# 1 HOW TO READ THE WIRING DIAGRAMS

MODELS	1- 3	2
COMPOSITION AND CONTENTS OF WIRING DIAGRAMS	1- (	2
HOW TO READ CONFIGURATION DIAGRAMS	1- :	3
HOW TO READ CIRCUIT DIAGRAMS	1- 4	4
MARKINGS FOR CONNECTOR EARTHING	1- (	6
SYMBOLIC MARKS	1- 8	B
WIRE COLOUR CODES	1- 8	3
ABBREVIATION SYMBOLS	1- 9	9
APPLICABLE MODEL CATEGORIES		

#### **MODELS**

Model code		Engine model Transmission model		Fuel supply system
DaaA	MNHMLF6	4G63 DOHC-16V [1997 cm³ (121.9 cu.in,)]	FENACA (ONA/E) FNA/E)	
D22A	MNHMLFG		F5M31 (2WD-5M/T)	MPI
D27A	MNGMLF6		W5M33 (4WD-5M/T)	

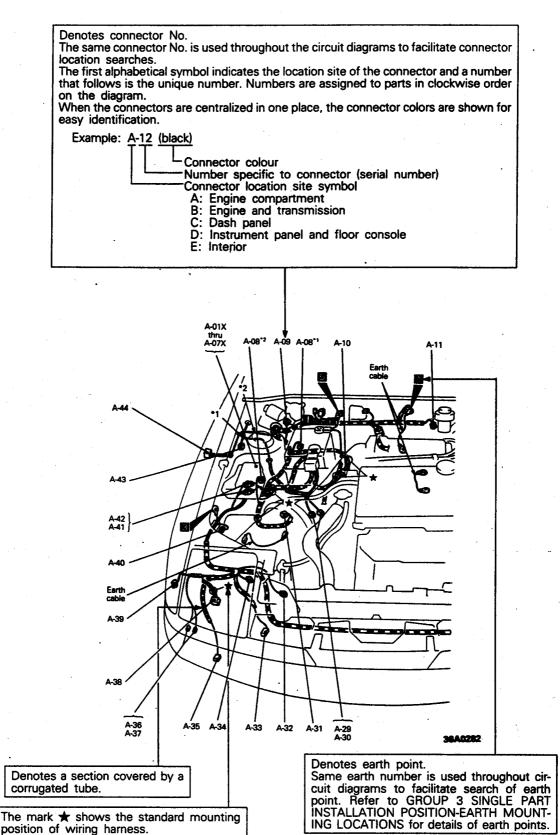
#### **COMPOSITION AND CONTENTS OF WIRING DIAGRAMS**

- (1) This manual consists of wiring harness diagrams, installation locations of individual parts, circuit diagrams and wiring diagram.
- (2) In each of the sections, all specifications are listed, including optional specifications. Accordingly, some specifications may not be applicable for individual vehicles.

Section	Basic contents			
Wiring harness configuration diagrams  Connector locations and harness wiring configurations on actual vehicles are				
Single part installation position	Locations are shown for earth points of relays, control units, sensors, diodes, check terminals spare terminals, fusible links, fuses, etc. In the parts lists, parts are listed in alphabetical order.			
Circuit diagrams	Circuits from power supply to earth are shown completely, classified according to system. There is a main division into power circuits, and circuits classified by system. The circuits classified by system also include operation and troubleshooting hints.  Power supply circuits Circuits from the battery to fusible link, dedicated fuses, ignition switch, general purpose fuses, etc.  Circuits classified by system For each system, the circuits are shown from fuse to earth, excluding the power supply sections.  Operation The normal operation of each system is briefly described, following the route of current flow.  Troubleshooting hints This is a brief explanation of the inspection points that serve as hints when troubleshooting. Explanations of the circuits controlled by the electronic control unit are omitted. Refer to the related publications as required.  Junction block Here is the circuit for the entire junction block since only the part of the junction block needed is normally show in each circuit diagram.			
Wiring diagram	All the harnesses and connectors are shown together so that the circuit diagrams and wiring harnesses of the entire vehicle can be seen at a glance.			

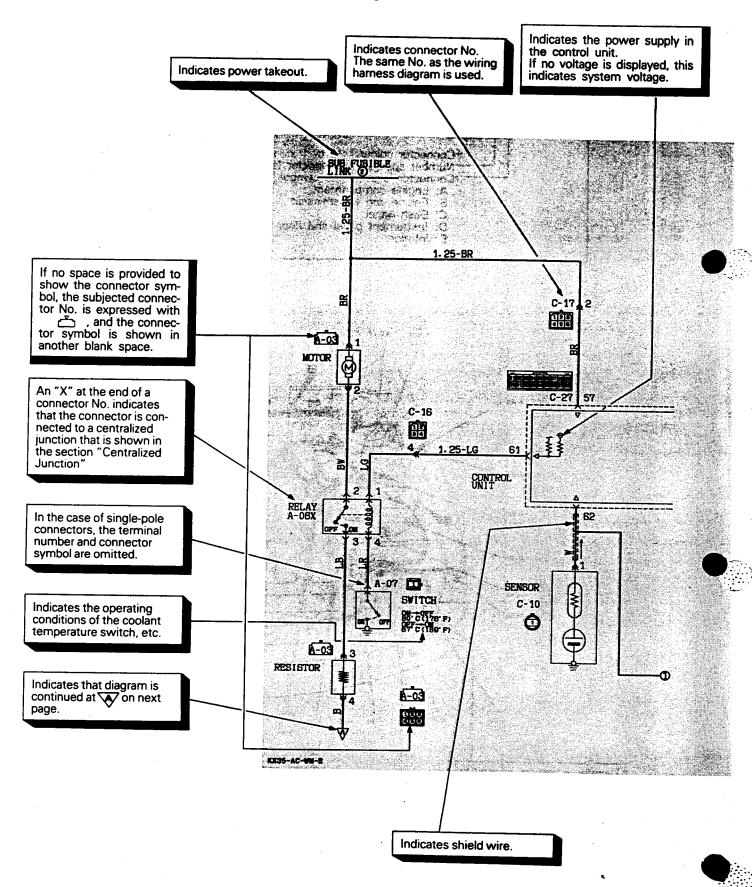
#### **HOW TO READ CONFIGURATION DIAGRAMS**

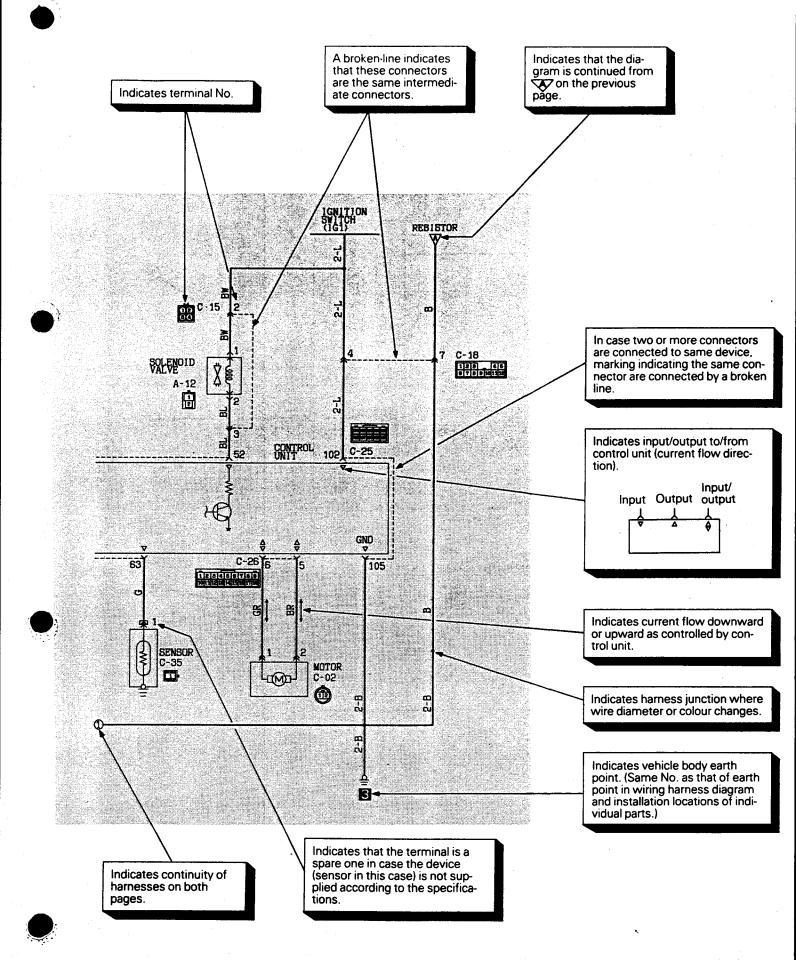
The wiring harness diagrams clearly show the connector locations and harness routings at each site in actual vehicles.



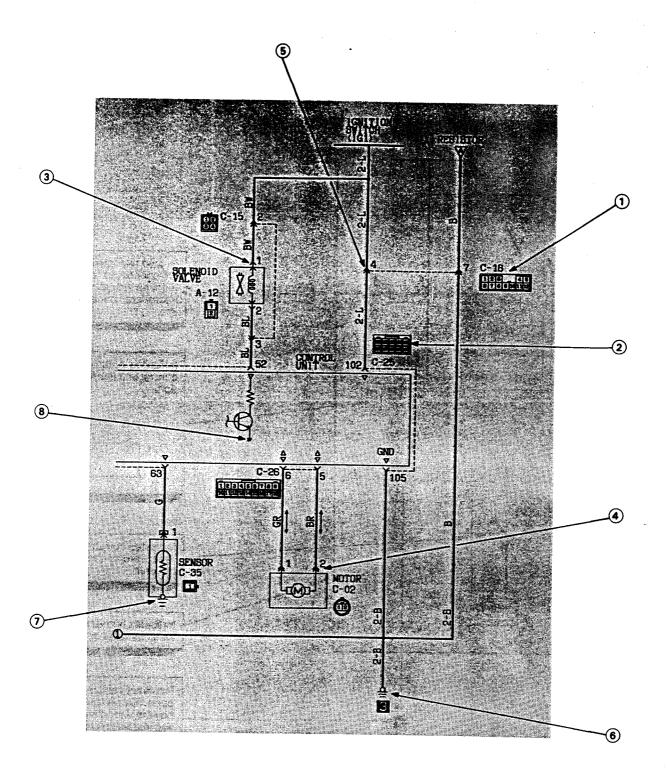
#### **HOW TO READ CIRCUIT DIAGRAMS**

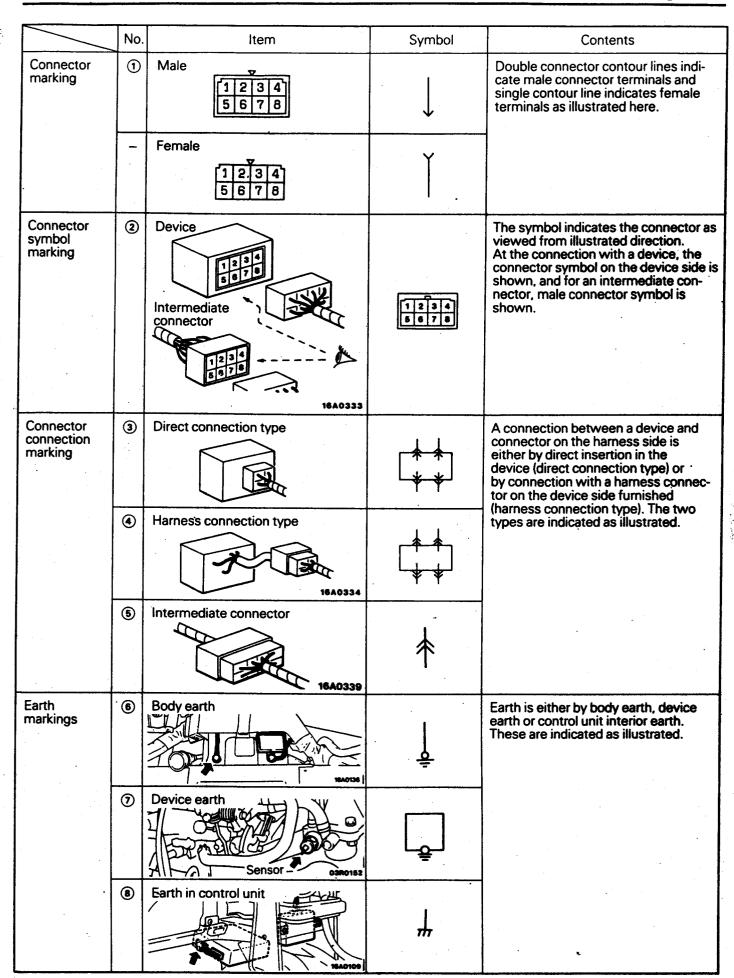
The circuit of each system from fuse (or fusible link) to earth is shown. The power supply is shown at the top and the earth at the bottom to facilitate understanding of the current flow.





# MARKINGS FOR CONNECTOR EARTHING





### 1-8 HOW TO READ THE WIRING DIAGRAMS — Symbolic Marks/Wire Colour Codes

#### **SYMBOLIC MARKS**

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

Battery	Body earth	Single bulb	Resistor	Diode	Capacitor
Fibilit	<u> </u>	•	*	<b>†</b>	+
Fuse	Equipment earth	Dual bulb	Variable resistor	Zener diode	Crossing of wires without connection
Fusible link	ECU interior earth	Speaker + -	Coil	Transistor	Crossing of wires with connection
Connector Female side Male side	Motor	Horn	Pulse generator	Buzzer	Chime
Thyristor ANDE COLO	Piezoelectric device	Thermistor	Light emitting diode	Photo diode	Photo transistor

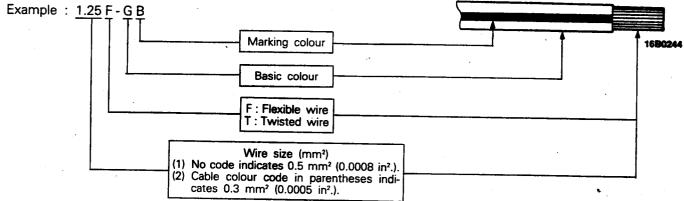
#### WIRE COLOUR CODES

Wire colours are identified by the following colour codes.

Code	Wire colour	Code	Wire colour	
В	Black	Р	Pink	
Br	Brown	R	Red	
G	Green	Sb	Sky blue	
Gr	Gray	V	Violet	
L	. Blue	W	White	
Lg	Light green	. Y	Yellow	
0	Orange		. 3.1017	

#### **NOTE**

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



#### **ABBREVIATION SYMBOLS**

The abbreviation symbols used in wiring diagrams are defined below.

Abbreviation symbol	Meaning	Abbreviation symbol	Meaning
ABS	Anti-lock brake system	IND	Indicator lamp
GND	Earth		
ILL	Illumination lamp	J/B	Junction block

#### Abbreviation symbols used for combination meters

Abbreviation symbol	Meaning	Abbreviation symbol	Meaning
ABS	Anti-lock brake system warning lamp	HAZARD	Hazard warning indicator lamp
BEAM	Upper beam indicator lamp	OIL	Oil pressure warning lamp
SEAT BELT	Seat belt warning lamp	OIL PRESSURE	Oil pressure gauge
BRAKE	Brake warning lamp	RADIATOR	Engine coolant level warning lamp
CHECK ENGINE	Check engine warning lamp	R/FOG	Rear fog lamp indicator lamp
CHG	Charging warning lamp	REED	Reed switch (vehicle speed sensor)
DOOR	Door warning lamp	TACHO	Tachometer
F/GA	Fuel gauge	T/GA	Engine coolant temperature gauge
CRUISE	Auto-cruise indicator lamp	T/L	Turn signal indicator lamp (L.H.)
FUEL	Fuel (remaining) warning lamp	T/R	Turn signal indicator lamp (R.H.)

#### Abbreviation symbols used for switches and relays

Name of switches and relays	Abbre- viation symbol	Operation	Name of switches and relays	Abbre- viation symbol	Operation
Dimmer	LO	Low beams ON		LO	Blower operates at low speed
passing switch	НІ	Upper beams ON	Blower switch	ML	Blower operates at medium speed
	TAIL	TAIL Clearance, tail, license-plate and instrument panel lamps ON		MH	Blower operates at medium high speed
Lighting switch				Н	Blower operates at high speed
SWITCH	HEAD	Headlamps ON	Air condi-	ECONO	1st position (economical operation)
<b>.</b>	DOOR Room lamp ON when a door is open		tioner switch	A/C	2nd position (full load operation)
Room lamp		DOOR Room lamp ON when a door is	Wiper switch	LO	Wipers operate at low speed
switch		open		HI	Wipers operate at high speed
		3441011	INT	Wipers operate intermittently	



# 1-10 HOW TO READ THE WIRING DIAGRAMS — Abbreviation Symbols/Applicable Model categories

Name of switches and relays	Abbre- viation symbol	Operation	Name of switches and relays	Abbre- viation symbol	Operation	
Turn			Remote	Remote LH	I U mirror onout	
signal R	RH	R.H. turn signal lamps ON	control	Ln	L.H. mirror operates	
Power	UP	Window closed	mirror switch	RH	R.H. mirror operates	
window switch DOWN	DOWN	Window opened				
Door lock relay	LOCK	Door locked		ON	Switched on	
	UN- LOCK	Door unlocked	- Others	OFF	Switched off	

# APPLICABLE MODEL CATEGORIES

The applicable model categories are indicated below for easy identification.

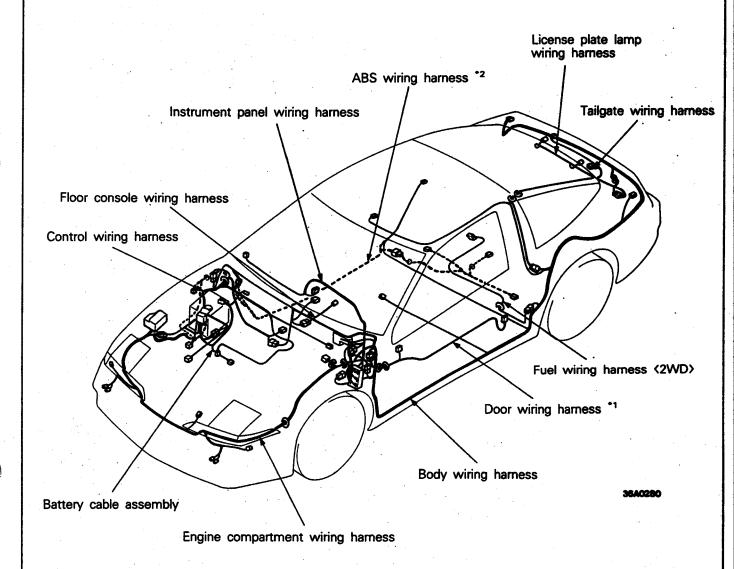
Division	Contents			
MPI	Indicates vehicles with multi-point injection			
DOHC	Indicates vehicles with double overhead camshafts engine			
A/C	Indicates vehicles with air conditioner			
2WD	Indicates the front wheel-drive vehicles			
4WD	Indicates the 4-wheel drive vehicles			

# 2 WIRING HARNESS CONFIGURATION DIAGRAMS

OVERALL WIRING DIAGRAM	2-3
ENGINE COMPARTMENT A	2-4
ENGINE AND TRANSMISSION B	2-6
DASH PANEL C	2-8
INSTRUMENT PANEL AND FLOOR CONSOLE D	2-10
INTERIOR E	

NOTE

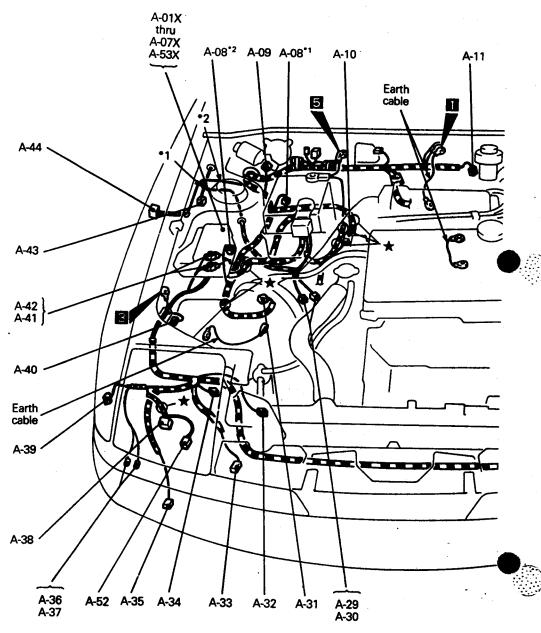
#### **OVERALL WIRING DIAGRAM**



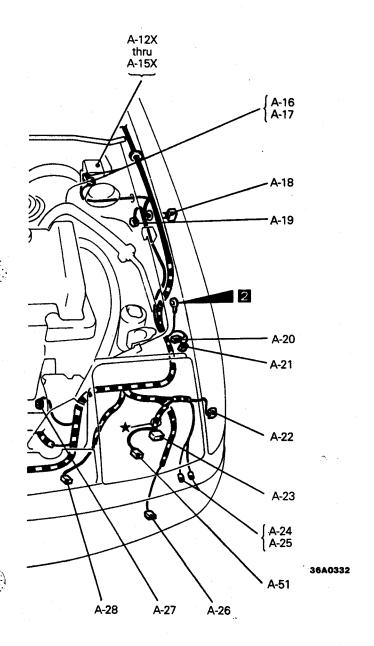
- (1) This illustration shows only the major wiring harnesses.
  (2) \*1 indicates also equipped at the right side.
  (3) \*2 indicates vehicles with ABS.

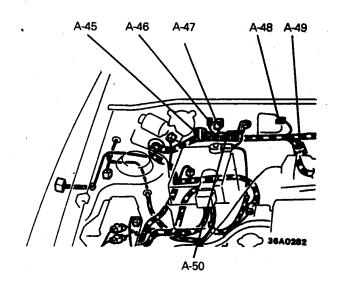
#### **ENGINE COMPARTMENT**





A-01X A-02X A-03X A-04X A-05X A-06X A-07X A-08	Tail lamp relay Horn relay Headlamp relay Radiator fan motor relay Power window relay Alternator relay Pop-up motor relay Dual pressure switch(A/C)	Refer to CENTRALIZED JUNCTION	A-16   A-17   A-18   A-19   A-20   A-21   A-22   A-23	A/C relay box  Side turn signal lamp (LH)  ABS front speed sensor (LH)  Windshield washer motor  Pop-up motor (LH)  Front turn signal lamp (LH)  Headlamp (LH)
A-09 A-10 A-11 A-12X A-13X A-14X A-15X	Windshield wiper motor Control wiring harness and Brake fluid level sensor Condenser fan motor control relay Condenser fan motor relay Magnet clutch relay Capacitor (for A/C)	B.C. OFFITALISM	A-24 } A-25 } A-26 A-27 A-28 A-29 } A-30 }	Horn (LH)  Driving lamp (LH)  Condenser fan motor Position lamp (LH)  Hydraulic unit(ABS)





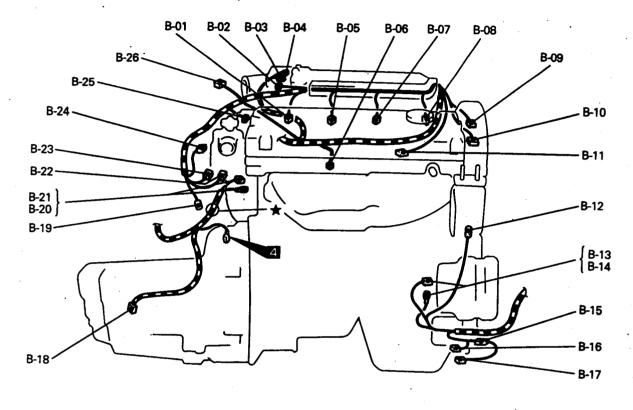
A-31	Air flow sensor	A-46	Capa
A-32	Radiator fan assembly	A-47	Defo
A-33	Position lamp (RH)	A-48	Purg
A-34	Engine coolant level switch	A-49	Engi
A-35	Driving lamp (RH)	A-50	Ignit
A-36 )	Horn (RH)	A-51	Head
A-37 ∫	nom (nn)	A-52	Head
A-38	Headlamp (RH)	A-53X	Strag
A-39	Front turn signal lamp (RH)		
A-40	Pop-up motor (RH)		
A-41 )	Control wiring harness and engine compartment		
A-42	wiring harness combination		
A-43	ABS front speed sensor (RH)	Remark	(S
A-44	Side turn signal lamp (RH)	(1) *1:	Vehicle
A-45	Fuel pump check connector	(2) *2:	Vehicle

7-40	Capacitoi
A-47	Defogger relay
A-48	Purge control solenoid valve
A-49	Engine speed detection connector
A-50	Ignition timing adjustment connector
A-51	Headlamp leveling unit (LH)
A-52	Headlamp leveling unit (RH)
A-53X	Strage connector (Refer to CENTRALIZED JUNCTION)

(1) \*1:Vehicles with ABS (2) \*2:Vehicles without ABS

#### **ENGINE AND TRANSMISSION**





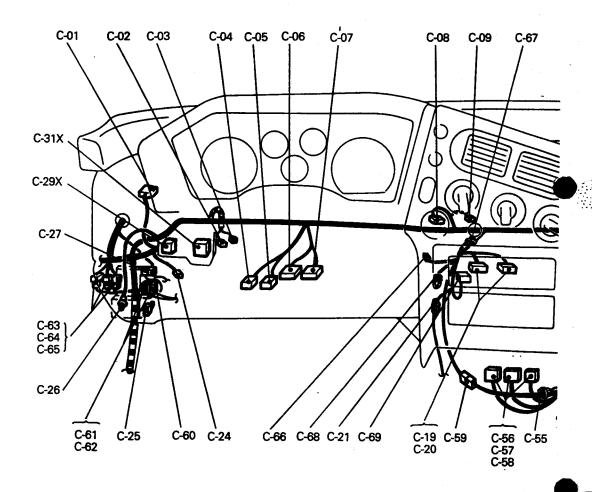
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B-01 B-02 B-03 B-04 B-05 B-06 B-07	Injector No.4 Throttle position sensor Idle speed control actuator Idle switch Injector No.3 Detonation sensor Injector No.2	B-15 B-16 B-17 B-18 B-19 B-20	Engine compartment wiring harness and oil pressure gauge unit joint wiring harness combination Oil pressure switch Oil pressure gauge unit Back-up lamp switch Oxygen sensor
B-08 B-09 B-10 B-11 B-12 B-13 B-14	Injector No.1 Ignition coil Power transistor A/C compressor magnet clutch Power steering oil pressure switch Alternator	B-21 B-22 B-23 B-24 B-25 B-26	Engine coolant temperature gauge unit Engine coolant temperature sensor Engine coolant temperature switch (for A/C) Crank angle sensor and top dead center sensor Auto-cruise control vacuum pump

