HOW TO USE THIS MANUAL

E01BAAV

SCOPE OF MAINTENANCE, REPAIR AND SERVICING EXPLANATIONS

This manual provides explanations, etc. concerning procedures for the inspection, maintenance, repair and servicing of the subject model. Note, however, that for engine and transmission-related component parts, this manual covers only on-vehicle inspections, adjustments, and the removal and installation procedures for major components. For detailed information concerning the inspection, checking, adjustment, disassembly and reassembly of the engine, transmission and major components after they have been removed from the vehicle, please refer to the separate manuals covering the engine and the transmission.

SERVICE ADJUSTMENT PROCEDURES

"Service adjustment procedures" are procedures for performing inspections and adjustments of particularly important locations with regard to the construction and for maintenance and servicing, but other inspections (for looseness, play, cracking, damage, etc.) must also be performed.

INSPECTION

Under this title are presented inspection and checking procedures to be performed by using special tools and measuring instruments and by feeling, but, for actual maintenance and servicing procedures, visual inspections should always be performed as well.

DEFINITION OF TERMS

STANDARD VALUE

Indicates the value used as the standard for judging the quality of a part or assembly on inspection or the value to which the part or assembly is corrected and adjusted. It is given by tolerance.

LIMIT

Shows the standard for judging the quality of a part or assembly on inspection and means the maximum or minimum value within which the part or assembly must be kept functionally or in strength. It is a value established outside the range of standard value.

REFERENCE VALUE

Indicates the adjustment value prior to starting the work (presented in order to facilitate assembly and adjustment procedures, and so they can be completed in a shorter time).

CAUTION

Indicates the presentation of information particularly vital to the worker during the performance of maintenance and servicing procedures in order to avoid the possibility of injury to the worker, or damage to component parts, or a reduction of component or vehicle function or performance, etc.

INDICATION OF TIGHTENING TORQUE

The tightening torque shown in this manual is a basic value with a tolerance of ±10% except the following cases when the upper and lower limits of tightening torque are given.

(1) The tolerance of the basic value is within ±10%.
(2) Special bolts or the like are in use.
(3) Special tightening methods are used.

MODEL INDICATIONS

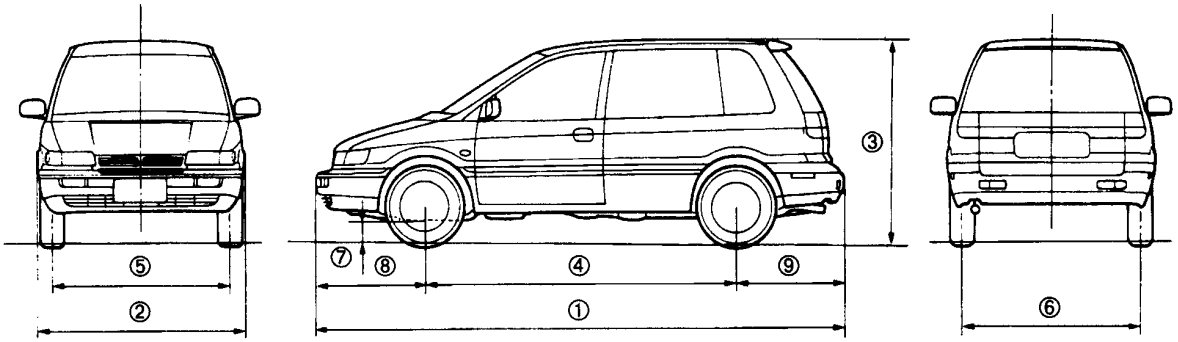
The following abbreviations are used in this manual for classification of model types.

M/T: Indicates the manual transmission, or models equipped with the manual transmission.
A/T: Indicates the automatic transmission, or models equipped with the automatic transmission.
2WD: Indicates the front wheel-drive vehicles.
4WD: Indicates the 4 wheel-drive vehicles.
MPI: Indicates the multi-point injection, or engines equipped with the multi-point injection.

MAJOR SPECIFICATIONS <Vehicles built up to May, 1992>

E01FA–

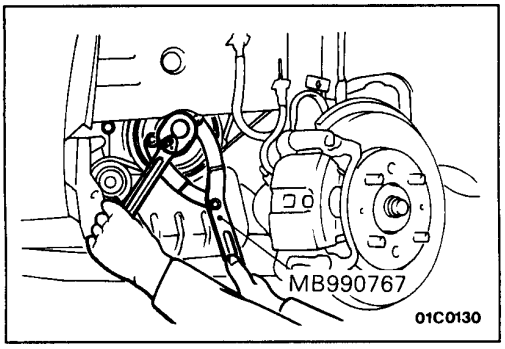
<SPACE RUNNER>



66C0031

Items \ Model	N11W			N21W
	SNJEL6/R6	SNUEL6/R6 SNUEBR6	SRUEL6/R6 SRUEBR6	SNUEL6/R6
Dimensions mm (in.)				
Overall length ①		4,290 (168.9)		4,290 (168.9)
Overall width ②		1,695 (66.7)		1,695 (66.7)
Overall height (unladen) ③		1,625 (64.0) or 1,640 (64.6)*1		1,640 (64.6) or 1,680 (66.1)*1
Wheelbase ④		2,520 (99.2)		2,520 (99.2)
Track – front ⑤		1,460 (57.5)		1,455 (57.3)
Track – rear ⑥		1,460 (57.5)		1,460 (57.5)
Ground clearance (laden) ⑦		120 (4.7)		120 (4.7)
Overhang – front ⑧		895 (35.2)		895 (35.2)
Overhang – rear ⑨		875 (34.4)		875 (34.4)
Weight kg (lbs.)				
Kerb weight*2	1,175–1,279 (2,590–2,820)	1,185–1,288 (2,612–2,840)	1,205–1,308 (2,657–2,884)	1,280–1,379 (2,822–3,040)
Gross vehicle weight	1,720 (3,792)	1,720 (3,792)	1,720 (3,792)	1,800 (3,968)
Max. axle weight				
front	930 (2,050)	930 (2,050)	930 (2,050)	950 (2,094)
rear	910 (2,006)	910 (2,006)	910 (2,006)	980 (2,161)
Seating capacity	5			
Engine				
Model	4G93			
Total displacement cm^3 (cu. in.)	1,834 (111.9)			
Transmission				
Model	F5M22		F4A22	W5M31
Type	5-speed manual		4-speed automatic	5-speed manual

