1	D-04 connector terminal voltage 51	12V	0V	Fuse ⑲ damaged or disconnected	Replace the fuse
				Harness damaged or disconnected, or short-circuit	Repair the harness
2	D-04 connector terminal voltage 52	12V	0V	Damaged or disconnected wiring of SECURITY light bulb	Replace the bulb
				Harness damaged or disconnected	Repair the harness
3	ECU terminal voltage 57	12V	0V	Harness damaged or disconnected, or short-circuit	Repair the harness

9. HORN RELAY POWER-SUPPLY CIRCUIT



KX35-AC-R5409-N4

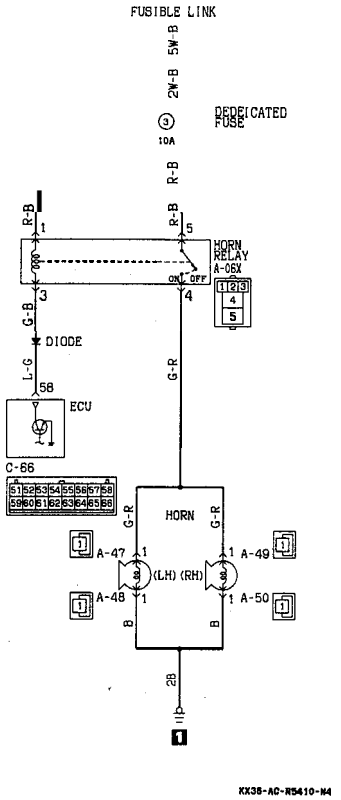
Description of operation

Power voltage is always supplied to the horn relay.

Checking the horn relay power-supply circuit (Disconnect the horn relay)

Check object	Judgement		Cause	Remedy
	Normal	Mal-function		
HORN RELAY connector terminal voltage 5	12V	0V	Dedicated fuse ③ damaged or disconnected	Replace the fuse
			Damaged or disconnected harness	Repair the harness

10. HORN ACTIVATION CIRCUIT



KX35-AC-R5410-M4

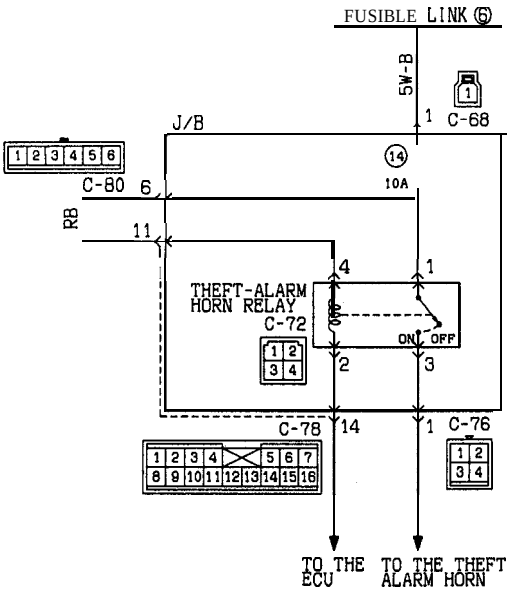
Description of operation

The ECU transistor is turned 'ON if the vehicle door, etc. are opened without use of the key.
This energizes the horn relay to activate the horn.

Checking the horn activation circuit (Disconnect the connector of the ECU, then short-circuit terminal connector No. 58, and activate the horn relay.)

Step	Check object	Judgement		Cause	Remedy
		Normal	Mal-function		
1	Horn relay terminal voltage (4-Ground)	12V	0V	Malfunction of the horn relay	Check the horn relay (Refer to P.8-363.)
2	Horn terminal voltage (LH & RH) (1-Ground)	12V	0V	Harness damaged or disconnected	Repair the harness
3	Horn terminal voltage (LH & RH) (1'-Ground)	Horn sounds (0V)	Horn doesn't sound (0V)	Malfunction of the horn	Replace the horn
			Battery voltage	Damaged or disconnected wiring of ground circuit	Repair the harness

11. THEFT ALARM HORN RELAY POWER-SUPPLY CIRCUIT



KX35-AK-R5411-M4

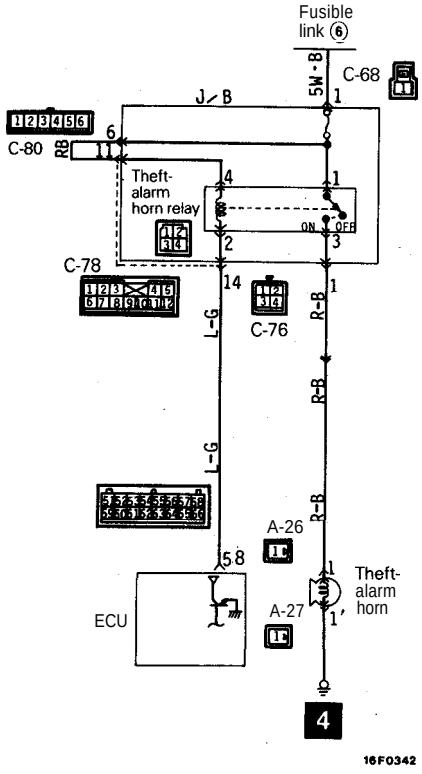
Description of operation

Power voltage is always supplied to the theft alarm horn relay.