NOTE

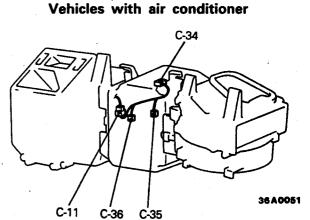
#### **DASH PANEL**





C-01	Auto-cruise control unit	C-19 )	D. P. J.	
C-02	No connection	C-20]	Radio and tape pla	ayer
C-03	Stop lamp switch	C-21	Floor console wirin	g harness and body wiring harness
C-04	Ignition switch		combination	,g
C-05	Key reminder switch	C-22	_	
C-06 լ	Column switch	C-23	_	
C-07 J	Column Switch	C-24	Clutch switch (for	auto-cruise circuit)
C-08	Blower switch	C-25	Diagnosis connecto	
C-09	Air conditioner switch	C-26	Foot lamp (LH)	
C-10	Blower resistor	C-27	Turn signal and ha	zard flasher unit
C-11	Air conditioner wiring harness and body wiring harness	C-28X	_	1
	combination	C-29X	Door lock relay	
C-12	Diode (for pop-up lamp circuit)	C-30X	-	Refer to CENTRALIZED
C-13	Foot lamp (RH)	C-31X	Defogger timer	JUNCTION
C-14	Body wiring harness and ABS wiring harness	C-32X	-	
	combination	C-33X	<b>–</b>	
C-15	<del>-</del>	C-34	Air conditioner con	ntrol unit
C-16	Door lock control unit	C-35	Air inlet sensor	•
C-17	Blower motor high relay <a c=""> or jumper connector</a>	C-36	Air thermo sensor	
C-18	Blower motor			

# C-10 C-11 C-50 C-51 C-52 C-53 C-53 C-14 C-15 C-16 C-54 C-18 C-17 36A0334



#### Junction block

(Rear)

(Front)

C-42 C-41 C-40 C-39 C-38 C-37 C-47 C-45 C-46 C-46

C-37	Heater relay	C-59
C-38	No connection	
C-39	Instrument panel wiring harness and junction block combination	C-60
C-40	No connection	C-61
C-41 \	Engine compartment wiring harness and junction block	C-62
C-42	combination	C-63 )
C-43 լ		C-64
thru }	Body wiring harness and junction block combination	C-65 J
C-49 J		C-66
C-50	Oxygen sensor check connector	C-67
C-51 )	Control wiring harness and body wiring harness com-	C-68
C-52 }	bination	C-69
C-53 J	Diriation	C-70
C-54	Engine control relay	
C-55	Fuel octane ratio selection connector	
C-56 ነ		

Control wiring harness and body wiring harness combination

Instrument panel wiring harness and engine compartment wiring harness combination

Instrument panel wiring harness and body wiring harness combination

Engine compartment wiring harness and body wiring harness combination

Rear fog lamp relay

Diode (for rear fog lamp circuit)

Buzzer assembly

Headlamp leveling switch

Engine compartment wiring harness and junction block

combination

Engine control unit

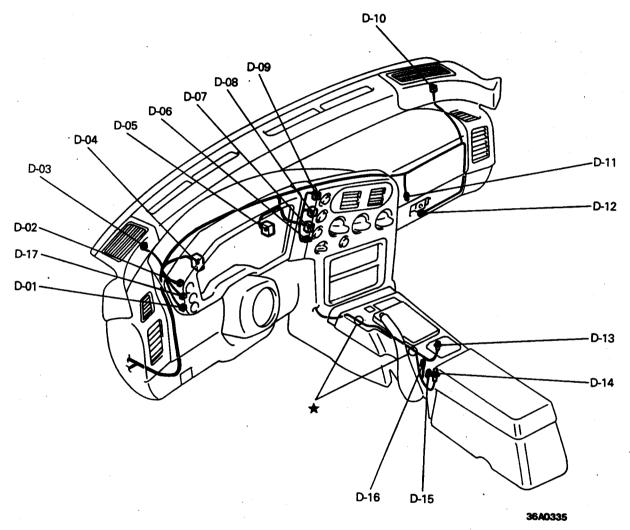
C-57

C-58

# INSTRUMENT PANEL AND FLOOR CONSOLE



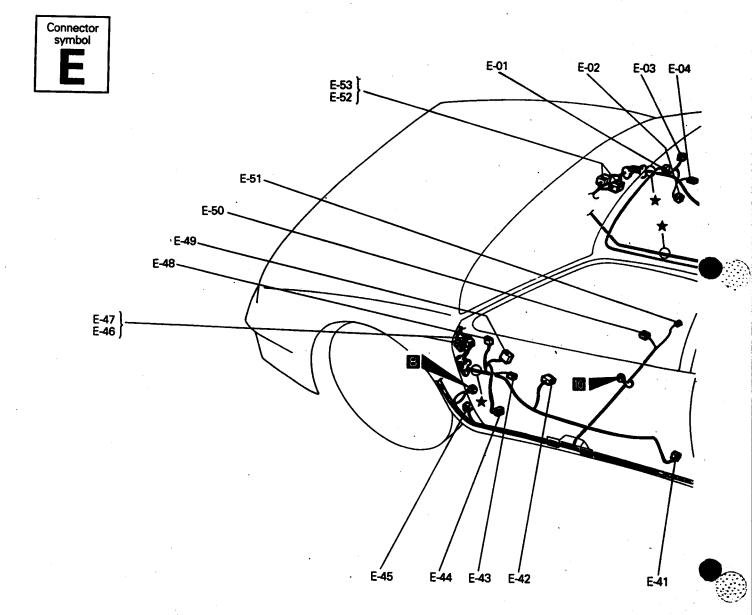
2-10



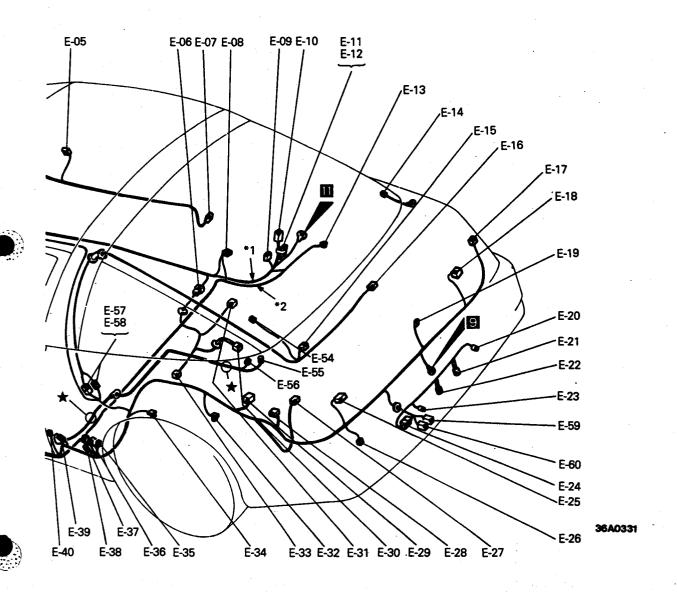
D-01 D-02 D-03 D-04 D-05 D-06 D-07	Rheostat Pop-up switch Front speaker (LH) Combination meter Heater control panel illumination lamp Rear wiper and washer switch	D-10 D-11 D-12 D-13 D-14 D-15 D-16	Front speaker (RH) Glove box illumination lamp Glove box illumination lamp switch Ashtray illumination lamp Cigarette lighter (+) Cigarette lighter (-)
D-07 D-08 D-09	Rear wiper and washer switch Defogger switch Hazard switch	D-16 D-17	Cigarette lighter (—) Rear fog lamp switch

NOTE

#### **INTERIOR**



E-01 E-02	Room iamp Door speaker (RH)	E-17 }	Rear combination lamp (RH)
E-03 E-04 E-05 E-06	Remote controlled mirror (RH) Power window motor (RH) Power window sub switch ABS wiring harness and ABS sensor wiring harness	E-18   E-19 E-20 E-21   E-22	Luggage compartment lamp switch Back-up lamp (RH) License plate lamp
E-07 E-08 E-09 E-10 E-11 E-12 E-13 E-14 E-15 E-16	combination  Door lock actuator (RH)  Door switch (RH)  ABS power relay  ABS control unit  Diode (for ABS circuit)  No connection  Rear speaker (RH)  Defogger (—)  Rear wiper motor	E-23 E-24 E-25 E-26 E-27 E-28 E-29 E-30 E-31	Back-up lamp (LH) License plate lamp wiring harness and body wiring harness combination Rear combination lamp (LH) Rear washer motor Rear combination lamp (LH) Fuel pump and gauge unit assembly(4WD) Motor antenna control relay G sensor(4WD-ABS) ABS rear speed sensor (RH)
_ 10	No connection		



E-32 E-33 E-34 E-35	Luggage compartment lamp ABS rear speed sensor (LH) Rear speaker (LH) Capacitor	E-48 E-49 E-50 E-51	Remote controlled mirror (LH) Remote controlled mirror switch Seat belt switch Parking brake switch
E-36 E-37 E-38 E-39	Rear intermittent wiper relay Room lamp relay Diode (for door warning lamp circuit)	E-52 } E-53 } E-54 E-55	Door wiring harness (RH) and body wiring harness combination (RH) Defogger (+) Fuel gauge unit <2WD>
E-40 E-41	Fuel wiring harness and body wiring harness combina- tion <2WD> Door switch (LH) Door lock actuator (LH)	E-56 E-57 } E-58	Fuel pump <2WD> Tailgate wiring harness and body wiring harness combination
E-42 E-43 E-44	Power window main switch Power window motor (LH) Door speaker (LH)	E-59 E-60	No connection Spare connector for rear fog lamp
E-45 E-46 } E-47 }	Passing control relay  Door wiring harness (LH) and body wiring harness combination		s Vehicles with ABS Vehicles without ABS

#### NOTE

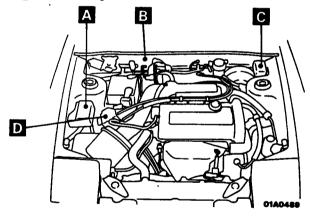
## **3 SINGLE PART INSTALLATION POSITION**

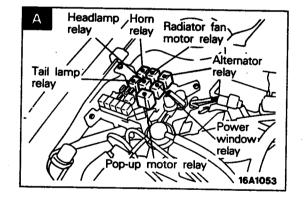
RELAY	3-2
CONTROL UNIT	3-5
SENSOR	3-6
SOLENOID VALVE	3-8
DIODE	3-9
INSPECTION TERMINAL	3-10
FUSIBLE LINK AND FUSE	3-11
EARTH CABLE	3-12
EARTH	3.13

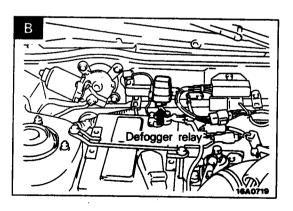
#### **RELAY**

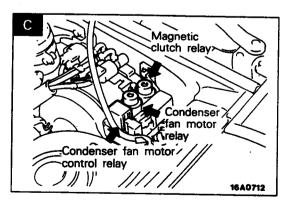
Name	Symbol	Name	Symbol
ABS motor relay	D	Intermittent wiper relay (windshield wiper)	E
ABS power relay	L	Intermittent wiper relay (rear wiper)	М
ABS valve relay	D	Magnetic clutch relay <a c=""></a>	С
Alternator relay	Α	Engine control relay	G
Blower motor high relay	F	Passing control relay	J
Condenser fan motor control relay <a c=""></a>	С	Pop-up motor relay	A
Condenser fan motor relay <a c=""></a>	С	Power window relay	A
Defogger timer	ı	Radiator fan motor relay	A
Defogger relay	В	Rear fog lamp relay	H
Door lock relay	ı	Room lamp relay	М
Headlamp relay	Α	Tail lamp relay	A
Heater relay	К	_	
Horn relay	А	Turn signal and hazard frasher unit	K

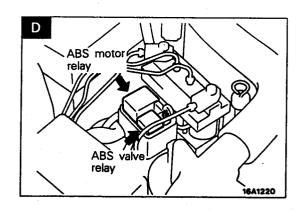
**Engine compartment** 

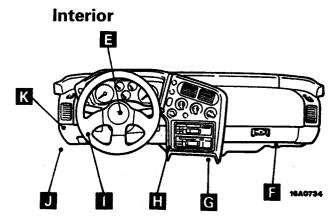


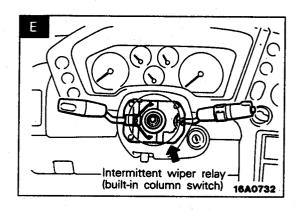


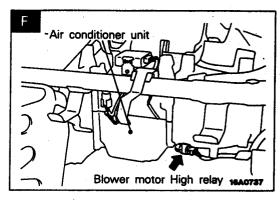


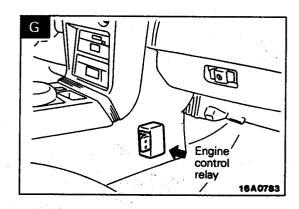


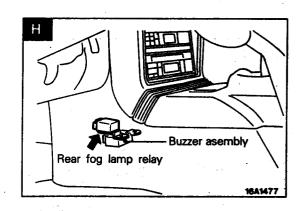


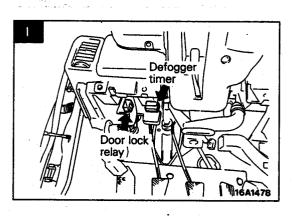


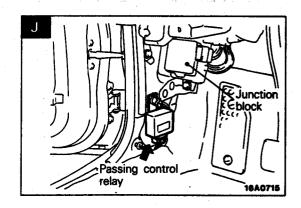




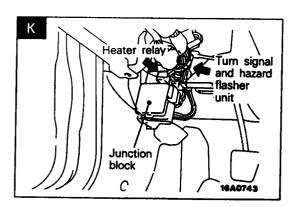




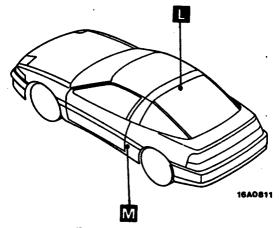


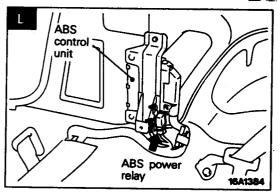


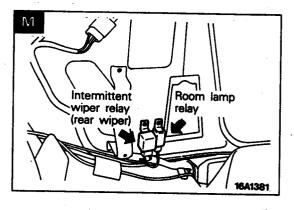
इत्तर्क १० व्यक्तारी **स्वतं**र १८०० सम्बद्धाः वस्त्री हो।



#### Floor

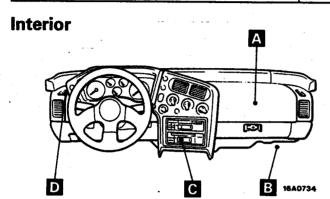


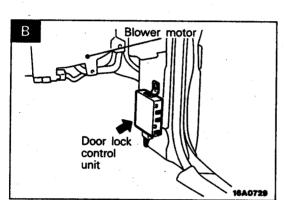


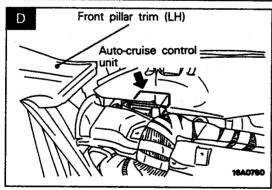


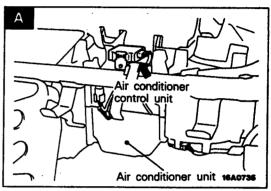
#### **CONTROL UNIT**

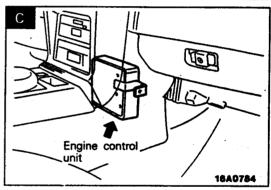
Name	Symbol	Name	Symbol
ABS control unit	E	Door lock control unit	В
Air conditioner control unit	Α		_
Auto-cruise control unit	D	Engine control unit	C



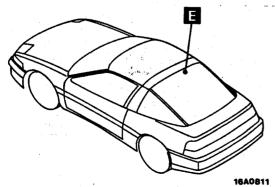


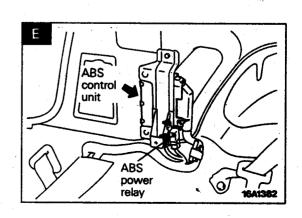






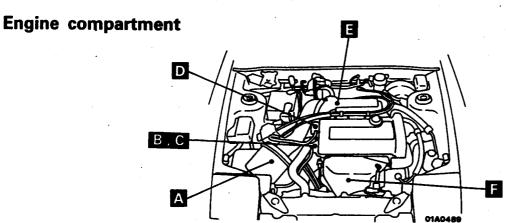


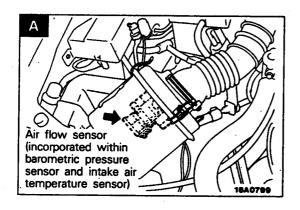


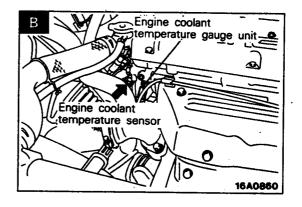


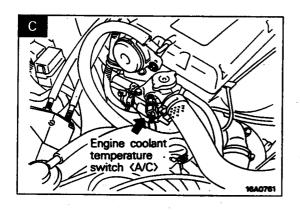
#### **SENSOR**

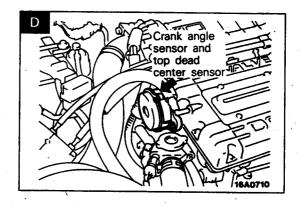
Name	Symbol	Name	Symbol
Air flow sensor (incorporated within barometric pressure sensor and intake air temperature	Α	Front speed sensor (ABS)	1
sensor)		G-Sensor (4WD-ABS)	J
Air inlet sensor <a c=""></a>	Н	Idle switch	. E
Air thermo sensor <a c=""></a>	Н	Oxygen sensor	F
Crank angle sensor and top dead center sensor	D	Rear speed sensor (ABS)	К
Engine coolant temperature sensor	В	Throttle position sensor	E
Engine coolant temperature switch <a c=""></a>	С	Vehicle speed sensor (reed switch)	G

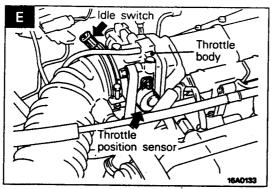


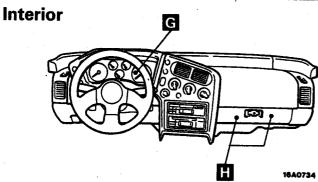


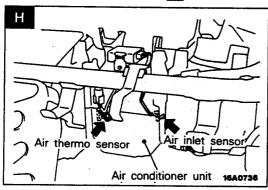


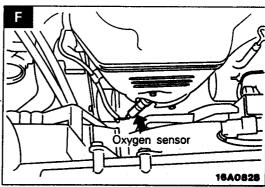


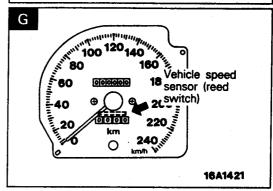




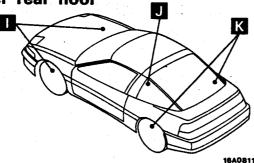


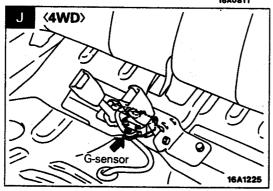


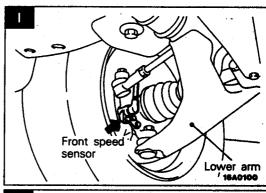


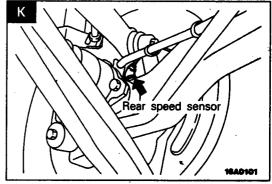


Rear interior, Under front floor, Under rear floor





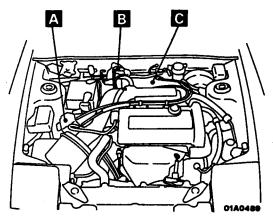


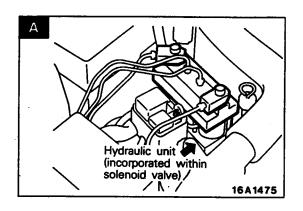


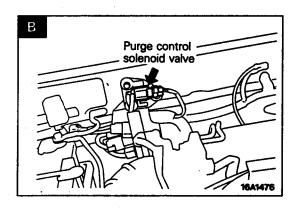
#### **SOLENOID VALVE**

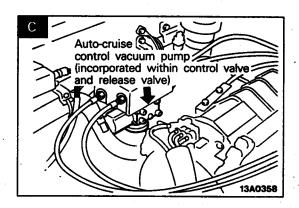
Name	Symbol	Name	Symbol
Auto-cruise control vacuum pump (incorporated within control valve and release valve)	С	Purge control solenoid valve	В
Hydraulic unit (incorporated within solenoid valve)	Α		

#### **Engine compartment**





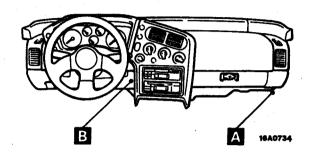


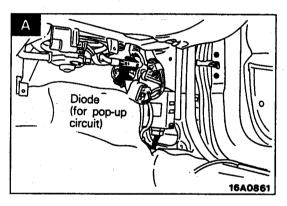


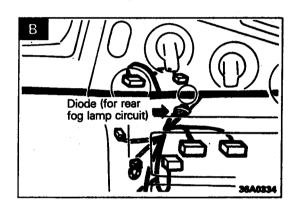
#### DIODE

Name	Symbol	Name	Symbol
Diode (for ABS circuit)	С	Diode (for pop-up circuit)	Α
Diode (for door warning lamp circuit)	D	Diode (for rear fog lamp circuit)	В

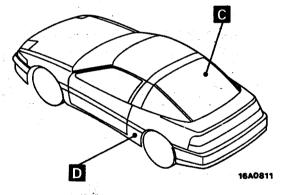
#### Interior

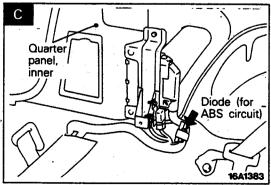


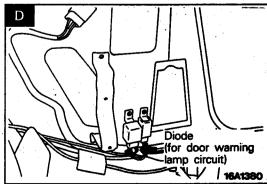




#### Rear interior





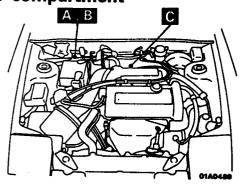


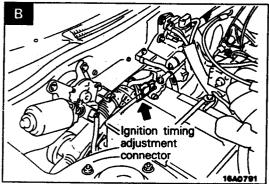
# 3-10 SINGLE PART INSTALLATION POSITION — Inspection Terminal

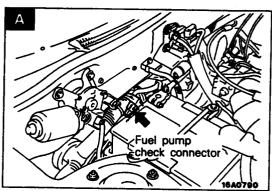
#### **INSPECTION TERMINAL**

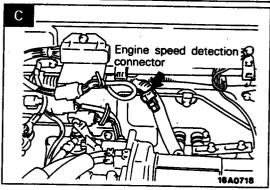
Name	Symbol	Name	Symbol
Diagnosis connector	E	Ignition timing adjustment connector	В
Engine speed detection connector	С	Oxygen sensor check connector	D
Fuel pump check connector	Α		

#### **Engine compartment**

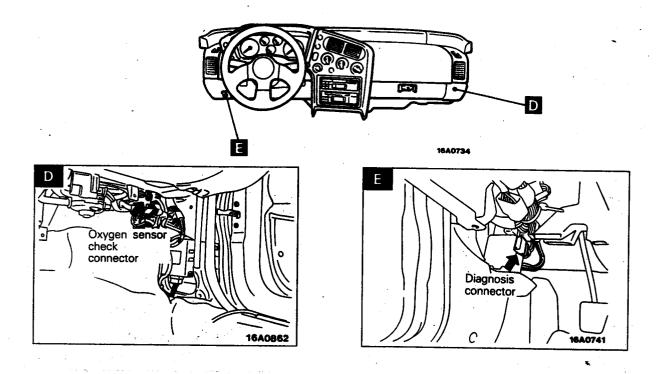








#### Interior

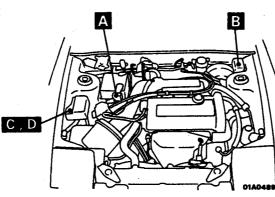


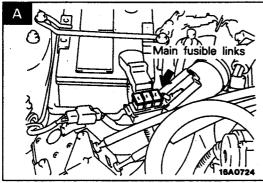
#### **FUSIBLE LINK AND FUSE**

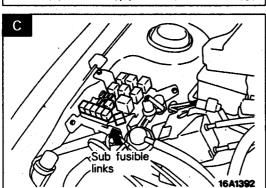
Name	Symbol	Name	Symbol
Dedicated fuses	B*, D	Multi-purpose fuses	E
Main fusible links	Α	Sub fusible links	C

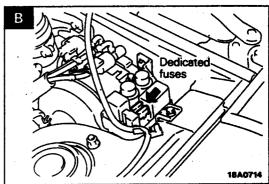
Remark
• \* : Vehicles with A/C.