NOTE
*1: with roof rail
*2: without optional parts – with full optional parts

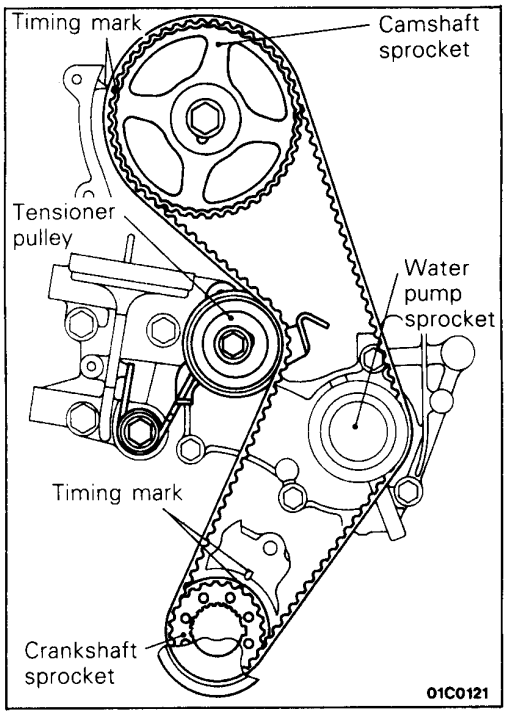


SERVICE POINTS OF REMOVAL E11GBHA

5. REMOVAL OF CRANKSHAFT BOLT /6. CRANKSHAFT PULLEY

Use the special tool to stop the crankshaft pulley from turning, and remove the crankshaft bolt.

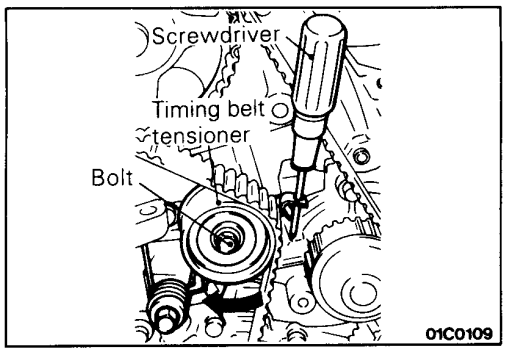
Caution
Hold the special tool securely so that it doesn't move.



10. REMOVAL OF TIMING BELT

(1) Turn the crankshaft clockwise (right turn) to align each timing mark and to set the No. 1 cylinder at compression top dead centre.

Caution
The crankshaft should always be turned only clockwise.

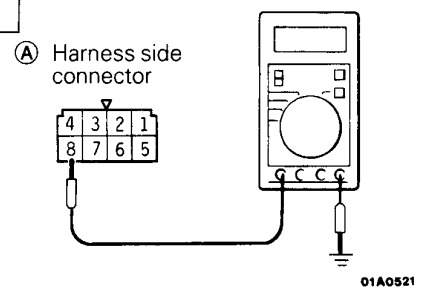


(2) Loosen the timing belt tensioner bolt.
(3) Set a screwdriver to the timing belt tensioner and press it fully back in the direction of the arrow.
(4) Provisionally tighten the timing belt tensioner bolt.
(5) Remove the timing belt.

Caution
If the timing belt is to be re-used, use chalk to mark the flat side of the belt with an arrow indicating the direction of rotation (right turn).

HARNESS INSPECTION

1

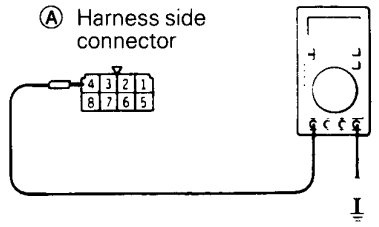


Measure the power supply voltage of the control relay.
- Control relay connector: Disconnected

Ignition switch	Voltage (V)
OFF	0 – 1
ON	SV

OK → 2
Repair the harness. (Ignition switch – Ⓐ8) or check the Ignition switch.

2

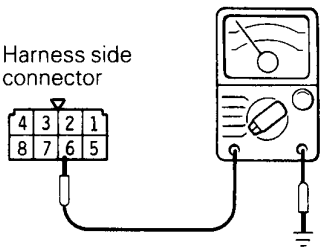


Measure the power supply voltage of the control relay.
- Control relay connector: Disconnected

Voltage (V)
SV

OK → 3
Repair the harness. (Battery – Ⓐ4)

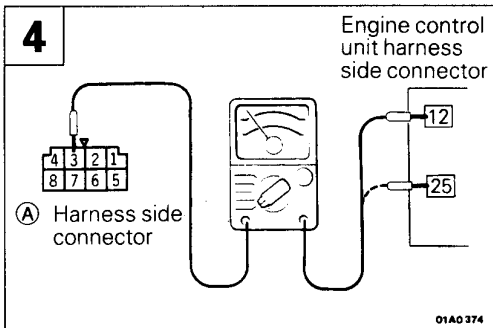
3



Check for continuity of the earth circuit.
- Control relay connector: Disconnected

OK → 4
Repair the harness. (Ⓐ6 – Earth)

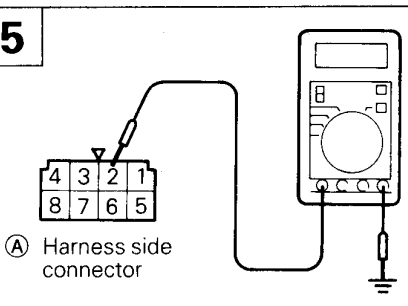
4



Check for open-circuit, or short-circuit to earth, between the engine control unit and the control relay.
- Engine control unit connector: Disconnected
- Control relay connector: Disconnected

OK → 5
Repair the harness. (12 – Ⓐ3) (25 – Ⓐ3)

5

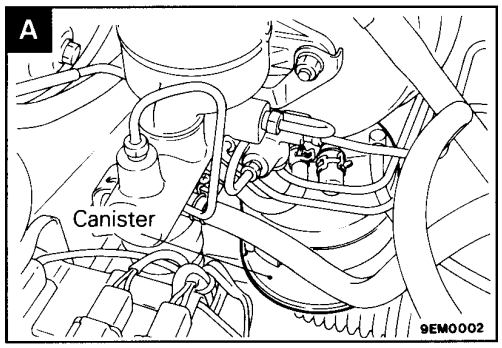


Measure the power voltage to the actuator.
- Control relay connector: Connected
- ECU connector: Connected

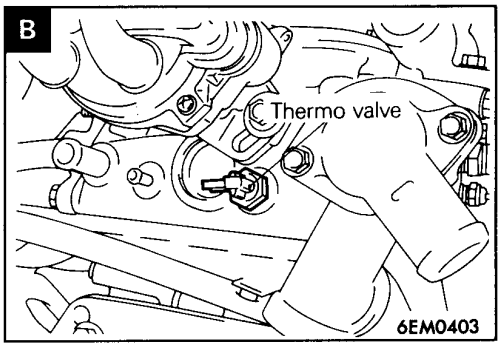
Engine	Voltage [V]
Cranking	8V or more
Racing	SV

OK → STOP
Replace the control relay.