Checking the horn relay power-supply circuit (Disconnect the theft alarm horn relay)

Check object	Judgement		Cause	Remedy
	Normal	Mal-function		
THEFT ALARM HORN RELAY connector terminal voltage 1	12v	ov	Fuse ⑭ damaged or disconnected	Replace the fuse
			Damaged or disconnected harness	Repair the harness

12. THEFT ALARM HORN ACTIVATION CIRCUIT



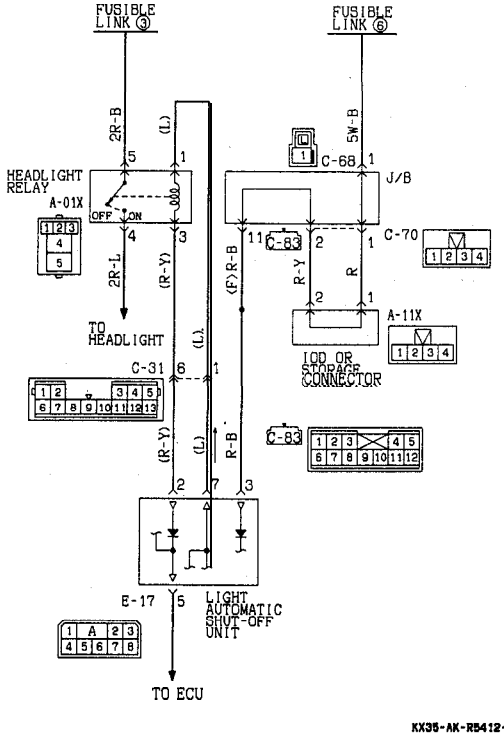
Description of operation

The ECU transistor is turned ON if the vehicle door, etc. are opened without use of the key.
This energizes the theft alarm horn relay to activate the horn.

Checking the horn activation circuit (Disconnect the connector of the ECU, then short-circuit terminal connector No. 58, and activate the theft alarm horn relay.)

Step	Check object	Judgement		Cause	Remedy
		Normal	Mal-function		
1	Horn relay terminal voltage (1-Ground)	12V	**0V**	Malfunction of the horn relay	Check the horn relay (Refer to P.8-363.)
2	Horn terminal voltage (1-Ground)	12V	0V	Harness damaged or disconnected	Repair the harness
3	Horn terminal voltage (1'-Ground)	Horn sounds (0V)	Horn doesn't sound (0V)	Malfunction of the horn	Replace the horn
			Battery voltage	Damaged or disconnected wiring of ground circuit	Repair the harness

13. HEADLIGHT POWER-SUPPLY CIRCUIT



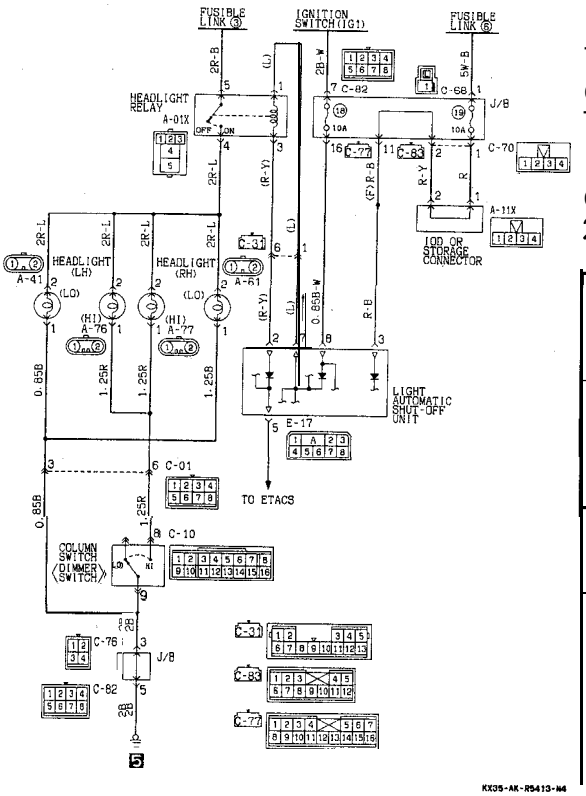
Description of operation

Power voltage is always supplied to the headlight relay.