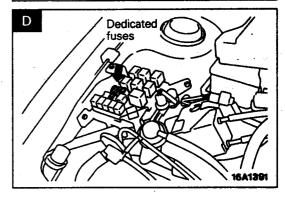
#### **Engine compartment**



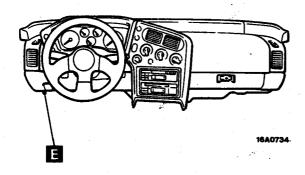


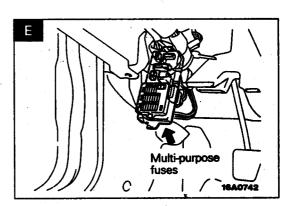






#### Interior

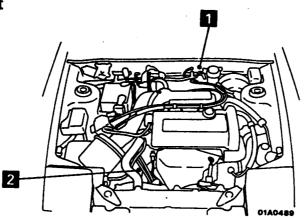


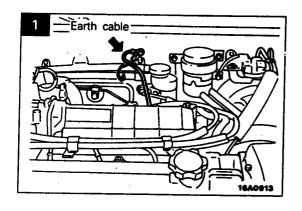


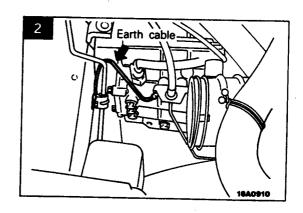
Talkinschieße, whiceen Cospignation

#### **EARTH CABLE**

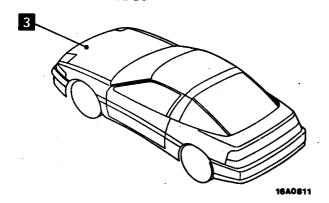
#### **Engine compartment**

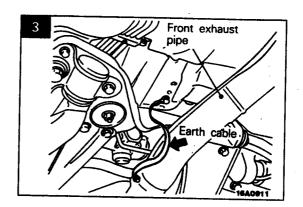




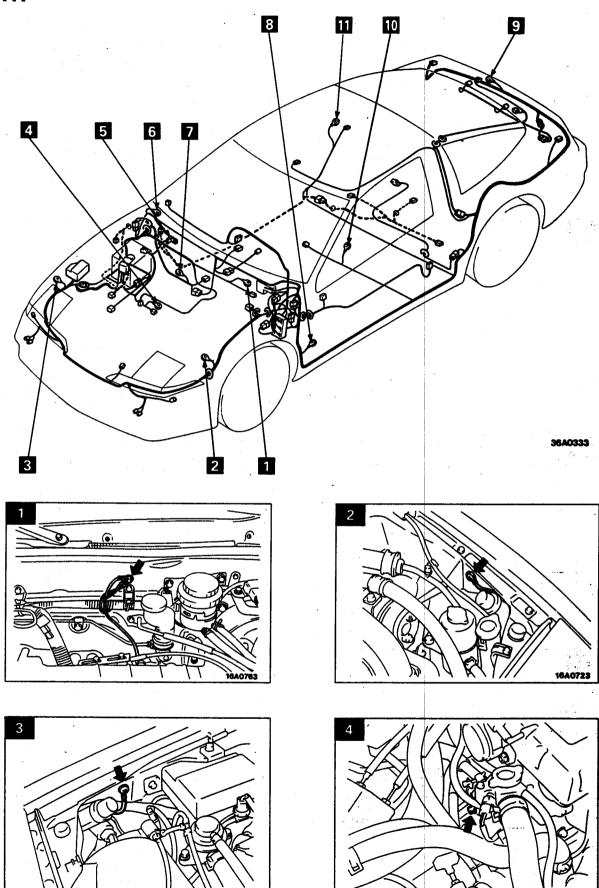


#### **Under front floor**

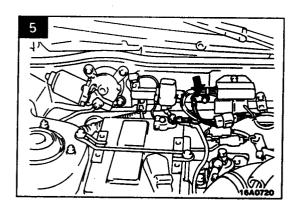


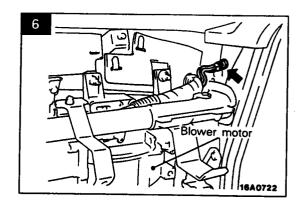


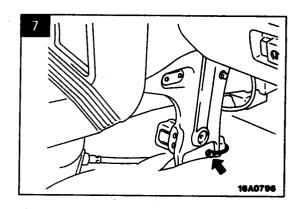
### **EARTH**

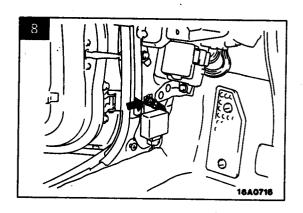


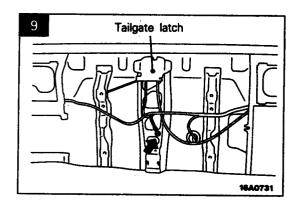
देवानी लोक्से । वक्षीनामा**व्याप्त व शाक्षात्रीत ला**क्षा प्रकारी है

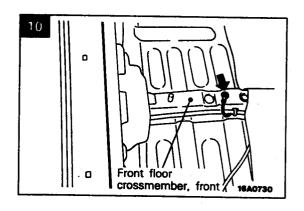


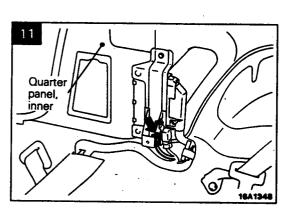








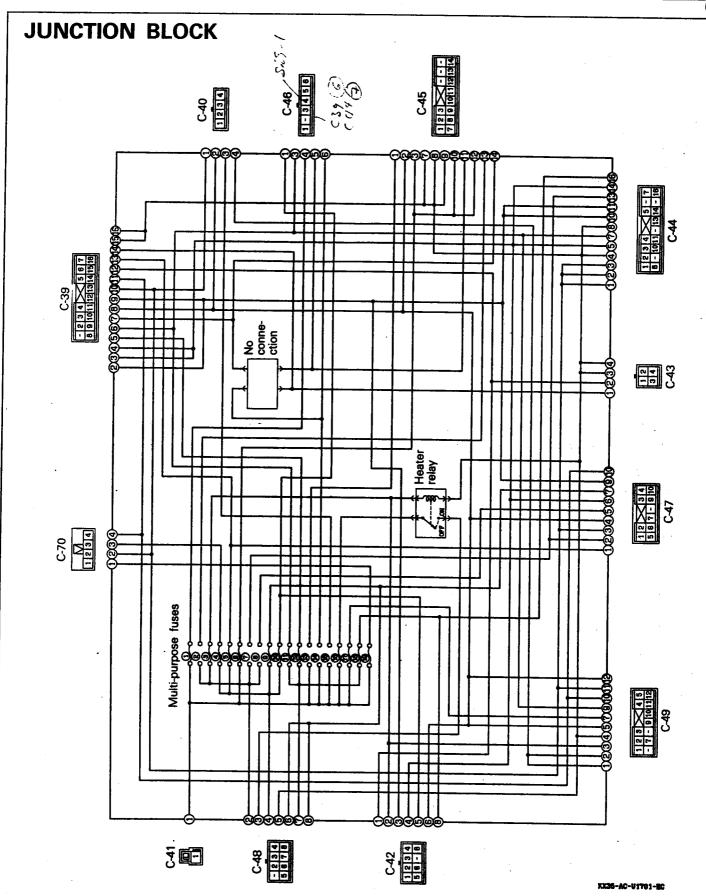




### 4 CIRCUIT DIAGRAM

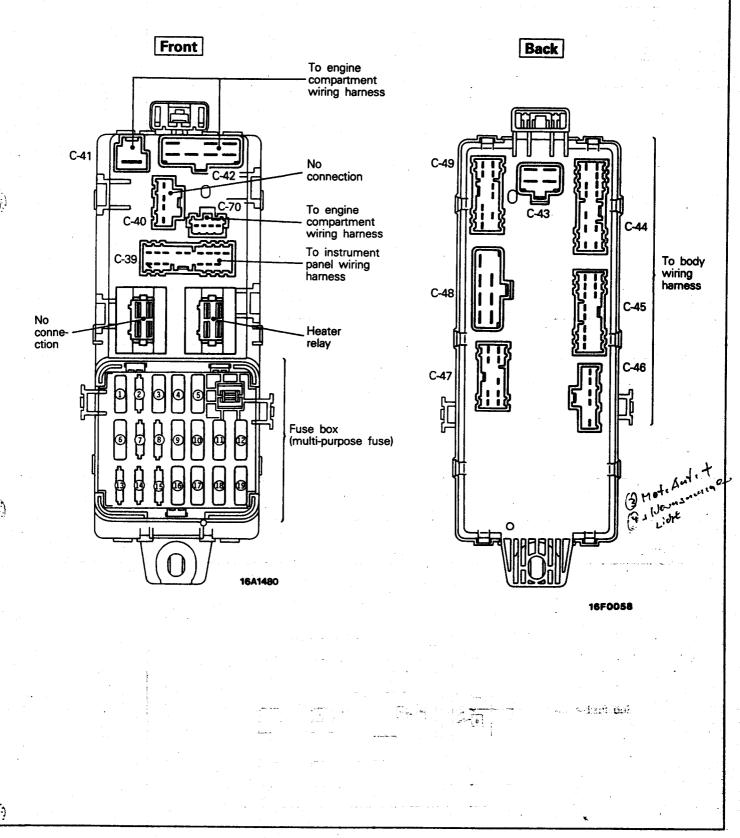
JUNCTION BLOCK	4-2
CENTRALIZED JUNCTION	4-4
POWER DISTRIBUTION	4-9
STARTING SYSTEM	. 4-12 ×
IGNITION SYSTEM	4-13 ×
CHARGING SYSTEM	4-14
ENGINE CONTROL SYSTEM	
(MPI-DOHC)	
COOLING SYSTEM	
HEADLAMP	
DRIVING LAMP	
POP-UP SYSTEM	4-28
HEADLAMP LEVELING SYSTEM	4-30
TAIL LAMP, POSITION LAMP AND	
LICENCE PLATE LAMP	
REAR FOG LAMP	
ROOM LAMP, IGNITION KEY CYLINDER	
ILLUMINATION LAMP, FOOT LAMP, GLOVE BOX ILLUMINATION LAMP AND	
LUGGAGE COMPARTMENT LAMP	4-38
TURN-SIGNAL LAMP AND HAZARD	
LAMP	4-40 K
STOP LAMP	
BACK-UP LAMP	4-44
HORN	4_45

METER AND GAUGE	4-46
BRAKE WARNING LAMP	4-50
FUEL WARNING LAMP	4-50
ENGINE COOLANT LEVEL	
WARNING LAMP	4-51
OIL PRESSURE WARNING LAMP	4-51
POWER WINDOW	4-52
CENTRAL DOOR LOCKING SYSTEM	4-56
HEATER	4-57
AIR CONDITIONER	4-59
WINDSHIELD WIPER AND WASHER	4-62
REAR WIPER AND WASHER	4-64
DEFOGGER	4-66
REMOTE CONTROLLED MIRROR	4-69
RADIO AND TAPE PLAYER	4-70
CIGARETTE LIGHTER	4-72
ANTI-LOCK BRAKE SYSTEM (ABS)	
• 2WD	
• 4WD	
<b>AUTO-CRUISE CONTROL SYSTEM</b>	4-80
LIGHTING MONITOR BUZZER AND	
KEY REMINDER BUZZER	4-84
SEAT BELT WARNING BUZZER	4-85



#### Remark

Connector numbers are keyed to the configuration diagram (dashboard panel) and each circuit diagram.

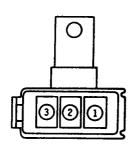


#### **CENTRALIZED JUNCTION**

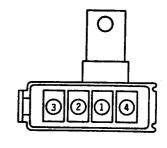
#### MAIN FUSIBLE LINK (Connected directly to battery positive terminal)

No.	Circuit	Housing colour	Rated capacity (A)
1	Engine control circuit	Blue	20
2	Radiator fan motor circuit	Pink	30
3	Ignition switch circuit	Pink	30
4	ABS circuit	Yellow	60

#### **(Vehicles without ABS)**



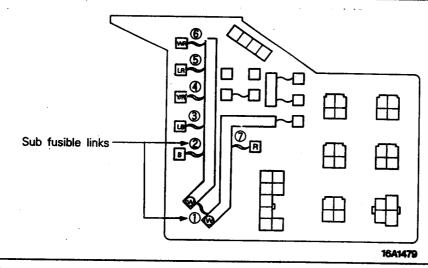
#### (Vehicles with ABS)



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#### SUB FUSIBLE LINK (Relay box in engine compartment)

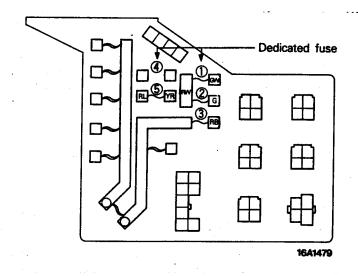
No.	Circuit	Housing colour	Rated capacity (A)
1	Alternator circuit, sub fusible link 2, 3, 4, 5, 6	Black	80
2	Defogger circuit	Green	40
3	Dedicated fuse ⑦ circuit	Pink	30
4	Pop-up circuit, Alternator circuit	Pink	30
5	Power window circuit	Pink	30
6	Multi-purpose fuse ①, ⑥, ③, ⑩, ⑥, ⑥, ①, ①, dedicated fuse ⑥ circuit	Green	40
7	Headlamp circuit, Tail lamp circuit, dedicated fuse ①, ②, ⑤ circuit	Green	40



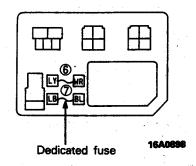
#### **DEDICATED FUSE**

Power supply circuit	No.	Rated capacity (A)	Housing colour	Circuit
Tail lamp relay	1	10	Red	Tail lamp circuit, Illumination circuit and buzzer circuit
	2	10	Red	Tail lamp circuit
Battery	3	10	Red	Hazard warning lamp circuit and Horn circuit
-	4			
Headlamp relay	5	10	Red	High beam circuit and rear fog lamp circuit
Sub fusible link 6	6	10	Red	Air conditioner magnetic clutch circuit
Sub fusible link ③	7	20	Yellow	Condenser fan motor circuit

⟨Engine compartment R.H. side relay box⟩

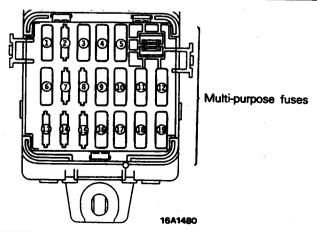


#### (Engine compartment L.H. side relay box (Vehicles with A/C))



### **MULTI-PURPOSE FUSE (In junction block)**

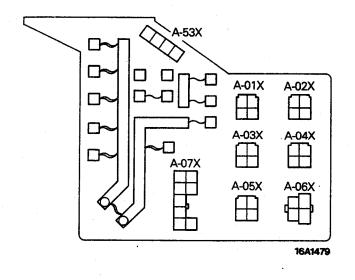
Power su	pply circuit	No.	Rated capacity (A)	Load circuit	
Battery		1	10	Buzzer assembly and passing control relay	
IG <sub>2</sub> Ignition switch		<del>-</del>	<del></del>		
		3	10	Air conditioner control unit, air conditioner switch, blower motor high relay, defogger timer, heater relay, power windows relay and ABS power relay	
SWILCH		4	10	Motor antenna, radio and tape player	
	ACC	5	15	Cigarette lighter, remote controlled mirror and headlamp leveling unit	
Battery		6	15	Door lock relay and door lock actuator	
	IG <sub>2</sub>	7		<del>-</del>	
	102	8		. —	
Ignition switch		9	15	Intermittent wiper relay, wiper motor and washer motor	
		10	10	Horn relay	
		11	10	Auto-cruise control unit, auto-cruise control vacuum pump, combination meter, motor antenna and buzzer assembly	
		10	Turn signal and hazard flasher unit		
		13		<del></del>	
		14	<del></del>		
Battery		15		·	
		16	30	Blower motor	
		17	15	Stop lamp, ABS control unit and auto-cruise control unit	
lgnition switch	IG <sub>1</sub>	18	10	Back-up lamp and room lamp relay	
Battery		19	10	Room lamp, foot lamp, ignition key cylinder illumination lamp, luggage compartment lamp, engine control unit, door lock control unit, motor antenna, combination meter, radio and tape player	



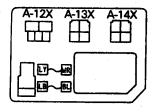
#### **CENTRALIZED RELAY**

Classificat	ion	Name	Classification		Name
	A-01X	Tail lamp relay	Engine	A-12X	Condenser fan motor con-
	A-02X	Horn relay	compartment		trol relay
	A-03X	Headlamp relay	L.H. side	A-13X	Condenser fan motor relay
	A-04X		relay box	A-14X	Magnetic clutch relay
Engine	<u> </u>	Radiator fan motor relay	_	C-28X	<del></del>
compartment R.H. side	A-05X	Power windows relay	_	<b> </b>	Door look select
relay box	A-06X	Alternator relay		C-29X	Door lock relay
		A-07X Pop-up motor relay Interior relay box	C-30X	<del></del>	
	A-07X		Pop-up motor relay relay box	C-31X	Defogger timer
				C-32X	
	A-53X	Storage connector		C-33X	

#### (Engine compartment R.H. side relay box)

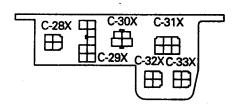


### ⟨Engine compartment L.H. side relay box (Vehicles with A/C)⟩



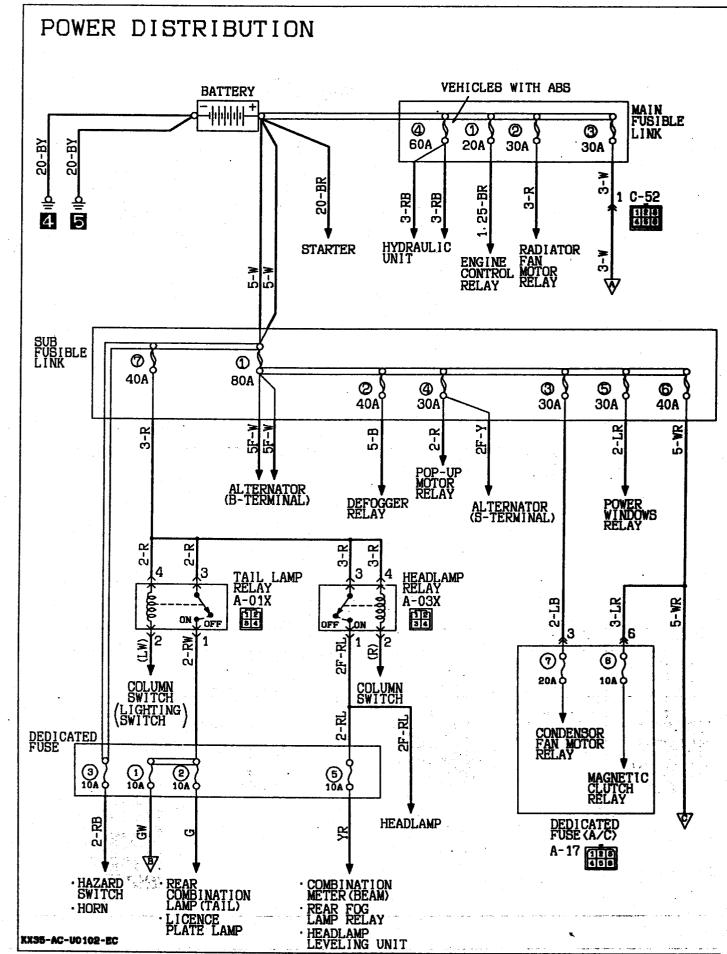
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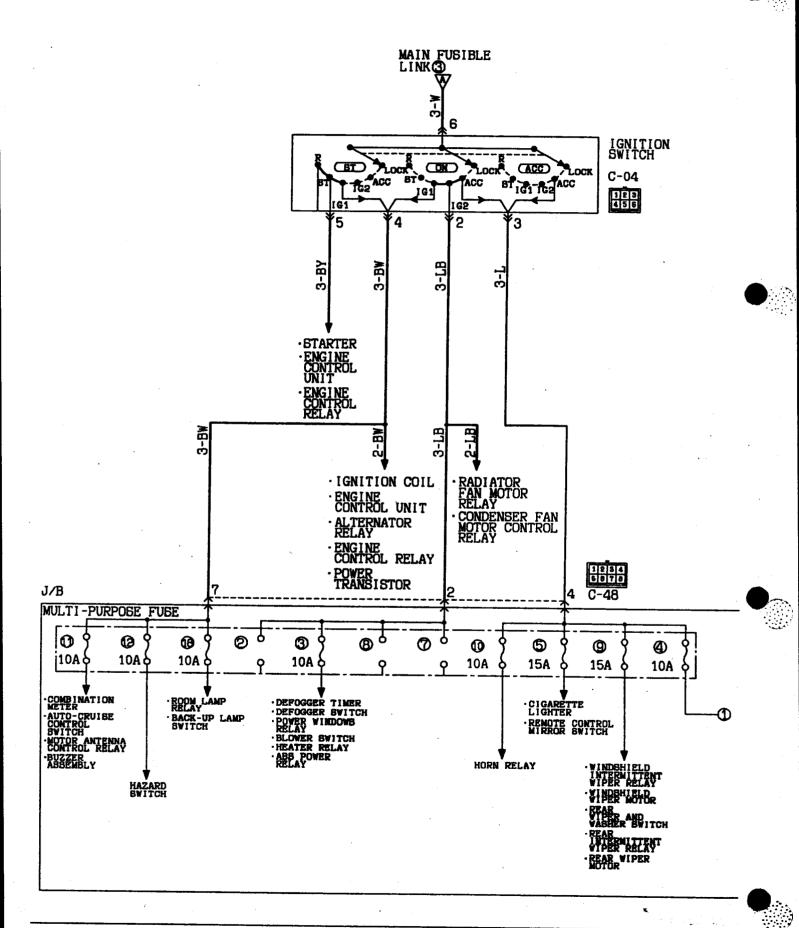
#### (Interior relay box)

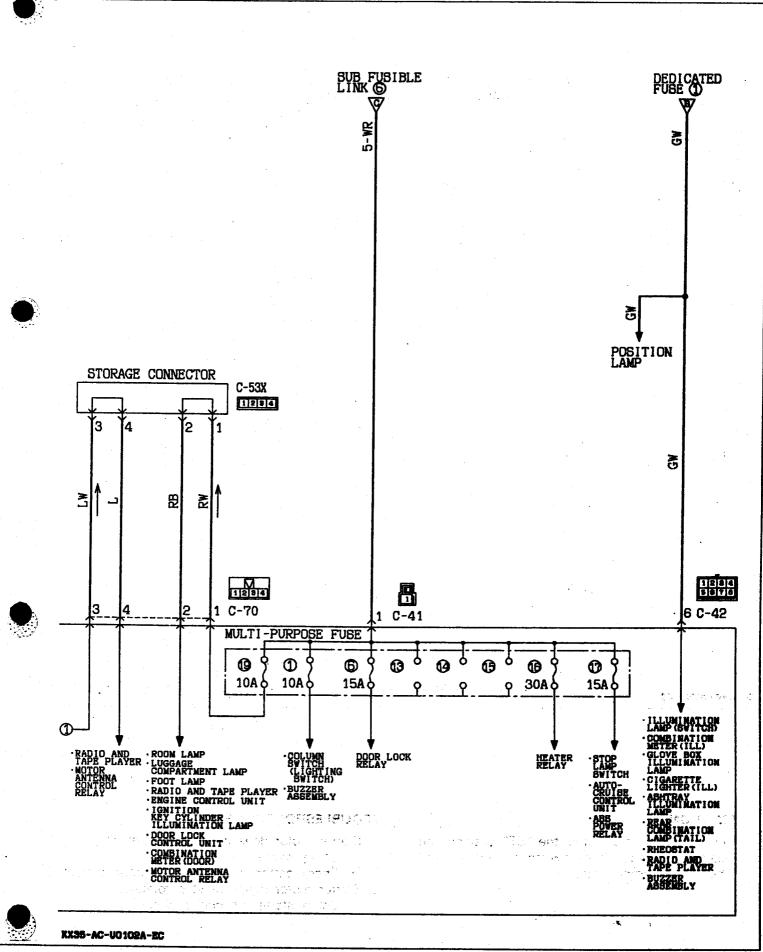


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**NOTES** 







# STARTING SYSTEM **BATTERY** 4 A-10 0 B-20 1 B-21 3.0 STARTER code Lg:Light green O:Orange L:Blue R:Red W: White P: Pink Sb:Sky blue

#### OPERATION

 With the ignition switch in the "ST" position, the starter contact (magnetic switch) turns "ON" and the starter motor rotates.

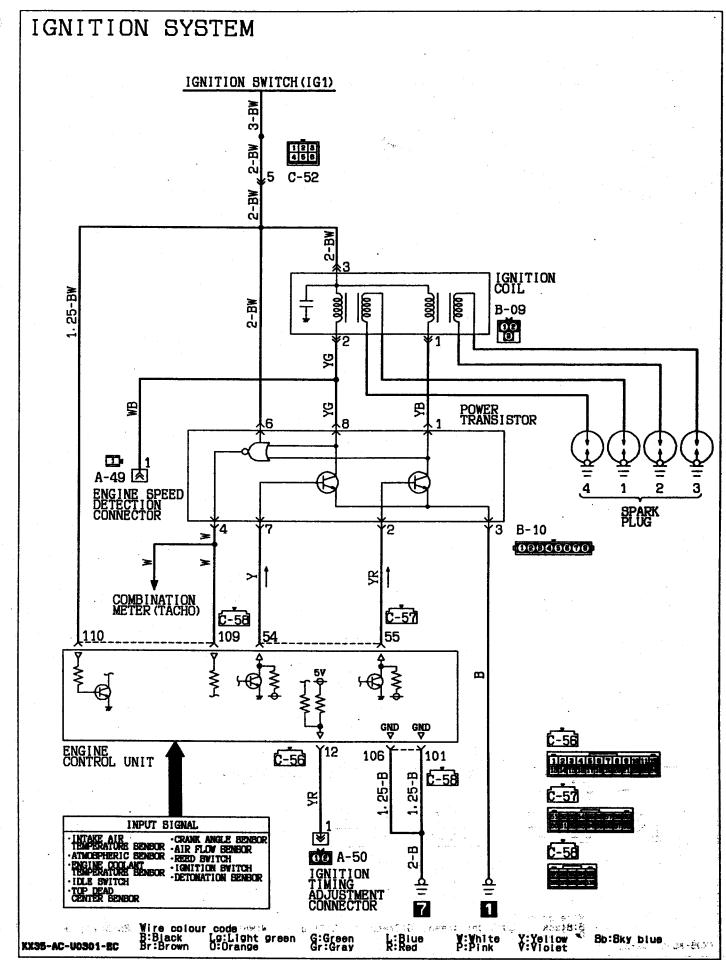
#### TROUBLESHOOTING HINTS

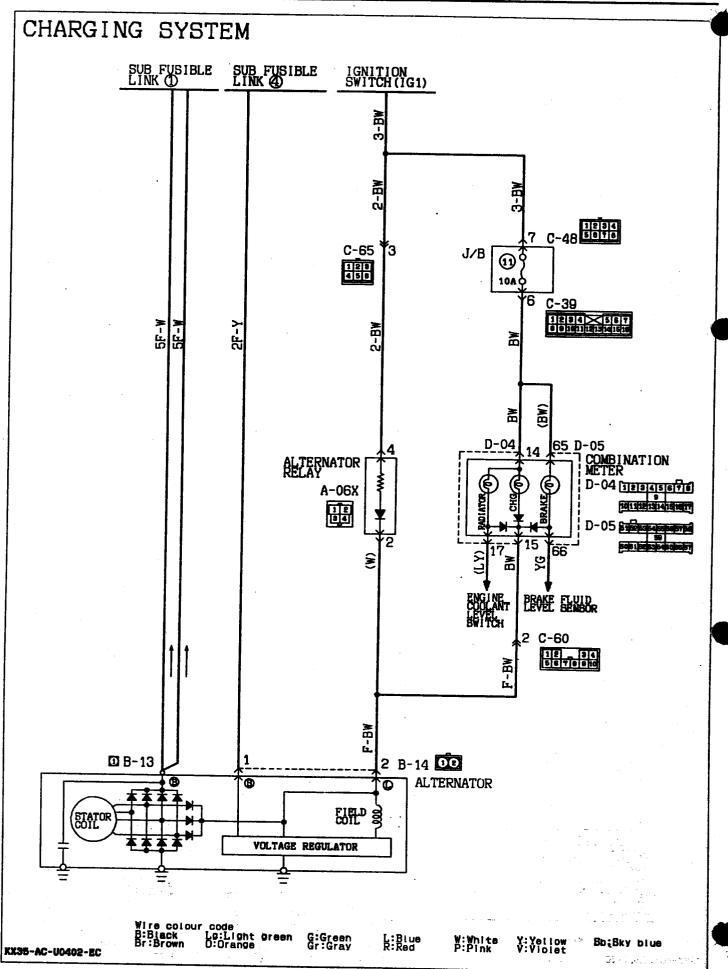
- 1. Starter motor does not turn over at all.
  - Check starter (coil).
  - · Check battery terminals for proper contact.
- 2. Starter motor does not stop rotating.
  - Check starter (magnetic switch).