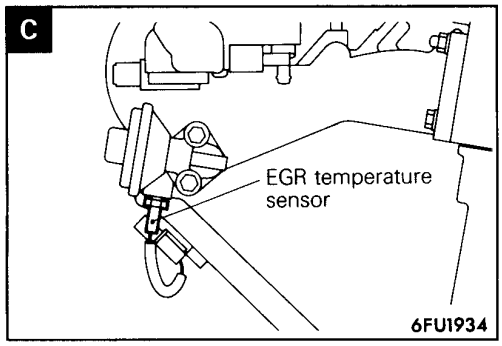
A


Canister
9EM0002

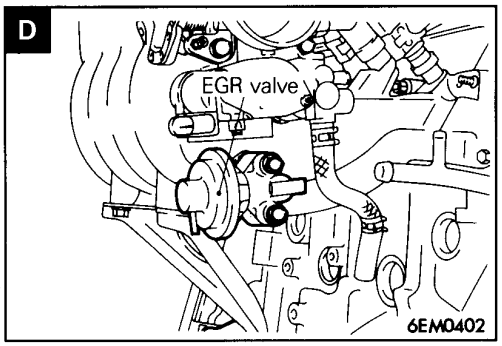
B


Thermo valve
6EM0403

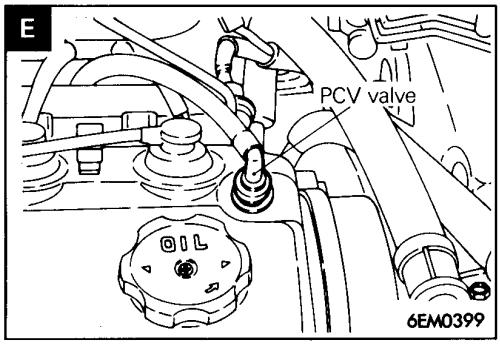
C


EGR temperature sensor
6FU1934

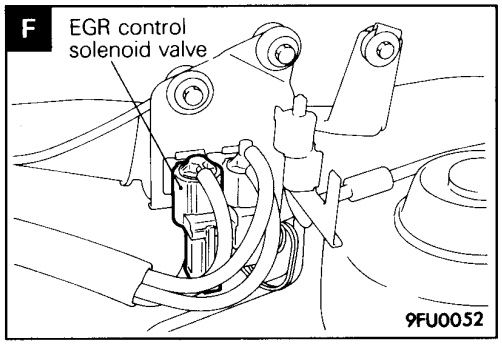
D


EGR valve
6EM0402

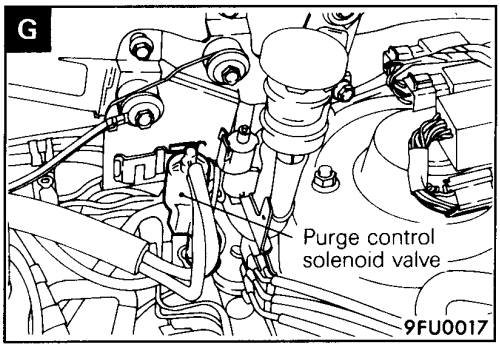
E


PCV valve
OIL
6EM0399

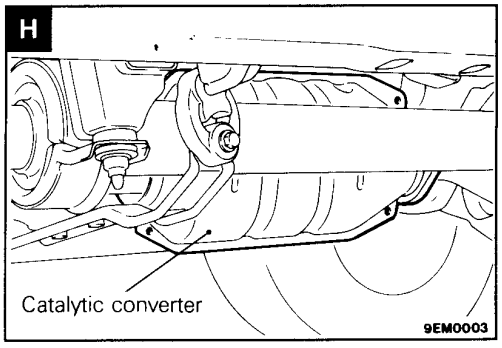
F


EGR control solenoid valve
9FU0052

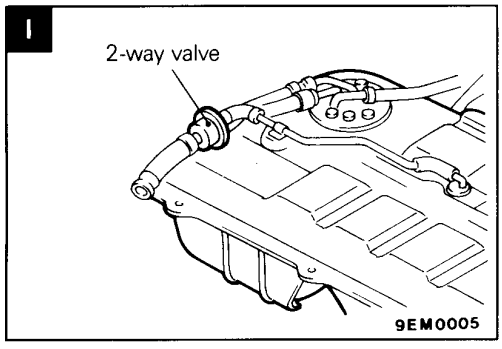
G


Purge control solenoid valve
9FU0017

H


Catalytic converter
9EM0003

I

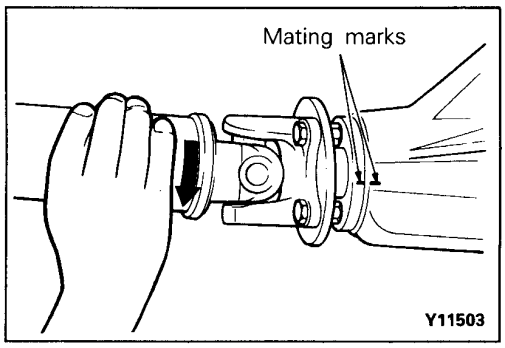

2-way valve
9EM0005

SERVICE ADJUSTMENT PROCEDURES

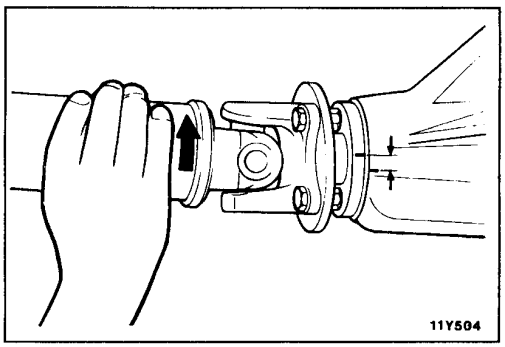
REAR AXLE TOTAL BACKLASH CHECK E27FCAG

If the vehicle vibrates and produces a booming sound due to an imbalance of the driving system, measure the rear axle total backlash by the following procedures to see if the differential carrier assembly requires removal.

(1) Place the gearshift lever in the neutral position, apply the parking brake and jack up the vehicle.