Checking the headlight power-supply circuit (Disconnect the headlight relay)

Check object	Judgement		Cause	Remedy
	Normal	Mal-function		
(Wiring harness side) terminal voltage (5-Ground)	12V	0V	Fusible link ③ blown	Replace the fusible link
			Damaged or disconnected harness	Repair the harness

14. HEADLIGHT ACTIVATION CIRCUIT



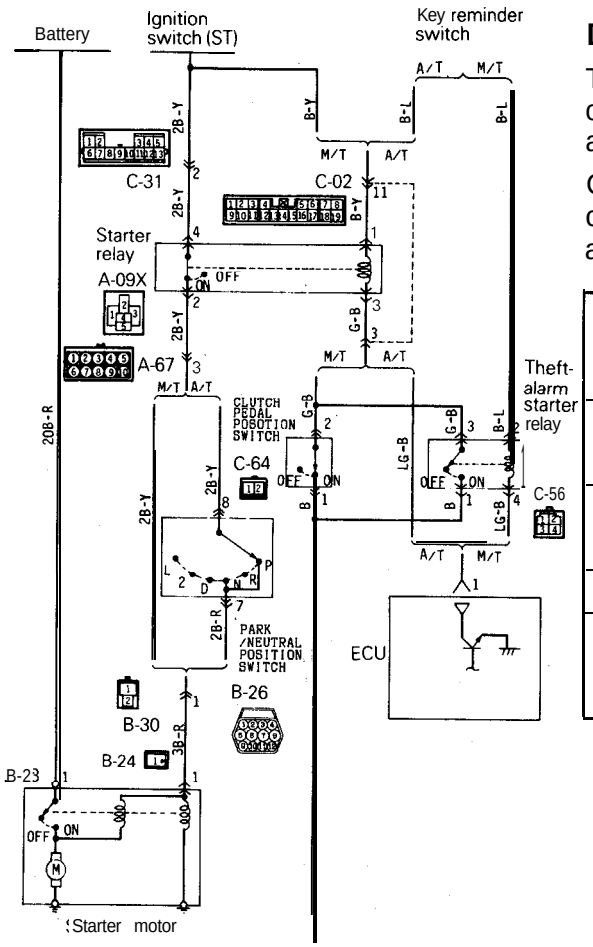
Description of operation

The ECU transistor is turned ON if the vehicle door, etc. are opened without use of the key.
This energizes the headlight relay to activate the headlight.

Checking the headlight activation circuit (Disconnect the connector of the ECU, then short-circuit terminal connector No. 2, and activate the headlight relay.)

Step	Check object		Judgement		Cause	Remedy
			Normal	Mal-function		
1	Headlight relay terminal voltage (4-Ground)		12V	0V	Malfunction of the headlight relay	Check the headlight relay (Refer to P.8-338.)
2	Headlight terminal voltage (2-Ground)		12V	0V	Harness damaged or disconnected	Repair the harness
3	Headlight terminal voltage		Column switch		The head-light isn't turned on.	Malfunction of the headlight. Harness damaged or disconnected. Malfunction of column switch	Replace the headlight or column switch. Repair the harness.
			Low	Hi		
	<HI>	(1-Ground)	12V	0V		
	<LO>	(1-Ground)	0V	0V		

15. STARTER RELAY ACTIVATION CIRCUIT



Description of operation

The ECU transistor is turned ON if the vehicle door etc. are opened without use of the key. This turns OFF the starter relay and power ceases to be supplied to the starter magnet switch.

Checking the starter relay activation circuit (Disconnect the connector of the ECU, depress fully the clutch pedal and activate the starter relay)

Step	Check object	Judgement		Cause	Remedy
		Normal	Mal-function		
1	Starter relay terminal voltage (2-Ground)	12V	0V	Malfunction of the starter relay	Check the starter relay
2	Starter motor terminal (1-Ground)	12V	0V	Harness damaged or disconnected	Repair the harness
(Starter motor connector B-24: Separation)					
3	Continuity between "B-24" connector and ground	0 Ω	∞ Ω	Damaged magnet switch	Replace magnet switch

RJHY307090-432

UNITED STATES

CHRYSLER CORPORATION

The special service tools referred to herein are required for certain service operations. These special service tools or their equivalent, if not obtainable through a local source are available through the following outlet.

12842 Farmington Road, Livonia, Michigan 48150, U.S.A.

MILLER SPECIAL TOOLS
SPX Corporation

Telephone (313) 522-6717 FAX (313) 522-6505

CANADA

CHRYSLER CANADA

The special service tools referred to herein are required for certain service operations. These special service tools or their equivalent, if not obtainable through a local source are available through the following outlet.

C & D Riley Enterprises Ltd., P.O. Box 243, Amherstburg, Ontario N9V 2Z4
Telephone (519) 736-4600 FAX (5 19) 736-8433

INTERNATIONAL

CHRYSLER INTERNATIONAL

The special service tools referred to herein are required for certain service operations. These special service tools or their equivalent, if not obtainable through a local source are available through the following outlet.

12842 Farmington Road, Livonia, Michigan 48150, U.S.A.

MILLER SPECIAL TOOLS
SPX Corporation

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