THE STATE OF BUILDING

र्यात्रक राज्यक्षण शतकार्य वर्षेत्रकारम् हे

C Mittobushi Metara Corporation







#### When engine is stationary

 When the ignition switch is turned to the ON position, current flows the alternator L terminal to the field coil and, at the same time, the charge warning lamp lights up.

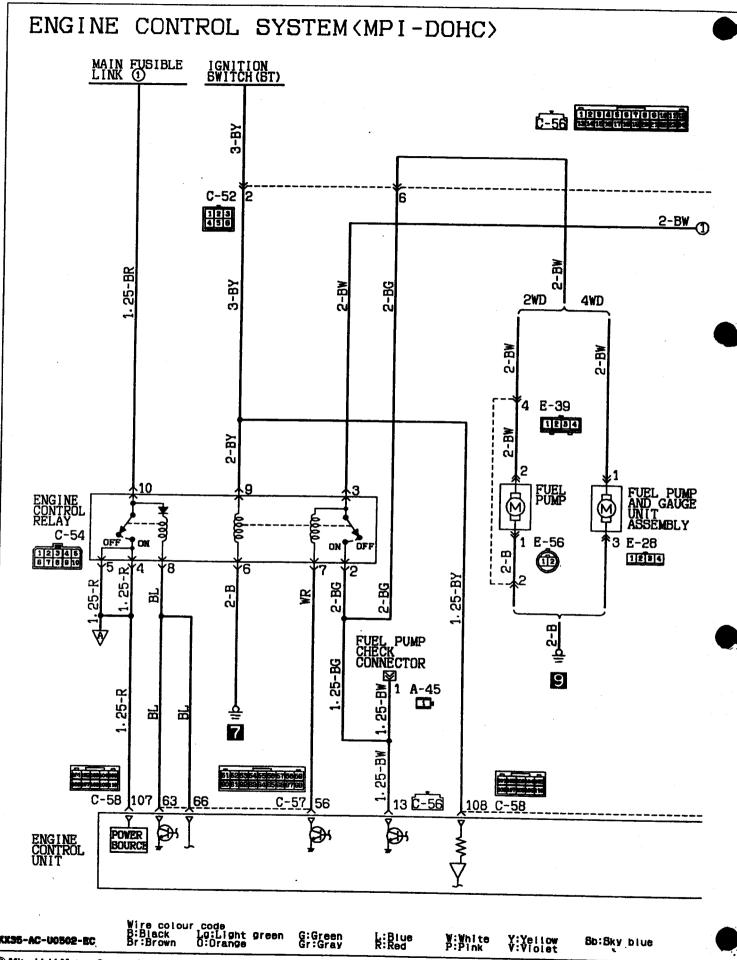
### When engine is stared and after engine has started

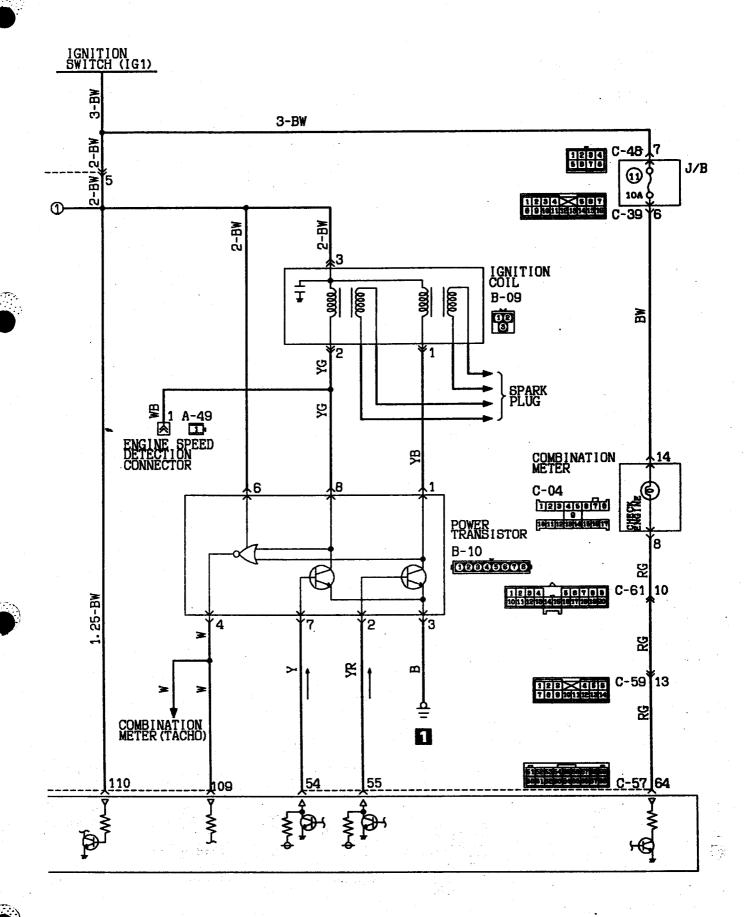
- When the engine is started, the charge warning lamp goes out because of the charging voltage being applied to the alternator L terminal.
- The battery voltage being applied to the alternator S terminal is monitored by the IC voltage regulator. Hence, the amount of electricity produced by the alternator is controlled by allowing and cutting off the current flowing to the field coil.
- The alternator B terminal supplies power to each load.

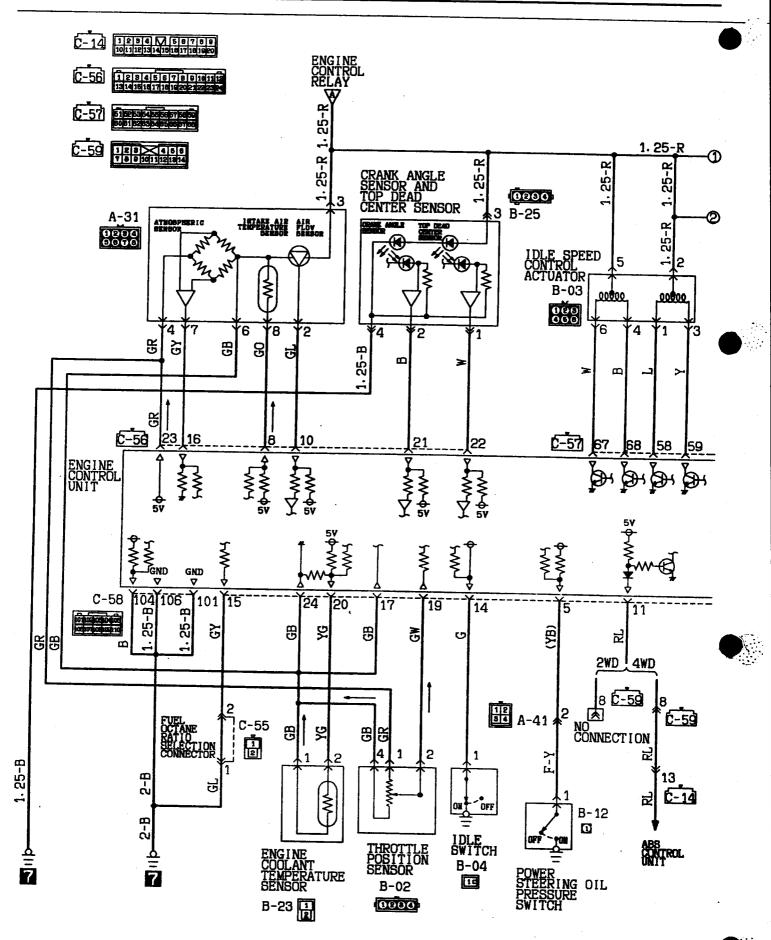
#### Remark

 The alternator relay is provided to back up the flow of current to the field coil when the charge warning lamp is open.

- Charging indicator lamp does not go on when the ignition switch is turned to "ON", before the engine starts.
  - Check the bulb.
- 2. Charging indicator lamp fails to go off once the engine starts.
  - Check IC voltage regulator of alternator.
- 3. Discharged or overcharged battery.
  - Check IC voltage regulator of alternator.
- 4. Charge warning lamp lights up dimly.
  - · Check combination meter diode (for short).





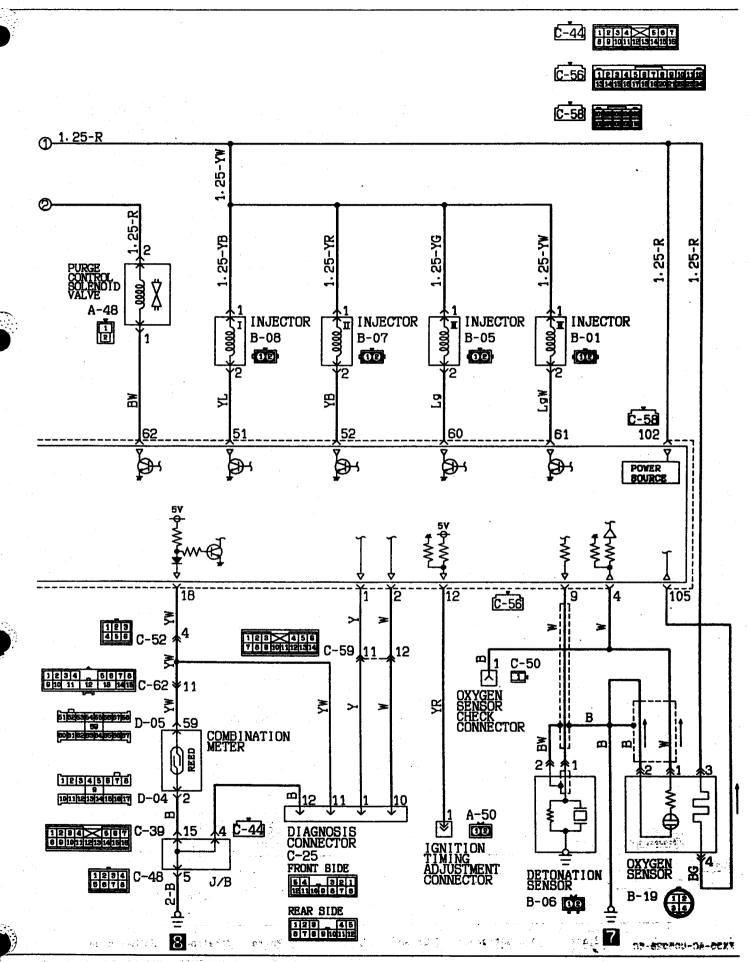


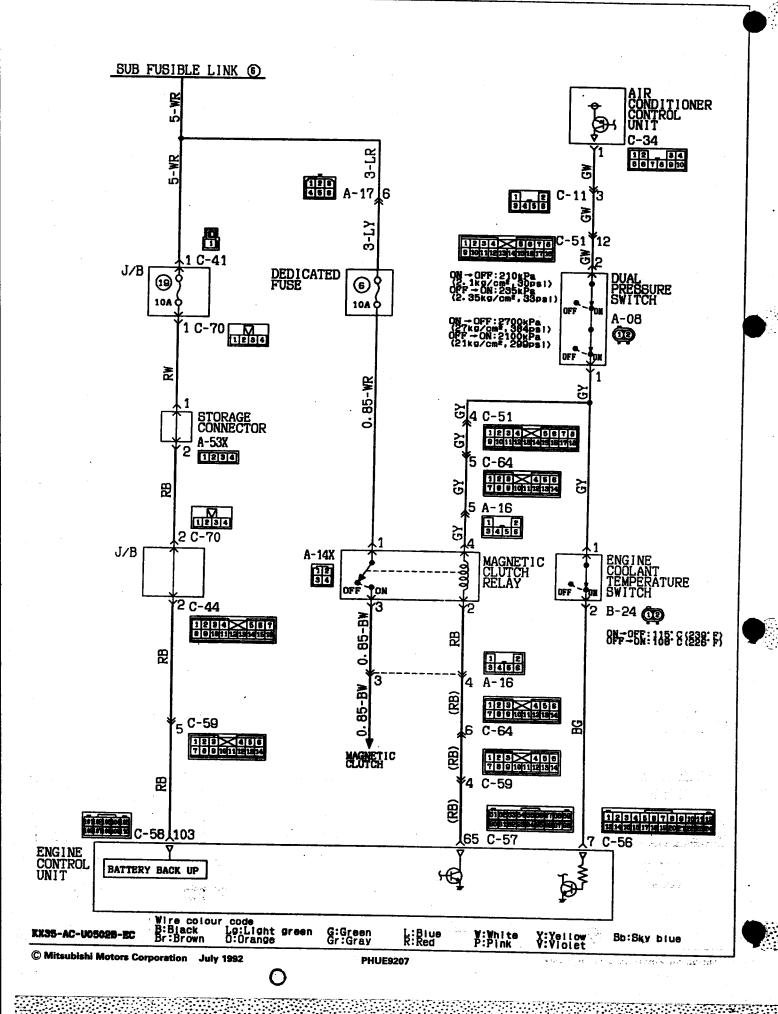
XX35-AC-U0502A-EC

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PHUE9207

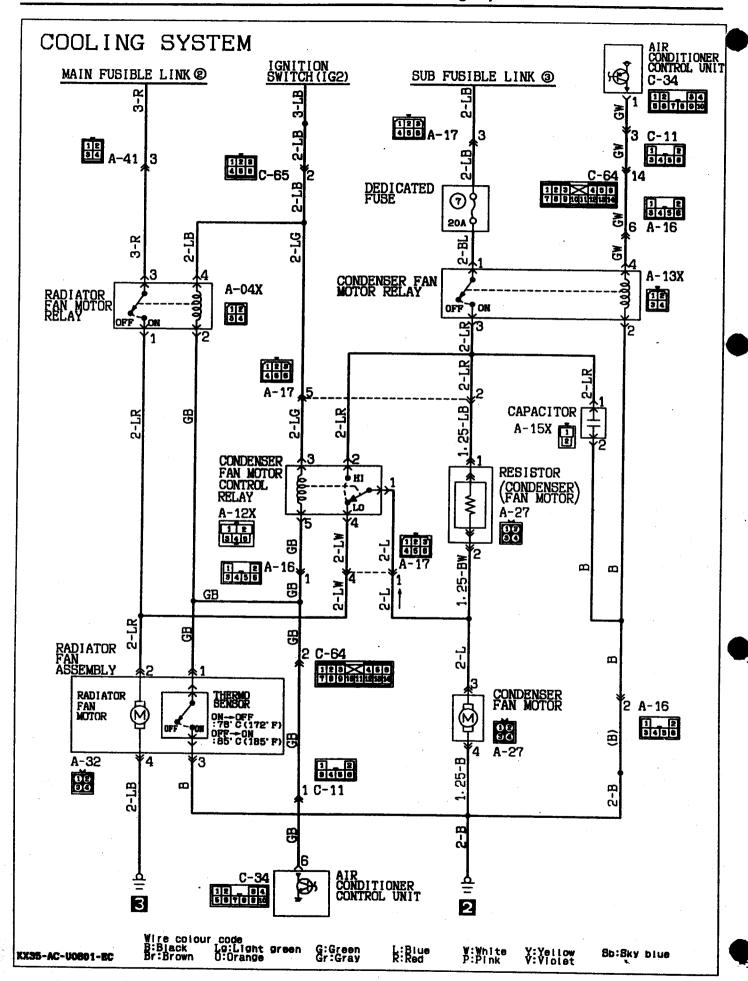
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NOTES

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### COOLING SYSTEM (See P. 4-22.) OPERATION

### When air conditioner control unit outputs LO signal (0 V)

- When the engine coolant temperature reaches 85°C (185°F), the thermo sensor of radiator is activated.
- This energizes the radiator fan motor relay causing the radiator fan to rotate at high speed.

### 2. When air conditioner control unit outputs HI signal (System voltage)

- The condenser fan motor relay is turned on by the power from the air conditioner control unit, and this is transmitted through the resistor to nonconditionally run the condenser fan and radiator fan at low speed.
- When the engine coolant temperature increases to 85°C (185°F), and the thermo sensor turns ON, or the fan HI-LO selector switch drive transistor inside the air conditioner control unit turns ON, the condenser fan motor relay turns ON (HI) and the radiator fan and condenser fan both operate at high speed.

#### TROUBLESHOOTING HINTS

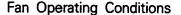
- 1. Radiator fan does not operate.
  - 1) Disconnect the radiator fan assembly connector, and earth the "1" terminal to run the fan.
    - Check of thermo sensor.
  - 2) Even if "1" terminal is earthed, the fan does not run.
    - Check radiator fan motor relay.
    - · Check radiator fan motor.
- 2. Condenser fan does not operate at all.
  - Check sub fusible link No. ③.
  - Check dedicated fuse No. ①.
  - Check condenser fan motor.
  - Check condenser fan motor relay.
- 3. Only the radiator fan does not rotate at low speed.
  - · Check condenser fan motor control relay.
- 4. Only condenser fan does not rotate at high speed.
  - Check condenser fan motor control relay.
- 5. Radiator fan and condenser fan do not run at low speed alone.
  - Check resistor.

#### Remark

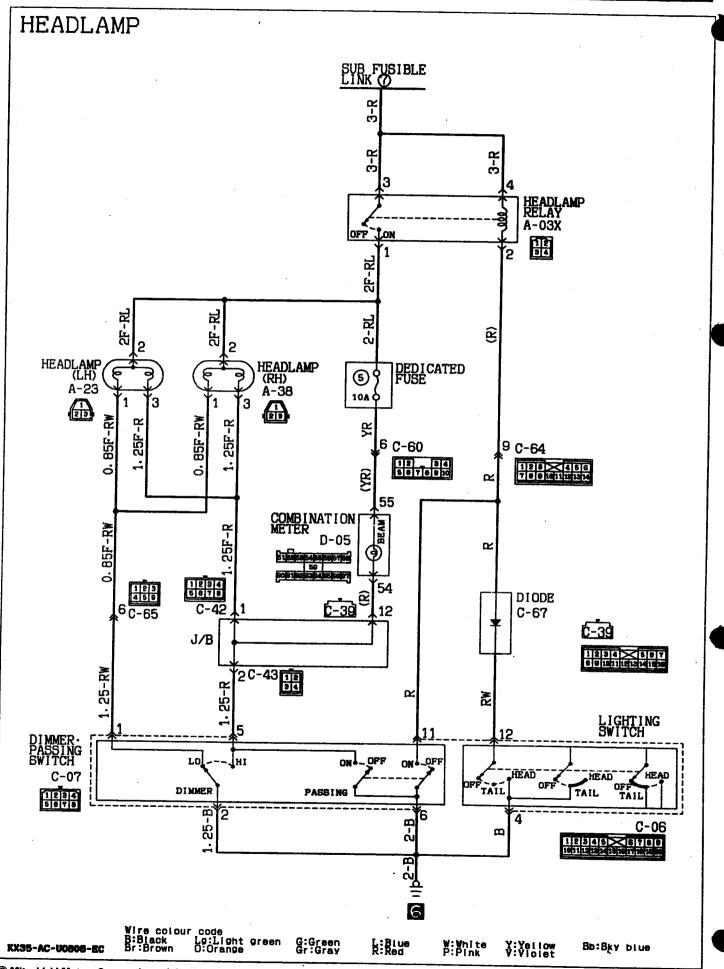
 For troubleshooting the air conditioner control unit, see the Troubleshooting in Group 55 Heater and Air Conditioner of the separate WORKSHOP MANUAL (Pub. No. PWUE9010).

#### Air Conditioner Control Unit HI Signal Output Conditions

Ignition switch (IG2)	ON	Remark
Blower switch	ON	The air conditioner control unit outputs a LO signal (0 V)     when any one of the switches and sensors is deactivated.
Air conditioner switch	ON (ECONO or A/C)	when any one of the switches and sensors is deactivated.
Air inlet sensor	ON [4°C (39°F) or higher]	
Air thermo sensor	ON [4°C (39°F) or higher]	



Air conditioner control unit output	Fan HI-LO selector switch drive transistor inside the air conditioner control unit	Switch position	Fan operating condition	
		Thermo sensor [ON with 85°C (185°F) or higher]	Radiator fan	Condenser fan
10 /0 \/	LO (0 V) —	OFF	OFF	OFF
LO (0 V)		ON	HIGH	OFF
	OFF	OFF	LOW	LOW
HI (System voltage)	OFF	ON	HIGH	HIGH
	ON	OFF	HIGH	HIGH
	ON	ON	HIGH	HIGH





Headlamp Relay ON Conditions

Lighting switch	Dimmer/ passing switch	Headlamp relay
"HEAD"		ON
<del></del>	"ON"	ON

#### **(Low-beam operation)**

- Placing the lighting switch in the HEAD position causes the headlamp relay to be energized.
- If the dimmer/passing switch is placed in the LO position at this time, the headlamps light up in low beam.

#### **(Upper-beam operation)**

- Placing the lighting switch in the HEAD position causes the headlamp relay to be energized.
- If the dimmer/passing switch is placed in the HI position at this time, the hedlamps light up in upper beam.

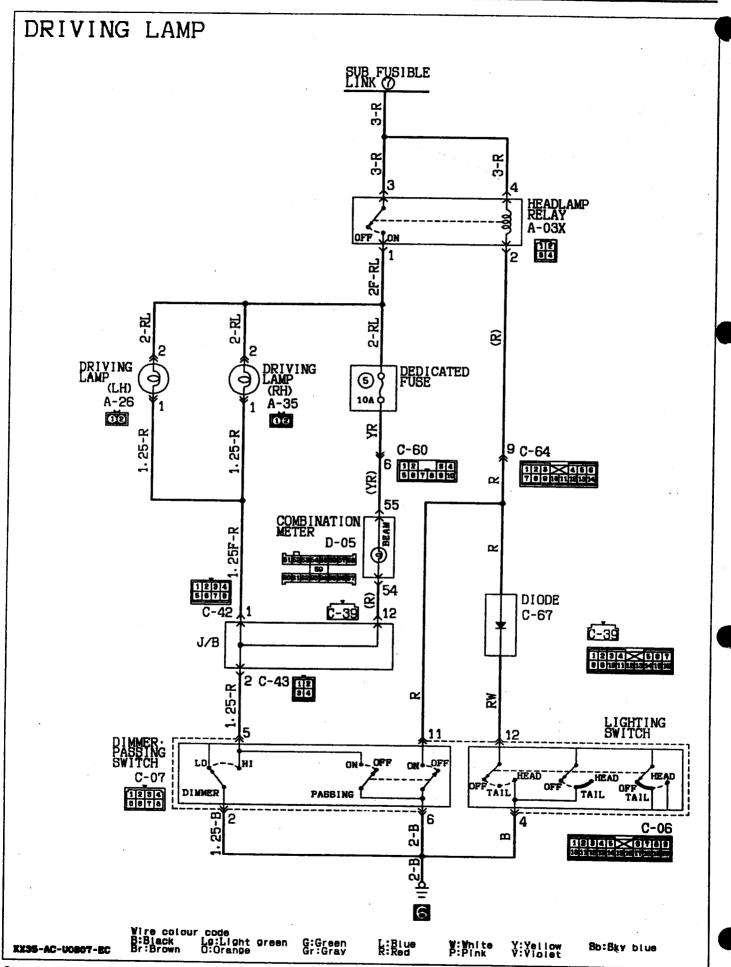
#### **(Upper-beam indicator lamp)**

 This lamp lights up when the upper/passing beams are on, indicating that the headlamps are on in upper beam.

#### **(Passing operation)**

 When the dimmer/passing switch is set to the "ON" position, the headlamp relay is switched ON and the upper beam of the headlamps illuminates.

- 1. Headlamps don't go on.
  - 1) But the tail lamps illuminate.
    - · Check the headlamp relay.
    - · Check the lighting switch.
  - 2) The tail lamps also don't illuminate.
    - Check the sub fusible link No. 7.
- 2. The low beam at both sides doesn't illuminate.
  - Check the dimmer switch LO contacts.
- 3. The upper beam at both sides doesn't illuminate.
- The passing signal functions OK.
  - Check the dimmer switch HI contacts.
- 4. One headlamp doesn't illuminate.
  - · Check the lamp bulb.
- 5. Can't switch from low to upper beam or vice-versa.
  - · Check the dimmer switch.
- 6. Upper-beam indicator lamp does not go on.
  - 1) Headlamp upper beams are operational.
    - Check dedicated fuse No. ⑤.
    - Check the indicator lamp bulb.



### DRIVING LAMP (See P. 4-26.) OPERATION

Headlamp Relay ON Conditions

Lighting switch	Dimmer/ passing switch	Headlamp relay
"HEAD"	esterológia.	ON
	"ON"	ON

- Placing the lighting switch in the HEAD position causes the headlamp relay to be energized.
- If the dimmer/passing switch is placed in the HI position at this time, the driving lamps light up.

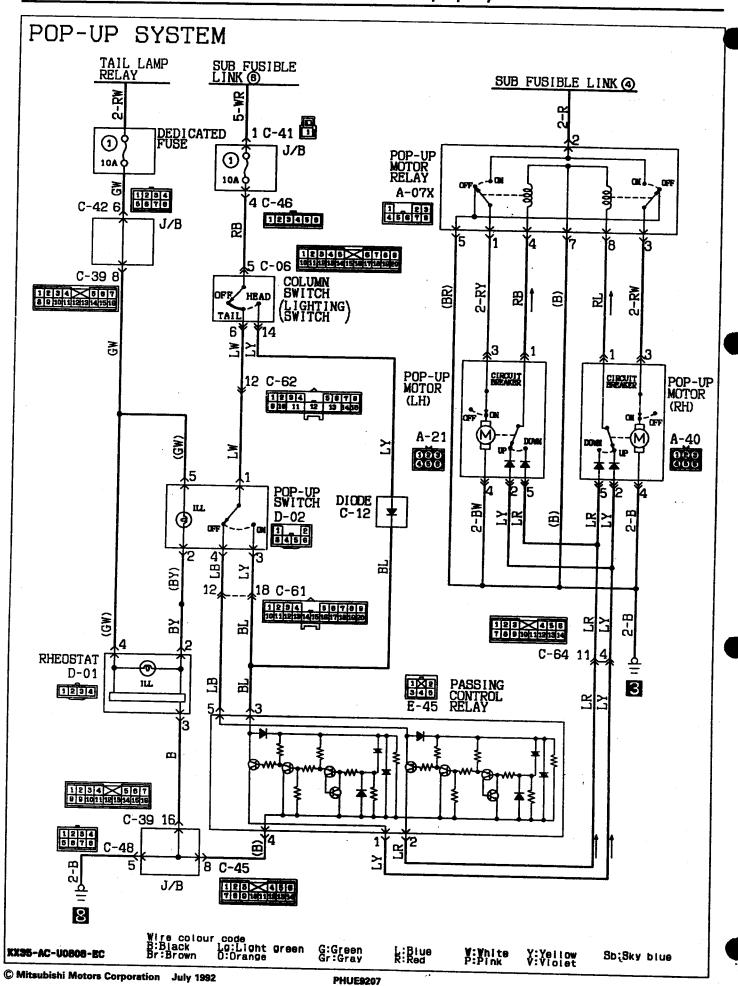
#### (Passing operation)

 When the dimmer/passing switch is set to the "ON" position, the headlamp relay is switched ON and the driving lamps illuminate.

#### (Upper-beam indicator lamp)

 This lamp illuminates when the driving lamps are illuminated and when passing to inform the driver that the driving lamps are illuminated.