(2) Manually turn the propeller shaft clockwise as far as it will go and make mating marks on the companion flange dust cover and the differential carrier.



(3) Manually turn the propeller shaft counterclockwise as far as it will go and measure the movement of the mating marks.

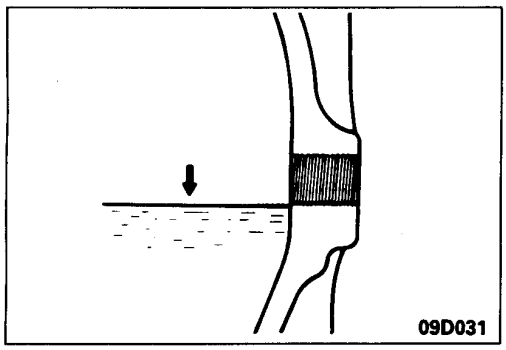
Limit: 5 mm (0.2 in.)

(4) If the backlash exceeds the limit, remove the differential carrier assembly and adjust the backlash. (Refer to P.27-27 and 28.)

GEAR OIL LEVEL CHECK E27FGAG

1. Remove the filler plug, and check the oil level.
2. The oil level is sufficient if it reaches the filler plug hole.

Specified gear oil: Hypoid gear oil SAE No. 90 conforming to API GL-5 or higher [0.7 dm³(0.74 U.S.qts., 0.62 Imp.qts.)]

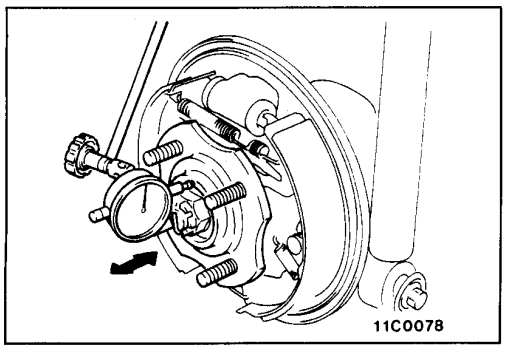


WHEEL BEARING END PLAY CHECK E27FHAE

(1) Release the parking brake.
(2) Remove the brake drum.
(3) For vehicles with ABS, remove the caliper assembly and brake disc.
(4) Place a dial gauge as shown in the figure and then measure the end play when the axle hub is moved in the axial direction.

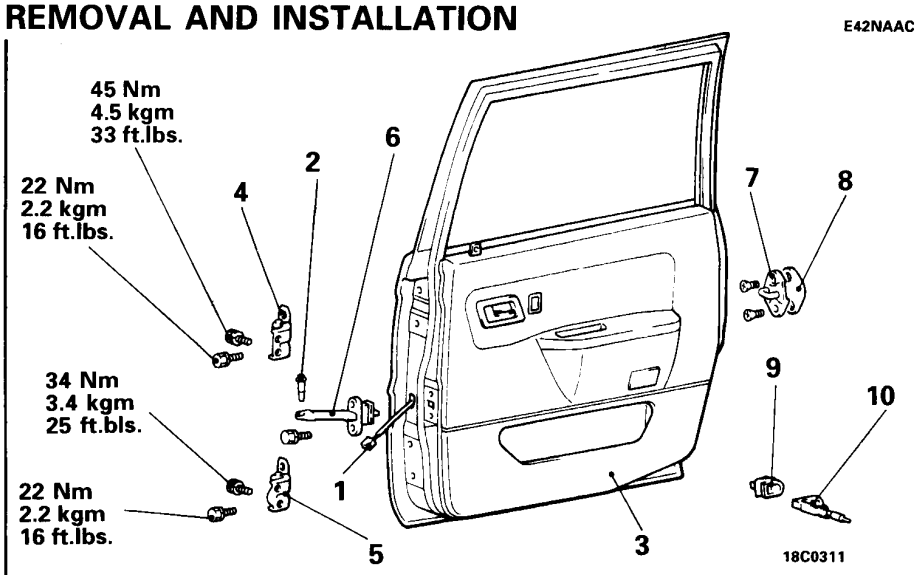
Limit: 0.05 mm (0.002 in.)

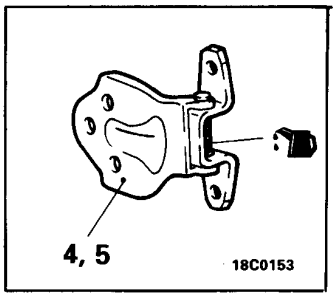
(5) If the play exceeds the limit, replace the wheel bearing.

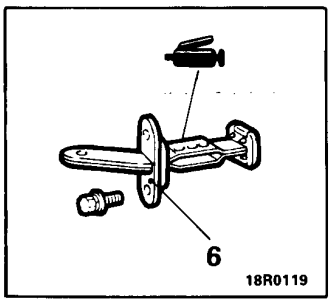


REAR DOOR ASSEMBLY <SPACE WAGON>

REMOVAL AND INSTALLATION







Door assembly removal steps

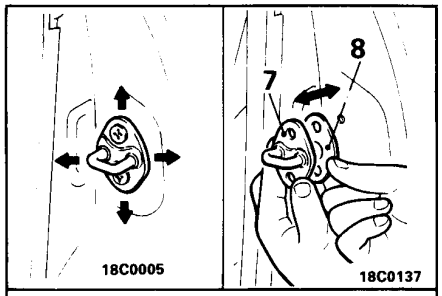
1. Door harness connector
2. Pin
3. Door assembly
4. Door upper hinge
5. Door lower hinge
◆◆6. Door check strap

Striker removal steps

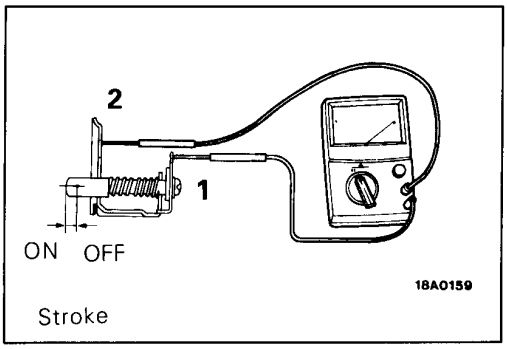
7. Striker
8. Striker shim

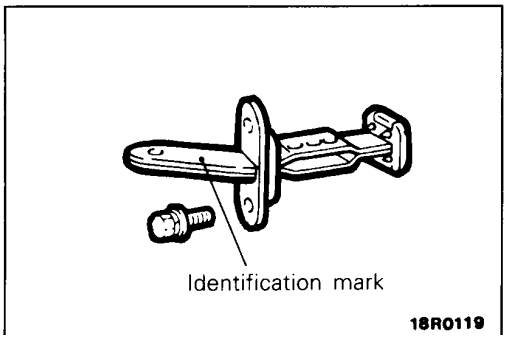
Door switch removal steps

9. Door switch cap
10. Door switch



Adjustment of the door stepping and the door latch linkage





INSPECTION

DOOR SWITCH

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

Switch position \ Terminal	1	2
Open (ON)	○	○
Depressed (OFF)		

NOTE
○—○ indicates there is continuity between the terminals.