- 1. Driving lamps don't go on.
  - Upper beam of headlamps does not illuminate either.
    - Check the dimmer/passing switch HI contacts.
  - 2) Upper beam of headlamps illuminate.
    - Check the driving lamp bulb.
- 2. Upper-beam indicator lamp does not go on.
  - 1) Headlamp upper beams are operational.
    - Check dedicated fuse No. 5.
    - · Check the indicator lamp bulb.



## POP-UP SYSTEM (See P.4-28.) OPERATION

#### **(Functions of the Lighting Switch)**

 Battery voltage is always applied to the lighting switch through multi-purpose fuse ①.
 When the lighting switch is set at the "HEAD" position, current flows through the passing control relay, pop-up motor (up-switch), pop-up motor relay (coil), and earth, closing the pop-up motor

relay contacts.

After flowing through the closed pup-up motor relay contacts, current flows through the pop-up motor to earth.

The pop-up motor starts operating to raise the retractable headlamp.

Once the pop-up motor has revolved up to its UP limit, the switch inside the motor swtiches its contact from the UP side to the DOWN side. This operation of the switch causes the circuit leading to the pop-up motor relay (coil) to open and

leading to the pop-up motor relay (coil) to open and the pop-up motor stops, maintaining the retract-

able headlamp in its raised position.

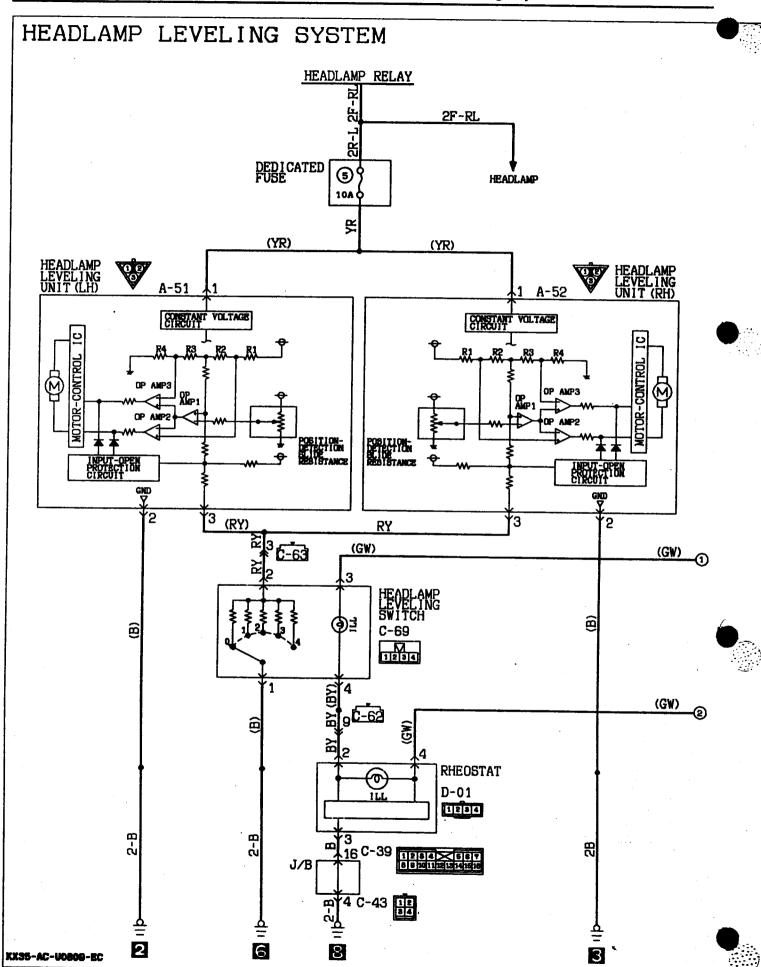
• When the lighting switch is set at the "OFF" or "Tail" position, current flows through the lighting switch, pop-up switch, passing control relay, popup motor (down-switch), pop-up motor relay (coil), and earth, closing the pop-up motor relay contacts. After flowing through the closed pop-up motor relay contacts, current flows through the pop-up motor to earth. The pop-up motor begins operating to retract the headlamp.

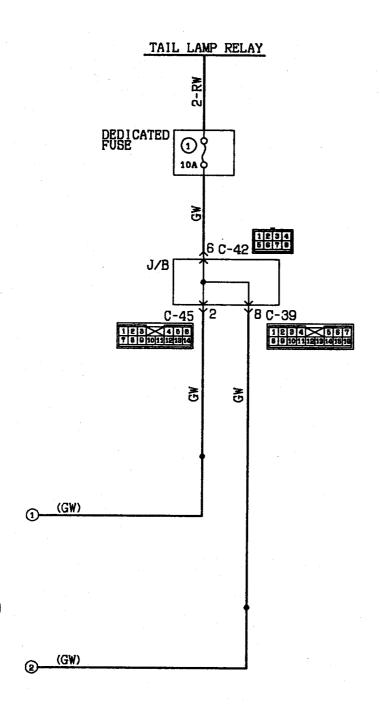
Once the pop-up motor has revolved up to its DOWN limit, the switch inside the motor switches its contact from the DOWN side to the UP side, and the motor stops, maintaining the headlamp in its retracted position.

#### **(Functions of the Pop-up Switch)**

- When the pop-up switch is set at "ON", current flows through multi-purpose fuse ①, lighting switch, pop-up switch, passing control relay, popup motor (up-switch), pop-up motor relay (coil), and earth. The retractable headlamps rises just as it does when the lighting switch is set at the "HEAD" position.
- When the pop-up switch is set at "OFF", current flows through the pop-up switch, the passing control relay, the pop-up motor (down-switch), the pop-up motor relay (coil), and earth. The headlamp retracts just as it does when the lighting switch is set at the "OFF" or "Tail" position.

- 1. Headlamps do not rise
  - 1) They rise only when the lighting switch is operated.
    - · Check the pop-up switch.
  - 2) They rise only when the pop-up switch is operated.
    - · Check the lighting switch.
- 2. Headlamps do not retract
  - Check the pop-up switch.
  - · Check the passing control relay.
- 3. One headlamp does not move
  - Check the pop-up motor relay.
  - · Check the pop-up motor.









Wire colour code B:Black Lg:Light green Br:Brown U:Orange

G:Green Gr:Gray L:Blue R:Red W:White P:Pink

Y:Yellow V:Violet Sb:Sky blue

### **HEADLAMP-LEVELING SYSTEM (See P. 4-30.)**

#### **OPERATION**

#### 1. Headlamps angle-downward operation

- When the lighting switch is set to the "HEAD" position, the headlamp relay is switched ON, and battery voltage is applied, through the headlampleveling unit, to dedicated fuse No. (5).
- When the headlamp-leveling switch setting is changed from "0" to "1", the positive (+) input terminal voltage of the comparator OP AMP 1 (located within the headlamp-leveling unit) becomes greater than the negative (-) input terminal standard reference voltage value, and OP AMP 1 outputs HIGH signals to OP AMP 2 and OP AMP
- As a result of these HIGH signals, OP AMP 2 outputs LOW signals and OP AMP 3 outputs HIGH signals to the motor-control IC.
- When this happens, the motor-control IC is switched ON, current flows to the motor, and the motor rotates in the forward direction.
- The rotation of the motor, after passing through the gears and the output shaft, causes the headlamp reflectors to move to a downward angle, thus changing the angle of headlamp illumination.
- At this time, the position-detection sliding resistance is activated in the direction of the low resistance value, after which the OP AMP 1 negative (—) input terminal voltage value and positive (+) input terminal voltage value become equivalent, and OP AMP 2 and OP AMP 3 both output HIGH signals.
- When this happen, the motor-control IC is switched OFF and the motor stops.

#### NOTE

- (1) The same operation occurs if the headlamp-leveling switch is set to another position.
- (2) The input open protection circuit functions to stop the operation of the motor if there is an abnormal condition, such as damaged or disconnected wiring within the headlamp-leveling unit or of the wiring harness.

#### 2. Headlamps angle-upward operation

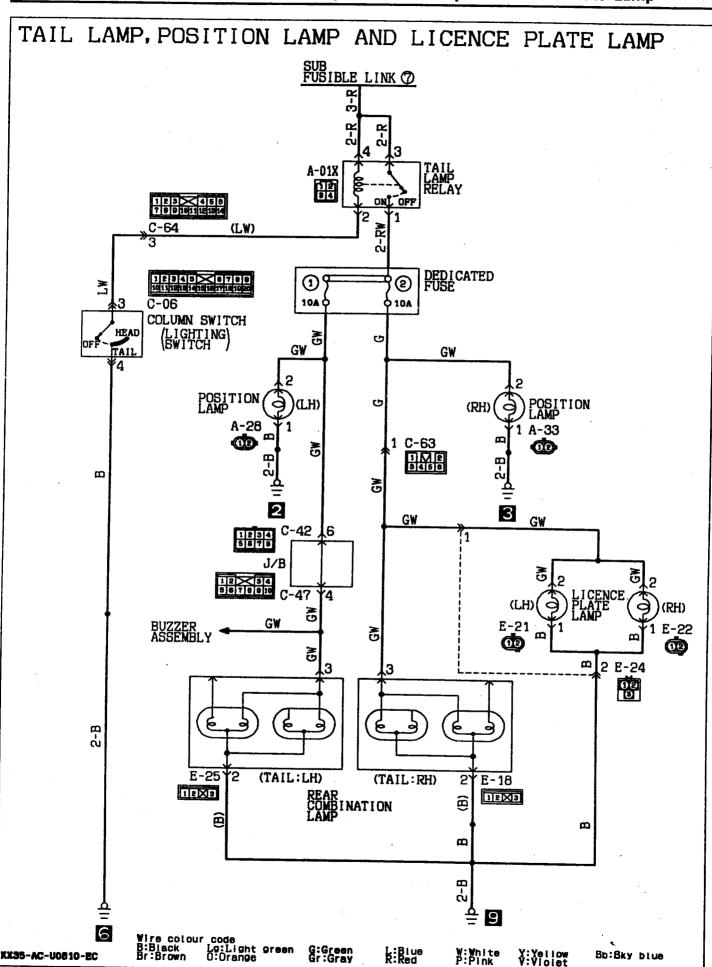
The headlamp angle-upward operation is the opposite logic of the downward operation; the motor operates in the reverse direction and then stops.

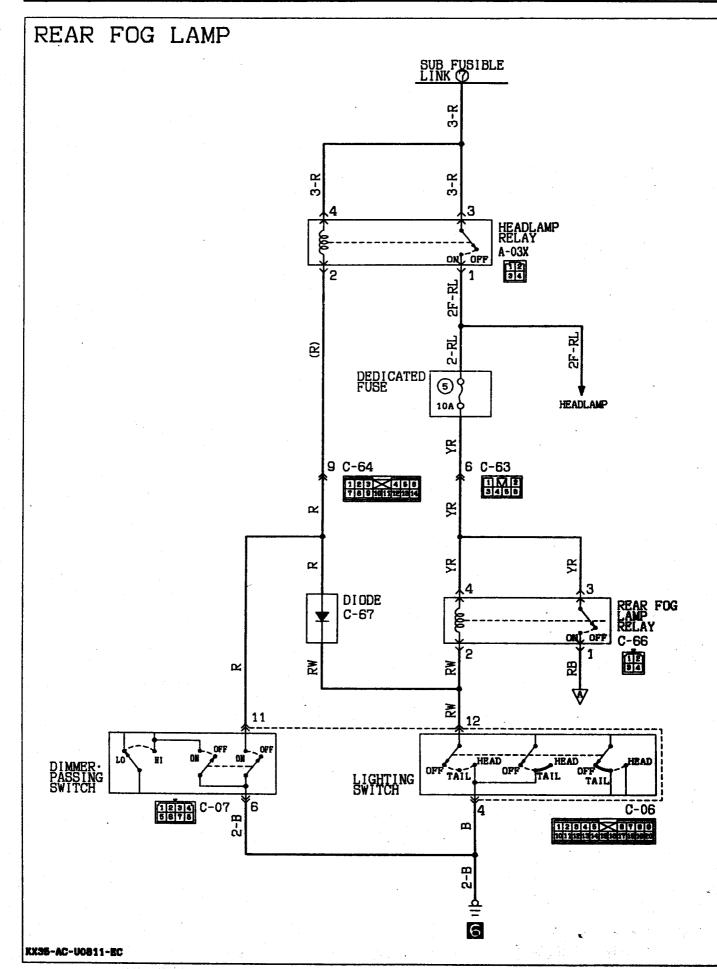
- 1. Absolutely no change of the headlamp angle
  - 1) The upper-beam indicator lamp illuminates.
    - · Check the headlamp-leveling switch.
  - Check the headlamp-leveling unit.
    The upper-beam indicator lamp does not illu
    - minate.
       Check dedicated fuse No. (5).
- 2. There is one setting of the headlamp-leveling switch at which the headlamp angle does not change
  - · Check the headlamp-leveling switch.

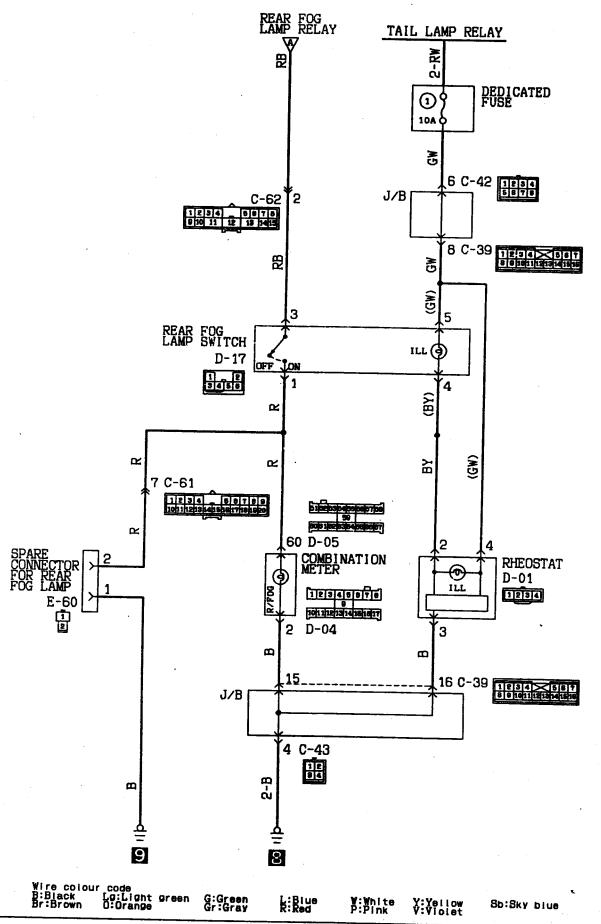
#### TAIL LAMP, POSITION LAMP AND LICENCE PLATE LAMP (See P.4-34.) **OPERATION**

- The tail lamp relay is switched ON when the
- lighting switch is set to the "TAIL" or "HEAD" position.
- As a result, electricity flows via dedicated fuse No. 1 and No. 2 to each lamp, and each lamp illuminates.

- 1. All lamps do not illuminate.
  - 1) The headlamps also do not illuminate.
    - Check sub-fusible link No. 7.
  - 2) The headlamps illuminate.
    - · Check the tail lamp relay.
    - · Check dedicated fuse No. (1) and No.(2).







## ROOM LAMP, IGNITION KEY CYLINDER ILLUMINATION LAMP, FOOT LAMP, GLOVE BOX ILLUMINATION LAMP AND LUGGAGE COMPARTMENT LAMP (See P.4-38.)

### **OPERATION**

## Luggage compartment lamp>

- Battery voltage is always applied (via sub-fusible link No. ⑥ and multi-purpose fuse No. ⑨ to the luggage compartment lamp.
- When the tailgate is opened, the luggage compartment lamp switch is switched ON and the luggage compartment lamp illuminates.

## (Glove box illumination lamp)

- The tail lamp relay is switched ON when the lighting switch is set to the "TAIL" or "HEAD" position.
- When, with the lighting switch at the "TAIL" or "HEAD" position, the glove box is opened, the glove box illumination lamp switch is switched ON, and the glove box illumination lamp is illuminated.

## ⟨Room lamp⟩

- Placing the room lamp switch in the ON position causes the room lamp to come on at all times.
- Opening any one of the doors or tailgate with the room lamp switch in the DOOR position causes the room lamp to come on.
- When all doors and tailgate are closed, the room lamp relay is activated causing the room lamp to decrease its intensity of lamp gradually and to go out in about 6 seconds.

### Remark

 If the ignition switch is in the ON position, the room lamp does not decrease its lamp intensity, rather it goes out at once.

## ⟨Foot lamp and ignition key cylinder illumination lamp⟩

- When either driver or passenger's side door is opened, the foot lamps and ignition key cylinder illumination lamp come on.
- When all doors are closed, the room lamp relay is activated causing the foot room lamp and ignition key cylinder illumination lamp to decrease its intensity of lamp gradually and to go out in about 6 seconds.

#### Remark

 If the ignition switch is in the ON position, the foot lamps and ignition key cylinder illumination lamp does not decrease its lamp intensity, rather it goes out at once.

## **(Door warning lamp)**

• If any of the doors or the tailgate are opened, the door warning lamp illuminates to inform the driver that a door or the tailgate is open.

- 1. The luggage compartment lamp does not come on.
  - 1) The room lamp also does not illuminate.
    - Check multi-purpose fuse No.
  - 2) Room lamp illuminates.
    - · Check bulb.
    - · Check luggage compartment lamp switch.
- 2. Room lamp, foot lamps and ignition key cylinder illumination lamp do not come on.
  - 1) Luggage compartment lamp is not illuminate, either.
    - Check multi-purpose fuse No. (19).
  - 2) Room lamp does not come on when any door is opened with the room lamp switch in the DOOR position.
    - Check bulb.
    - Check room lamp switch.
  - Room lamp does not come on when a door is opened with the room lamp switch in the DOOR position.
    - Check door switch.
  - 4) One of room lamp, foot lamps and ignition key cylinder illumination lamp is not lit.
    - · Check bulb.
- 3. Room lamp, foot lamps and ignition key cylinder illumination lamp go out at once when doors are closed.
  - Check room lamp relay.

## ROOM LAMP, IGNITION KEY CYLINDER ILLUMINATION LAMP, FOOT LAMP, GLOVE BOX ILLUMINATION LAMP AND LUGGAGE COMPARTMENT LAMP SUB FUSIBLE LINK® 5-WR 1 C-41 J/B 19 10A 10 C-39 2 C-70 3C-47 1 1234 1234 > 687 1 2 3 4 5 6 7 8 9 10 ₹ 盟 盟 (BB) 盟 61 COMBINATION METER ROOM LAMP D-05 ARTMENT E-01 1 E-32 A-53X 1234 DOOF (RG) RG (GR) ② 8 $\mathbf{\omega}$ 15<sub>C-62</sub> ➂ 용 ⑤ 4 GR DIODE E-38 GR DOOR SWITCH (LH) E-40 11E

KX35-AC-U0812-EC

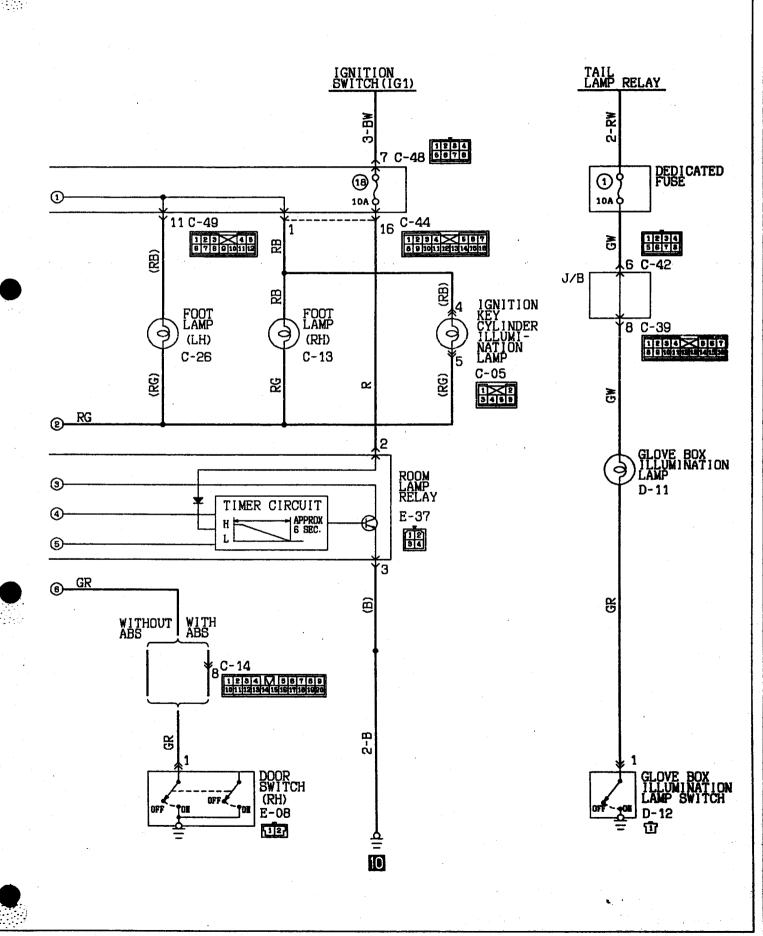
L:Blue R:Red

W:White

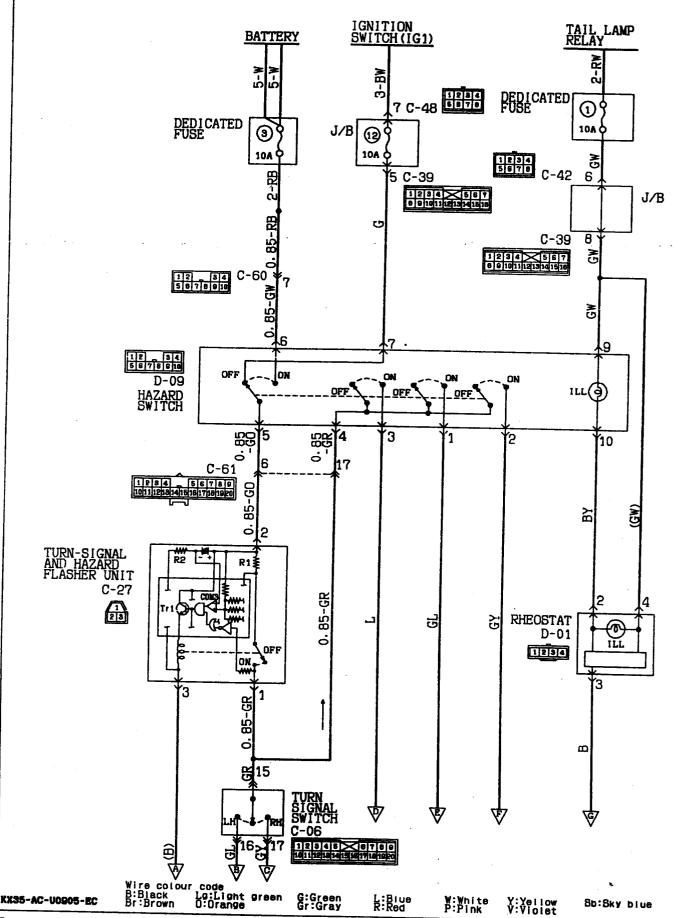
Y: Yellow V: Violet

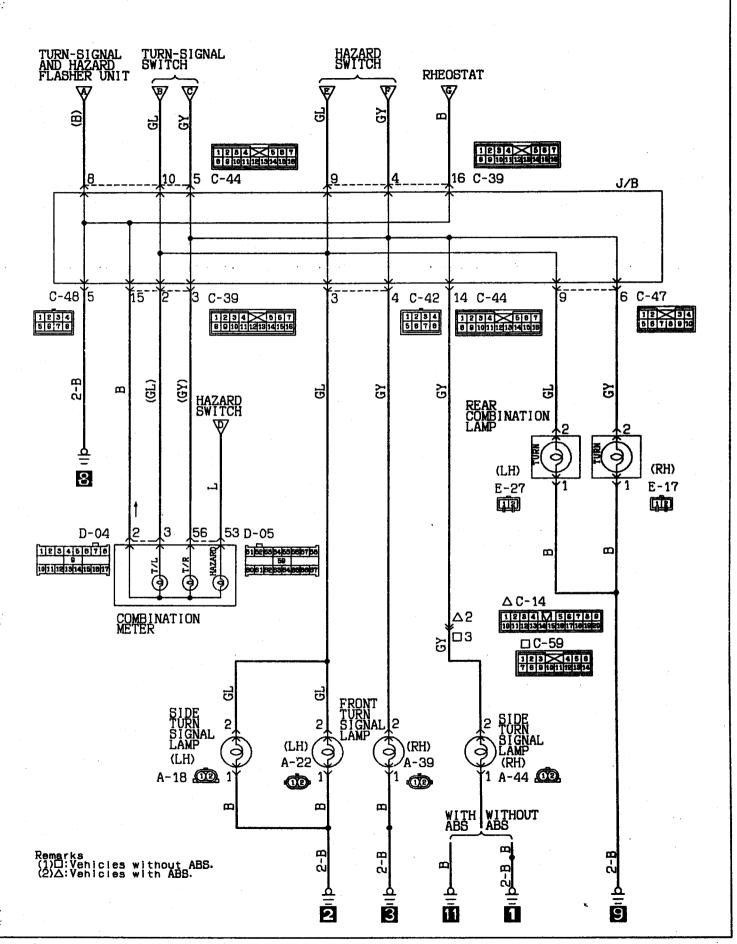
Bb:Bky blue

code Lg:Light green O:Orange



## TURN-SIGNAL LAMP AND HAZARD LAMP





## TURN-SIGNAL LAMP AND HAZARD LAMP (See P. 4-40.) OPERATION

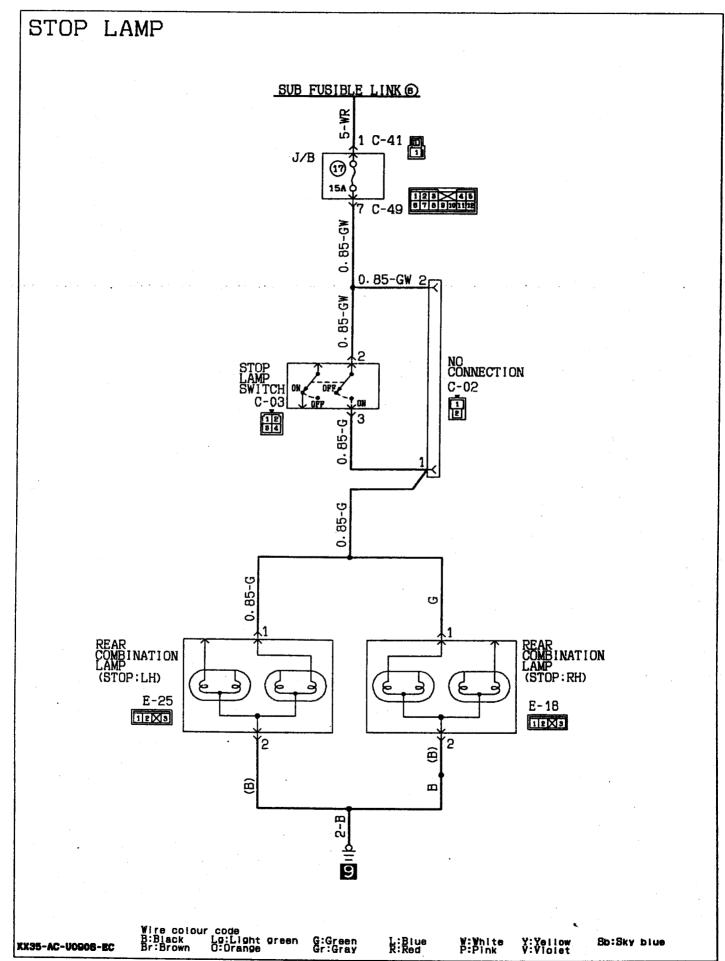
## (Turn-signal lamps)

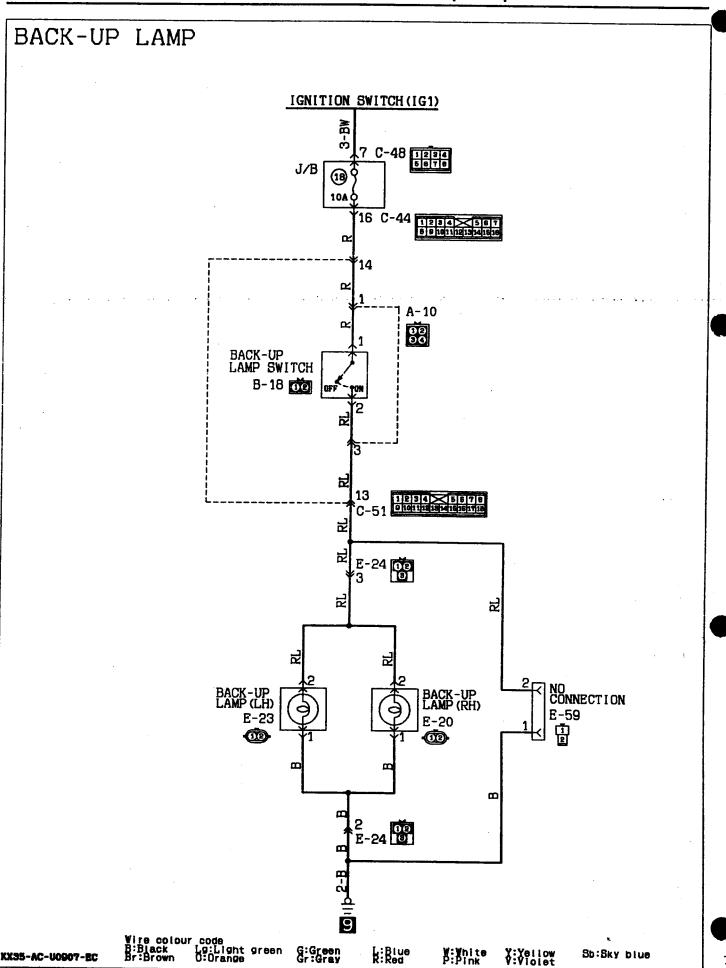
- 1. When operation is normal
  - When the ignition switch is switched to the "ON" position, battery voltage is applied (via the hazard switch) to the turn-signal and hazard flasher unit.
  - When the turn-signal switch is switched to the "LH" (or "RH") position, Tr1 (within the flasher unit) is switched ON and the relay contact (also within the flasher unit) is switched ON. As a result, the "LH" (or "RH") turn-signal lamps and turn-signal indicator lamp illuminate.
  - At the same time, charging to the capacitor (via R2) begins, and charging continues until the lower-limit potential (set by COM 3) is reached.
  - When the capacitor becomes fully charged, the COM3 output reverses and Tr1 is switched OFF; the relay contact is also switched OFF, and as a result, the "LH" (or "RH") turn-signal lamps and turn-signal indicator lamp are switched OFF.
  - At the same time that Tr1 is switched OFF, the capacitor begins discharging, and when discharging finishes, the output of COM3 once again reverses and Tr1 is switched ON, after which the "LH" (or "RH") turn-signal lamps and turn-signal indicator lamp illuminate.
  - As a result of the continued repetition of the steps described above, the "LH" (or "RH") turn-signal lamp and turn-signal indicator lamp flash ON and OFF repeatedly.
- 2. If one lamp wiring is damaged or disconnected
  - If the bulb for one turn-signal lamp is damaged or disconnected, the result is an overall increase of the resistance for the entire lamp circuitry, resulting is a decrease of the voltage at the R1 part within the flasher unit.
  - As a result of this being detected, the lowerlimit potential set by COM3 is increased, with the result that the time required for charging of the capacitor becomes shorter.
  - As a result, the ON and OFF cycles of Tr1 also become shorter, and thus the number of flashes of the lamps becomes greater.

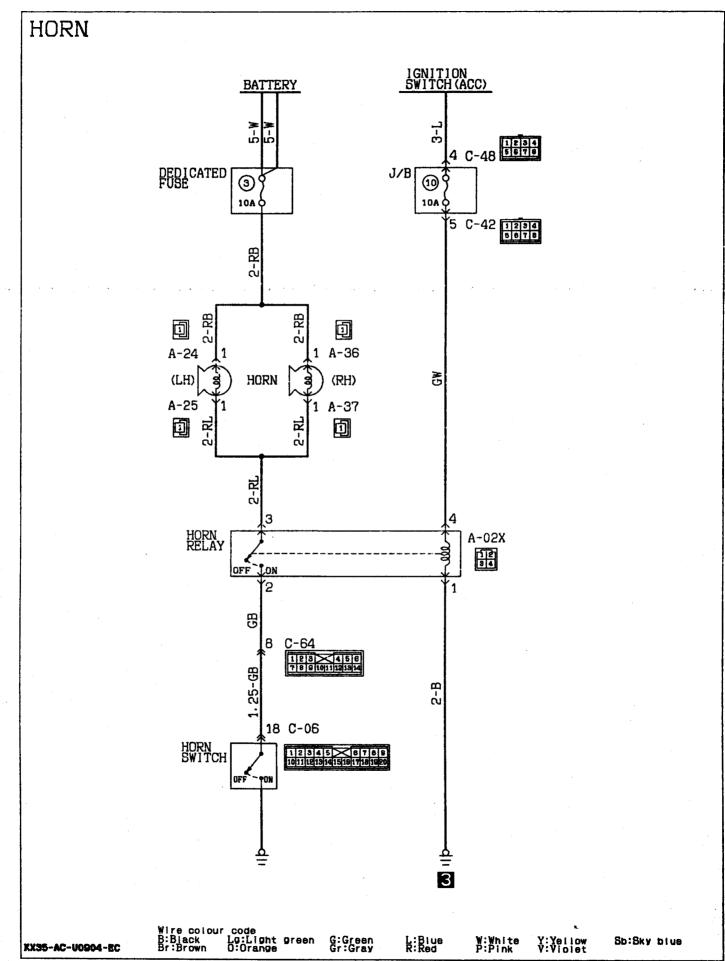
## **(Hazard-warming lamps)**

- 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 lamps, and the left and right turn-signal lamps and turn-signal indicator lamps simultaneously flash repeatedly.
   NOTE
  - The number of flashes of the hazard-warning lamps does not change if there is damaged or disconnected wiring of one lamp.

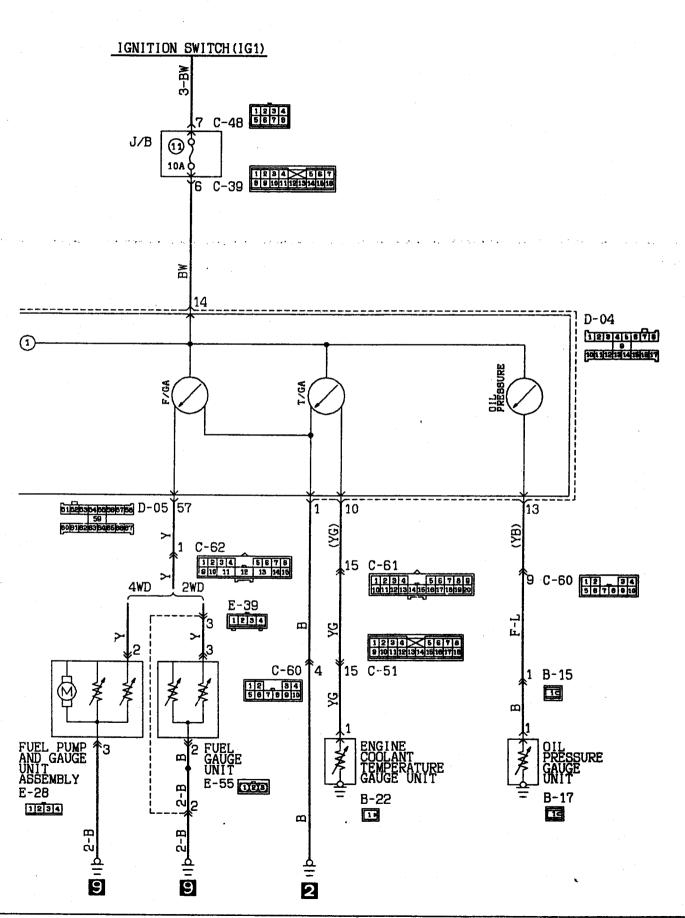
- 1. The turn-signal lamps and hazard-warning lamps do not operate at all.
  - Check the hazard switch contact (power supply side).
  - Check the turn-signal and hazard flasher unit.
- 2. All turn-signal lamps at the left (or right) side do not function.
  - 1) The hazard-warning lamps function normally.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







## METER AND GAUGE ENGINE CONTROL UNIT TAIL LAMP RELAY POWER TRANSISTOR NO CONNECT I ON DEDICATED FUSE 1123 4156 C-52 4 1 <u>C-59</u> 中 C-51 5 10A 1 2 3 4 5 8 7 8 9 101 112 1324 15 16 17 18 1234 5070 C-42 界 ſ6 C-62 11 J/B C-61¥16 C-62 10 1934 51617 C-39 8 9 10111213141516 品 D-05 59 2 COMBINATION METER 11 D-04 <u>হিচাৰ্ড্র</u>নি (BY) 1011121314151617 Ш 界 RHEOSTAT D-01 1234 $\mathbf{\omega}$ 四 .15 C-39 J/B 4 C-43 118 34 L:Blue R:Red W:White P:Pink Y:Yellow V:Violet Sb:Sky blue



## METER AND GAUGE (See P. 4-46.)

## **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.
   Remark

## Since the fuel gauge is a needle holding type, the reading of the needle will be kept as it is even if the ignition switch is turned off.

## (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.

#### ⟨Reed switch⟩

 Pulses are producted in accordance with the vehicle speed, and vehicle-speed signals are input to systems that regulate according to the vehicle speed.

## (Oil Pressure Gauge)

- When the ignition switch 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.

- 1. The fuel gauges doesn't function, or shows the incorrect indication.
  - Disconnect the connector of the fuel gauge unit; the "F" side is indicated when terminal 3 (2WD) or 2 (4WD) is then earthed.
    - · 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 earthed.
    - Check the engine coolant temperature gauge unit.
- 3. 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 earthed.
    - · Check the oil pressure gauge unit.
- 4. Systems dependent upon control according to the vehicle speed do not function correctly.
  - Check the reed switch (located within the speedometer).
- 5. The meter illumination lamp does not illuminate.
  - 1) The tail lamp illuminate.
    - · Check the rheostat.

## BRAKE WARNING LAMP (See P. 4-50.) FUEL WARNING LAMP (See P. 4-50.) ENGINE COOLANT LEVEL WARNING LAMP (See P. 4-51.) OIL PRESSURE WARNING LAMP (See P. 4-51.)

### **OPERATION**

## **(Brake warning lamp)**

 When the brake fluid level goes down below a predetermined level or parking brake lever is pulled, with the ignition switch in the ON position, brake fluid level sensor is activated or the parking brake switch is turned ON, causing the brake warning lamp to light up.

## ⟨Fuel warning lamp⟩

 When the fuel level goes down causing the level sensor to be exposed, with the ignition switch in the ON position, the resistance of level sensor becomes small. When this resistance goes down below the predetermined level, the fuel warning lamp lights up to warn the driver that the amount of fuel still available for use is small.

### (Engine coolant level warning lamp)

 When the coolant level inside the condenser tank drops below a predetermined level with the ignition switch in the "ON" position, the engine coolant level sensor turns "ON" and the engine coolant warning lamp illuminates to warn the driver that the level of coolant remaining is low.

## (Oil pressure warning lamp)

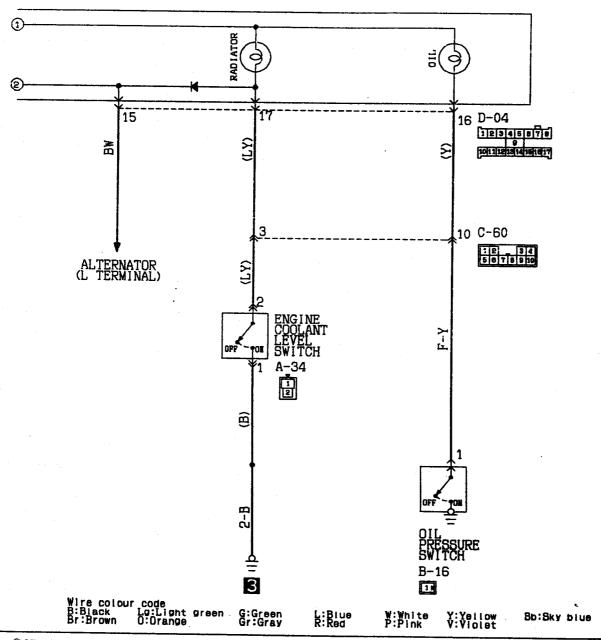
 When the lubrication system fails after engine starting resulting in the oil pressure failing to build up, the oil pressure switch turns ON causing the oil pressure warning lamp to light up.

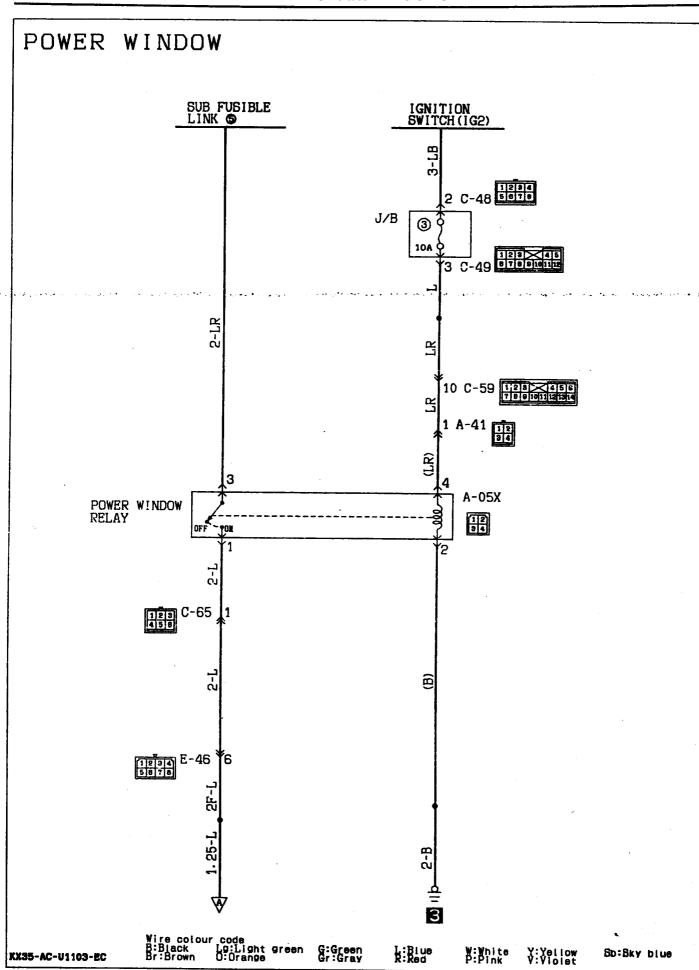
## BRAKE WARNING LAMP FUEL WARNING LAMP IGNITION SWITCH (IG1) J/B 11 10A 6 C-39 12345076 (BK) .65 14 D-04 COMBINATION METER 64 D-05 4WD 1 E-39 11284 25 9 C-51 E-55 Ş E-28 000 1284

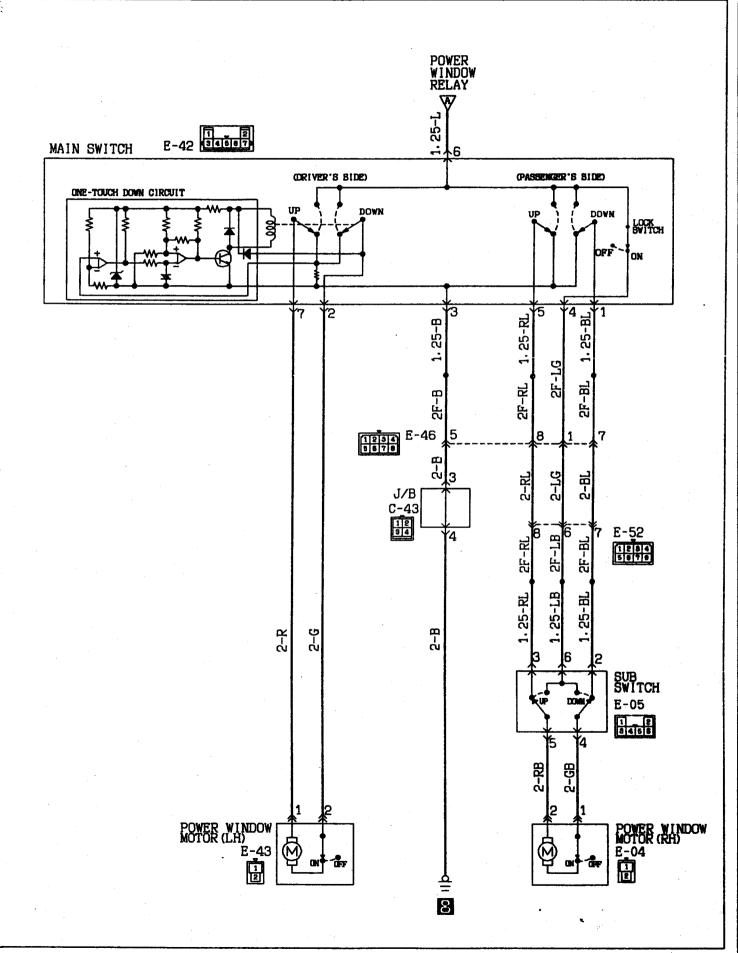
KX35-AC-U1005-EC

ENGINE COOLANT LEVEL WARNING LAMP

## OIL PRESSURE WARNING LAMP







## POWER WINDOW (See P. 4-52.) OPERATION

- When the power window (main or sub) switch is depressed (UP or DOWN) with the ignition switch in the ON position, current flows through subfusible link No. (5) to the power window motor. This energizes the power window motor causing the door window glass to open or close.
- When the DOWN side the power window main switch (driver's seat side switch) is depressed all the way, it is locked in the depressed position and the power window motor is operated until the door glass is fully opened.
- When the power window lock switch is placed in the LOCK (OFF) position the functioning of the passenger's side switches can be cancelled. When the lock switch is in this position, the power window motor will not operate even if one the sub switches is pressed.
- The power window motor is provide with a circuit breaker that protects the motor from damage caused by overcurrent.
  - Reference: Circuit breaker characteristics Restricts the motor at room temperature [20 to 25°C (68 to 77°F)];
  - Opens following 4-to-40-sec. initial energization time:
  - Resets within 60 seconds if left open thereafter.

- 1. All door glasses cannot be opened or closed.
  - Check sub-fusible link No. (5).
  - Check multi-purpose fuse No. (3).
  - · Check power window relay.
  - Check power window main switch.
- 2. Some door glass cannot be opened or closed.
  - 1) Neither power window main nor sub switch is activated.
    - Check power window main switch.
    - · Check defective power window motor.
  - 2) Either power window main or sub switch is inoperative.
    - · Check inoperative power window switch.
- 3. One-touch switch function is not operational.
  - · Replace power window main switch.

## CENTRAL DOOR LOCKING SYSTEM (See P. 4-56.)

## **OPERATION**

• When the inside lock knob is set (including operation by using the key) to the "lock" (or "unlock") position, the switch inside the door lock actuator turns to LOCK (OFF) [or to UNLOCK (ON)]. This allows the timer built into the door lock control unit to cause the output transistor to turn and remain ON for 0.5 seconds. As a result, the door lock relay on the lock (or unlock) side is energized causing the actuators on all doors to operate.

#### Remark

 Each door lock actuator is provided with a PTC thermistor to prevent the motor from being damaged by overheating. This results in the actuator not properly operating at times when the central door lock is frequently used; the actuator is operational if it resumes normal operation within several minutes.

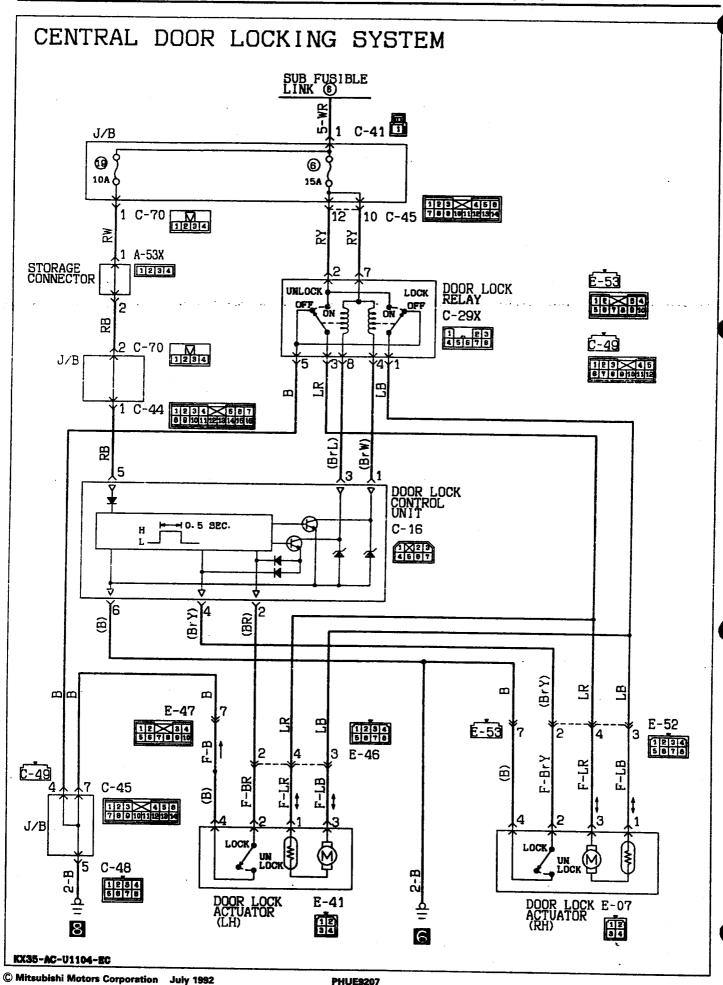
#### TROUBLESHOOTING HINTS

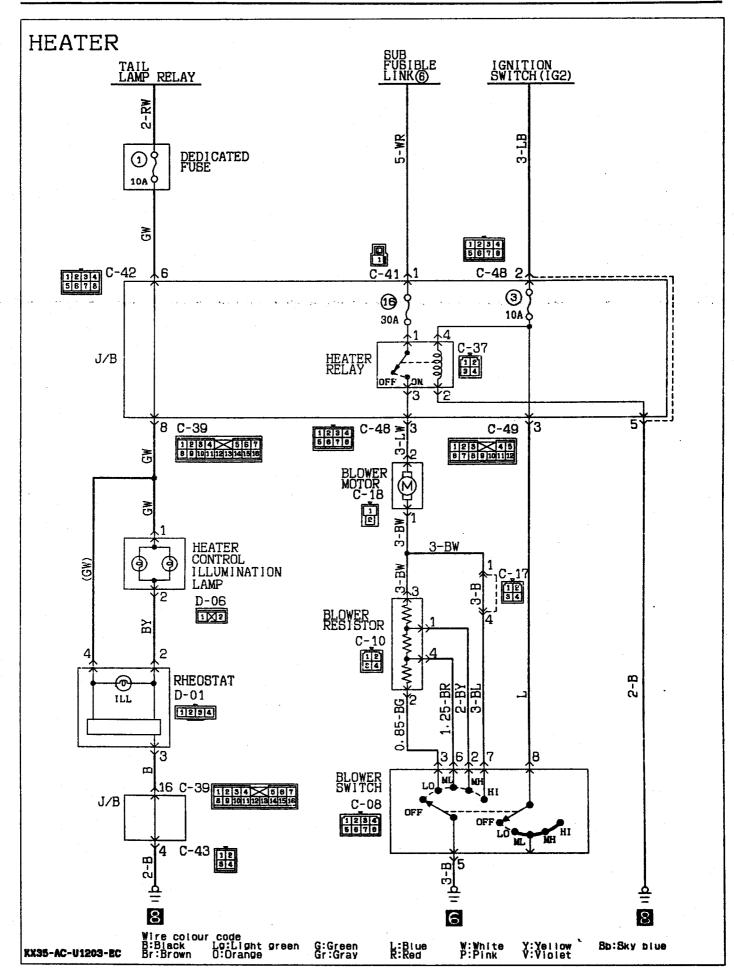
- 1. Any one of the door lock actuators is inoperative.
  - Check the defective door actuator.
- 2. Door cannot be locked or unlocked with the inside lock knob on the driver's seat or passenger's seat.
  - Check switch in actuator.
  - · Check door lock control unit.

Door Lock Control Unit Terminal Voltages (with connector plugged in position)

Terminal No.	Signal	Conditions	Terminal voltage
1	Door lock relay driving signal	The instant the inside lock knob is depressed (approx. 0.5 seconds)	Approx.* 0.5 V
		Normally	12 V
0	Inside door lock knob (driver's seat) signal	When inside lock knob is locked	5 V
. 2		When inside lock knob is unlocked	0 V
3	Door lock relay driving signal	The instant the inside lock knob is pulled (approx. 0.5 seconds)	Approx.* 0.5 V
		Normaliy	12 V
	Inside door lock knob (passenger's seat) signal	When inside lock knob is locked	5 V
4		When inside lock knob is unlocked	0 V
5	Power source	At all times	System voltage
6	Ground	At all times	0 V

<sup>\*</sup>Approximate 0.5 V is normal because of the internal resistance of the output transistor; if the voltage is 0, the harness is probably open or shorted.





## HEATER (See P. 4-57.) OPERATION

 When the ignition switch is turned ON, the blower relay is energized. If the blower switch is turned ON (LO, ML, MH, or HI position) in this condition, the blower is activated through the circuit via resistor at a speed corresponding to the blower switch position.

# AIR CONDITIONER (See P. 4-59.) OPERATION Condenser fan and radiator fan control>

 For the operation of each fan, see COOLING SYSTEM (P. 4-23.)