SERVICE POINTS OF INSTALLATION

6. INSTALLATION OF DOOR CHECK STRAP

Install the door check strap so that the identification mark faces upwards.

Applicable location	Identification mark
R H	K L
L H	K R

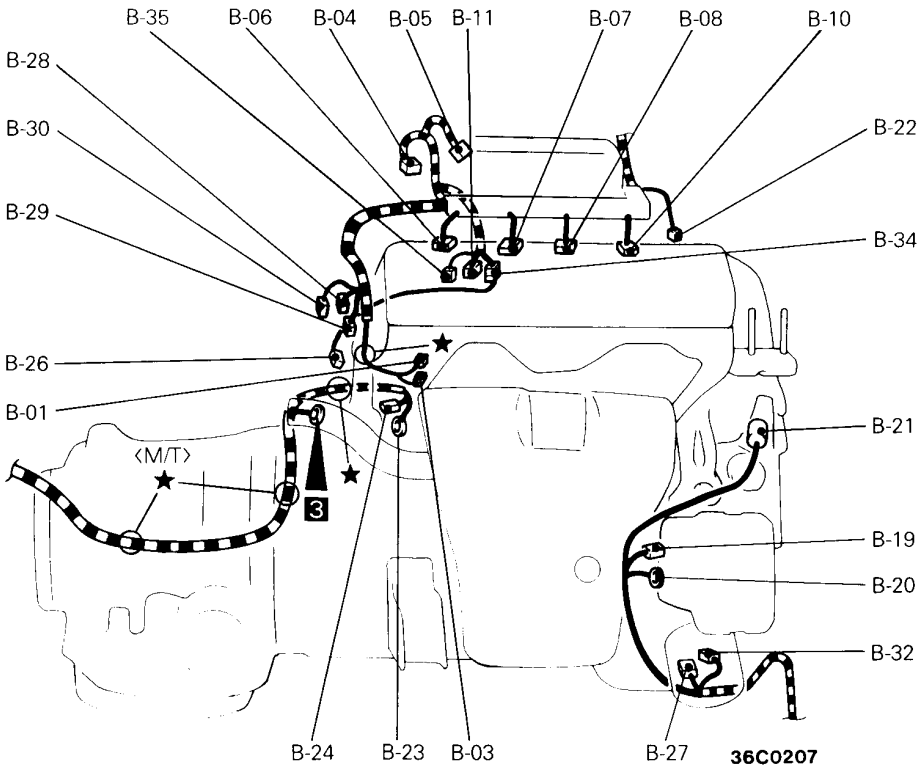
Group/ Page	Revision code	Date	Remarks
LIST OF EFFECTIVE PAGES			
1 thru 2	**B**	**May 1993**	**ADDED**
<1993 models>			
Foreword		Jun. 1992	
1-HOW TO READ THE WIRING DIAGRAMS			
1	**B**	**May 1993**	**REVISED**
2 thru 3		Jun. 1992	
4 thru 7	**B**	**May 1993**	**REVISED**
8		Jun. 1992	
9 thru 12	**B**	**May 1993**	**REVISED**
13	**B**	**May 1993**	**ADDED**
2-WIRING HARNESS CONFIGURATION DIAGRAMS			
1 thru 12		Jun. 1992	
13	A	Jan. 1993	
14 thru 15		Jun. 1992	
16	A	Jan. 1993	
17 thru 19	**B**	**May 1993**	**REVISED**
20 thru 21		Jun. 1992	
22 thru 23	A	Jan. 1993	
24 thru 25		Jun. 1992	
26 thru 27	A	Jan. 1993	
28 thru 30		Jun. 1992	
3-SINGLE PART INSTALLATION POSITION			
1	A	Jan. 1993	
2 thru 6		Jun. 1992	
7 thru 11	A	Jan. 1993	
11-1 thru 11-2	A	Jan. 1993	
12	A	Jan. 1993	
13 thru 18		Jun. 1992	
4-CIRCUIT DIAGRAM			
1 thru 2	**B**	**May 1993**	**REVISED**
3 thru 6		Jun. 1992	
7	A	Jan. 1993	
8 thru 9		Jun. 1992	
10	A	Jan. 1993	
11 thru 12		Jun. 1992	
13 thru 14	A	Jan. 1993	
15		Jun. 1992	
16	**B**	**May 1993**	**REVISED**
17 thru 19	A	Jan. 1993	
19-1 thru 19-4	**B**	**May 1993**	**ADDED**
20	**B**	**May 1993**	**REVISED**
21 thru 22	A	Jan. 1993	
23		Jun. 1992	
23-1 thru 23-4	**B**	**May 1993**	**ADDED**
24	**B**	**May 1993**	**REVISED**
25 thru 28	A	Jan. 1993	
28-1 thru 28-6	**B**	**May 1993**	**ADDED**
29	**B**	**May 1993**	**REVISED**
30 thru 33	A	Jan. 1993	
33-1 thru 33-6	**B**	**May 1993**	**ADDED**
34 thru 37		Jun. 1992	
38	A	Jan. 1993	
39		Jun. 1992	
40 thru 43	A	Jan. 1993	
44 thru 45		Jun. 1992	
46 thru 49	A	Jan. 1993	
50 thru 51		Jun. 1992	
52	A	Jan. 1993	
53		Jun. 1992	
54	A	Jan. 1993	
55 thru 56		Jun. 1992	
57	A	Jan. 1993	
58		Jun. 1992	
59 thru 60	A	Jan. 1993	
61		Jun. 1992	
62	A	Jan. 1993	
63 thru 64		Jun. 1992	
65 thru 66	A	Jan. 1993	
67		Jun. 1992	
68	A	Jan. 1993	
69 thru 70		Jun. 1992	
71 thru 76	A	Jan. 1993	
77 thru 78		Jun. 1992	
79	A	Jan. 1993	
80		Jun. 1992	