## (Compressor control)

- When the air conditioner switch is in the ECONO or A/C position, if the temperature around the air thermo sensor [temperature of the evaporator (cooling unit) intake/exhaust air] is 4°C (39°F) or higher, and the temperature around the air inlet sensor (temperature of air flowing through the evaporator) at the same time is 4°C (39°F) or higher, output voltage flows from terminal No. 1 of the air conditioner control unit.
- The engine coolant temperature switch detects the engine coolant temperature, and if it is 115°C (239°F) or higher, the switch turns "OFF". If there is abnormal refrigerant pressure, the dual pressure switch turns "OFF" to protect the compressor circuit.
- If the engine coolant temperature switch and the dual pressure switch are both "ON" and the ignition switch is also "ON", the output voltage flowing from terminal No. 1 of the air conditioner control unit causes the magnetic clutch relay to turn "ON".

## TROUBLESHOOTING HINTS

- 1. Blower motor is energized at one switch position and not energized at another.
  - Check harness and connectors between defective switch position and resistor (or blower motor in HI position).
- 2. Blower motor is energized only when switch is positioned is HI.
  - · Check resistor.
- 3. Blower motor speed does not represent the switch position.
  - Check blower switch.

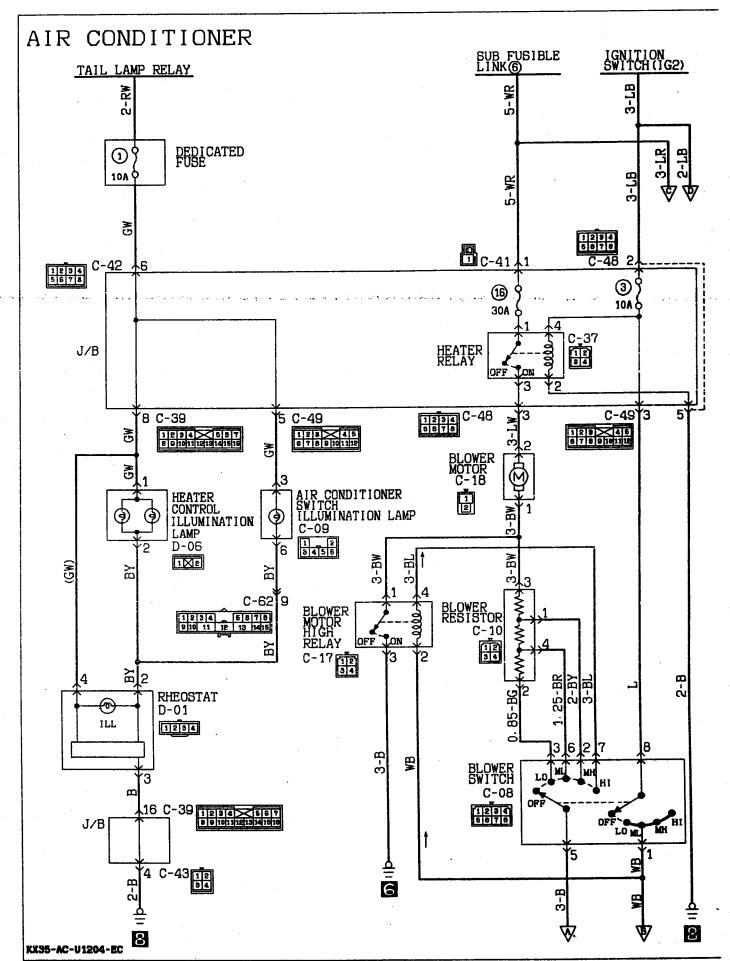
## TROUBLESHOOTING HINTS (Condenser fan and radiator fan control)

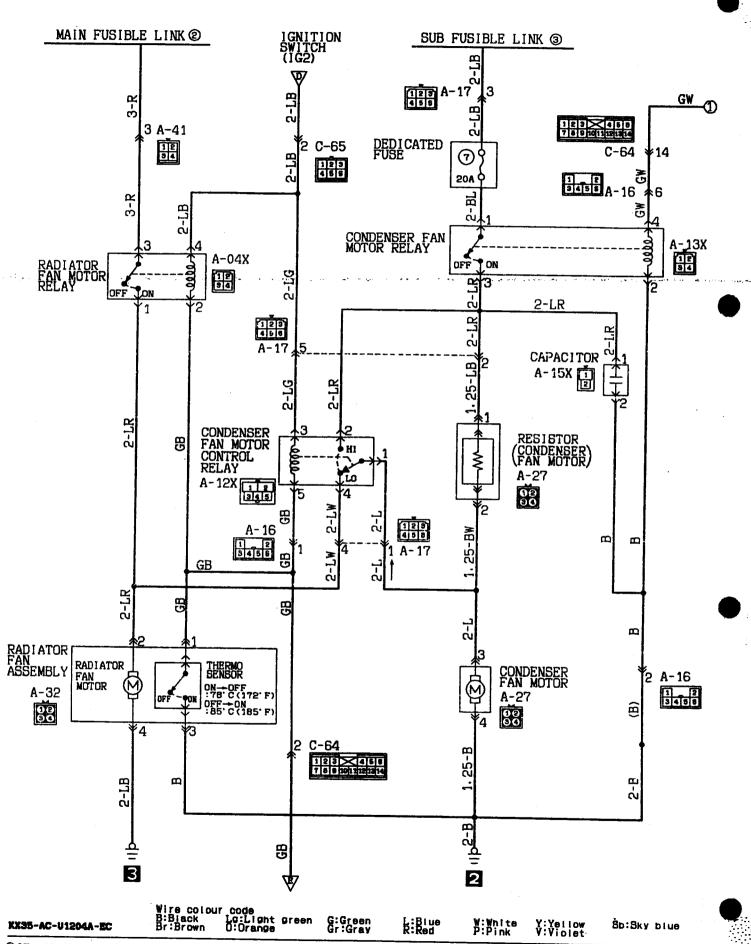
• See COOLING SYSTEM (P. 4-23.)

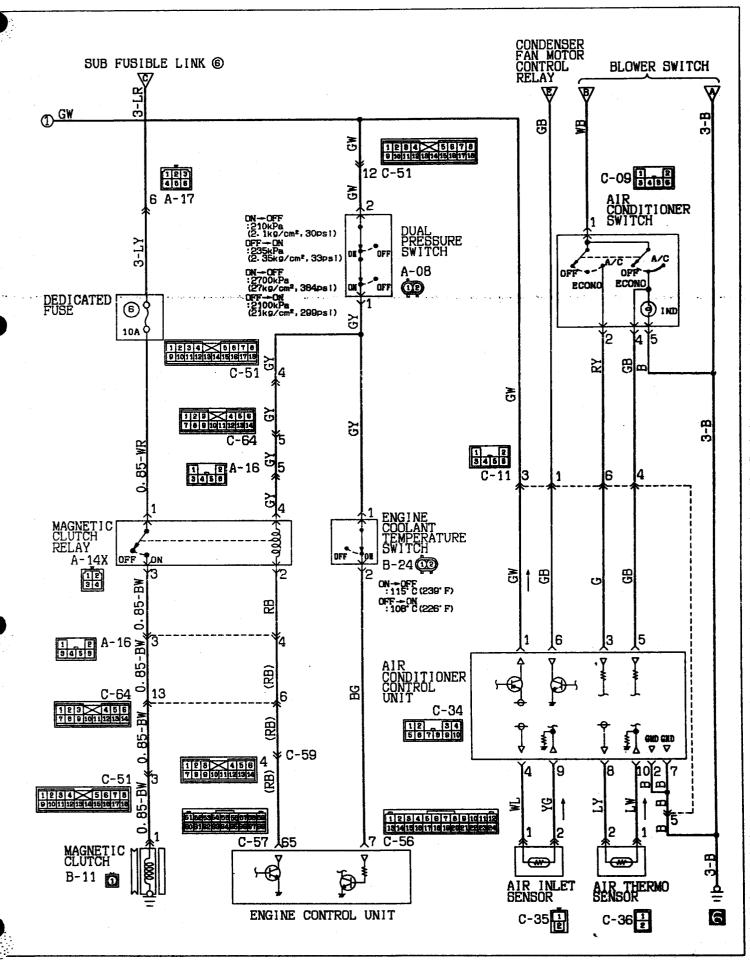
## (Compressor control)

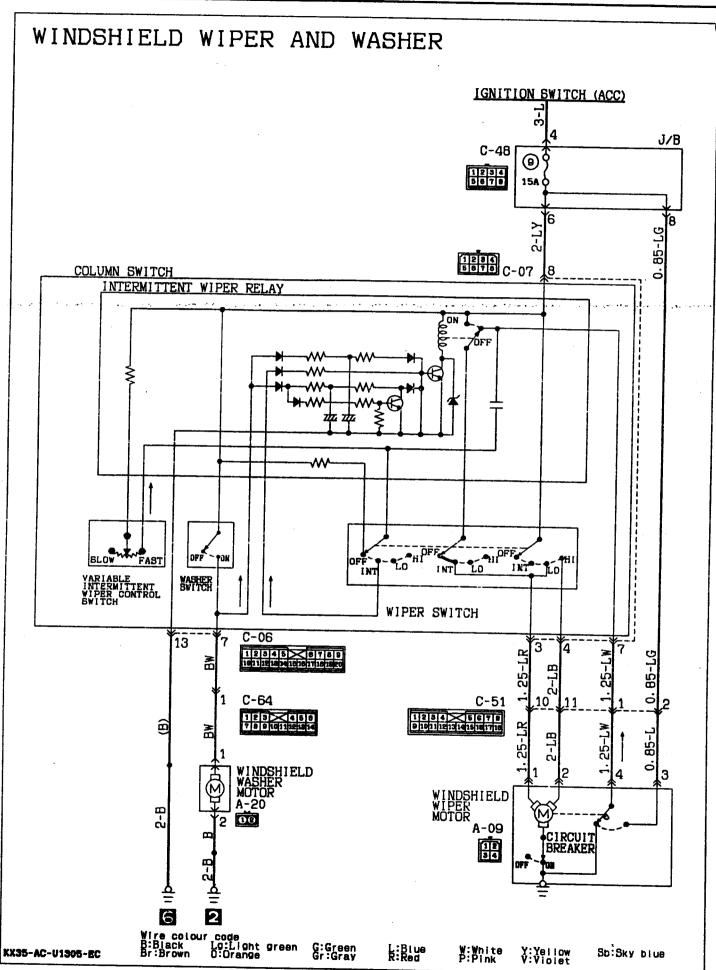
 See the Troubleshooting in Group 55 of the separate WORKSHOP MANUAL (Pub. No. PWUE9010)











## WINDSHIELD WIPER AND WASHER (See P. 4-62.)

## OPERATION (Low-speed (and high-speed) wiper operation)

- 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.

## (Auto wiper stop operation)

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

### (Intermittent wiper operation)

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

## **(Washer-Wiper operation)**

 When the washer switch is turned ON, the intermittent wiper relay contacts close causing wipers to cycle two to three times.

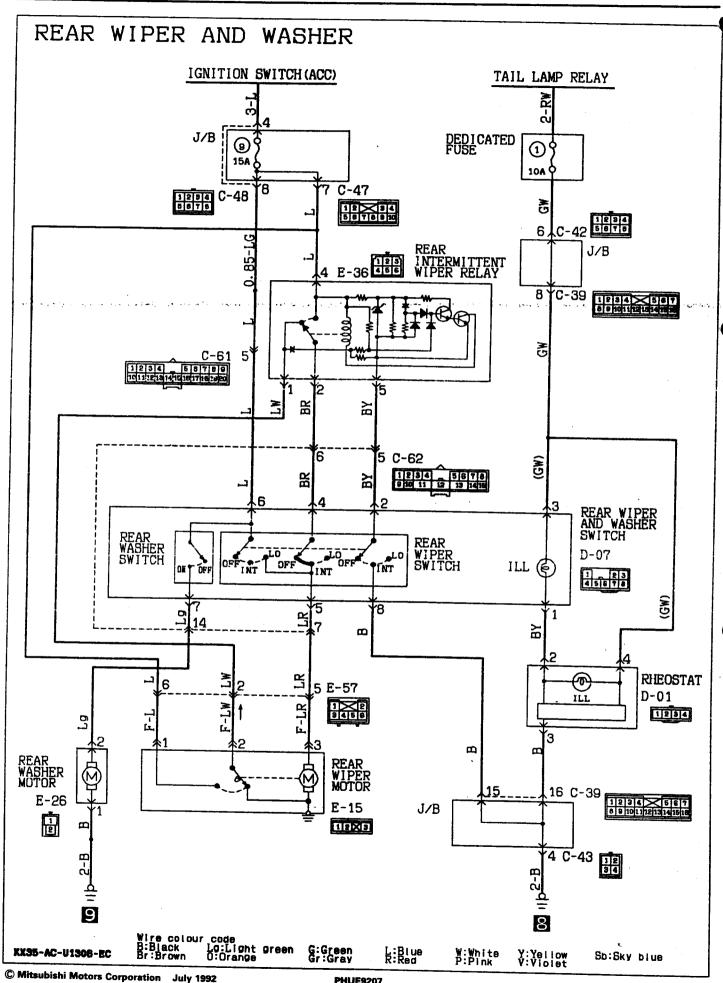
#### Remark

• The washer-wiper operates in the priority even during intermittent operation of the wiper.

- 1. Wipers do not operate.
  - 1) Washer is not operative, either.
    - · Check multi-purpose fuse No. 9.
    - · Check earth.
- 2. Low-speed (or high-speed) wiper operation only is inoperative.
  - · Check wiper switch.
- 3. Wipers do not stop.
  - Check wiper motor.
  - · Check intermittent wiper relay.
  - · Check wiper switch.
- 4. Intermittent wiper operation is inoperative.
  - Check terminal voltage of steering-column switch (with a built-in intermittent wiper relay) with the intermittent wiper relay energized.

	Terminal No.	Voltage	Check	
	3	0V	Intermittent wiper relay or wiper switch	
		System voltage	Intermittent wiper relay	
		0V → System voltage (alternating)	— (Normal)	

- 5. The length of pause for intermittent operation cannot be varied.
  - Check variable intermittent wiper control switch.
  - Check intermittent wiper relay.
- 6. Washer is inoperative.
  - 1) Wiper is operative on washer-wiper operation.
    - Check washer motor.
  - 2) Washer-wiper operation is inoperative also.
    - Check washer switch.
- 7. Washer-wiper operation is inoperative.
  - Check intermittent wiper relay.



## REAR WIPER AND WASHER (See P. 4-64.)

### **OPERATION**

## **(Low-speed wiper operation)**

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

### (Auto wiper stop operation)

 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.

## (Intermittent wiper operation)

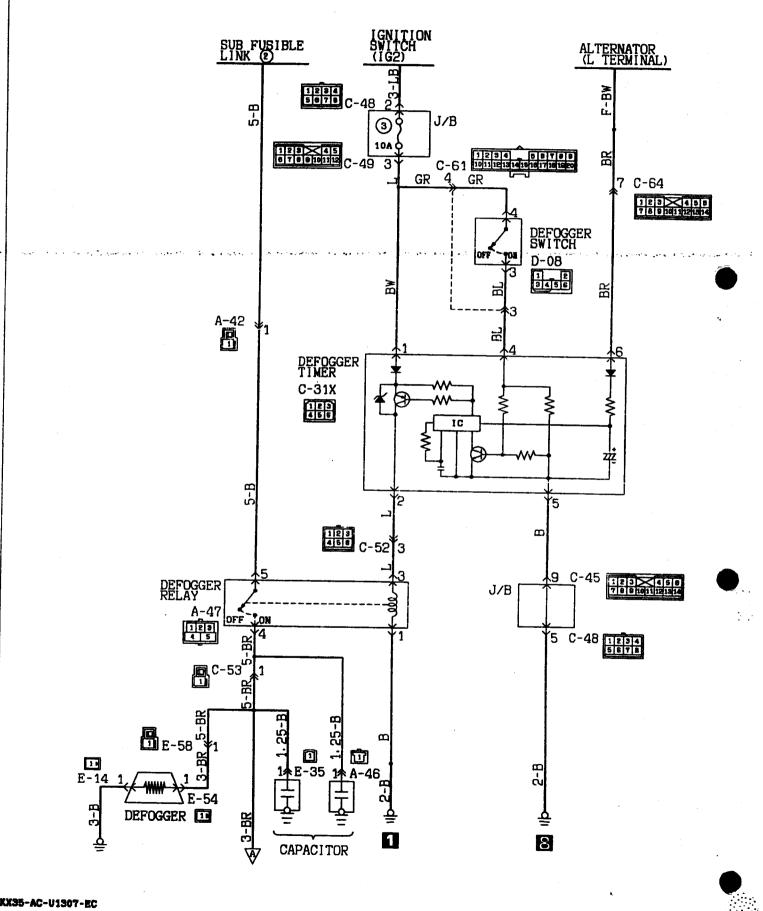
- When the wiper switch is placed in the INT position with the ignition switch in ACC or ON position, the intermittent wiper relay is energized causing the intermittent wiper relay contacts to close and open repeatedly.
- When the contacts are closed, the wiper motor is energized.
- When the wiper motor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

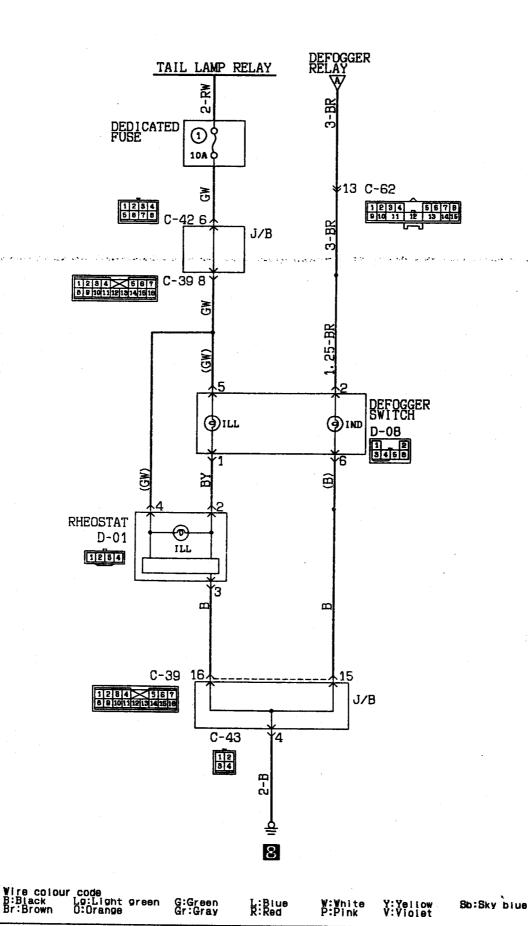
- 1. Wipers do not operate.
  - 1) Washer is not operative, either.
    - Check multi-purpose fuse No. 9.
  - 2) Washer is operative.
    - · Check wiper motor.
    - · Check wiper switch.
    - · Check intermittent wiper relay.
- 2. Wipers do not stop.
  - · Check wiper motor.
  - Check intermittent wiper relay.
  - · Check wiper switch.
- 3. Intermittent wiper operation is inoperative.
  - Check terminal voltage of the rear wiper switch when the intermittent wiper relay is energized.

· · ·		
Terminal No.	Voltage	Check
	0 V	Intermittent wiper relay or wiper switch
8	System voltage	Intermittent wiper relay
	0 V ← System voltage (alternating)	— (Normal)

- 4. Washer is inoperative.
  - 1) Washer is operative.
    - Check washer motor.
    - · Check washer switch.

## DEFOGGER





## DEFOGGER (See P. 4-66.)

### **OPERATION**

- When the defogger switch is turned ON with the ignition switch in ON position, the defogger relay is energized causing defogger to operate.
- At the same time, the defogger indicator lamp lights up indicating that the defogger is in operation.
- The defogger timer keeps the defogger relay remaining energized for 11 minutes after the defogger switch has been turned ON. If the defogger switch is pushed a second time during this 11 min. period, timer is cancelled and the defogger is turned off.

#### TROUBLESHOOTING HINTS

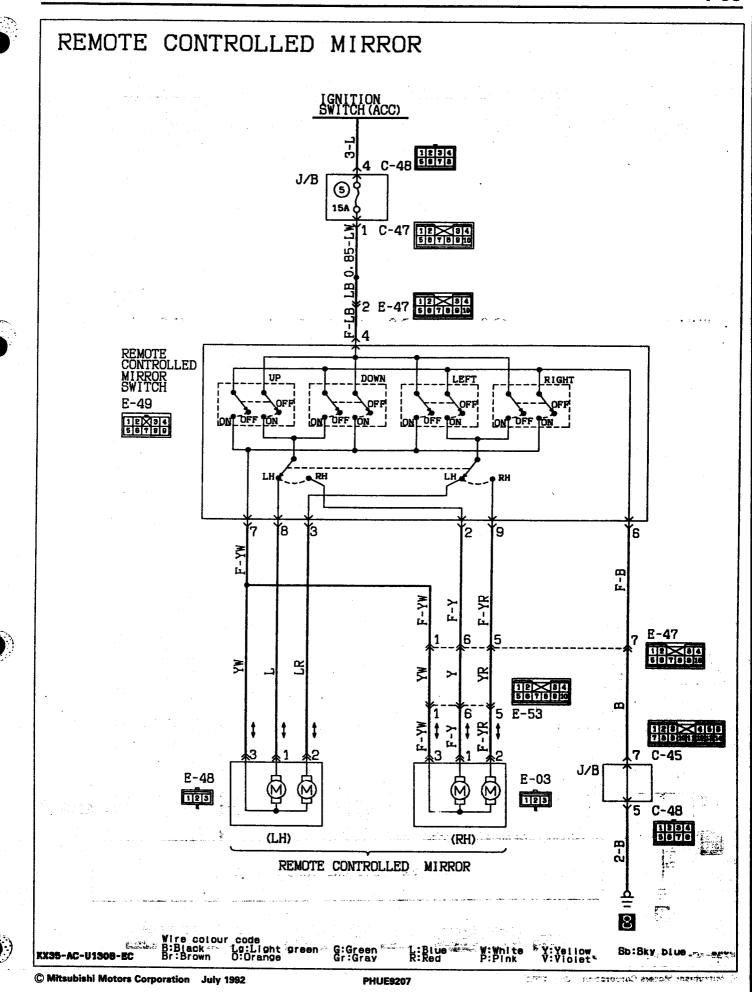
- 1. Defogger is inoperative.
  - 1) Indicator does not come on, either.
    - Check multi-purpose fuse No. 3.
    - Check sub fusible link No. 2.
    - · Check defogger switch.
    - Check defogger relay.
    - · Check defogger timer.
  - 2) Indicator comes on.
    - · Check defogger.
- 2. Defogger timer is inoperative.
  - · Check defogger timer.

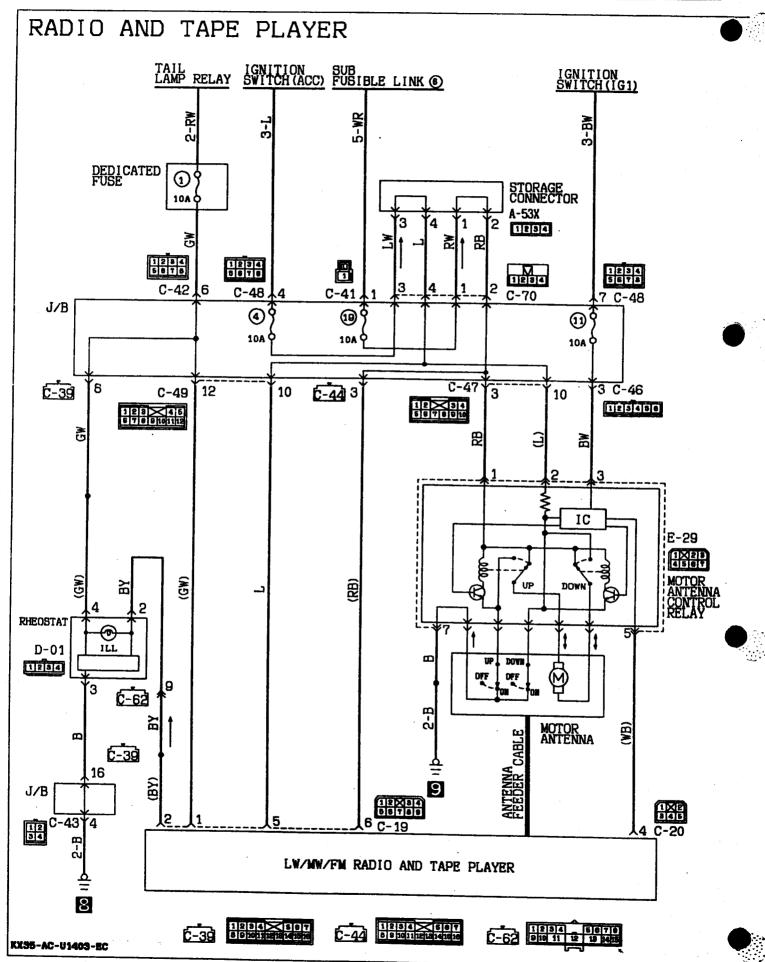
## REMOTE CONTROLLED MIRROR (See P. 4-69.)

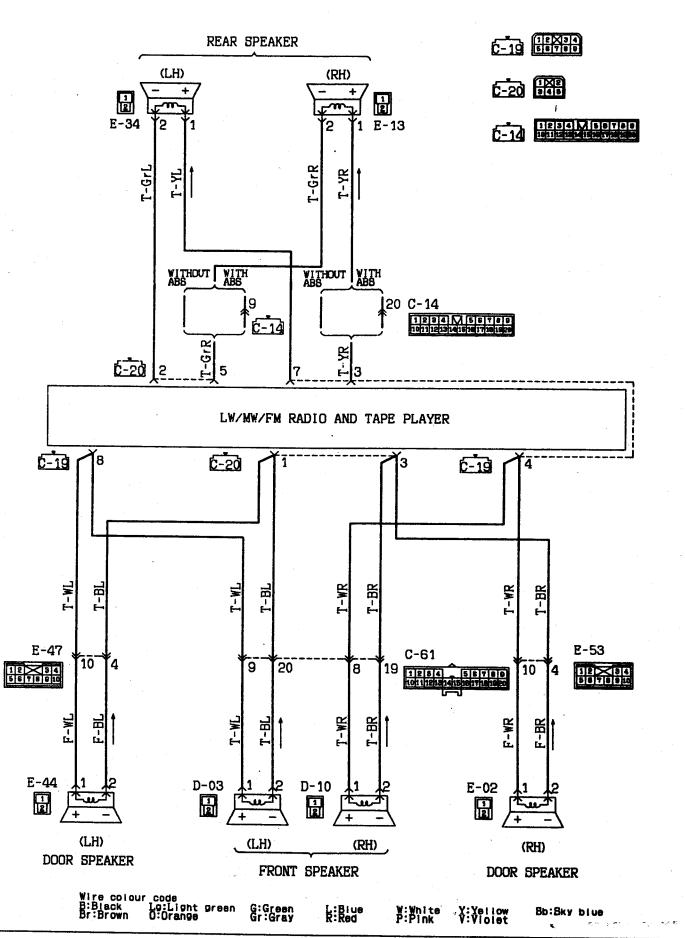
## **OPERATION**

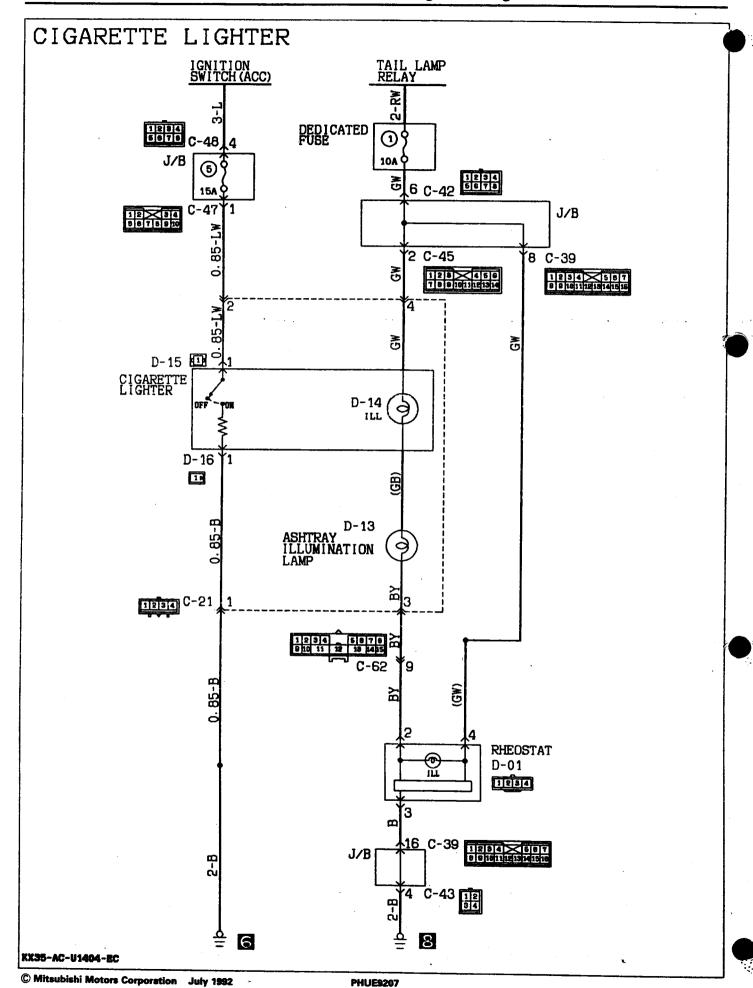
 When the remote controlled mirror switch is operated with the ignition switch in ACC or ON position, the motor is started allowing the driver to adjust the orientation of the mirror surface.

- 1. LH and RH mirrors do not move.
  - 1) Cigarette lighter is also inoperative.
    - Check multi-purpose fuse No. (5).
  - 2) Cigarette lighter is operative.
    - · Check remote controlled mirror switch.

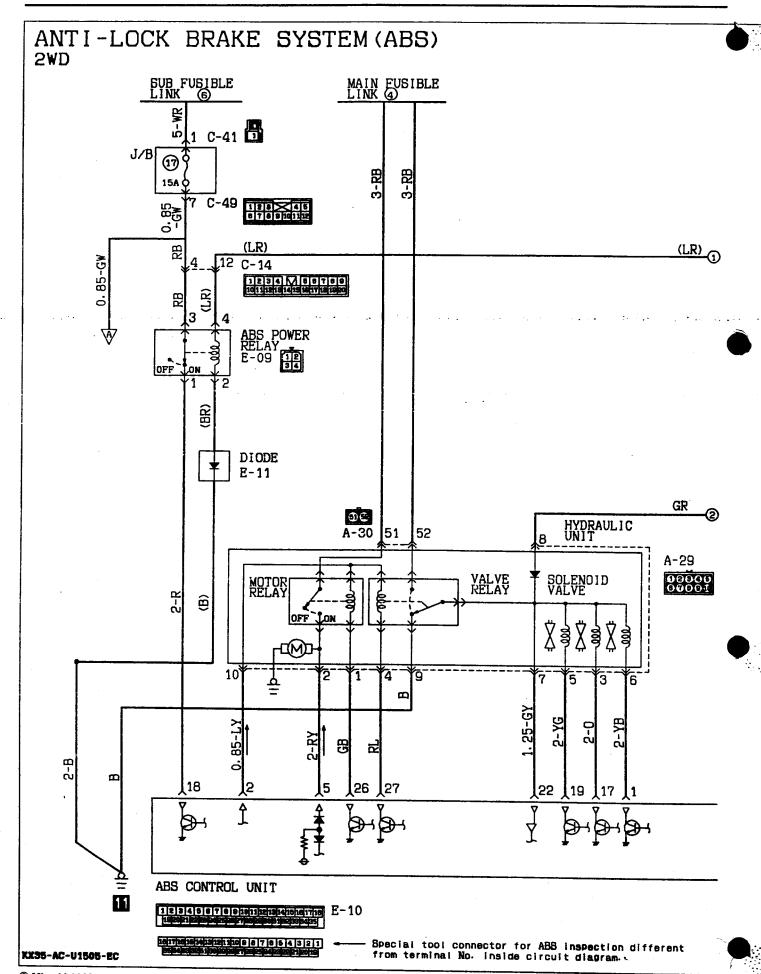


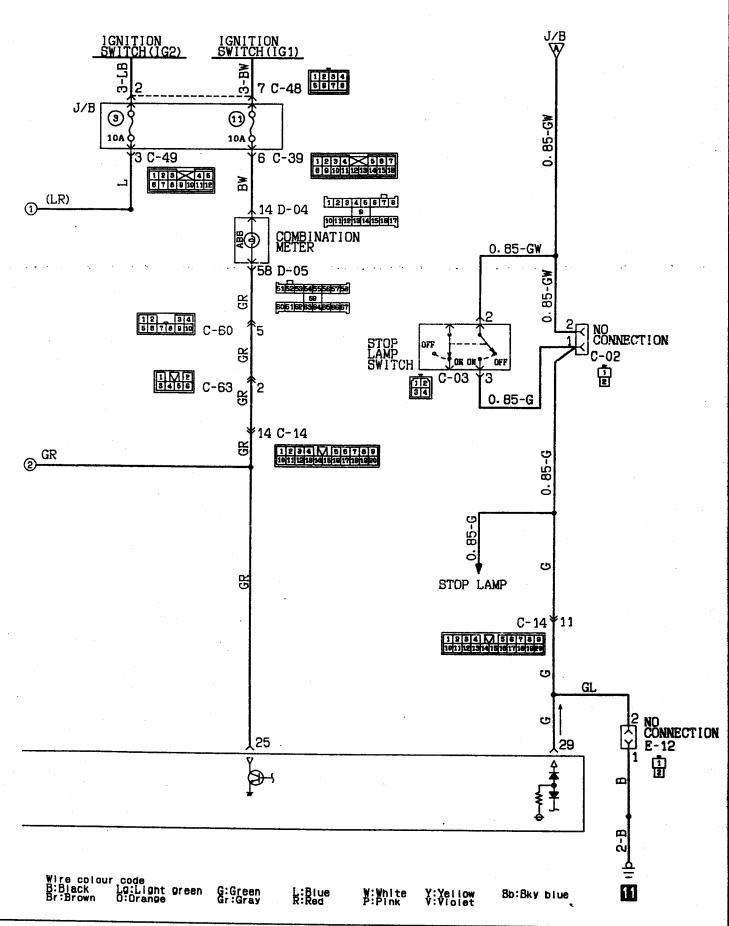


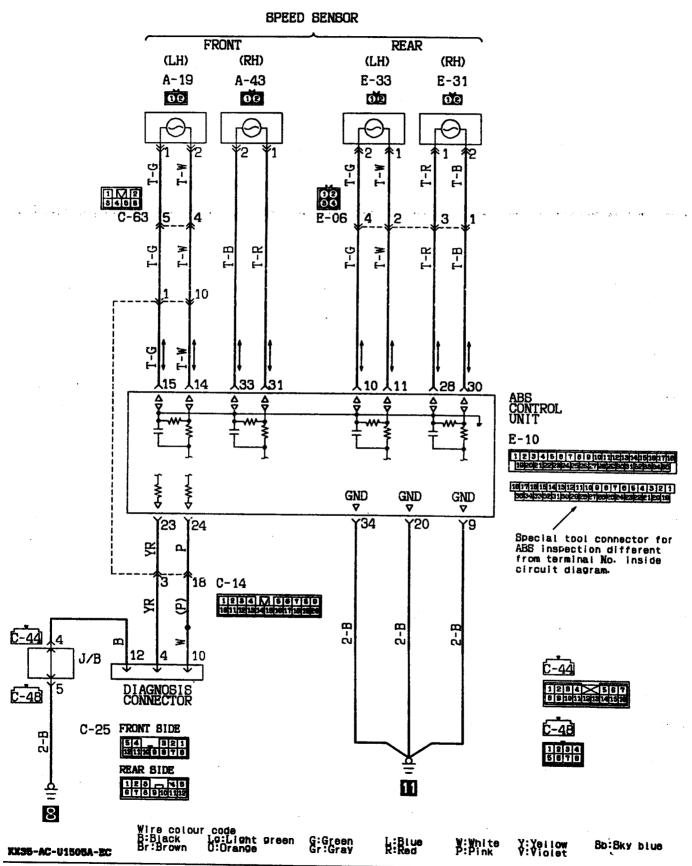


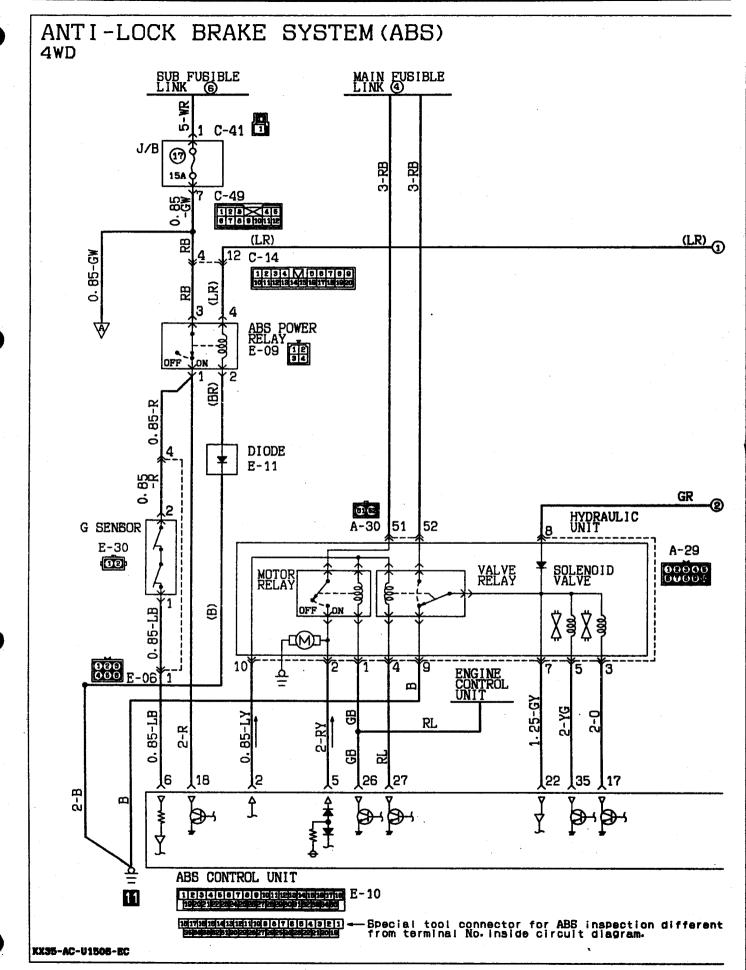


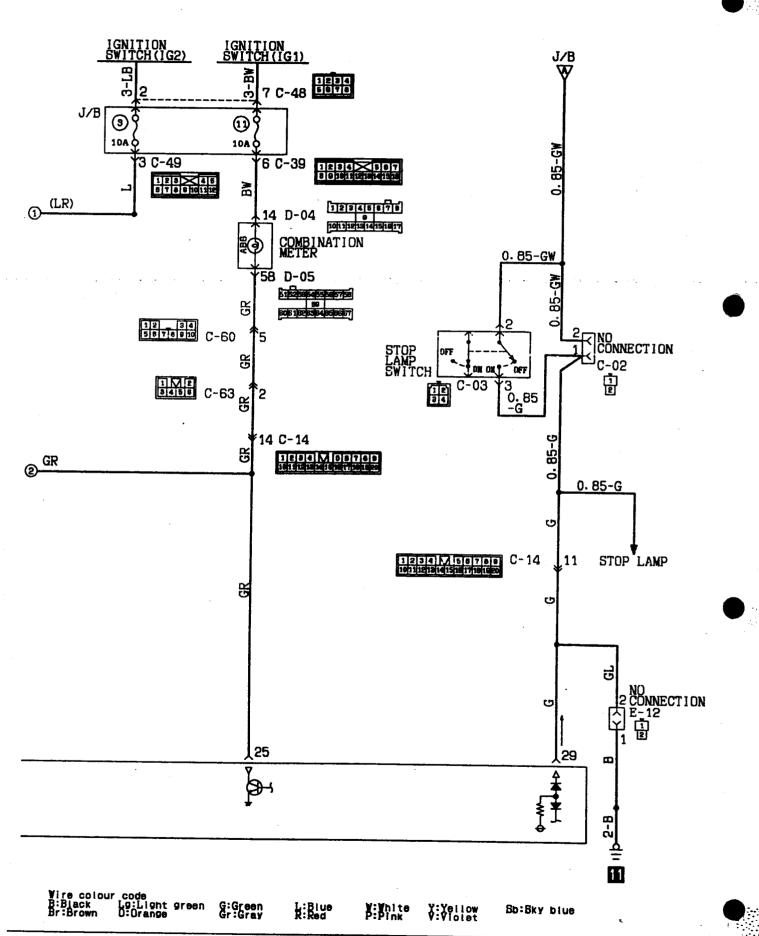
**NOTES** 

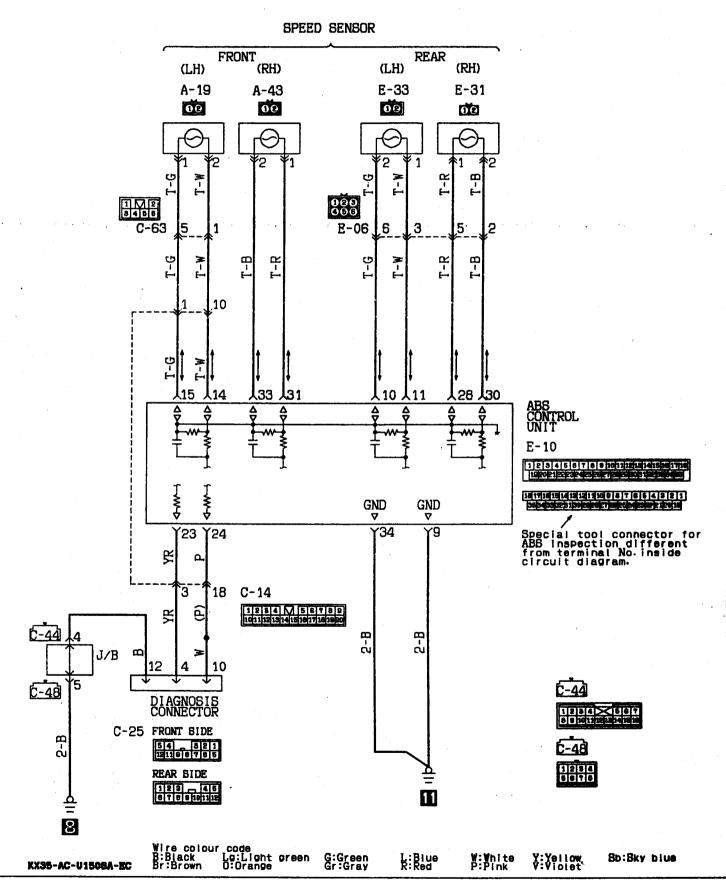


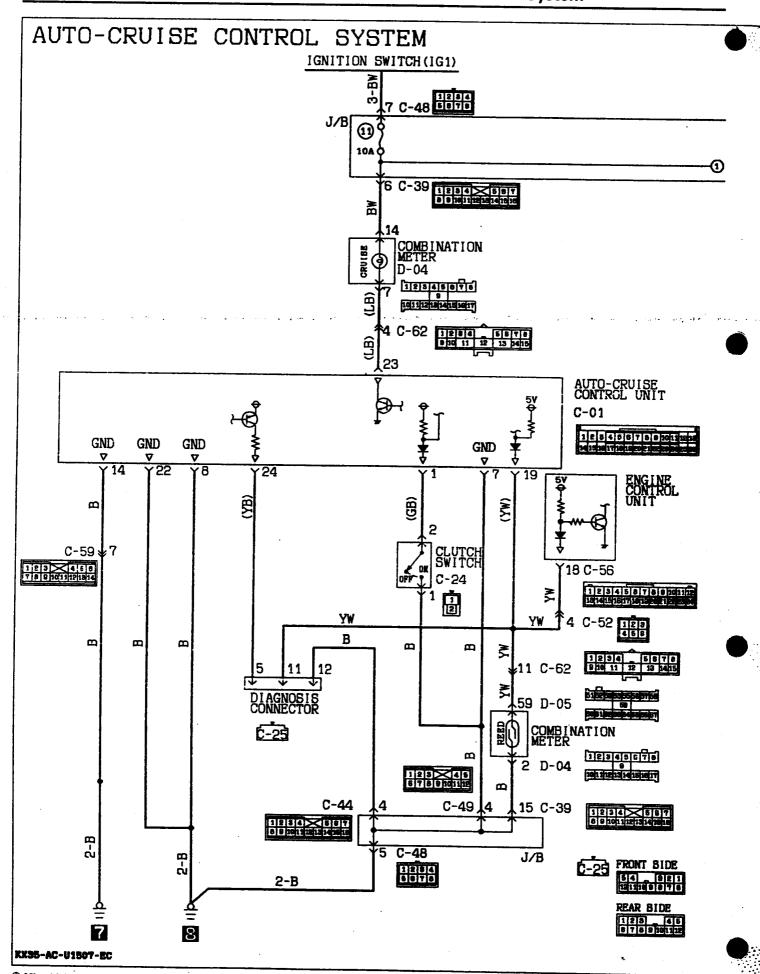


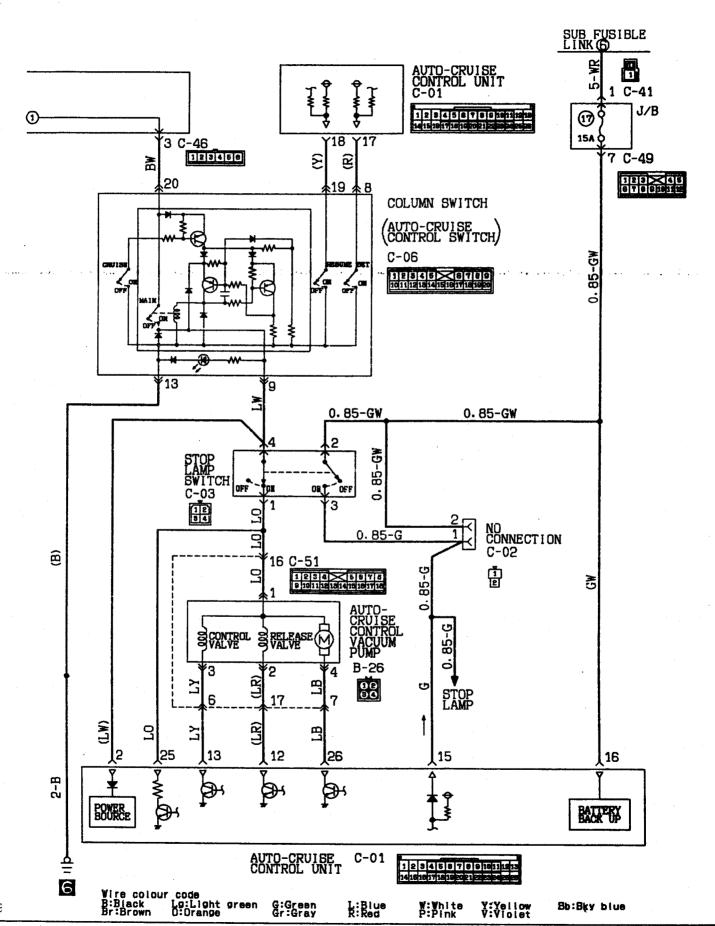


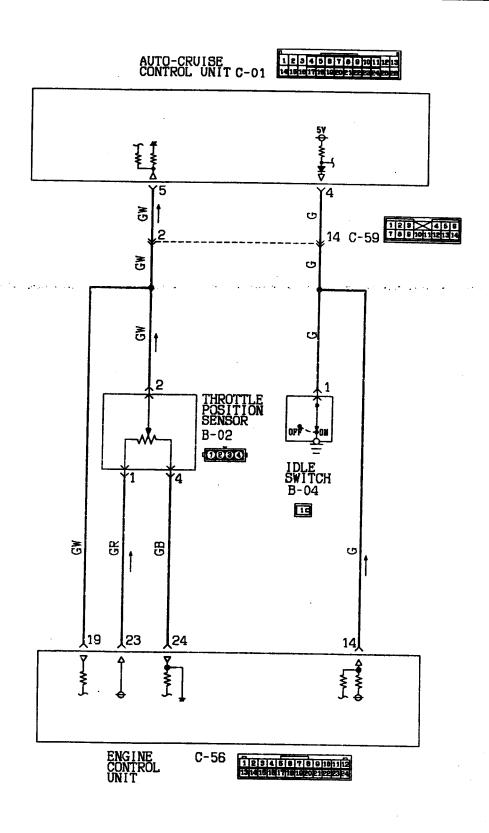












KX35-AC-U1507A-EC

Wire colour code B:Black Lg:Light green Br:Brown O:Orange

G:Green Gr:Gray L:Blue R:Red

W:White P:Pink

Y:Yellow V:Violet Sb:Sky blue

# LIGHTING MONITOR BUZZER AND KEY REMINDER BUZZER (See P. 4-84.) (Lighting monitor buzzer)

#### **OPERATION**

- When the lighting switch is in the TAIL or HEAD position and the ignition key is removed, the key reminder switch installed in the ignition switch turns ON.
- · In this condition, when the driver's side door is opened, the door switch (L.H.) turns ON and the buzzer sounds continuously to inform the driver that a lamp has been left on.

### (Key reminder buzzer) **OPERATION**

· When the ignition switch is in the OFF position and the driver's side door is opened, the door switch (L.H) turns ON and the buzzer sounds intermittently to remind the driver to remove the ignition key.

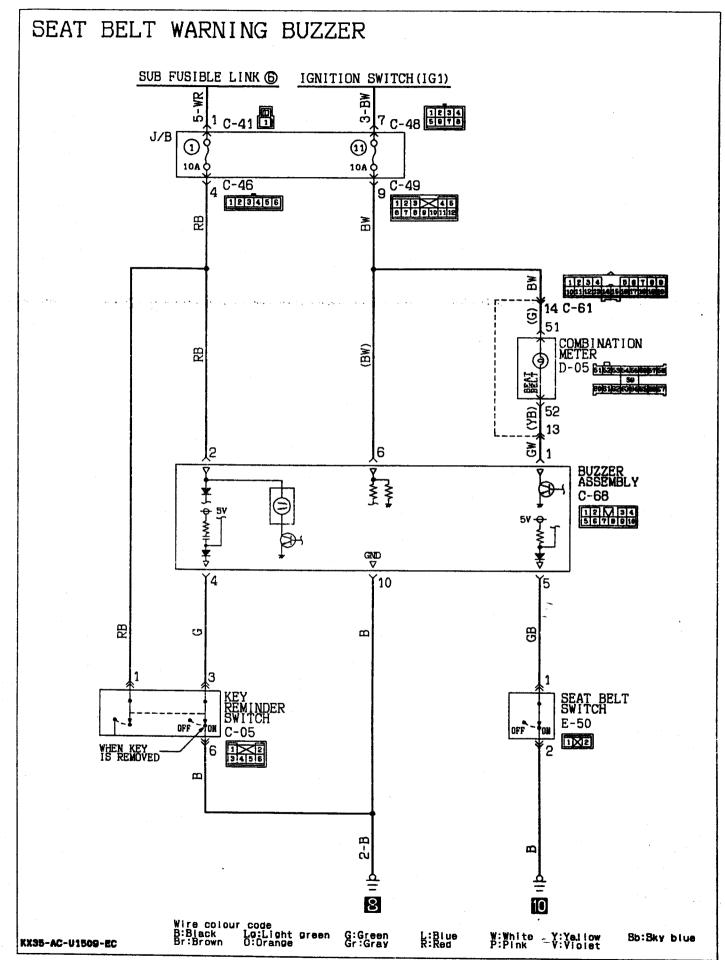
#### TROUBLESHOOTING HINTS

- 1. Lighting monitor buzzer does not sound.
  - 1) Key reminder buzzer sounds.
    - Check key reminder switch.
  - 2) Seat belt warning buzzer sounds.
    - · Check door switch (driver's side).
  - 3) Key reminder buzzer does not sound either.
    - Check multi-purpose fuse No. ①.
    - · Check buzzer assembly.

### TROUBLESHOOTING HINTS

- 1. Key reminder buzzer does not sound.
  - 1) Lighting monitor buzzer sounds.
    - Check key reminder switch.
  - 2) Seat belt warning buzzer sounds.
    - · Check door switch (driver's side).
  - 3) Lighting monitor buzzer does not sound either.
    - Check multi-purpose fuse No. ①.
    - · Check buzzer assembly.

# LIGHTING MONITOR BUZZER AND KEY REMINDER BUZZER SUB FUSIBLE LINK (6) IGNITION SWITCH (IG1) TAIL LAMP RELAY 7 C-48 [1234] 5-WR 2-RW <sup>1</sup> C-41 J/B DEDICATED FUSE ① 1 10A 10A 10A 9 C-49 C-46 123466 图 6 C-42 518 TIB J/B 4 C-47 5678910 (BW) 盟 ₹ ĕ ₹ REAR COMBINATION LAMP (TAIL: LH) C-68 ŒND 10 RB O $\mathbf{\omega}$ OFF JON WHEN KEY IS REMOVED 1127 L:Blue R:Red W:White P:Pink Y:Yellow V:Violet · Bb:Sky blue KX35-AC-U1508-EC



## SEAT BELT WARNING BUZZER (See P. 4-85.)

#### **OPERATION**

- When the ignition switch is in the ON position, the seat belt warning lamp illuminates for approximately 6 seconds by means of the function of the timer inside the buzzer assembly and the seat belt warning buzzer simultaneously sounds for approximately 6 seconds.
- When the seat belt is latched in this condition, the seat belt switch turns OFF and the buzzer stops sounding.

### TROUBLESHOOTING HINTS

- 1. Seat belt warning lamp does not illuminate.
  - 1) Buzzer sounds.
    - · Check lamp bulb.
    - · Check seat belt switch.
  - 2) Buzzer does not sound either.
    - Check multi-purpose fuse No. 1, 1.
    - · Check buzzer assembly.
  - 3) Key reminder buzzer does not sound either.
    - · Check key reminder switch.