ENGINE AND TRANSMISSION

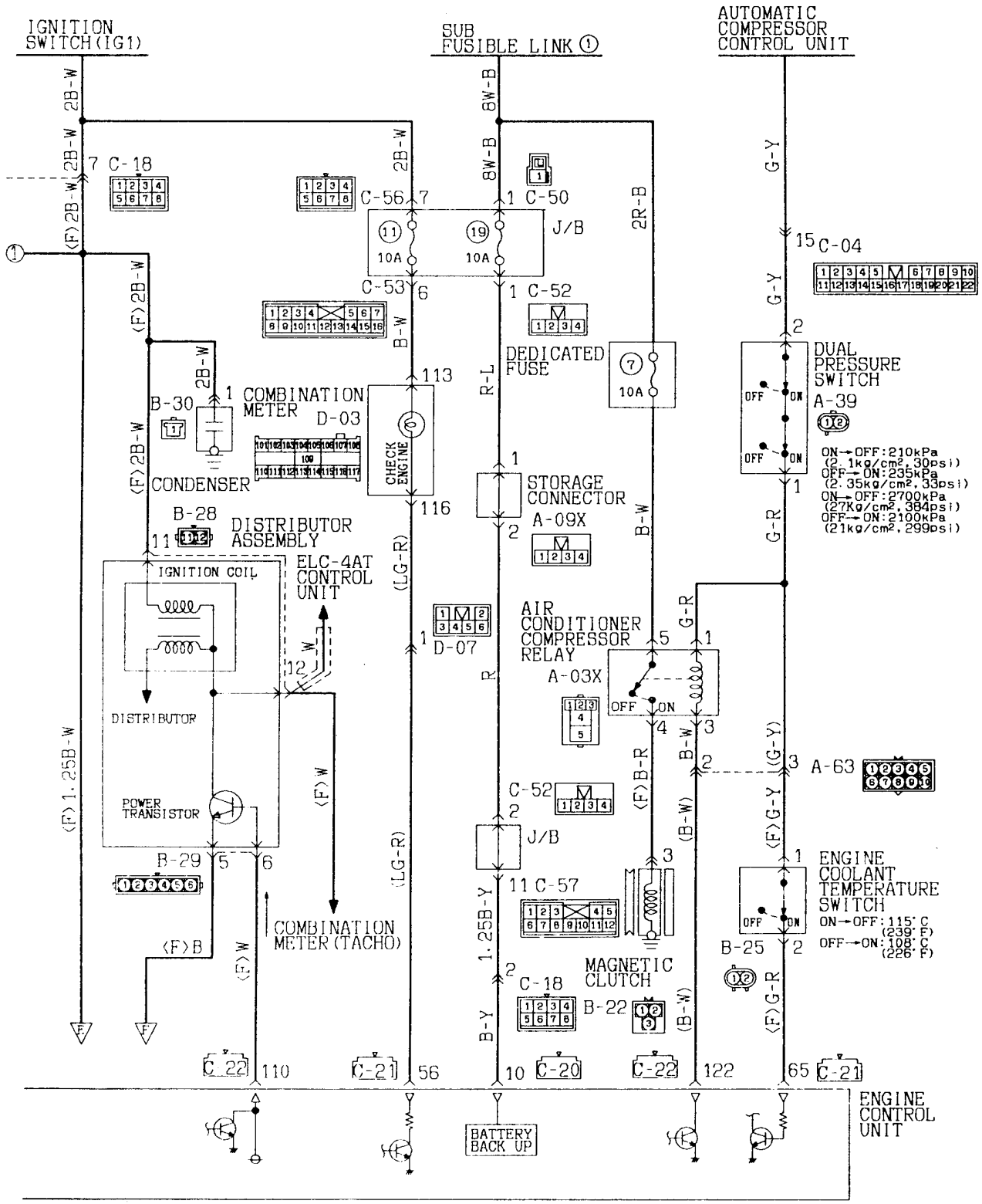
4G63 and 4G64 MPI engine

Connector symbol

B

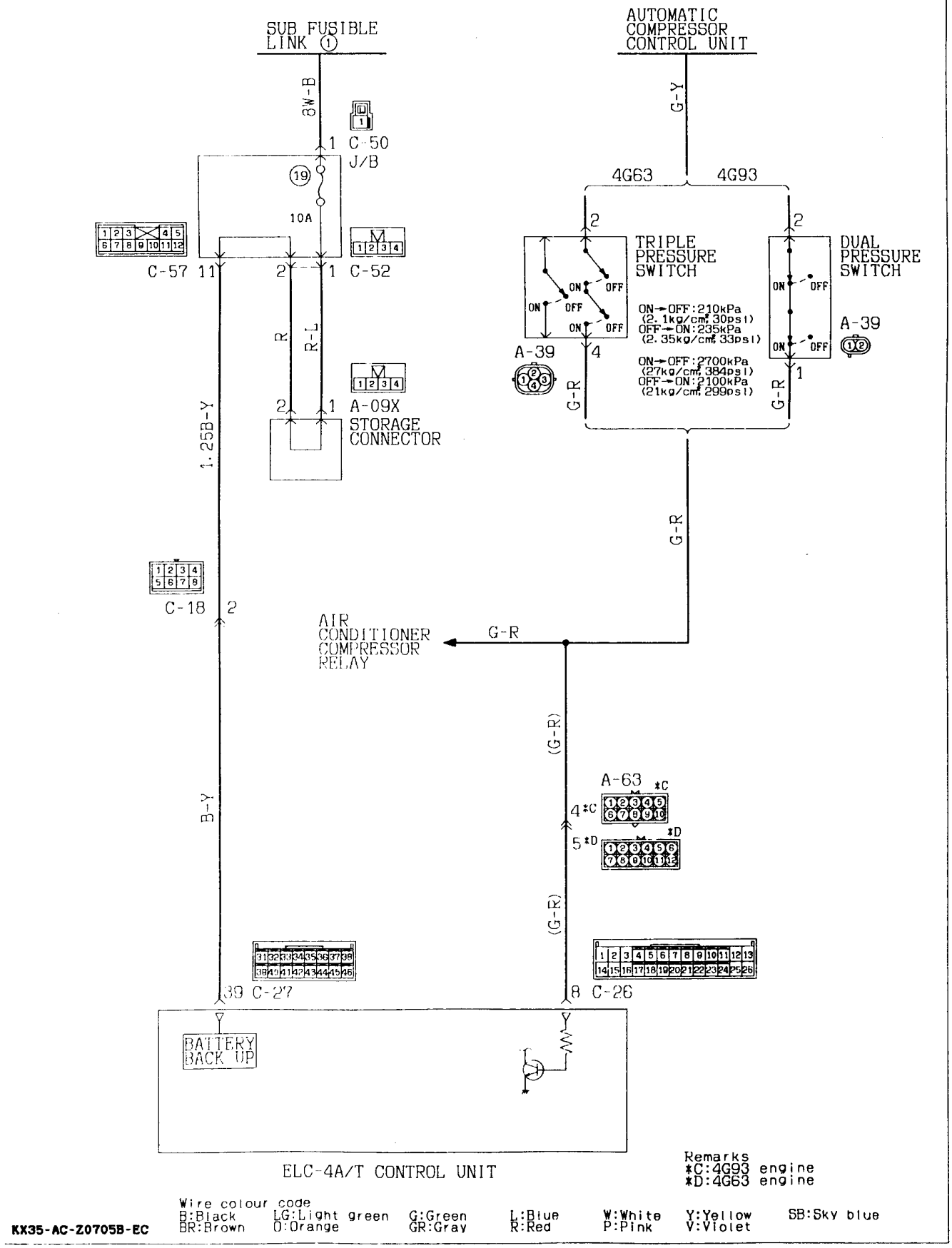


B-01	Engine coolant temperature sensor (for engine control)	B-21	Power steering oil pressure switch
B-02	—	B-22	Magnetic clutch 〈A/C〉
B-03	Engine coolant temperature gauge unit	B-23, B-24	Starter
B-04	Idle speed control actuator	B-25	—
B-05	Throttle position sensor	B-26	Oxygen sensor
B-06	Injector No. 4	B-27	Oil pressure switch
B-07	Injector No. 3	B-28, B-29	Distributor assembly
B-08	Injector No. 2	B-30	Capacitor
B-09	—	B-31	—
B-10	Injector No. 1	B-32	Engine oil level sensor
B-11	Detonation sensor 〈4G63〉	B-33	—
B-12 thru B-18	—	B-34	Oxygen sensor sub wiring harness and control wiring harness combination
B-19, B-20	Alternator	B-35	EGR temperature sensor 〈4G64〉



Wire colour code

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



KX35-AC-Z0705B-EC

HEADLAMP 〈Vehicles with daytime running lamp〉 (See P. 4-52.)

OPERATION

Headlamp Relay ON Conditions

Ignition switch	Lighting switch	Dimmer/ passing switch	Headlamp relay
"ON"	—	—	ON
—	"HEAD"	—	ON
—	—	"PASS"	ON

〈Daytime running lamp operation〉

- Turning the ignition switch to the ON position causes the headlamp relay, daytime running lamp relay 1, and tail lamp relay to be energized, which causes the headlamps, tail lamps, etc. to come on.

〈Low-beam operation〉

- Placing the lighting switch in the HEAD position causes the headlamp relay and daytime running lamp relay 2 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 and daytime running lamp relay 2 to be energized.
- If the dimmer/passing switch is placed in the HI position at this time, the headlamps 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.

TROUBLESHOOTING HINTS

1. Headlamps don't come on.
   (1) But the tail lamps do illuminate.
   - Check the headlamp relay.
   - Check the lighting switch.

   (2) The tail lamps also don't illuminate.
   - Check the sub fusible link No. ④.
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.
   (1) The passing signal functions OK.
   - Check the dimmer switch HI contacts.

   (2) The passing signal doesn't function.
   - Check the dimmer switch.
   - Check the daytime running lamp relay 2.
   - Check the daytime running lamp control unit.
4. One headlamp doesn't illuminate.
   - Check the bulb.
5. Can't switch from low to upper beam or vice-versa.
   - Check the dimmer switch.
6. With the ignition switch at the "ON" position, the headlamps' low beam does not illuminate.
   - Check the daytime running lamp relay 1.
   - Check the daytime running lamp control unit.
7. Upper-beam indicator lamp does not come on.
   (1) Headlamp upper beams are operational.
   - Check the dedicated fuse No. ④.
   - Check the indicator lamp bulb.

Remark

- The head lamp circuit has a lighting monitor buzzer system. For operation and troubleshooting hints, refer to LIGHTING MONITOR BUZZER (P. 4-84).

SUNROOF (See P. 4-142.)

OPERATION

〈Tilt operation〉

- When the UP side of the tilt switch is depressed with the roof lid in fully-closed position and ignition switch in ON, the open/close position detecting circuit of the sunroof control relay turns ON Tr_2 causing relay 2 to be energized. This results in the sunroof motor being rotated causing the rear end to raise approx. 30 mm (1.18 in.).
- When the DOWN side of the tilt switch is depressed, relay 1 is energized causing the roof lid to close down.
- When the roof lid is fully closed, limit switch 1 turns ON causing relay 1 to deenergized. As a result, the motor stops rotating.

〈Slide operation〉

- When the OPEN side of the slide switch is depressed with the ignition switch in ON position, the open/close position detecting circuit of the sunroof control relay turns ON Tr_1 causing relay 1 to be energized. This results in the sunroof motor being rotated and the roof lid opens as long as the switch is held down.
- As when the OPEN side is held down, holding down the CLOSE side energizes relay 2 causing the roof lid to close. If the switch is held down with the roof lid opened more than half, the limit switch turns OFF just before the lid is fully closed, which deenergizes relay 2. As a result, the motor stops rotating and the roof lid stops in mid-motion. If the switch is released and then depressed and held down, the restart timer turns ON Tr_2 causing relay 2 to be energized. This in turn causes the sunroof motor to start.
- When the roof lid is fully closed, limit switch 2 turns OFF, deenergizing relay 2. Then, the motor stops rotating.

TROUBLESHOOTING HINTS

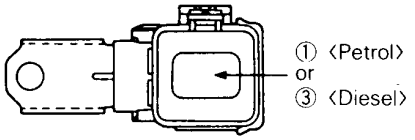
1. Sunroof is not operative at all.
   (1) Power window is inoperative also.
      • Check the multi-purpose fuse No. ③.
   (2) Power window is operative.
      • Check the multi-purpose fuse No. ⑮.
      • Check the sunroof relay.

CENTRALIZED JUNCTION

MAIN FUSIBLE LINK (Connected directly to battery positive terminal)

No.	Circuit	Housing colour	Rated capacity (A)
1	ABS circuit (hydraulic unit power source)	Yellow	60
2	—	—	—
3	Grow circuit	Black	80

〈Petrol-powered vehicles with ABS and Diesel-powered vehicles without ABS〉



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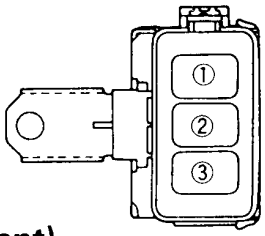
〈Diesel-powered vehicles with ABS〉



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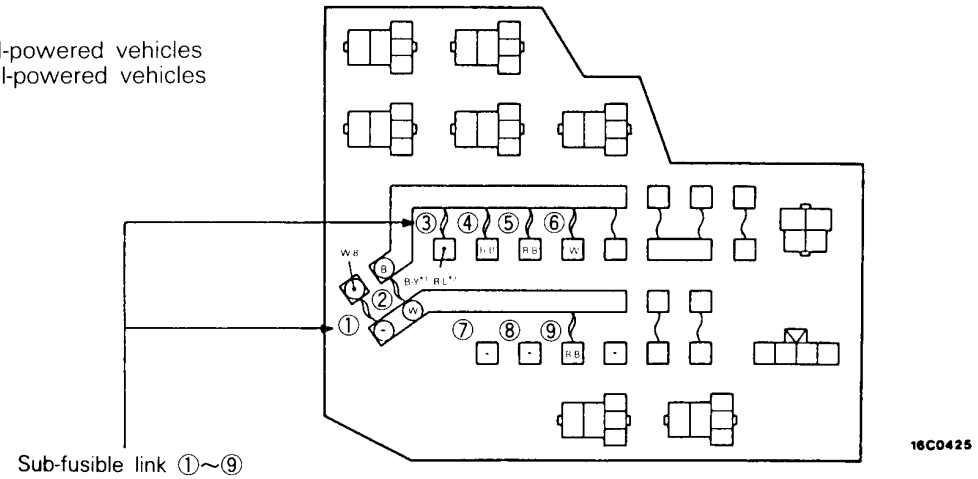
SUB-FUSIBLE LINK (Relay box in engine compartment)

No.	Circuit	Housing colour	Rated capacity (A)
1	Junction block (Multi-purpose fuse ⑥, ⑭, ⑮, ⑯, ⑰, ⑲), A/C compressor circuit	Yellow	60
2	Sub-fusible link No. ①, ⑨, alternator circuit	Black	80
3	MPI circuit 〈Petrol〉	Blue	20
	Starting circuit 〈Diesel〉	Pink	30
4	Headlamp and tail lamp circuit	Pink	30
5	Radiator fan motor and condenser fan motor circuit	Pink	30 〈Petrol〉
		Green	40 〈Diesel〉
6	Ignition switch and alternator circuit	Pink	30
7	—	—	—
8	—	—	—
9	Power window circuit	Pink	30

NOTE
(1) *1: Petrol-powered vehicles
(2) *2: Diesel-powered vehicles



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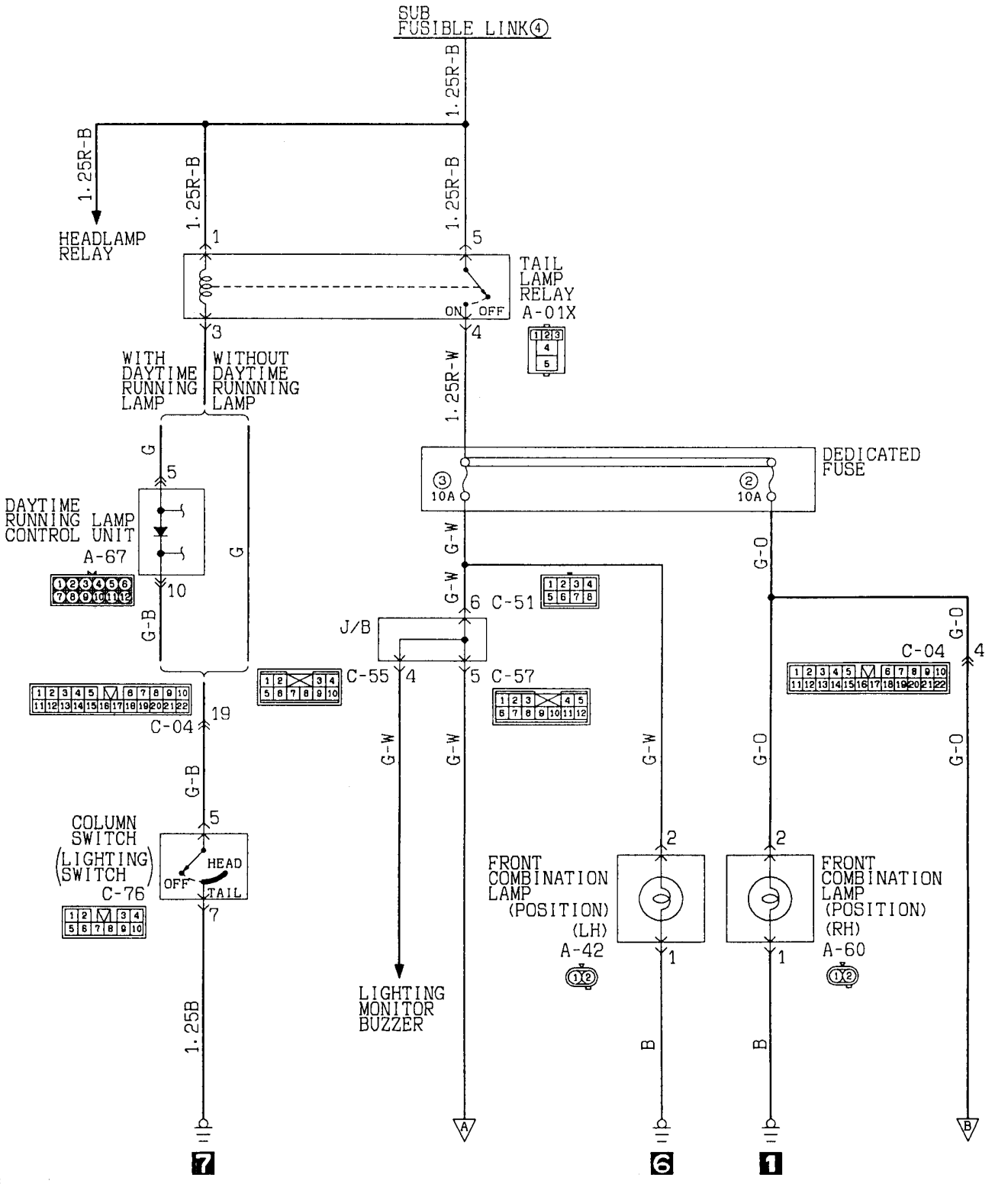
TAIL LAMP, POSITION LAMP AND LICENCE PLATE LAMP
Vehicles with SRS



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

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